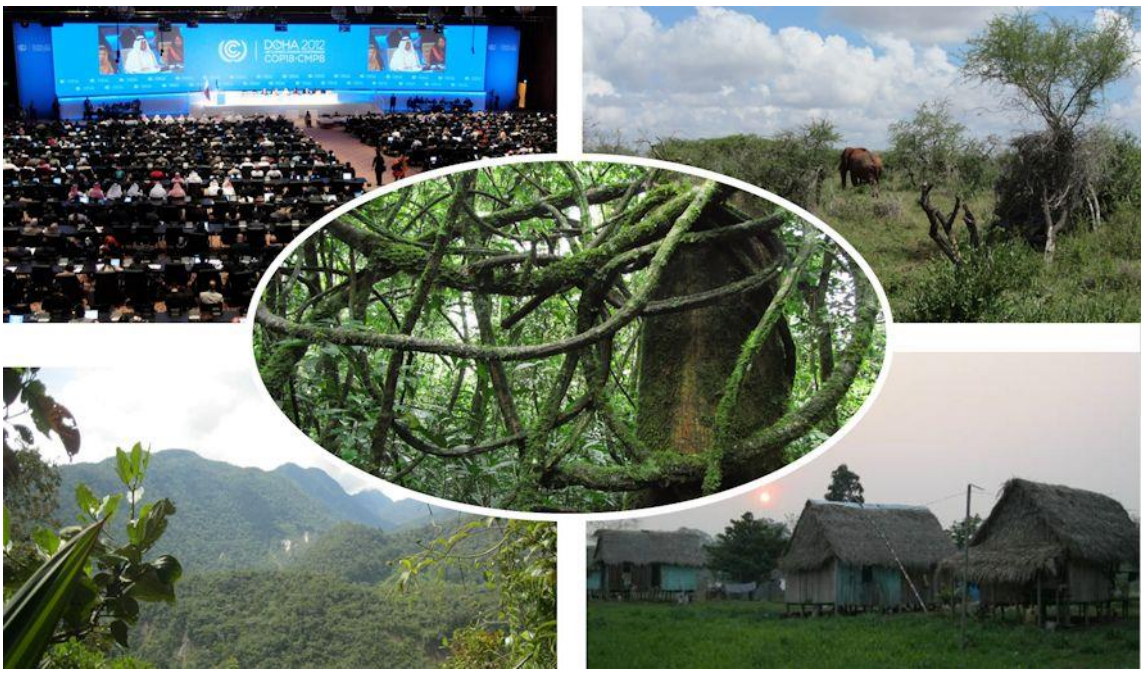
Till Pistorius and Christine B. Schmitt (Eds.)

The Protection of Forests under Global Biodiversity and Climate Policies

Policy Options and Case Studies on Greening REDD+



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Editors
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Cover picture: in clockwise direction: Opening Plenary of UNFCCC COP18 in Doha (T. Pistorius); Elephant in REDD+ project area in the greater Tsavo ecosystem, Kenya (S. Entenmann); Native community Bélgica in the Madre de Dios region, Peru (S. Entenmann); Alto Mayo Protection Forest in the San Martín region, Peru (S. Entenmann); Picture in the middle: Liana in the Kakamega Forest Reserve, Kenya (S. Entenmann).

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List of abbreviations

AHTEG	Ad-hoc Technical Expert Group
AWG-LCA	Ad-hoc Working Group on Long-term Cooperative Action
CBD	Convention on Biological Diversity
CCBA	Climate, Community & Biodiversity Alliance
CDM	Clean Development Mechanism
COP	Conference of the Parties
CPF	Collaborative Partnership on Forests
EC	European Commission
ES	Ecosystem Services
ESMF	Environmental and Social Management Framework
FAO	Food and Agriculture Organization of the United Nations
FCPF	Forest Carbon Partnership Facility
FSC	Forest Stewardship Council
GEF	Global Environment Facility
GHG	Greenhouse Gases
IPCC	Intergovernmental Panel on Climate Change
ITTO	International Tropical Timber Organization
IUCN	International Union for Conservation of Nature
JLG	Joint Liaison Group
LULUCF	Land-use, Land-use change and forestry
MEA	Multilateral Environmental Agreement
MRV	Measuring, Reporting and Verification
NGO	Non-governmental Organization
ODA	Official Development Assistance
PES	Payments for Environmental Services
PoW	Program of Work
PoWPA	Program of Work on Protected Areas
REDD+	Policy approaches to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
R-PP	Readiness Preparation Proposal
SBSTA	Subsidiary Body for Scientific and Technological Advice (UNFCCC)

SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice (CBD)
SEPC	Social and Environmental Principles and Criteria
SES	Social and Environmental Standards
SESA	Social and Environmental Assessment
SFM	Sustainable Forest Management
SIDS	Small Island Developing States
SIS	Safeguards Information System
SMF	Sustainable Management of Forests
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
VCS	Verified Carbon Standard
WCMC	World Conservation Monitoring Centre (UNEP)

Preface

This report presents the findings of the research and development project “The protection of forests under global biodiversity and climate policy”, carried out at the Chair of Forest and Environmental Policy and the Chair of Landscape Management, Freiburg University, Germany, between July 2009 and December 2012. In addition to addressing different scientific objectives, the project provided scientific support for the German Federal Agency for Nature Conservation (BfN) and the German Federal Ministry for the Environment (BMU) in the negotiations on forests in the context of the UNFCCC and the CBD. The project had a particular focus on the continuing political and scientific debates on REDD+ as well as on emerging actions on the ground. In this context, the team participated in various national and international meetings and conferences of the UNFCCC and the CBD through which they gained valuable insights and were able to link scientific discussions with the political debates on the same issues.

In addition and as a means of ensuring the political relevance of the identified options and challenges, the project team facilitated an international expert workshop at Freiburg University in 2010. Furthermore, qualitative interviews were conducted with experts from academia, public institutions and stakeholders from civil society. The progress made in research was regularly reported to a project advisory group consisting of members from relevant German ministries and non-governmental organizations.

The research team would like to acknowledge BfN and BMU for the opportunity to carry out this project and is deeply grateful for the generous financial support of all project activities. Furthermore, we are indebted to the members of the project advisory group for the many fruitful discussions and helpful feedback. We also warmly thank all experts who participated in the expert workshop or shared their knowledge and opinions in our interviews. Last but not least, we thank all our supporting colleagues, our project assistants Juli van Cleve and Katia Masias, as well as Emily Kilham for proof-reading.

The Project Team

T. Pistorius, C.B. Schmitt, D. Benick, S. Entenmann, S. Reinecke

1 Introduction

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DINAH BENICK, STEFFEN ENTENMANN, SABINE REINECKE

1.1 Background

Curbing deforestation in developing countries has been high on the international political agenda for decades. Numerous bi- and multilateral efforts and political processes have not succeeded in significantly addressing the transformation and depletion of forest resources in developing countries (FAO 2010). In light of the continuing high rates of forest conversion and the resulting emissions of greenhouse gases (GHG) (PAN et al. 2011), addressing the problem gained new momentum in 2005 with the negotiations on a post-Kyoto regime under the United Nations Framework Convention on Climate Change (UNFCCC). At the outset of the academic and political debates there was a focus on avoiding deforestation (reducing emissions from deforestation, RED) and it was widely believed that framing deforestation as a climate issue could create significant synergies between different environmental and development objectives (SANTILLI et al. 2005). By financially compensating developing countries, which succeed in reducing their national deforestation rates, the respective mechanism under the UNFCCC was intended to provide vital economic alternatives to the unsustainable use of forest lands and the transformation of these into other land uses (MOUTHINO et al. 2005).

Many tropical developing countries, non-governmental organizations (NGOs) and the business sector were attracted by the prospect of emerging opportunities for addressing deforestation and particularly by the expectation of significant new and additional financial resources. Shortly after RED entered the agenda of negotiation items on a post-Kyoto agreement under the UNFCCC, many influential public and private actors began arguing for broadening the scope of the mechanism to REDD+ (cf. Chapter 2). At first it was agreed that the mechanism should also tackle emissions from forest degradation (the second “D”); and later, further activities were made eligible for compensation payments (the “+”): conservation of forest carbon stocks, sustainable management of forests (SMF) and enhancement of forest carbon stocks. The addition of these activities has broadened substantially the related political debates, e.g., on potential sources of financing. This in turn has raised high and very divergent expectations among the various stakeholders. Some assume that REDD+ will not only make a significant contribution to mitigation but also generate positive effects in relation to other environmental and social objectives – so-called ‘co-benefits’.

At the same time, the broadening of the mechanism added new risks and led to severe concerns by many scientists and NGOs. They increasingly criticized the REDD+ mechanism for focusing on carbon storage in forest biomass (BEKESSY & WINTLE 2008) while neglecting the consideration of biodiversity. Biodiversity is essential not only for the provision of other ecosystem services and the permanence of carbon stocks, but also for the adaptability to climate change (LOUMANN et al. 2009; THOMPSON et al. 2009, 2011). In particular, the REDD+ activity ‘enhancement of forest carbon stocks’ is considered to pose risks for biodiversity on the basis that it could provide significant incentives for a conversion of primary forests and degraded forests into commercial tree plantations (LAMB et al. 2005, PISTORIUS et al. 2011a). Another risk related to REDD+ is ‘inter-ecosystem leakage’, i.e. when a

successful reduction of deforestation increases the land-use pressure on non-forest ecosystems with high relevance for biodiversity conservation (MILES & KAPOS 2008). Last but not least, the inclusion of SMF caused much concern, i.a. because it could stimulate forest management activities in as yet untouched forest ecosystems. In contrast to the fiercely disputed concept of sustainable forest management (SFM), the term SMF is neither defined nor described. Moreover, SMF is not further specified through well-defined criteria and indicators which ensure that social and ecological aspects are adequately taken into account (GARDNER 2010, PISTORIUS et al. 2011a).

In light of these issues, the assumption of unconditional co-benefits for biodiversity and other ecosystem services (ES) appears untenable. A debate therefore emerged that began questioning the general assumption of automatic co-benefits for livelihoods (GHAZOUL et al. 2010, LUTTRELL et al. 2012) and the environment (STICKLER 2009, MILES & DICKSON 2010). The negotiating Parties of the UNFCCC also found themselves in a dilemma: On the one hand, their mandate did not allow for the design and implementation of a financial mechanism that would compensate for ES beyond carbon storage. On the other hand, with such narrow focus there was concern that the mechanism might result in perverse incentives that would impair other environmental objectives, e.g. those pursued by the Convention on Biological Diversity (CBD). It became apparent that not only the negotiations under the UNFCCC were relevant, but also how the REDD+ issue would be taken up under the CBD.

As a solution, negotiations on so-called 'safeguards' became part of the political struggle on the REDD+ mechanism in 2009. Safeguards are restrictions that have to be integrated into and specified by the corresponding national policies in order to avoid harmful effects on biodiversity and on local and indigenous peoples through REDD+ activities (JAGGER et al. 2012). The terms 'co-benefits' and 'safeguards' have been subjects of a vigorous debate between different stakeholders. While some NGOs argue that co-benefits should actually be the 'core benefits', others consider mitigation as the most urgent environmental task that justifies maintaining a focus on carbon sequestration (PHELPS et al. 2012). In our understanding, safeguards are minimum requirements for avoiding apparent risks resulting from REDD+. In addition to avoiding risks, some activities can yield considerable synergies with biodiversity and social objectives. In this report, we focus on those activities and policy options that contribute to the mitigation of GHG and to the conservation of biodiversity. As the so-called co-benefits are not achieved automatically, we prefer using the term 'additional benefits'.

As we will describe in more detail in Chapter 2, REDD+ originally evolved at the international level but is now being put into practice at and across different governance levels. Therefore, when discussing REDD+ the parallel developments that can be identified at national and project levels also need to be considered (cf. Fig. 1.1). The ongoing implementation at these levels according to the specific contexts not only specifies the still incomplete international regulatory framework; in fact it also precedes and thereby potentially undermines what still has to be decided upon internationally (CORBERA & SCHROEDER 2011, REINECKE et al. 2012). For example, hundreds of different REDD+ pilot projects have been set up over recent years at project level – fueled by the strong political will of many different actors and the high expectation of future funding and support (WERTZ-KANOUNNIKOFF & KONGPHAN-APIRAK 2009). While some of these projects are connected to recently elaborated, national REDD+ strategies, many others are independent of any national framework.

Moreover, REDD+ countries also receive substantial assistance from multilateral organizations that have become important intermediary players at the interface between national and international policies: the UN-REDD Programme and the World Bank's Forest Carbon Partnership Facility (FCPF). They guide and support capacity building and readiness activities in countries where national REDD+ strategies and action plans are being developed according to national circumstances, with measuring, reporting and verification (MRV) of GHG fluxes being one of the core issues yet to be resolved. In addition, and in light of the plethora of recent activities at the national and project level, donor and beneficiary countries established the voluntary Interim REDD+ Partnership in 2010 as a means of maintaining oversight on these rapid developments. It is administered by UN-REDD and the FCPF and serves as an exchange platform for public and private stakeholders.

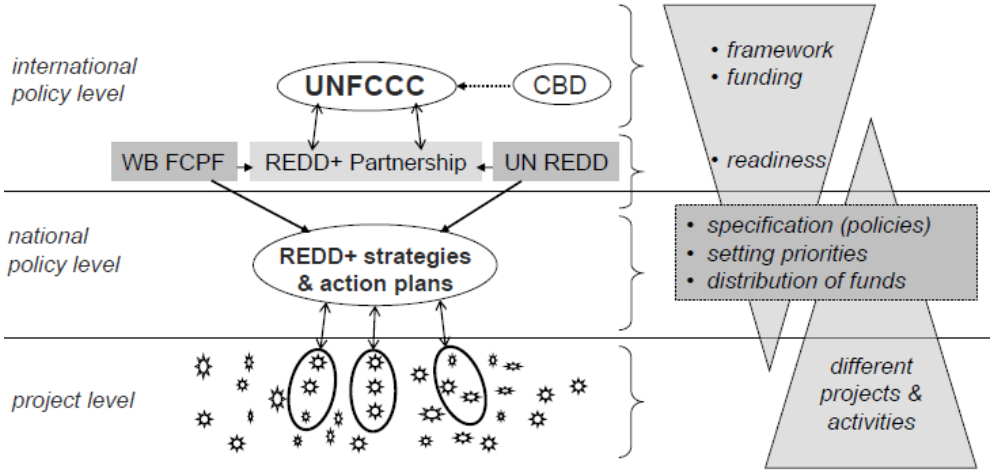

Fig. 1.1: Multi-level governance of REDD+ (modified from Pistorius et al. 2011b).

In light of these developments at and across multiple policy levels as well as the challenges that arise from the limited climate change mandate of the UNFCCCC, the potential impacts of a REDD+ mechanism regarding risks and synergies for biodiversity require a more in-depth evaluation (MILES & KAPOS 2008, PISTORIUS 2009, PUTZ & REDFORD 2009) – the main goal of this project.

1.2 Project objectives and methodology

The main goal of this project was to analyze the potential risks opportunities of REDD+ for forest biodiversity conservation and to develop options for REDD+ implementation that promote synergies between the climate and biodiversity goals. By analyzing the developments at the international policy level, the national level as well as the project level, we sought to identify core challenges for the implementation of biodiversity safeguards and the generation of additional biodiversity benefits at and across the different but intricately linked governance levels (Fig. 1.1).

The project approached the research topic from two perspectives. Subproject I (Chair of Forest and Environmental Policy) focused mainly on the international policy level, in particular on the development of policies and approaches for environmental safeguards under the UNFCCC and the CBD (Chapter 2). Moreover, we took a close look at the Interim REDD+ Part-

nership, which adopted the partnership governance setting with the aim of supporting ongoing activities and developments related to REDD+ on a voluntary basis (Chapter 3).

Subproject II (Chair of Landscape Management) evaluated the consideration of biodiversity issues in REDD+ actions at the national, subnational and project level. This included the analysis of how biodiversity conservation is taken into account in REDD+ projects in Peru and Kenya (Chapter 4) and an assessment of the available biodiversity data and methodologies for monitoring of biodiversity in Peru, Ecuador, Kenya and Ethiopia (Chapter 5). Finally, in Chapter 6 the results from the previous chapters are brought together, highlighting the major conclusions of the project.

Both subprojects based their analyses on a mix of methods:

- In-depth literature reviews of scientific sources as well as reports, country and stakeholder submissions, COP decisions, legal draft texts and other documents.
- Participatory observation at UNFCCC and CBD meetings, partly as members of the respective German delegations, as well as at meetings of the REDD+ Partnership as stakeholders. Participatory observation proved to be a valuable additional source of information, and served as a reality check for the preliminary results derived from the deskwork. It enabled access to the broader policy field, yielding many insights, first-hand information and discussions with negotiators, experts and other stakeholders.
- Qualitative semi-structured expert interviews: Sub-project I used the afore-mentioned meetings extensively for carrying out interviews with attending experts (see Chapters 2 and 3). In subproject II, expert interviews were carried out with actors at national, subnational and project levels in four case study countries (see Chapters 4 and 5).
- The international expert workshop “Greening REDD+: Challenges and opportunities for forest biodiversity conservation” which was convened in Freiburg from April 14th to 16th, 2010. The workshop brought together 37 international experts from eleven countries with academic, policy and practical backgrounds to jointly discuss central issues related to the consideration of biodiversity aspects in the context of REDD+. The results were used to prepare the scientific policy paper “Greening REDD+ – Challenges and opportunities for forest biodiversity conservation” (PISTORIUS et al. 2011a), which received much attention and was introduced to the CBD as an official INF-doc, submit-ted by the German focal point.

This report presents the results of our research project (Julyi 2009 – December 2012) and aims to provide both scientific analyses and concrete approaches for action in order to support the successful implementation of REDD+ and contributing to the scientific and political debates at all policy levels. We hope that these debates will eventually lead to a more effective conservation of forest biodiversity and a significant restoration of degraded lands in developing countries.

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2 REDD+ and Safeguards under the UNFCCC and the CBD

TILL PISTORIUS, DINAH BENICK, SABINE REINECKE

This chapter analyzes the main developments and milestones at the international policy level regarding the issue of minimizing environmental risks and simultaneously promoting additional benefits for environmental objectives (upper right quadrant in Fig. 2.1).

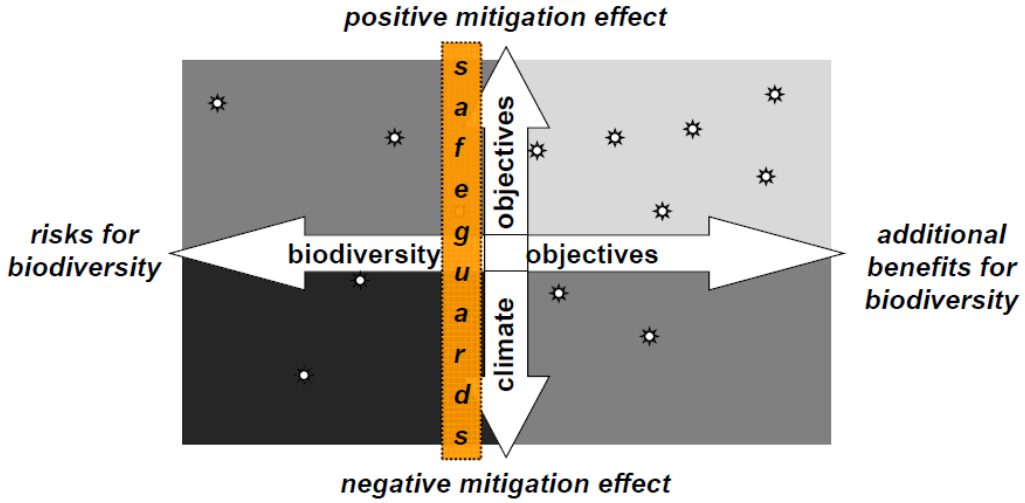

Fig. 2.1: Effects of different REDD+ activities (stars) on climate and conservation objectives, safeguards as an approach to rule out negative side effects.

In Section 2.1 we first give a detailed overview on the history and evolution of REDD+ at the international policy level and describe the general context of the political debates on this mechanism. Due to the cross-cutting character of the environmental problem it aims to address, REDD+ is relevant for a range of political processes and institutions but so far the CBD is the only multilateral environmental agreement (MEA) under which parties have agreed to directly contribute to the mechanism negotiated under the UNFCCC. Sections 2.2 and 2.3 are dedicated to outlining the negotiation processes on environmental safeguards for REDD+ and the decisions agreed upon so far.

The methodological approach used is a combination of desk work (literature and document analyses) and the participatory observation outlined in Chapter 1. In addition, six explorative, semi-structured interviews were carried out in late 2010 and spring 2011 with experts involved in either or both political processes on the topic of environmental safeguards for REDD+. The interviews were conducted via telephone, transcribed and subsequently compared with the results of desk work and observations. The purpose of this was to avoid an overly narrow perspective, to avoid omitting relevant facts, and to ensure that meetings without active participation could still be adequately covered.

2.1 Background and history of REDD+

Ten years ago the acronym REDD+, now omnipresent in global environmental politics, did not exist. The current debates on this mechanism began in 2005 under the UNFCCC, however, they also have roots in the much older discourse on ecosystem services (ES) and ways to overcome unsustainable exploitation of natural resources (PISTORIUS et al. 2012). Although the significance of forests, as providers of ES for human well-being (MYERS 1988, DE GROOT et al. 2002) and as generators of significant values, is widely recognized (CONSTANZA et al. 1997, TEEB 2010), the various political efforts over recent decades have not succeeded in significantly curbing the extent of unsustainable use and loss of forest lands (FAO 2010). The resulting indirect global economic losses serve as a justification for the introduction of payment schemes for ES (PES) and other market-based instruments at different scales. Such economic instruments have been implemented successfully at the local and even at the national level, e.g. in Costa Rica and Mexico (EMERTON et al. 2006, PAGIOLA 2008), and the conservation community has been promoting the up-scaling of economic instruments to the international level (GUTMANN & DAVIDSON 2007, DAILY et al. 2009, GÓMEZ-BAGGETHUN et al. 2010). These developments significantly advanced the idea of a financial compensation mechanism for avoided deforestation in the tropics. Nonetheless, as subsequently outlined, it took more than a decade of climate negotiations under the UNFCCC to address the depletion of forest resources as a large source of greenhouse gas (GHG) emissions in developing countries.

Due to their role in the global carbon cycle and ability to sequester carbon (DIXON et al. 1994, HOUGHTON 2007), forests already featured as a topic of discussion early in the UNFCCC negotiations. Notably, they were part of the very unspecific provisions of the Kyoto Protocol of 1997 – however, only for developed countries where forests have been a net sink for GHG over recent decades (PAN et al. 2011). Despite the opportunities for climate change mitigation in forests through the storage and sequestration of carbon dioxide and other GHG, already back then a heated debate emerged among scientists and other stakeholders from civil society. In the effort to specify the modalities for accounting they raised different technical and political concerns, e.g., about leakage, permanence, additionality, monitoring, accounting, and the factual dilution of the emission targets (WBGU 1998; GRUBB et al. 1999, SCHULZE et al. 2002). Eventually in the year 2000, this debate and the responsibilities of developing countries turned out to be intractable issues which almost culminated in a failure of the entire UNFCCC process (BÖHRINGER & VOGT 2004). As a compromise, at the seventh Conference of the Parties (COP7) in Marrakech, 2002, the Parties eventually agreed on modalities which allowed for a limited accounting of forests in developed countries. Emissions from deforestation in developing countries, however, remained unaddressed. LÖVBRAND describes this political compromise to save the Kyoto process as being “marked by a lack of consensual knowledge and shared normative commitments” (2009: 404) because it did not address many unresolved questions, e.g., related to measuring, reporting and verification (MRV) and other crucial issues (SCHLAMADINGER & MARLAND 1998, SCHLAMADINGER & BIRD 2007).

At this time, some scientists had already started thinking about options for dealing with the many deficiencies of the Kyoto Protocol – in particular the failure to address the large source of emissions resulting from tropical deforestation. A year later at a side event of COP9, Brazilian scientists proposed their concept of compensated reduction for deforestation for a fu-

ture post-Kyoto agreement (SANTILLI et al. 2005). This proposal featured political connectivity and technical feasibility and marked the birth of the REDD+ debate under the UNFCCC: First, it took into account the fundamental UNFCCC principle of national sovereignty and did not prescribe how countries would eventually address their specific land use problems. Though politically sensitive, the approach allowed for the necessary flexibility to address the heterogeneous context-dependent drivers that underlie causes and socio-political circumstances of deforestation (GEIST & LAMBIN 2002, CHOMITZ et al. 2007, FRY 2008). Second, focusing on the national level instead of the project level promised to reduce the risk of leakage (MOUTINHO et al. 2005). Last but not least, the simplicity of the approach appeared to allow for a rapid implementation because its focus on deforestation as a land use change activity would enable the use of remote sensing techniques for MRV, despite a lack of monitoring capacities in most developing countries (SKUTSCH et al. 2007, ASNER 2009).

In the same year, Papua New Guinea and Costa Rica founded the Coalition for Rainforest Nations (CfRN) which took up the Brazilian concept and proposed a compensation mechanism labeled 'reducing emissions from deforestation (RED, BIETTA 2010)' at COP11 in Montreal (2005). The proposal appeared to provide the solution for one of the most critical issues of the climate negotiations under the UNFCCC: it was compatible with the principle of common but differentiated responsibilities and had the potential to serve as a meaningful mechanism through which developing countries could contribute to the global effort to mitigate climate change. At the same time, given the proposed voluntary participation and compensation payments, national endeavors to promote and continue development would not be impaired (MOUTINHO et al. 2005, RUDEL et al. 2005).

Private and public stakeholders were also attracted by the widely shared belief that avoiding deforestation was not only a cost-efficient mitigation option (STERN 2007, ELIASCH 2008) but one that would also provide significant additional social and environmental benefits besides mitigation – a win-win option. Such broad consent provided fertile grounds for the negotiations; the political actors were able to draw on a highly motivated community of experts and stakeholders willing to justify the mechanism and to provide and substantiate proposals on how it might look. Back then, most discussions focused on technical and financing aspects, e.g. how sufficient and predictable funding could be raised and how it should be distributed (PARKER 2009).

Sensing the inherent complexity, at COP11 of the UNFCCC in Montreal, a mandate was given to carry out two expert workshops (2006 in Rome; 2007 in Cairns) to identify and discuss relevant technical and political aspects. Here, the CfRN supported by many scientists and NGOs argued that forest degradation should be included in the mechanism on the basis that it also represents a large source of emissions and often constitutes the first step in planned or unplanned land use changes. As a consequence, the Parties agreed at COP13 in Bali (2007) to broaden the scope to REDD ('Reducing Emissions from Deforestation and Forest Degradation in Developing Countries'). Although well-reasoned, the decision marked the end of a simple mechanism because it had major technical implications (DUTSCHKE & PISTORIUS 2008). MRV of carbon stock changes resulting from forest degradation requires much more sophisticated and expensive monitoring techniques than focusing on land use changes that can be detected with remote sensing techniques and be quantified with proxy values (BÖTTCHER et al. 2009, KÖHL et al. 2009).

The later added “+”-activities also had their origin at the Cairns workshop: India presented a counter-proposal to compensated conservation, arguing that the existing approaches would pervert the polluter-pays-principle by not rewarding those countries that successfully reversed environmental destruction (STRASSBURG et al. 2009). In subsequent negotiations, this approach was supported by China which has compensated much of its deforestation through large-scale afforestation activities since the 1990es (FAO 2010). In 2009, the “+”-activities were eventually added to the negotiation texts.

During this time, REDD+ was seen by parties and stakeholders alike as the most advanced issue and described as the ‘grease that lubricates the negotiations’. Unsurprisingly, the stalling of the UNFCCC negotiations at COP15 in Copenhagen (2009) notably disappointed many parties and stakeholders, and especially those with a stake in REDD+ since the progress on this agenda item had raised high expectations. In Copenhagen, however, it became obvious that the mechanism is intricately linked to a successful negotiation of an overall post-2012 agreement, and that, at least for the time being, both the mechanism and with it the promised funding had moved out of reach.

At the same time, implementation at the national and at the local levels accelerated. In 2008, the multilateral safeguard initiatives of the World Bank´s Forest Carbon Partnership Facility (FCPF) and the UN-REDD Programme were established in order to support the developing countries in their domestic readiness efforts for participation in REDD+ – through capacity building and financial support for national strategy development. To date, the FCPF has supported 37 countries in their readiness activities, with a total funding of US$ 230 million, UN-REDD has provided US$ 117,6 million in funding to 46 countries. These institutions pursue rather technical and implementation oriented objectives, e.g. developing capacities for MRV and the consideration of social and environmental aspects in the respective national REDD+ strategies and action plans.

Also in the political arena, REDD+ was no longer exclusively debated under the UNFCCC: With the increasing need to coordinate all these activities at the national levels with multilateral support, the negotiating parties created a new institution, the REDD+ Partnership (Chapter 3). And, as described in detail in section 2.3, REDD+ was also included in negotiations under the CBD due to its undeniable potential for both positive and negative impacts on biodiversity. Fig. 2.2 illustrates the evolution of REDD+ and the relevant institutions at the international policy level that are analyzed in this and in the following Chapter 3.

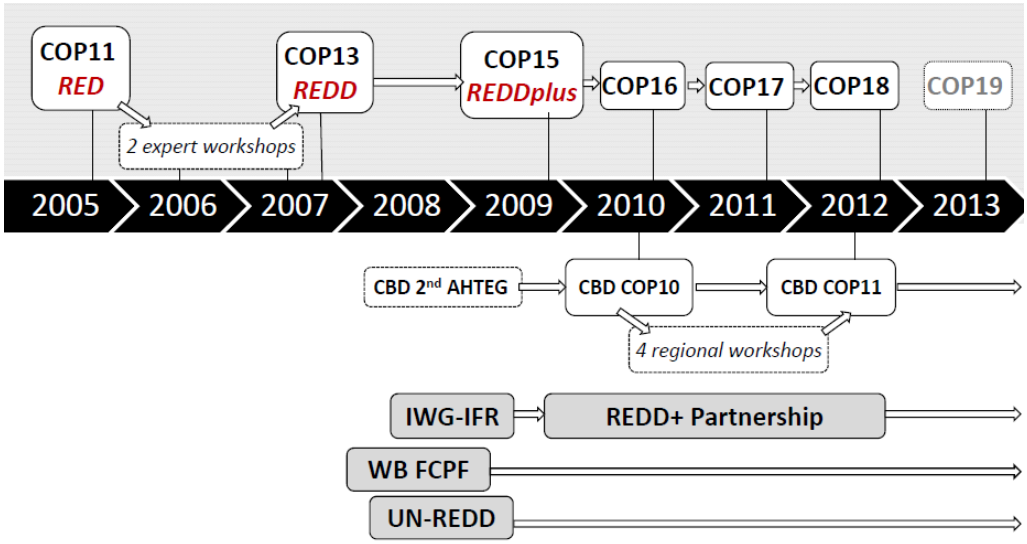

Fig. 2.2: Milestones for REDD+ under the UNFCCC (upper section of timeline), and under the CBD and relevant multilateral institutions (lower section of timeline) – modified from PISTORIUS (2012).

Within four years, the presumably simple compensation approach had become very complex in every regard: the broadened scope resulted in the necessity to develop more sophisticated approaches for determining reference emission levels and robust and consistent methodologies for MRV as a basis for result-based payments. Furthermore, the UNFCCC's genuine focus on mitigation alerted other potentially affected political fora – in particular the CBD which supported a debate on how unintended side effects of REDD+ payments might be avoided. In this context, the project team facilitated the international expert workshop "Greening REDD+: Challenges and opportunities for forest biodiversity conservation" in April 2010 which identified four major issues as necessary for adequately integrating biodiversity into a climate mechanism at the international policy level (PISTORIUS et al. 2011):

1. *adequate definitions for forest types and forest-related management activities*. Many of the terms used in the context of REDD+ lack a specific and unambiguous definition or reference.
2. *stringent concepts for SMF / SFM*. There is a need for the international processes to clarify the term "sustainable management of forests" (SMF as used in the UNFCCC context) and its relationship to the concept of "sustainable forest management" (as used in the UNFF context and the regional processes). Suitable criteria and measurable indicators that meet the requirements of REDD+ need to be agreed for such activities.
3. *safeguards to avoid inter-ecosystem leakage*. There is a great risk of inter-ecosystem leakage, i.e., a REDD+ induced shift of land use activities such as agriculture to non-forest and low carbon forest ecosystems.
4. *documentation of safeguards*. There is a need to document not only how safeguards are addressed but also the impacts of REDD+ on biodiversity, in order to evaluate and potentially readjust the mechanism.

These topics marked essential elements of the negotiations on safeguards under the UNFCCC and the CBD, and will, accordingly, be outlined in more detail below.

2.2 Safeguards for biodiversity under the UNFCCC

The debate on the inclusion of additional activities (in particular SMF and the enhancement of forest carbon stocks) alerted not only experts and NGOs but also several donor parties, in particular within the EU. They feared that unspecific modalities for REDD+ could result in perverse incentives impinging on the livelihoods of local and indigenous peoples, as well as biodiversity and ES other than mitigation. As a consequence, the issue of environmental safeguards was taken up in the REDD+ negotiations at the intercessional meeting in Bonn in August 2009. Here it was first proposed in a discussion paper by the co-chairs that "… safeguards to protect biological diversity in host countries, including safeguards against conversion of natural forests to forest plantations, should be established". In the beginning, many parties were not in favor of negotiating biodiversity related issues. They did not want to further complicate the negotiations and to overburden the already complex mechanism, also taking into account the lack of technical capacities for MRV of carbon stock changes in most REDD+ countries. In this vein it was often argued that REDD+ is a mechanism for mitigating emissions and that UNFCCC has no mandate to talk about biodiversity.

The failure of COP15 had renewed the political will of many parties to press ahead with REDD+. A new willingness to negotiate the issue of safeguards appeared to evolve. Despite the highly contentious character of this issue, consensus was reached with the so-called Cancún Agreements (1/CP.16, FCCC/CP/2010/7/Add.1). A key decision concerned the eligible activities in paragraph 70 that encourages developing countries "to contribute to mitigation actions by undertaking the following activities:

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 activities continue to define the scope of the mechanism. However, as mentioned already, they are neither specified, nor do they make any reference to existing definitions, for example those of the FAO forest resource assessments. Definitions are, generally, a delicate topic – partly described as mined territory – and keeping definitions unspecific leaves much room for all countries to agree.

In paragraph 71, developing country parties are further requested "[…] in the context of the provision of adequate and predictable support […] to develop

a) A national strategy or action plan;

d) A system for providing information on how the safeguards referred to in appendix I to this decision are being addressed and respected throughout the implementation of the activities referred to in paragraph 70 above, while respecting sovereignty;"

The mentioned annex furthermore states that activities should "be consistent with the objective of environmental integrity and take into account the multiple functions of forests and other ecosystems". Paragraph 2 then lists specific safeguards that have to be promoted and supported in the context of REDD+. Concerning environmental issues, they request:

“a) that actions complement or are consistent with the objectives of national forest programs and relevant international conventions and agreements;

e) that actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions referred to in paragraph 70 of this decision are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits;[…]

f) actions to address the risks of reversals;

g) actions to reduce displacement of emissions.

In order to develop guidance on how safeguards are “addressed and respected” through safeguard information systems (SIS) and modalities for other REDD+ matters, COP16 requested in paragraph 75 the SBSTA to develop a work program for providing methodological guidance on REDD+ activities including. This effectively terminated the political discussion about the general need for safeguards but instigated a new debate on how to implement safeguards and document their impact. At its 34th session the SBSTA invited parties to submit their views on relevant REDD+ issues, i.a. information on addressing and respecting safeguards (FCCC/SBSTA/2011/MISC.7). Eventually, four central topics emerged:

a) status of safeguards in REDD+ strategy development. The majority of parties considered safeguards in their submissions as an integral part of REDD+, and as a “requirement for the success of REDD+” rather than an additional burden.

b) policy level in charge of designing a SIS. Parties expressed their view that REDD+ countries should develop their own, context-specific SIS that build upon existing national institutions, processes and data sets.

c) type of information or data. While some parties emphasized the need for a core set of information others wanted to decide autonomously what data and information should be collected and reported. Many shared the view that SIS should provide information on how the system is established and works, and how data are collected.

d) frequency of reporting. Most Parties shared the view that the intervals should be the same as for other REDD+ reporting requirements, e.g., the national communications or the biennial update reports for nationally appropriate mitigation actions (NAMAs) , in line with the repeated calls for a common reporting format.

As requested, the UNFCCC secretariat also organized an expert meeting on the topic, held in Panama City in October 2011. The discussions reflected the aforementioned aspects and concluded that a COP decision should recognize the importance of existing systems and that SIS should be general enough to accommodate the national circumstances (FCCC/SBSTA/2011/INF.17). At COP17 in Durban the importance of safeguards was highlighted in decision 2/CP.17 (FCCC/CP/2011/9/Add.1) and in decision 12/CP.17 (FCCC/CP/2011/9/Add.2). Here, the Parties agreed that SIS should:

a) Be consistent with the guidance identified in decision 1/CP.16, appendix I, paragraph 1;

b) Provide transparent and consistent information that is accessible by all relevant stakeholders and updated on a regular basis;

c) Be transparent and flexible to allow for improvements over time;

d) Provide information on how all of the safeguards referred to in appendix I to decision 1/CP.16 are being addressed and respected;

e) Be country-driven and implemented at the national level;

f) Build upon existing systems, as appropriate;

In this way the decision underlined the validity and importance of safeguards covered in the Cancún Agreement, and proposed a learning-by-doing strategy for developing and implementing SIS, which should build on existing information systems where applicable. In addition, the basic principles of transparency and consistency were reaffirmed. Fig. 2.3 illustrates the milestones of the described process on negotiating the issue of safeguards under the UNFCCC since COP 16.

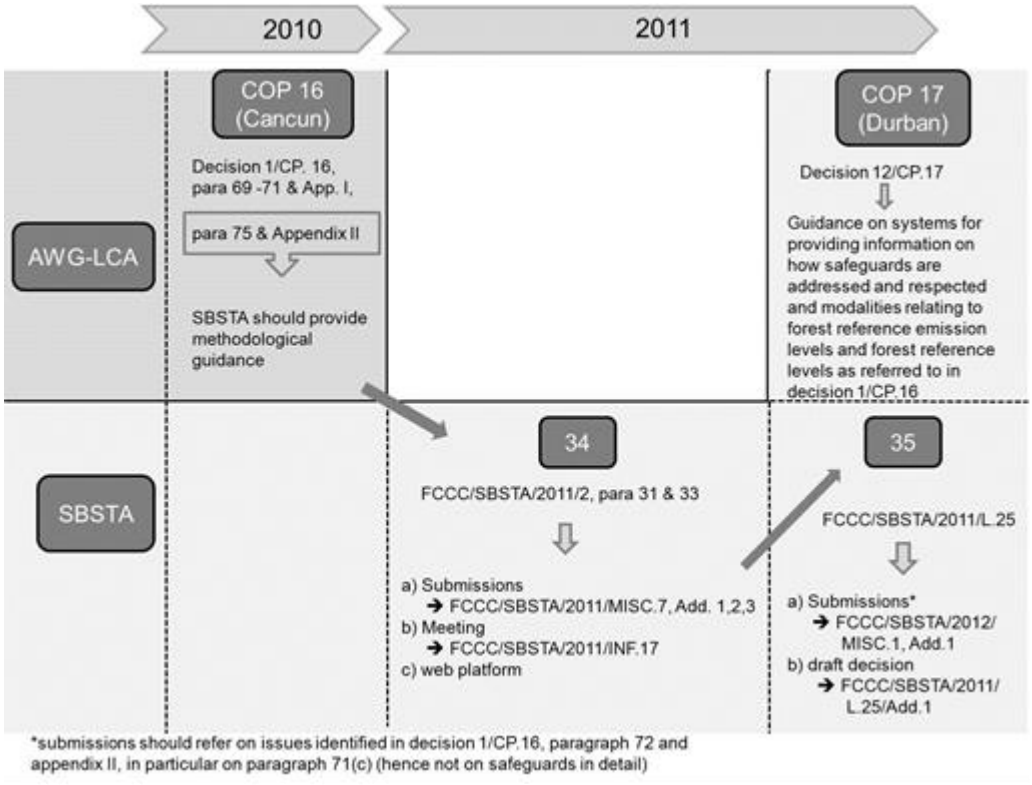

Fig. 2.3: The UNFCCC negotiations on safeguards between COP16 and 17.

At COP18 in Doha, neither safeguards nor SIS were negotiated. On the one hand, this reflects the general impression that a compromise between Parties has emerged in relation to securing additional benefits through safeguards and to restricting payments to measurable and verifiable mitigation of GHG emissions. On the other hand, and to the surprise of many observers, some developing country parties emphasized the need for SBSTA to include a debate on non-carbon benefits in the context of the agenda item “REDD+ financing”. This development makes it quite likely that the political discourse on the role of biodiversity will now be further extended, thereby prompting future negotiations.

2.3 REDD+ safeguards for biodiversity under the CBD

When the political debate on REDD+ under the UNFCCC intensified and emerged as an important element of the Bali Action Plan in December 2007, its potential impacts on objectives of the CBD were taken up at CBD COP9 in Bonn (2008). As no consensus could be reached, it was agreed to establish the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change (AHTEG-BDCC). Its objective was to raise awareness on interrelations between biodiversity and climate change, and to identify means for an enhanced cooperation between CBD and UNFCCC (UNEP/CBD/COP/DEC/IX/16). The AHTEG-BDCC consisted of experts from science, NGOs and international organizations; it was established "to provide biodiversity-related information to the UNFCCC process through the provision of scientific and technical advice and assessment on the integration of the conservation and sustainable use of biodiversity into climate change mitigation and adaptation activities […]" (SCBD 2009). Prior to the publication of the final version, a draft version was made available to participants of two UNFCCC meetings – COP14 in Poznan (2008) and SBSTA30 in Bonn (2009).

In light of the protracted negotiations at COP15 of the UNFCCC this external input was seen by different negotiators in the climate context as "unnecessarily complicating the negotiations". For instance, one interviewee described the official AHTEG report (SCBD 2009) as an "unofficial output of the CBD", and emphasized that it was just a technical report that had not (yet) been acknowledged by any CBD decision. However, the report provides much scientifically sound and undisputed information – e.g. about the genuine interactions between biodiversity and climate change, the impacts on biodiversity and approaches to reduce them, and particularly the possible implications for REDD+ and related topics. Although it had no immediate impact on the UNFCCC negotiations, the report helped to raise awareness in both political arenas about potential impacts and consequences of REDD+. It also triggered scientific efforts to compile information on the topic as well as to develop possible approaches for ensuring the environmental integrity of climate policies. In the years following COP15, multiple reports were prepared that dealt with the question of how to ensure that additional benefits for biodiversity are maximized. Many of these encouraged a focus on establishing new forest protected areas and on the ecological restoration of degraded land (HARVEY et al. 2010, BUSCH et al. 2011, GRAINGER et al. 2009, PISTORIUS et al. 2011). These publications further fueled the emerging and heated political and scientific debates on additional benefits and safeguards.

The failure of Copenhagen probably contributed to the willingness to deal with the safeguard issue under the CBD which still had to decide on whether it would endorse the findings of the AHTEG-BDCC in a COP decision. At CBD COP10 in Nagoya in 2010, the parties negotiated on whether and how the CBD could contribute to the ongoing discussions on REDD+ under the UNFCCC. It soon became clear that there would be no consensus on using the output of the AHTEG for providing formal input to the UNFCCC; many voiced strong concerns about the negative impact that a CBD decision could have on the upcoming climate negotiations two months later in Cancún, Mexico. While the EU and Norway insisted on a continuation of the work on the issue of safeguards and impacts on REDD+ under the CBD, particularly China and Colombia, but also Brazil and Mexico, opposed an explicit mandate for any issue that is negotiated under the UNFCCC. Eventually, the safeguard issue was elevated to a higher political level, and the ministers of the UK (for the EU), China and Brazil were able to come to an agreement.

Finally, the Nagoya Decision encouraged parties to “promote the importance of biodiversity considerations in ongoing discussions on this issue” (UNEP/CBD/COP/DEC/X/33). It requested the Executive Secretary to “[…] provide advice […] on the application of relevant safeguards […] so that actions are consistent with the objectives of the Convention on Biological Diversity and avoid negative impacts on and enhance benefits for biodiversity” and to “[…] assess potential mechanisms to monitor impacts on biodiversity from these and other ecosystem-based approaches for climate change mitigation measures […].” It further asked the Executive Secretary to convene an expert workshop on REDD+ in collaboration with the UNFCCC and to “compile current and additional views and case-studies from Parties on the integration of biodiversity into climate-change-related activities for submission to the United Nations Framework Convention on Climate Change […].” In order to stress the constructive character of these assessments and to demonstrate that the mandate issue has been taken up, the decision also stated that none of these activities would be “pre-empting any future decisions taken under the United Nations Framework Convention on Climate Change”.

With this new mandate, national focal points were invited to submit their views, experiences and expectations regarding REDD+ safeguards. The CBD Secretariat then compiled a SBSTTA information document based on these submissions (UNEP/CBD/SBSTTA/16/INF/19). During this time, the CBD Secretariat organized three regional expert workshops to “(i) discuss aspects of the application of relevant safeguards for biodiversity in the context of REDD-plus, and to (ii) identify possible biodiversity indicators to assess the contribution of REDD-plus to achieving the objectives of the Convention on Biological Diversity, and assess potential mechanisms to monitor impacts on biodiversity”. One in the Asia-Pacific region (APAC, UNEP/CBD/WS/CB/REDD/APAC/1/2), one in the Latin America and the Caribbean region (LAC, NEP/CBD/WS/CB/REDD/LAC/1/2) and one in Africa (AFR, UNEP/CBD/WS/CB/REDD/AFR/1/2). The results were presented at SBSTTA16 in Montreal, and included in the text to be negotiated at CBD COP11 in Hyderabat (India) in 2012. Fig. 2.4 illustrates this process.

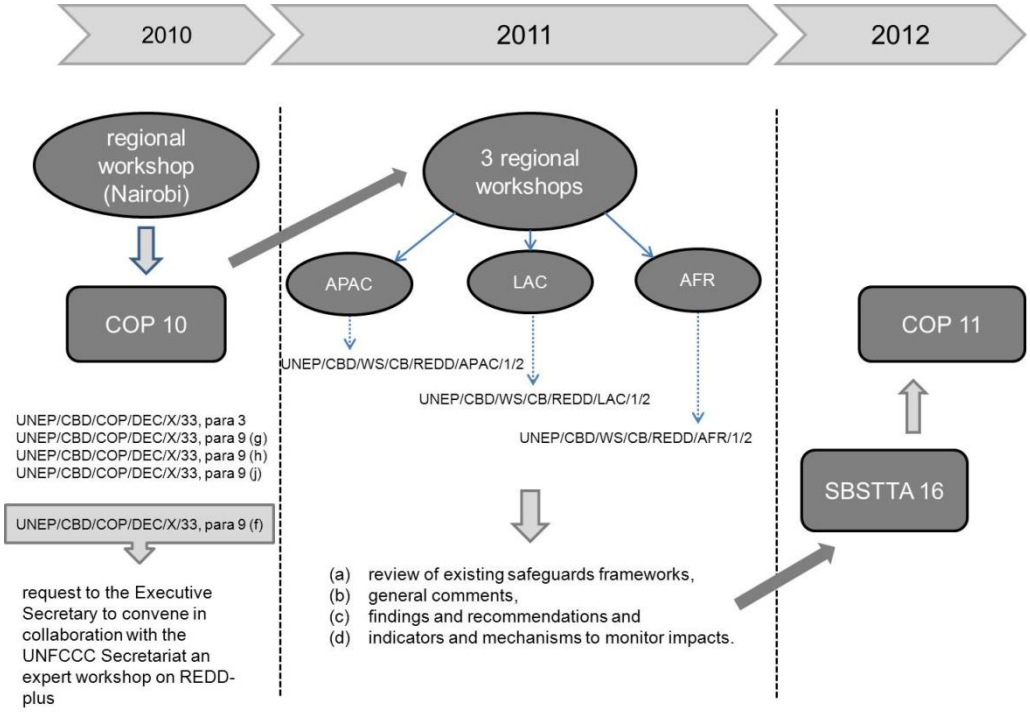

Fig. 2.4: Process of the CBD advice on REDD+ safeguards.

In the following, the outcomes of the four expert workshops are briefly summarized. In general, workshop participants reaffirmed that existing national level policies, laws, regulations and experiences should be the basis for REDD+. For example, National Biodiversity Strategies and Action Plans (NBSAPs) were highlighted as an important basis for incorporating biodiversity into national REDD+ strategies and action plans. Moreover, the need for effective and efficient land zoning and land-use planning was emphasized. The need for capacity development was stressed in the context of how safeguards could be integrated in the planning and implementation phase. Specific safeguards were seen as needed in order to address the risks associated with afforestation activities in areas of high biodiversity value as well as inter-ecosystem leakage, when land use conversion shifts to areas of lower carbon value and high biodiversity.

Furthermore, the need for definitions and a common understanding of terms was seen as a necessary precondition for safeguard implementation and monitoring. This included, on the one hand, the role and meaning of terms such as ‘principles’, ‘criteria’, ‘standards’ or ‘policies’ that are often used interchangeably. Moreover, it was noted that definitions for forest- and activity-related terms such as ‘natural forest’ or ‘conversion’ should also be agreed or harmonized. Regarding technical aspects such as indicators and monitoring, most participants supported the view that they should be developed at the national level and should build on existing safeguard frameworks, e.g. the indicators for the Aichi targets (UNEP/CBD/COP/DEC/X/2), in particular:

Target 5: By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.

Target 7: By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity

Target 11: By 2020, at least 17% of terrestrial and inland water, […], especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 14: By 2020, ecosystems that provide essential services […] are restored and safeguarded, […].

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

The experts identified the following as essential information that should be covered by criteria and indicators:

- location, extent, composition and changes of natural forests over time,
- location, extent, and changes of high biodiversity areas over time,
- fragmentation and connectivity of forests,
- status and trends of protected areas,
- area of degraded habitat or restored ecosystems,
- distribution of invasive and alien species
- area of forests under sustainable management.

Tools such as maps of ecosystems, high biodiversity areas and their overlaps, protected area systems, or indices for key species and biodiversity were considered necessary for developing indicators and monitoring. Again, participants highlighted the existence of suitable tools, processes and information, e.g., the FAO Forest Resources Assessments, ITTO monitoring, the Global Forest Observation Initiative, the National Ecological Gap Analyses, national reports and communications to CBD and UNFCCC, the Global Biodiversity Indicators Partnership, maps and information on Key Biodiversity Areas, Invasive Alien Species and many more.

As agreed in Nagoya, the results of the workshops and the submissions were compiled and discussed at SBSTTA 16 in April 2012 in Montreal. The document “Advice on the application of relevant REDD+ safeguards for biodiversity, and on possible indicators and potential mechanisms to assess impacts of REDD+ measures on biodiversity” (UNEP/CBD/SBSTTA/16/8) was quite extensive and contained many different aspects and recommendations. With regard to the Nagoya mandate and in light of the climate negotiations on SIS it was of particular interest how environmental impacts of REDD+ activities could be monitored – a need already identified at the “Greening REDD+ workshop”. GARDNER et al. (2012) elaborated a scientific proposal on how such monitoring of safeguards could be ensured and included in the national REDD+ strategies and action plans. Parts of

this scientific publication were included in the SBSTTA text which also contained in its annex "Proposed indicators for monitoring REDD+ contributions to achieving the objectives of the Convention on Biological Diversity". These indicators were linked to those indicators at that time under discussion for monitoring the strategic Plan for Biodiversity 2011-2020, in particular the above-mentioned Aichi Targets. They include i.a. the extent of primary forests and other forest types, forest fragmentation, and areas of forests in protected areas.

Although participants of the SBSTTA meeting reported that there was no apparent dissent on this agenda item and the text, the picture changed dramatically at CBD COP11 when the SBSTTA text was to be negotiated. Fierce discussions evolved already at the opening of the agenda item 11.1 "Biodiversity and climate change and related issues". On the one side there were again the parties that wanted to confirm the work of the past two years, in particular the EU, Switzerland, and Norway, that had already in Nagoya favored CBD activities. Interestingly, also some developing country parties – especially Zambia, but also Tanzania, Ethiopia, the Democratic Republic of Congo and the Dominican Republic – also welcomed and supported the text and the annex as being helpful in the context of developing national strategies for REDD+. On the other side were the opponents: Brazil, Colombia and Argentina opposed to the text, especially the specific recommendations and indicators. Brazil argued that the proposed guidance by the CBD would have a compulsory character and that since the last CBD COP much had changed regarding safeguards, making the already carried out work obsolete. In addition, safeguards would constitute additional burdens for developing countries in their attempts to access REDD+ financing.

Eventually, a consensus on the critical issues was reached at a higher political level and led to agreement in a COP decision in Hyderabat (UNEP/CBD/COP/11/35). It highlights the potential synergies with the Aichi targets, invites Parties to consider the voluntary guidance on indicators in the annex and requests (in paragraph 16) the Executive Secretary to

(a) Enhance collaboration with the UNFCCC Secretariat and other members of the Collaborative Partnership on Forests (including its Global Forest Expert Panel on Biodiversity, Forest Management and REDD+), as well as with other relevant organizations and initiatives, to further support the efforts of Parties to promoting the contribution of the activities referred to in para 1 above […];

(b) Compile information relevant to the application of safeguards for biodiversity, and make it widely available, including through the clearing-house mechanism;

(c) Submit a progress report on the activities referred to in para 16 (a) and (b) to the COP at its 12th meeting;

In addition, paragraph 18 requests the Executive Secretary "to further develop advice on issues included in paragraph 9 (h) of decision X/33, taking into full account the relevant UNFCCC decisions, based on further views from Parties and in collaboration with the CPF", and to report on the outcome at COP13. The CBD thereby has a renewed mandate – despite the efforts of some Parties to prevent further work of the CBD on REDD+. The decision emphasizes the potential contribution of this work to an enhanced cooperation among the international conventions and processes.

2.4 Interaction between the UNFCCC and the CBD on REDD+

After eight years of shaping REDD+ at the international level, the integration of the work of the UNFCCC and the CBD on safeguards and additional benefits appears weak and insufficient: the safeguards agreed under the UNFCCC are very unspecific and lack clear definitions, and the work of the CBD on this topic remains unapproved. In this section, we seek explanations for the inability of these two institutions to better cooperate and develop more consistent policy approaches. Taking a more general perspective, we aim at elucidating and discussing options for improved institutional coordination at the interface of UNFCCC and CBD in the context of the REDD+ mechanism – a prerequisite for enhancing synergies and avoiding risks. In our subsequent explications we first draw on theories and insights from political sciences that focus on inter-institutional relations and that help to explain the persisting obstacles to a more coherent and consistent design of the REDD+ mechanism. This is complemented by our empirical observations regarding existing institutional and structural barriers to enhanced policy coordination between the UNFCCC and the CBD. Finally, we present and discuss selected approaches that are actually employed to enhance the integration of the two conventions.

2.4.1 Fragmentation and barriers for enhanced policy coordination

UNFCCC and CBD are currently the most prominent international institutions with relevance for forests, but there are many others – the United Nations Forum on Forests, the Ramsar Convention on Wetlands and regional processes like the International Tropical Timber Organization to name but a few. The global forest governance architecture is thereby characterized by what scholars have described as institutional fragmentation (e.g. BIERMANN et al. 2009). The trend to establish multiple and overlapping institutions for forest issues has its origins in the Earth Summit in Rio (1992), where negotiating parties could not agree on one comprehensive forest convention (BERNSTEIN 2001). Instead they created three sister conventions – on combating climate change, loss of biodiversity and desertification – with a specific focus on forests and the ES they provide. Efforts to close this gap – e.g. through the Intergovernmental Panel on Forests, and its successors, the Ad Hoc Open Ended Intergovernmental Forum on Forests and since 2000 the United Nations Forum on Forests (UNFF) – have further contributed to the fragmentation of the international forest policy arena.

A consequence of the ‘treaty congestion’ within the global forest governance architecture is called ‘forum-shopping’, i.e. the opportunity for countries tend to get especially engaged in those processes that best suit their interests (BROWN WEISS 1993; HICKS 1999; ZELLI et al. 2010). To deal with such unintended effects, different efforts have been undertaken to improve coordination and cooperation between the various international processes.

The described fragmentation of the global forest governance architecture has led to a debate among political scientists about the effects and the effectiveness of multiple institutions within the same issue area which “differ in character, constituencies, spatial scope and subject matter” (BIERMANN et al. 2010: 22). Perceptions of the advantages and disadvantages of such institutional fragmentation may vary considerably (BIERMANN et al. 2009): on the one hand, treating different aspects of cross-cutting issues separately has the advantage that its inherent complexity can be significantly reduced. In this respect, “it may be deemed positive that new institutions are created to deal with environmental problems as more political energy is

added." On the other hand, "this may create problems through duplication of work and problems of coordination" (ANDRESEN 2001: 19). The latter means that "the achievement of goals that are set by the institution and that affect subsequent policy changes may be stymied by interaction with, or the influence of, another institution" (KIM 2004). For STEINER et al., lacking coherency is often grounded in the narrow focus and clear mandates of many multilateral environmental agreements (MEA). Accordingly, although a MEA "can address problems within its scope [...], linkages and trade-offs among international interactions extend beyond the scope of any MEA" (2003: 230).

Based on the degree of institutional overlap, inherent norm conflicts as well as the type of actor constellations, BIERMANN et al. (2010:18) developed a tripartite typology according to which fragmentation can be synergistic, cooperative, or conflictive, with only the latter being problematic in terms of regime effectiveness (OBERTHÜR & GEHRING 2001; STEINER et al. 2003). With regard to the participating actors and their varying constellations in different regimes, i.e. the climate and the biodiversity regime, THATCHER suggests that the increased specialization of global policy processes fosters the segregation of political sectors over time (1998: 391ff). The respective processes are dominated by 'policy communities' of distinct public and private stakeholders and are marked by an evolution of expert languages with policy specific terminologies (RICHARDSON 2000: 1008). One consequence of the resulting isolation are knowledge deficits, e.g. about the scientific, technical, political and procedural features of other relevant institutions, de facto rendering opportunities for cooperation and coordination at the international policy level difficult. In addition, conflictive fragmentation perpetuates at the national level where different ministries – representing different stakeholders with diverging interests – often share authority, but seldom coordinate and effectively streamline their views and activities (ANDRESEN & HEY 2005).

The negotiations on a REDD+ mechanism clearly illustrate the challenges associated with the fragmented governance landscape and how difficult it is to develop multiple, yet coherent and consistent, international institutions. Since their establishment, the processes of the UNFCCC and the CBD have taken different trajectories, and empirical evidence supports the aforementioned observation about the relevance of different engaged policy communities and language. Also from the point of view of involved actors, sector-specific networks / communities and factual hierarchies between regimes are critical aspects that hamper an enhanced cooperation between the CBD and UNFCCC. These aspects are further elaborated in the following and illustrated with representative statements from the conducted expert interviews.

Asked about barriers between political communities, the interviewees affirmed a rapid intensification of language barriers; for instance, experts within the UNFCCC context complained that "people from the CBD do not understand what is happening in the UNFCCC", and vice versa. Growing terminological distance is even further exacerbated by a literally exploding number of acronyms, specialized and partly overlapping terminology. For example, the term 'conservation' as covered in the REDD+ mechanism refers to the activity 'conservation of forest carbon stocks'. In contrast, 'conservation' in the CBD context has a very different, much more comprehensive connotation. Another example is the importance of the ";" or the "+" of the REDD acronym which has implications for technical differentiations between reference levels and reference emission levels. Such examples illustrate not only the confusion in external communities, but also within a policy community. Ultimately, it prevents external

stakeholders or non-experts from challenging and discussing with community members on an equal footing. Several interviewees argued that this also holds true for the CBD – despite the differences in the composition of the communities. They emphasized for example that in the context of the CBD actors with natural scientific backgrounds dominate, while in the UNFCCC community there are many more actors with backgrounds in law or political sciences. These differences perpetuate at the national level where competences are distributed among different ministries and departments, and coordination relies heavily on often informal personal relations and networks.

Another frequently mentioned barrier to enhanced cooperation between CBD and UNFCCC is the factual imbalance between the two conventions: several interviewees emphasized that most public and scientific interest is concentrated on the topic of climate change. As an example of the subordinate role of CBD in the context of REDD+, interviewees mentioned the AHTEG-BDCC report described in section 2.3 (SCBD 2009) and reported that the climate community had rejected and even ignored this report. Confronted with this example an interviewed member of the UNFCCC community replied that the report simply did not meet the scientific standards of IPCC reports to the UNFCCC. Interestingly, the described difference in the work of the two secretariats also emerges as an influencing factor in this context. Generally, but particularly with regard to REDD+, the CBD secretariat itself assumes a very active role, e.g. by publishing a considerable number of technical reports on the issue – i.a. the AHTEG report which has never been endorsed by the parties to the CBD (SCBD 2009, 2011; THOMPSON et al. 2009, CAMPBELL et al. 2009).

Aware of these different institutional and structural barriers, both conventions reiterate and acknowledge the need for enhanced coordination and cooperation: In an effort to create stronger ties between the UNFCCC and the CBD, different approaches – involving the administration, the political and the civil society actors – have been implemented over the past decade. These examples are presented and briefly examined in the following section.

2.4.2 **Approaches for enhancing cooperation between UNFCCC and CBD**

The first and most frequently cited example is the so-called Joint Liaison Group (JLG) between the secretariats of the three Rio conventions which was established in 2002 and endorsed by CBD COP6. The JLG has the mandate to develop mechanisms for promoting synergies among these MEA. For this purpose, it conducted a workshop in Viterbo (Italy) in 2004, which focused on forest ecosystems and potential synergies between the three separate conventions but the outcome of this workshop has never been formally adopted. It must also be noted that there are notable differences in the attributed tasks and in the self-understanding of the administrative bodies of the conventions, e.g., monitoring and support of implementation (LE PRESTRE 2002: 100). As a result, ‘collaboration’ between the secretariats though the JLG is in effect restricted to informing each other about the activities and initiatives of the other conventions. Many observers of this process share Young’s view that “the JLG has not been successful at generating meaningful improvements in the Conventions’ imple-mentation, quite possibly because of the inherent reductionism that led to the creation of the UNFCCC, the CBD and the UNCCD in the first place” (2010: 136).

Another effort to promote synergies on common topics was the bringing together of public actors, in particular the different national focal points of the two conventions, at a joint back-

to-back SBSTA / SBSTTA meeting of the parties to UNFCCC and the CBD in Montreal in 2005. This effort to foster cooperation and coordination also failed; instead, it revealed how great the distance between these policy communities had grown. Participants of this meeting described it as “two separate meetings at the same place” and it also did not result in more concrete cooperation. A confirmation of the unspoken consensus that this attempt failed is that it has never been repeated nor has there been any proposal to do so. Similar efforts also failed to reach a political quorum, e.g. to establish a joint work program on cross-cutting issues.

Although past efforts have not resulted in the desired cooperation and coordination, there is now a notable shift towards approaches which are not restricted to negotiators and public actors, but which also include stakeholders of science and NGOs. The most recent example is the so-called Rio Conventions Ecosystem Pavilion which was established in 2010 as a collaborative outreach activity by the secretariats of the Rio Conventions, the Global Environment Facility and numerous international organizations. It is “a platform for raising awareness and sharing information about the latest practices and scientific findings on the co-benefits that can be realized through implementation of the three Rio Conventions” and aims at promoting “linkages to maximize co-benefits and minimize negative interactions between these three critical environmental, social and economic issues” (SCBD 2011). This forum-like event involving actors from science and policy takes place at the COP meetings of the conventions. It informs and reminds decision makers about the potential and need for coherent and consistent policies. REDD+ and the safeguards issue has played a major role in the Pavilion to date.

Another example is the so-called ‘Forest Day’ that has been organized since 2007 by Center for International Forestry Research (CIFOR) at the COP meetings of the UNFCCC. This approach has succeeded in establishing a strong and rapidly growing network that brings together all relevant actors, e.g. forest experts from all scientific disciplines and from adjacent policy fields, drawing extensive public attention. Instead of promoting rather narrow perspectives from within single negotiation tracks, the Forest Days followed the imperative of comprehensive and implementation-oriented policies for a more sustainable management, restoration and protection of global forest resources. In light of the overwhelming success and based on efforts to develop comprehensive and balanced approaches, the Forest Day is now being relabeled ‘landscape day’. Beginning at UNFCCC COP19 in 2013, it will be organized by the Collaborative Partnership on Forests.

2.5 Conclusion

In the previous sections we described and examined the efforts towards, and challenges of, addressing the cross-cutting nature of REDD+ within the international regimes of the UNFCCC and the CBD. Obviously, there is not only substantial scope for synergies and additional benefits for different environmental objectives, but also daunting risks arising from addressing the cross-cutting issue of forest lands and their protection and management under different institutions with different priorities. This is owed to, and potentially even exacerbates, the ‘fragmented governance architecture’ for different global environmental issues (BIERMANN et al. 2010). Fragmentation is not problematic per se, its influence depends largely on the issue at stake and on how the actors try to address it. However, if the conflictive variants of fragmentation are not addressed, the general effectiveness of institutions will

remain questionable (BIERMANN & PATTBERG 2008, ANDRESEN 2001) – as in the case of the issue of environmental safeguards for REDD+.

It is widely recognized that enhanced cooperation and coordination between the concerned institutions is a prerequisite for consistent and more comprehensive policies. The debate on REDD+ and safeguards has had a significant and notable impact on the relationship between the UNFCCC and CBD and on efforts to ensure synergies between their objectives. Many quite different efforts have been undertaken in this respect, e.g., to facilitate information exchange though the JLG on the administrative level, or on the political level by organizing a joint meeting of the UNFCCC and the CBD, which brings together the national focal points of the two processes. However, considering the narrow mandates of both regimes, their similar but not identical membership and the emergence and persistence of divergent norms, procedures and terminologies within the individual settings, these superficial efforts have proven to be too limited to induce a substantial improvement in coordination.

Notwithstanding the unsatisfactory character of the CBD contributions to the development of REDD+ under UNFCCC, the decisions reached at Nagoya and Hyderabat are unprecedented. They aim at providing voluntary guidance for REDD+ countries on how to best build on synergies at the national level, as well as proposing criteria and indicators which could be used for safeguard information systems. Despite the ever returning mandate question and the differential pace at which these processes work, it demonstrates that it is not necessarily impossible to provide constructive input to another process.

Without questioning the need for a binding policy framework, we agree with GEHRING & OBERTÜHR (2006) who suggest that fragmentation is not an obstacle for effective policies, per se, and that the focus should be shifted to the national level where implementation takes place. In light of the political realities in the convention contexts (other than national contexts) alternative approaches, e.g. partnership based governance approaches, have also gained considerable momentum. Given that the negotiations in both conventions tend to envisage the lowest common denominator and as a result remain slow and very unspecific, network settings that engage different public and private stakeholders have emerged “as a central steering mechanism in modern governance” (PATTBERG 2010: 146). In the following Chapter we describe such a partnership – the Interim REDD+ Partnership. Although this could be seen as a further fragment of the institutional landscape, we will examine its potential for building substantial horizontal bridges (between the processes) as well as vertical ties (between policy levels) that enhance synergies and avoid risks.

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3 REDD+ governance in networks – the case of the REDD+ Partnership

SABINE REINECKE, TILL PISTORIUS

As a financial instrument that allows developing countries to contribute to climate change mitigation in a meaningful way, a REDD+ mechanism negotiated under the UNFCCC is expected to play a decisive role in any future global climate agreement (CORBERA et al. 2010). With the intention of designing a context sensitive mechanism that would respect national sovereignty and circumstances, the original RED mechanism was extended by a second “D” and a “+”. As discussed by PISTORIUS et.al (2011), this is accompanied by potential risks to biodiversity in forests and beyond.

Although a legally binding REDD+ mechanism, as well as environmental safeguards, are still pending, many early ‘bottom-up activities’ are already being put into practice at the subnational and national levels in potential REDD+ countries (CERBU et al. 2011). In anticipation of regulation and funding, quite different governance models with different actor constellations have evolved. These range from the development of national strategies and action plans or governance capacity building for REDD+, to concrete project implementation in local settings and are situated within public, private or combined public-private governance settings (WERTZ-KANOUNNIKOFF & KONGPHAN-APIRAK, 2009).

Given that the international legal provisions of REDD+ so far leave substantial scope for (sub)national discretion, such actions at lower governance levels are inevitably required. These activities have also already set decisive trajectories for how REDD+ will eventually look in different national or subnational contexts. . Although they certainly serve as valuable venues for testing REDD+ in practice, these quasi-implementation actions are in part “running ahead of policy processes and state-driven decisions” (CORBERA & SCHROEDER 2011: 90). The uncertain future of REDD+ under the currently stalled climate regime also exacerbates their detachment from international coordination efforts. This concerns particularly ‘REDD+ projects’ in voluntary and far less regulated carbon markets as well as other private settings that are rapidly evolving (DIAZ et al. 2011).

In this context, non-state actors such as the multinational World Bank’s Forest Carbon Partnership (FCPF) or the UN-REDD Programme, as well as he interim REDD+ Partnership and other private or public-private partnerships are gaining momentum. Detached from the official negotiation arenas they are mainly concerned with central political and financial aspects of REDD+ thought to facilitate its ultimate implementation. Beyond that they also have an actual impact on ongoing activities and thus on their practical design – including on how the issue of safeguards is treated, i.e. how the unspecific UNFCCC decisions are translated into concrete national policies and practices.

The REDD+ Partnership basically serves as a learning platform to identify institutional, technical and financial gaps that hamper the efforts of beneficiary countries to get “ready for REDD+”. To do so, it brings together different actors, i.e. parties from international negotiations and stakeholders from multilateral programs, NGOs and science. The approach of the Partnership is genuinely “voluntary” and lacks a formal mandate. This responds to the ne-

cessity that the body formally subordinates itself to the official negotiations between parties, in order to avoid pre-empting or even circumventing official decision making pathways.

In reality, however, the Partnership provides an alternative coordination forum for REDD+ relevant policy issues. In a recent special issue on forest climate policy we presented and empirically substantiated the argument that there are mutual interlinkages between REDD+ as negotiated in the climate convention context and the REDD+ Partnership – despite the rhetoric that asserts their independence (REINECKE et al. 2012). Simply put, these linkages arise because the Partnership covers similar topical questions to those that are dealt with under the UNFCCC negotiations. Moreover, it involves a greater spectrum of actors and the focus on information sharing increases the influence of small REDD+ countries or non-party-stakeholders that typically take on insignificant roles within the UNFCCC. With the most relevant negotiating parties being present in both venues, ideas are transferred between them (ibid.).

Considering these essential links, networks with state and non-state partners such as the REDD+ Partnership may gain momentum in their own right, both on the negotiations of the mechanism and on implementation. Although voluntary in nature, such venues pose a challenge as well as opportunities for the consideration of biodiversity in climate and forest policies. On the one hand, they may further the conflictive fragmentation of the institutional landscape on the cross-cutting issue of forests as discussed in Chapter 2. This risk relates to their substantive role in the practical implementation of general and unspecified safeguard principals at international level and to the loopholes that national discretion creates (DAVIS & DAVIET 2010). In addition, the stalemate in the UNFCCC combined with the formal independence enhances the quasi authority of partnerships in relation to early actions. On the one hand, their voluntariness may yield actions at lower levels that strive for enhanced ecologic integrity; on the other hand, even on a solely voluntary basis, they may well prompt the promotion of comprehensive biodiversity safeguards (cf. PISTORIUS & REINECKE 2012). Considering the limited scope for inter-regime integration between the UNFCCC and the CBD (cf. Chapter 2) and the protracted climate negotiations, this opportunity is of relevance especially if an agreement is not reached.

This chapter is dedicated to an analysis of the Interim REDD+ Partnership and seeks to investigate and unravel the potential role of such voluntary network settings in integrating other aspects into REDD+ than mitigation, in this case biodiversity. This will guide our investigations relating to the future role of the Partnership, in particular whether and how the Partnership will complement and contribute to the work of the UNFCCC on REDD+.

We intend to address this issue by contrasting relevant structural and institutional features of and political practice in the REDD+ Partnership with theoretical perspectives on the regulatory power of non-binding institutions and leadership that are drawn from theories in political sciences and briefly outlined in the next section (3.1). In addition to desk work, our evaluation is empirically informed mainly by insights from participatory observation of selected meetings of the Partnership since 2010. For this purpose, we carried out 13 anonymous, semi-structured expert interviews with participants of the Partnership meetings – representatives of donor and recipient countries, as well as civil society members. The result section (3.2) provides a general description of (the work of) the Partnership and major developments over the period from 2010 until the end of 2012, outlining the historical and structural context as well as the basic internal features of the setting on which our evaluation will be based. This

Chapter summarizes our analysis of the REDD+ Partnership. The results have already been published in two journals: in REINECKE et al. (2012) we analyze the relationship between UNFCCC and the REDD+ Partnership from a networked governance perspective, and in PISTORIUS & REINECKE (2012) we analyze the role the Partnership can play to advance specific topics as environmental safeguards for REDD+.

3.1 Theoretical framework: safeguards through leadership

For quite some time, formal international regimes have been pursued in theory and practice as the dominant mode of international coordination with sovereign states acting as major agents in international relations (YOUNG 1982). More recently, disappointment with the UN system, in particular with the UNFCCC which culminated in the failure of Copenhagen, has furthered interest in and promotion of alternative modes of global governance such as public-private partnerships. Partnerships are a less state dominated and less formalized form of collaboration that involves "actors from two or more spheres of society (state, market and civil society)" (GLASBERGEN 2007: 2). With regard to their broader actor basis, partnerships also appear more suited to the peculiarities of the subject matter which is characterized by a "growing interdependence between govern-ments and non-governmental actors at various territorial levels" (BACHE & FLINDERS 2004: 3).

On a general note, such non-binding institutions have been discussed extensively in academia in terms of their degree of authority in relation to action (e.g. HANDL et al. 1988, VICTOR 1997, KIRTON & TREBILCOCK 2004, SKJAERSETH et al. 2006). Typically they are accused of lacking the "bite" of formal regulations to force parties to comply with the commitments they have made (SCHACHTER 1977). Experience, e.g. with voluntary carbon markets (MERGER & PISTORIUS 2011) suggests, however, that non-binding institutions may also have "legal effects" (HANDL et al. 1988: 371). As such, they are described as a soft form of law that eventually even outweighs legally binding agreements, in that actors often commit to more ambitious objectives in voluntary environments (VICTOR 1997). Through horizontal 'market accountability' (HALE & MAUZERALL 2004) actors can theoretically be indirectly but forcefully brought to comply with their promises, e.g. to apply strict safeguards to REDD+ in practice. The principle is reasonably simple: REDD+ project developers, for instance countries in bi-nationally coordinated development projects or NGOs which aim to sell credits from such projects in voluntary carbon markets, compete for financial support either from donors or from private investors (cf. PISTORIUS & REINECKE 2012). The possible denial of future 'market access' or forgone future donor support functions as the necessary 'stick' to make recipients comply with their voluntary commitments, e.g. on safeguards, especially if the number of project providers is high (ibid.).

In such a situation, providers may even be incited to deliver more sophisticated REDD+ strategies or projects to secure long term revenues on their investments (e.g. for MRV systems). Regarding financing for readiness, for instance, developing countries are requested to address safeguards in their national strategies as a precondition for further funds. As a consequence, leadership may unfold, i.e. a process where supposedly 'successful products' (e.g. national REDD+ strategies) are further disseminated among REDD+ policy providers (ELKINS & SIMMONS 2005). Recipient countries that have not yet issued a REDD+ strategy will profit from diminishing costs for policy development, e.g. by building south-south partnerships. Two potential desirable effects follow: first, policies will reach a generally high level of

innovativeness, e.g. comprehensive safeguards standards, and second, these will be broadly applied because more and more REDD+ providers seeking funding will 'follow' (PISTORIUS & REINECKE 2012).

Considering the strong drivers of deforestation and especially the high oppor-tunity costs of alternative land use schemes in contrast to the potentially large financial investments, defection still remains an attractive course of action. In this circumstance, an effective reporting system enabling the evaluation of individual compliance with the set norms becomes central (MITCHELL 1998, HALE & MAUZERALL 2004). Moreover, the issue is highly contested and supposedly intractable ethical and political conflicts persist. Accordingly, policies and decisions addressing them need to be "accountable to the entire range of stakeholders whom they affect" (HALE & MAUZERALL 2004). Correspondingly, we attribute the potential of voluntary settings to effectively integrate biodiversity issues to their transparency and participatory openness (cf. PISTORIUS & REINECKE 2012). In the following, an examination of the empirical case of the REDD+ Partnership is used to clarify in how far the Partnership fulfils these requirements.

3.2 The Interim REDD+-Partnership

Already in 2008, prior to COP15, many negotiators realized that the pace of development of UNFCCC was slow and more complicated than expected. At the same time REDD+ has increasingly been used by parties, including those with little interest in the mechanism, as a bargain chip in the negotiations. In light of the ongoing differentiation of (sub)national practices, parties interested in REDD+ sought alternative discussion forums on related issues in the hope of speeding up the negotiations and ultimately staying on top of the 'REDD+-wave'.

In 2008, a group of donor and beneficiary countries made a first attempt at this by establishing the so-called Informal Working Group on Interim Finance for REDD (IWG-IFR). This exclusive and rather non-transparent forum consisted only of parties and was very focused on financial issues. Generally, the perception was that the IWG-IFR pre-empted the UNFCCC negotiations and this is why it was not further pursued after COP15. A few months later, the Interim REDD+ Partnership was inaugurated, which in contrast represents a more detached voluntary process and has sought to be genuinely transparent and inclusive (REINECKE et al.2012). In contrast to the 195 Parties to the UNFCCC, it currently consists of 75 partners from funder and beneficiary countries.

Objectives and principles of work

In May 2010, partners agreed on the core objective: "to contribute to the global battle against climate change […], and to that end to take immediate action, including improving the effectiveness, efficiency, transparency and coordination of REDD+ initiatives and financial instruments, to facilitate among other things knowledge transfer, capacity enhancement, mitigation actions and technology development and transfer" (REDD+ PARTNERSHIP 2010). . The Partnership should serve "as an interim platform for the partners to scale up REDD+ actions and finance" (ibid.). With this, the idea of the Partnership was to discuss evolving issues related to REDD+ more openly in an issue-specific forum as a means of limiting possibilities to advocate for other highly contentious issues. The partners intended to break with the estab-

lished norms and grid locking strategic negotiation behavior which are perceived as large obstacles in UNFCCC negotiations.

In its non-binding Nagoya Program of Work (PoW) , the partners formulated general principles and procedures that, at least by intention, were basically consistent with the understanding of a participatory and transparent setting: according to its self-conception, the Partnership is envisaged as an open, transparent and inclusive process and its working principles are highly ambitious – also regarding biodiversity safeguards. The PoW for 2010 consists of five objectives:

- to establish a voluntary, publicly available REDD+ Database of REDD+ financing, actions and results, to improve the transparency and coordination of REDD+ actions and support,
- to initiate efforts to identify and analyze gaps and overlaps in financing and take steps to address them,
- to facilitate discussion on the effectiveness of REDD+ initiatives and formulate concrete recommendations for targeted improvements to multilateral initiatives,
- to share lessons on our REDD+ initiatives and share best practices regarding significant REDD+ actions and financing, practical experiences regarding safeguards, multi-stakeholder consultations and benefit sharing mechanisms. Promote and facilitate cooperation among Partners including South-South partnerships and regional REDD+ networks as well as among multilateral and bilateral REDD+ initiatives,
- and the Partners should consider proposals to effectively mobilize, deploy and facilitate enabling institutions, where relevant, in developing countries to better channel finance and technology for REDD+ actions while recognizing national circumstances and respecting national sovereignty.

Partnership meetings and workshops

The Partnership meets regularly in open discussion rounds and workshops, typically back-to-back with UNFCCC conferences, to coordinate activities, discuss core issues and to share information and lessons learnt. According to its founding document, open-access for additional relevant stakeholders was considered as crucial from the outset and stated to be “inclusive of all committed countries as well as representatives of relevant stakeholders including indigenous peoples, local communities, civil society and the private sector.” (REDD+ PARTNERSHIP 2010). Accordingly, many public and private stakeholder institutions, including multinational and science-based organizations, environ-mental and other civil society organizations, have affiliated themselves. As long as stakeholders are acknowledged as observers to the UNFCCC and given that the carrying capacity of the venue is not exceeded, there is essentially no restriction on stakeholder participation. In principal, this approach allows open discussions that incorporate participants beyond country delegates who do not necessarily represent all relevant stakeholder positions in their countries (e.g. indigenous peoples).

The organization of work also follows the rationale of balance in representation: Discussions are guided by the simultaneous co-chairing of one industrial and one developing country that

hold agenda setting authority. Their work is supported by the secretariat which consists of the Facility Management Team of FCPF (FMT) and the UN-REDD Programme Team (PT). The secretariat's role is, inter alia, to organize and provide logistical support to meetings and, if necessary, to supply related analyses, reports or papers. Although in the context of the Partnership, the secretariat operates independently of its normal role within UN-REDD and FCPF, its work is overlooked by the co-chairs.

The first appointed co-chairs were the countries of Japan and Papua New Guinea (PNG); they led the first meetings and workshop in Brasilia which dealt with matters regarding the further constitution and institutional set-up of the process, as well as drafting a PoW. Despite the well-meaning founding declaration, the setting did not achieve the intended level of inclusiveness and transparency: an open discussion of upcoming work for the subsequent two and a half years did not readily occur. Instead, much time was spent on whether to allow stakeholders to participate in the meetings at all. Severe transparency issues arose which overshadowed the process of agreeing on the PoW (DAVIS & DAVIET 2010, REINECKE et al. 2012). Two coalitions formed: most partners from industrialized countries and some countries from Central and South America insisted on open meetings. In contrast, mainly of members of the Coalition for Rainforest Nations (CfRN) strongly objected to open meetings and argued that they should remain the exception. Various other stakeholders from civil society organizations strongly voiced their disappointment and complained that they had practically been excluded from the initial decisions. Moreover, their input to the founding and agenda setting process was rather limited which severely undermined the legitimacy of the process. Eventually at the Climate Change Talks in October 2010 in China (Tianjin), modalities of stakeholder participation were formally set and now allow the participation of relevant civil society members in all meetings and processes. At CBD COP10 in Nagoya the PoW was agreed at a high level meeting of ministers.

Although the original disaccords have not been fully resolved, the process finally became operational and its meetings more focused. Participatory practice changed considerably once Brazil and France assumed their joint roles as co-chairs. The subsequent events in 2011 were open, better organized and communicated, and the scarce time available was used for concrete information exchange on demonstration activities (Bangkok) and REDD+ finance (Cologne). Such topical and technical workshops, which repeatedly had to be postponed under the first co-chairs, denote an important element of the Partnership and serve as an essential means of exchanging information and views – contributing to both the transparency and inclusiveness of the setting. The balanced mixture of presenters from various institutional backgrounds was particularly helpful in improving the disclosure and exchange of relevant information on REDD+ in practice. In contrast to the diplomatic and often shallow rhetoric omnipresent at official negotiations, attendees of these workshops engaged in much more open dialogues. However, despite the evolving enthusiastic spirit among many participants, the workshops were still hampered by limited time availability.

In June 2011, Guyana and Germany followed as co-chairs. They carried on the approach of their predecessors and scheduled a total of four meetings and workshops. The Plan of Action for this term proposed to intensify discussions on the progress of the Partnership, REDD+ safeguards, MRV, finance options for the full implementation of REDD+, and on reference levels. The first two workshops held in Panama (September 2011) addressed the issue of safeguards and MRV and encompassed country presentations on national practice. Discus-

sion of the remaining challenges in this context was broadly perceived as constructive. At COP17 in Durban, a workshop on financing of REDD+ was held. The topic was of such high interest that the subsequent co-chairs, the Democratic Republic of Congo and Australia, organized a further workshop on financing options which was held in London in 2012.

Albeit explicitly pushed by the resigning co-chairs in Durban, the discussion about the future of the "interim" body did not start before June 2012 at the meeting in Bonn. Aside from the achievements of the setting, the potential continuation of the Partnership was the dominant topic in the second term of 2012, co-chaired by USA and Costa Rica. Parties and stakeholders were invited to submit their views thereon, and the respective submissions revealed discrepancies in perceptions of what had been achieved to date. Opinions differed substantially regarding whether and how the work should be continued, and until when.

After another workshop on financing issues was held in Santa Marta (Colombia) in September 2012, the discussion was transferred to electronic channels of communication between a limited numbers of partners. The reduced set of actors was justified by the requirement for a ministerial meeting to officially announce the prolonging of the Partnership's work. Accordingly, only country representatives were able to join the informal discussion on past achievements and the future work. With stakeholders being effectively excluded and with partners bargaining over text to agree on only the lowest common denominator, this phase notably resembled the UN negotiations.

In Qatar in December 2012, after intensive debates, the Partnership agreed on the secretly pre-negotiated text. Reconfirming the founding document, the so-called REDD+ Partnership Doha Document sets out the intention to continue the work of the interim Partnership until the end of 2014, and on a number of activities originally included in the Nagoya PoW, with priority on new issues also listed in this document.

The network's information technology system

In addition to physical meetings, the Partnership has institutionalized a few technical tools for sharing information, e.g. on concrete REDD+ activities or financing flows. The core instrument is the homepage where partners and stakeholders can access and share information, e.g. agreed-upon working programs and guidelines, agendas for upcoming meetings as well as information on contents of meetings already held. Furthermore, surveys and reports on crucial issues of general concern (e.g. the financial gap analysis), the effectiveness of multilateral aid for REDD+ or assessments of certain country cases are provided. While some of these are compiled by (groups of) partners, researchers and consultancies are also invited to share scientific assessments or give feedback. Stakeholders can discuss and interpret all findings but are bound to meetings to articulate their criticisms, because an interface for direct reactions or to place counter-factual information on specific information is lacking.

The so-called Voluntary REDD+ Database (VRD) serves as the technical heart of the Partnership and allows access to concrete REDD+ activities. It provides an interface for data exchange between partners on the currently roughly 1,300 documented arrangements in more than 30 REDD+ countries. The information is gathered and fed-in bilaterally via a questionnaire that is compiled and interpreted by the VRD management team. At the moment, the

VRD basically provides information on financing, e.g. the amount, distribution and sources of financial contributions, as well as on the different types of actions so far financed.

Although there is no relevant information on safeguards available, the data on financial flows vividly visualizes whether and how information disclosure can work within the VRD to assess the accuracy of reported data. In principle, financing is a similarly conflictive topic and it was agreed to implement a dual data input procedure with donors reporting how much they have granted, or pledged, and beneficiary countries how much they have received. Initially the discrepancies were astonishing and led to heated discussions in meetings. In reaction to this, and supported by the VRD management team, partners updated their figures in the summer of 2012. Inconsistencies in reported data were thereby reduced significantly, in particular with the removal of data from before 2006 that was inaccurately labeled as REDD+ financing. Apparently the dual reporting approach and the discussion of the information in meetings enabled partners and stakeholders to detect mismatches and led to more accurate data overall. Beyond financial data, however, the information available online on concrete activities is still rather too meager, superficial and incomplete to be useful for coordinating measures or for mutual learning. However, if a respective section for data collection was established, the VRD could potentially deliver the information needed to also assess concrete action on safeguards (PISTORIUS & REINECKE 2012).

3.3 The Partnership‘s’ role for safeguards: Discussion and outlook

Recent academic work has highlighted the potential role of voluntary network settings to take on the functions of, or to complement, legally binding agreements. Against the background that the formal scope for integrating biodiversity aspects into international climate policies is substantially limited we wanted to evaluate in how far the voluntary REDD+ Partnership could serve as an integrative complement to the formal conventions. As a basis for discussion we have outlined the objectives and working principles of the Partnership setting, its institutional set-up as well as its working procedures and have briefly described the changes in political practice throughout its short existence.

The picture we can draw of the REDD+ Partnership is an ambiguous one: its small size and institutional independency from the UNFCCC and its focus on one explicit issue area are important characteristics that allow it to be “narrow-but-deep” rather than “broad-but-shallow” (ALDY & BARRETT 2003). As well as limiting misuse of the issue of REDD+ as a bargaining chip in relation to other negotiated issues, the topical focus also significantly limits the risk of “drowning in disclosure” (GUPTA 2008: 4). In this respect, the open-access and dual-reporting of the VRD and the complementary independent assessment reports on the homepage are favorable features. They could also facilitate information disclosure on safeguards or on other aspects. Although partners voluntarily report on their actions, the system in place and the independently working data management team have a quasi-disciplining effect on actors’ behavior: they reveal imbalances in financial records between different recipient countries and inconsistencies between donor and recipient figures. It may become a future option that also other stakeholders engaged in observing REDD+ across different policy levels could complement the existing data or fill data gaps with their information. Currently, however, such information is still detached from the Partnership’s database and, according to the VRD team, there is no intention to integrate additional data.

Moreover, the voluntariness and openness of the setting – in the eyes of many participants, at least until recently – has worked as a "catalyst" providing an "enabling environment" for consensus. In their view, the Partnership allows for discussions on topics and ideas "that maybe would not have been possible in the UN negotiations" (REINECKE et al. 2012). One of the key objectives of the Partnership is to gather and exchange information, basically about technical questions as to how REDD+ activities work on the ground at the national as well as on the project level. The objectives also clearly refer to safeguards. In addition, partners want "to ensure the economic, social and environmental sustainability and integrity of [...] REDD+ efforts." Considering that several discussions have also circled around the issue, safeguards appear so far to have the necessary thematic attention inside the Partnership setting.

Broad stakeholder involvement plays a critical role in the maintenance of the topic: the Partnership as a deliberative setting engages all kinds of stakeholders in the discussions which are typically excluded from negotiations under the UNFCCC. Many interviewed country representatives actually stressed that, with their different backgrounds, these stakeholders contribute important perspectives to the discussions and, moreover, help to fill existing knowledge gaps. They contribute by providing more issue-specific and detailed practical information particularly on "realities on the ground". When discussing, for instance, safeguards or reference levels, such role models make negotiators more secure about what they are actually negotiating about, but also more willing to adopt elements of pioneering policies in their own country contexts (PISTORIUS & REINECKE 2012).

In this light, the Partnership appears to play a strong role in complementing the UNFCCC. In addition, it also has the capacity of autonomously advancing issues that are pending decision or that are unlikely to be brought into a comprehensive and legally binding form, for instance, because they need to be applicable in various contexts and for this reason remain very vague – as in the case of safeguards. Considering this, voluntary settings such as the Partnership may eventually be the only remaining venue beyond national contexts or multilateral funding organizations in which to coordinate on practical and technical aspects of safeguards for biodiversity – though on a voluntary basis.

Especially if the UNFCCC negotiations on a future universal agreement remain stalled, the Partnership could theoretically act as an alternative setting for coordinating REDD+ practices – this however would require significant and far reaching reforms of the setting, as to be explained in the following. If this worst case scenario can be avoided, the Partnership could still serve as a valuable implementation oriented institutional complement to a legally binding but vague agreement on REDD+ under the UNFCCC. It could imbue the general convention principles with practical substance and align the latter to the principles of the CBD and other institutions. With regard to funding security, a binding international mechanism would foster the trust of beneficiaries that they can expect returns for their efforts and investments – a prerequisite for voluntary engagement and open exchange. The other way around, a future binding agreement would also benefit from the strengthened mutual trust between donors and beneficiaries and could yield higher levels of commitment.

In order to make use of such potential, actors will undeniably have to deal with some of the pertinent procedural, organizational and structural limitations that still undermine the legitimacy of the REDD+ Partnership and lead partners, especially stakeholders, to question the added value of the process altogether. This mainly concerns the inclusiveness and overall

independence of the setting. Despite being a key principle in the founding document, stakeholder inclusiveness has repeatedly been a controversial issue in the Partnership.

After the settlement of an initial dispute at the end of the first term, the inclusiveness of the setting was more recently undermined again when stakeholders were essentially excluded from an informal email exchange between country partners on the future of the settings. One major reason why this crucial principle for work is repeatedly violated is the close vicinity of the Partnership to the convention. Nevertheless, it is evidently an essential prerequisite if the Partnership is to play a productive complementary role and for effective communication between the two arenas. Furthermore, it is problematic that meetings are held back-to-back with UNFCCC negotiations and that practically all REDD+ donor and recipient countries send their official negotiators as representatives to the Partnership and. Unsurprisingly, rhetorical practice has thus often reverted into diplomatic bargaining instead of open discussion and political interests and tactics from the UNFCCC process have spilled over, driven in part by singular countries (coalitions). The extent to which free discussion on ongoing processes and best practices can be facilitated and promoted will depend upon the willingness of the actors involved to reduce the vicinity of the Partnership to the UNFCCC negotiations. In order to do so, it is important that the network builds new and strengthens the existing ties to all relevant actors, because only a more flexible constellation of actors beyond countries provides an open forum for experimentation and learning. This may also attract more private actors and investors that are typically averse to hard law (VICTOR 1997), and a broad participation could also increase the legitimacy of the outcomes (THOMPSON et al. 2011).

Moreover, stakeholders function as independent observers reviewing the accuracy of data, e.g. in arrangement reports. This might be even more important in cases where both donor and recipient partners may be interested in concealing certain information (HALE & MAUZERALL 2004). The role of co-chairs is decisive here: they organize the work to a large extent, including whether and how information is disseminated. It is also their responsibility to invite stakeholders to provide timely input through written or oral statements or individual presentations during workshops. Information disclosure, transparency and overall inclusiveness thus vary significantly depending on the (greatly varying) willingness and capabilities of the individual co-chairs. While co-chair alternation was well reasoned on representational grounds – at least for countries, it also undermines the effectiveness and continuity of process and the relationship with stakeholders.

Greater legitimacy may not only be achieved through broad participation; it appears also necessary to establish and hand over responsibilities for organizing the Partnership's work over to a politically independent secretariat (cf. HALE & MAUZERALL 2004), which may compensate for the partly lacking coordination skills (or willingness) of individual co-chairs. UN-REDD and FCPF can hardly meet this criterion as they are important actors (and stakeholders) themselves, and their expertise should be used to enrich the exchange of knowledge. A reform in the structure and practice of the Interim REDD+ Partnership in this respect would appear indispensable if members want to avoid its ultimate termination or replacement: The UNFCCC secretariat, for instance, has recently set up a virtual platform for REDD+ that seeks to build up an even stronger network of private and public actors. With this it directly competes with the VRD and the homepage of the REDD+ Partnership, eventually making these tools obsolete – especially if they are not perceived to provide an added value.

In conclusion, the Partnership was a promising effort to advance on the issue of REDD+; however, the high expectations did not play out for various reasons explained in this Chapter. In light of the vanishing interest by partners and stakeholders alike it appears as if there are two possible scenarios: either the partners succeed in strengthening the process, or they will jointly conclude in the assessment of its work scheduled for 2014 that it is not worth continuing this “interim” process. In light of the most recent developments, e.g. the efforts to agree on a feasible and balanced PoW for the remaining time in 2013 and 2014, it remains somewhat doubtful whether the partners will be able to restructure it into a more legitimate and productive working environment, where civil society members are acknowledged as partners with all rights and (moral) responsibilities.

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4 Consideration of biodiversity in REDD+ projects in Peru and Kenya

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4.1 Introduction

Actions related to the implementation of REDD+, as currently negotiated under the UNFCCC, have become very dynamic in most tropical countries in recent years, although many modalities for the REDD+ mechanism have yet to be agreed upon at the international level. However, there is an increasing number of initiatives in tropical countries that aim to establish the institutional and technical infrastructures as well as the legal frameworks for a successful implementation of the five eligible REDD+ activities (according to FCCC/CP/2010/Add.1, p70, cf. Chapter 1) to reduce forest-based emissions (cf. Chapter 2). At the same time, a number of initiatives are being developed that aim to reduce forest-based greenhouse gas emissions in geographically defined areas at the subnational level (CENAMO et al. 2009). Such REDD+ projects are often designed by NGOs or for-profit companies to sell carbon credits on the voluntary carbon markets. They are therefore not directly linked to on-going national or international REDD+ policy processes. However, they generate information that potentially facilitate the implementation of REDD+ at the national or subnational level (CENAMO et al. 2009; DULAL et al. 2012; LIN et al. 2012).

For several reasons, these projects are also valuable sources of information on how biodiversity is considered in the as yet early phase of REDD+ implementation. Environmental NGOs are usually involved in the development of REDD+ projects to increase their budgets for conservation activities. The greenhouse gas reductions generated by the projects are usually verified according to carbon project standards, such as the Verified Carbon Standard (VCS). Additional certification of the projects' positive impacts on biodiversity, local communities or ecosystem services (ES), e.g., according to the Climate, Community and Biodiversity Standard (CCBS), can further increase the revenues from the sale of carbon credits (NEEFF et al. 2010). Biodiversity therefore has a prominent role in the certification process of the REDD+ projects.

This study, which was carried out within subproject 2 of the research and development project "The Protection of Forests under Global Biodiversity and Climate Policies", had the objective to evaluate how conservation of forest biodiversity is considered in individual REDD+ projects and to identify specific challenges and opportunities for the integration of biodiversity at the project level. Complementary to the analysis of relevant processes within international climate and biodiversity regimes, which was covered by subproject 1 (cf. Chapters 2, 3), the description and analysis of on-ground experiences can help to understand the practical challenges for integrating biodiversity concerns in an overall REDD+ regime.

The study is based on the description of advanced REDD+ projects in Peru and Kenya and an extensive interview survey of stakeholders involved in REDD+ implementation processes in these countries. The countries were chosen because they cover different ecosystems and host a variety of relatively advanced REDD+ projects (cf. Section 4.2). Challenges and opportunities with regards to biodiversity in REDD+ projects are summarized for each project (cf. Sections 4.3, 4.4) and implications for specific biodiversity aspects are presented (cf. Section 4.5).

The descriptions of the projects and the interview results have served as the basis for various other publications (ENTENMANN 2010; ENTENMANN & SCHMITT 2011, 2013, in prep.; ENTENMANN et al. under review). Parts of this study have been published in Spanish to disseminate the results of the case study in Peru to a Spanish-speaking audience (ENTENMANN 2012).

4.2 Methodology

4.2.1 Choice of Peru and Kenya as case study countries

Peru and Kenya were selected as case study countries because they were relatively advanced with the implementation of REDD+ at the national level at the time of data collection. Both countries submitted versions of their REDD+ Readiness Preparation Proposals (R-PP) (GOK 2010b; GOP 2011) to receive further funding for preparation activities and analyses from World Bank's FCPF. In a common approach from the World Bank and other organizations that defines the terms of reference for the disbursement of funding to the participating countries, different provisions for social and environmental concerns were included. Some of these aim at excluding negative impacts of REDD+ on the ecological functions of natural habitats (FCPF 2012a).

Besides the common approach there are other guidelines and standards that are considered to some extent in the process of REDD+ preparation in the two countries (see BOYLE & MURPHY 2012 for an overview of the different norms and standards). Both case study countries considered some of the different guidelines for biodiversity during their REDD+ preparation processes. Furthermore, there was already some practical experience with REDD+ implementation, since the countries hosted advanced REDD+ projects.

Evaluations of REDD+ related impacts on biodiversity need to consider the kind of REDD+ activities applied to reduce greenhouse gas emissions, as well as the forest types in which the activities take place (KAPOS et al. 2012). Therefore the selection of countries was guided by the intention to include a range of different ecosystems and apply different REDD+ strategies in the analysis (cf. Fig. 4.1 and 4.2 for the countries' ecological zones and Table 5.1, Chapter 5, for specific forest data).

Peru can be regarded as a "classical" REDD+ country, where initiatives at the national and project-level mainly aim at reducing emissions from deforestation and degradation in tropical rainforests. Peru is the country with the second largest forest cover in Latin America and the fourth largest area of tropical forest in the world (BRACK 2008). Although the country had relatively low levels of deforestation in the past two decades, deforestation and land use change has become the largest source of greenhouse gas, accounting for 47% of Peru's overall greenhouse gas emissions (MINAM 2009). Peru hosts high levels of forest biodiversity (RODRIGUEZ & YOUNG 2000). There are 1,800 bird species (SCHULENBERG et al. 2010), 508 mammals (PACHECO et al. 2009) and more than 400 amphibian species (YOUNG et al. 2004), many of which are endemic to the Peruvian rainforest. Peru is therefore one of the countries where synergies between the objectives of the UNFCCC and the CBD are most likely to be achieved (VENTER et al. 2009). Peru's R-PP (GOP 2011) was positively assessed by the FCPF and the modalities for further grant disbursement are being negotiated (FCPF 2012c).

Kenya, having a forest cover of only ca. 6% (FAO 2010b), does not have a particularly high potential for reducing emissions from deforestation. Still, the problems resulting from deforestation are severe and Kenya is relatively advanced in the preparation of its REDD+ strategy, which has – in comparison to Peru – a stronger focus on the "plus" aspect of REDD+; and enhancement of carbon stocks is one of the candidate strategies in the national REDD+ implementation strategy (GOK 2010b). The creation of additional benefits regarding biodiversity and ES is also a central aspect of the national REDD+ strategy (GOK 2010b). About 80% of Kenya is covered by arid and semi-arid lands (GOK 2010a). REDD+ projects and national REDD+ strategies have a focus on these ecosystems (GOK 2010b). Potentially, the focus on enhancement of forest carbon stocks and activities in dryland areas implicates that approaches to integrate biodiversity concerns in REDD+ differ from avoided deforestation/degradation in rainforests and include, e.g., considerations regarding the choice of trees species in reforestation activities.

4.2.2 **Data collection and description of projects**

This report builds on data collected during interview surveys and participatory observation in Peru and Kenya and a review of official documents, reports on REDD+ activities and other related information, such as management plans of protected areas (PA) and project design documents (P-DD). Semi-structured interviews were realized with experts engaged actively in the REDD+ implementation process, REDD+ projects and biodiversity conservation (hereafter referred to as "actors").

The selection of actors in both countries was conducted using the snowballing technique: first, three actors from NGOs, private companies and government were identified in the (draft) R-PP of Peru (GOP 2010) and Kenya (GOK 2010b) and were invited for an interview. In the interviews, the actors were asked to identify other relevant actors in the REDD+ process. These actors were then addressed in the same way. Virtually all actors were willing to be interviewed. Sampling continued until repetition occurred in the naming of new actors. A more detailed description of the sampling methods and the interview guidelines used is provided in Entenmann & Schmitt (2013).

To obtain additional information, actors were asked about documents containing biodiversity data or that are otherwise relevant to their work. All project descriptions are based on both the interviews and available literature, in which case citations are provided. Documents published after the interview surveys were used to update the findings from the interviews. The P-DD that were written by the project proponents for the certification process (e.g., according to the VCS or the CCBS) were especially useful. The CCBS requires the definition of conservation objectives and High Conservation Values (HCV), which are significant environmental or socioeconomic assets in the forest areas (RIETBERGEN et al. 2007; CCBA 2008).

The interview survey in Peru was carried out in Lima and in the regions Madre de Dios, San Martín and Pasco between August and December 2010. The sample contained actors working in different bureaus of relevant Ministries or governmental entities at the national and subnational level, project developers from NGOs and the private sector, research institutions and NGOs working with local people (Table 4.1).

Table 4.1: Overview of REDD+ actors interviewed in Peru for the study (n=50). Acronyms are explained in Annex 4.1.

Actors at the national level (20)	Federal Ministry of Environment (MINAM, REDD+ focal institution of Peru) (5) (Bureau of Climate Change, Desertification and Hydrological Resources; Bureau of Evaluation, Valuation and Financing of the National Heritage (2); Bureau of Biodiversity; Direction of Geographical Information Systems)
	Federal Ministry of Agriculture (2) (Bureau of Wildlife and Forestry)
	National Service of Protected Areas (2) (head office)
	NGOs (6) (AIDER*; CI*; DAR; DRIS, SPDA; WWF*)
	PROFONANPE
	Technical cooperation (GIZ)
	Private companies (BAM*)
	Universities and governmental research institutions (2) (National Agrarian University La Molina; National University of San Marcos)
Actors at the subnational level in San Martín and Madre de Dios (30)	Regional governments (3) (Madre de Dios*(2); San Martín*)
	National Service for Natural Protected Areas (4) (regional offices San Martín (3); Madre de Dios)
	Private companies working on REDD+ (2) (BAM*; Maderyja forest concession)
	NGOs primarily working on REDD+ project implementation (6) (ACCA*; AMPA*; AIDER*; CI*; CEDISA, CIMA*)
	Producers' associations (2) (small-scale forestry: FEFOREMAD: , Brazil nut producers: FEPROCAMD)
	Organizations working on biodiversity monitoring (4) (IIAP (2), Association Fauna Forever, AMPA)
	NGOs working with communities (3) (AVMM; IBC; CAMDE Peru)
	Federations of indigenous peoples (6) (Representatives of the Indigenous Communities 'Bélgica' and 'Infierno' (3); FENAMAD (2); AIDESEP)

*Central actors described in more detail in Section 4.2.3

In Kenya, the interview survey took place between September and December 2011 in Nairobi, the Coast Province, the Eastern Province and the Western Province and consisted of 34 interviews with actors working with REDD+ in different sectors at both the national and subnational level (Table 4.2).

Projects that apply activities to reduce forest-based greenhouse gas emissions according to the eligible REDD+ activities mentioned in the Cancún decisions (FCCC/CP/2010/Add.1) are generally referred to as REDD+ projects in this Chapter. Projects that sequester greenhouse gas by (re-)establishing tree cover on forest and non-forest land consider themselves as afforestation and reforestation (A/R) projects rather than REDD+ projects (see, e.g., VCS 2011) and are referred to accordingly in this Chapter. While A/R activities correspond in theory to enhancement of carbon stocks and are therefore eligible for REDD+, the term A/R is usually associated with emissions reduction projects in the context of the Clean Development Mechanism (OLANDER et al. 2012) and therefore avoided in the context of REDD+. Still, A/R projects were considered relevant by actors who are active in implementation of the national REDD+ strategy.

Table 4.2: Overview of actors interviewed in Kenya for the study (n= 34). Acronyms are explained in Annex 4.1.

Actors at the national level (18)	Kenya Forest Service* (3) (REDD+ focal institution, head office in Nairobi)
	Ministry of Forestry and Wildlife
	Kenya Wildlife Service* (3) (head office)
	NGO (5) (Green Belt Movement; Nature Kenya (2); Kenya Forest Working Group (2))
	Interim Coordinating Secretariat of the Mau Forest
	Financial cooperation (World Bank)
	UN Organizations (UNEP)
	Universities and governmental research institutions (3) (Kenya Forest Research Insti-tute; Kenya National Museums; Department of Resource Surveys and Remote Sensing)
Actors at the subnational level (16)	Kenya Forest Service (regional office)
	Technical cooperation (US-AID)
	Companies working on REDD+ pilot project implementation (8) (CAAC (2); Carbon Africa*; Eco$_2$librium (2); Wildlife Works* (3))
	NGOs working with REDD and A/R projects (2) (AWF*; Green Belt Movement)
	Community Forest Associations (2)
	Organizations working on biodiversity monitoring (2) (KEEP; Wildlife Works*)

*****Central REDD+ actors described in more detail in Section 4.3.1

4.3 REDD+ projects in Peru

To reduce deforestation rates, the Peruvian Ministry of Environment (MINAM) is preparing to implement a REDD+ strategy as a part of its National Forest Conservation Program for the Mitigation of Climate Change MINAM (2010). A Lima-based national REDD working group ("Mesa REDD"), comprising representatives from the MINAM and other ministries, NGOs, representatives of indigenous peoples and the private sector, has been established. Its objectives include capacity building, collection and exchange of information, and contribution to MINAM's policy-making process for national REDD+ implementation. Many organizations involved in the development of REDD+ related projects participate the working group.

Peru is opting for a gradual and decentralized implementation strategy for REDD+, i.e., the nested approach (PEDRONI et al. 2009; CHAGAS et al. 2011). Accordingly, subnational REDD working groups were established in various regions. The most active regions in terms of REDD+ implementation are Madre de Dios and San Martín (Fig. 4.1). In these regions also the most advanced REDD+ projects take place.

4.3.1 **Descriptions of the project regions**

The Madre de Dios region is located in the south-eastern part of the country and consists mainly of lowland rainforest (Fig. 4.1). In addition to the efforts of a regional REDD working group to develop deforestation baselines for Madre de Dios, there is a diversity of REDD+

projects that are being or have already been implemented by different organizations (Tables 4.3, 4.4, Fig. 4.1).

The attractiveness of implementing REDD+ activities in the Madre de Dios region is derived from various factors. While the forests store a relatively large amount of carbon (ranging from 85-125 t aboveground C ha^{-1}, see ASNER et al. 2010), historical deforestation in Madre de Dios has been comparatively low (GOP 2011). Except for a rubber boom, which took place from the late 1880s to the early 1900s, there was no strong economic development in the region until about 1970 when alluvial gold was discovered (FLECK et al. 2010). Since then, the population has increased. Although population density (at 1.3 habitants km^{-2}) is still relatively low, the population is expected to grow, mostly because of soaring gold prices and the paving of the Interoceanic Highway, a connection between the Pacific and the Atlantic Ocean (KILLEEN 2007). Due to the increased accessibility, migrants are attracted to the region for agriculture or gold mining (FELIPE-MORALES 2009; COSSIO-SOLANO et al. 2011). A total area of about 20 million ha, of which 70% is forest, is considered to be under direct influence of the highway (FLECK et al. 2010). Threats to the forest emerge when agricultural activities are undertaken, even if they take in the areas designated for agricultural use: to suppress forest succession and to keep the land open these areas are burned several times a year, also during the dry seasons. Fire often spills into the adjacent forest areas, leading to severe degradation. Opportunity costs for avoided deforestation, however, can be relatively low in some regions. For example, Fleck et al. (2010) estimated the opportunity costs for agriculture, livestock husbandry and forestry activities for an area of 29,000 km² along the Interoceanic Highway. It is concluded that for 71% of the area directly threatened by deforestation (3,700 km²) the opportunity costs for carbon conservation is less than US$ 0.16 t CO_2-e^{-1} a^{-1} (FLECK et al. 2010). This amount could be obtained through the sale of carbon credits from REDD+ projects in the region (cf., e.g., PETERS-STANLEY & HAMILTON 2012).

In contrast to the deforestation patterns in Madre de Dios, the highland-forests of the region San Martin in north-central Peru (Fig. 4.1) have already experienced widespread deforestation. San Martín is more densely populated than Madre de Dios (14.2 habitants km^{-2}) and the region with the highest proportion of deforested area in Peru (GOP 2011). Forests have been cut and degraded for livestock husbandry, agriculture, and coffee cultivation, which is often conducted without proper management, e.g., fertilization or pruning, and is therefore not very efficient and space intensive (GOP 2011). Another underlying cause of deforestation mentioned by the actors was illegal land trafficking: lands on PAs or other areas not designated for commercialization were sold illegally, often to migrants new to the area. This led not only to social problems, but also to agricultural activities in areas designated for protection.

PAs play an important role for the description of REDD+ projects in Peru, since three of the ten REDD+ projects described are located in areas belonging to the National System of Natural Protected Areas (SINANPE) (Table 4.4), which covers about 17% of the national area and incorporates many different ecosystems (SERNANP 2010). In some cases, NGOs had an administration contract with the National Service of Protected Areas in Peru (SERNANP). Others were managing private conservation concessions (cf. Section 4.3.3). Although the latter do not belong to the SINANPE, conservation concessions are also PAs designated for biodiversity conservation. The limited resources available for PA management, lacking management plans and high external migration pressure (often caused by increased accessibility via paved roads) led to encroachment and deforestation of many PAs (SERNANP 2009). In

the interviews it was mentioned that regional policies were often inconsistent with national policies to protect PAs, i.e., schools were established in PAs by canvassing local politicians.

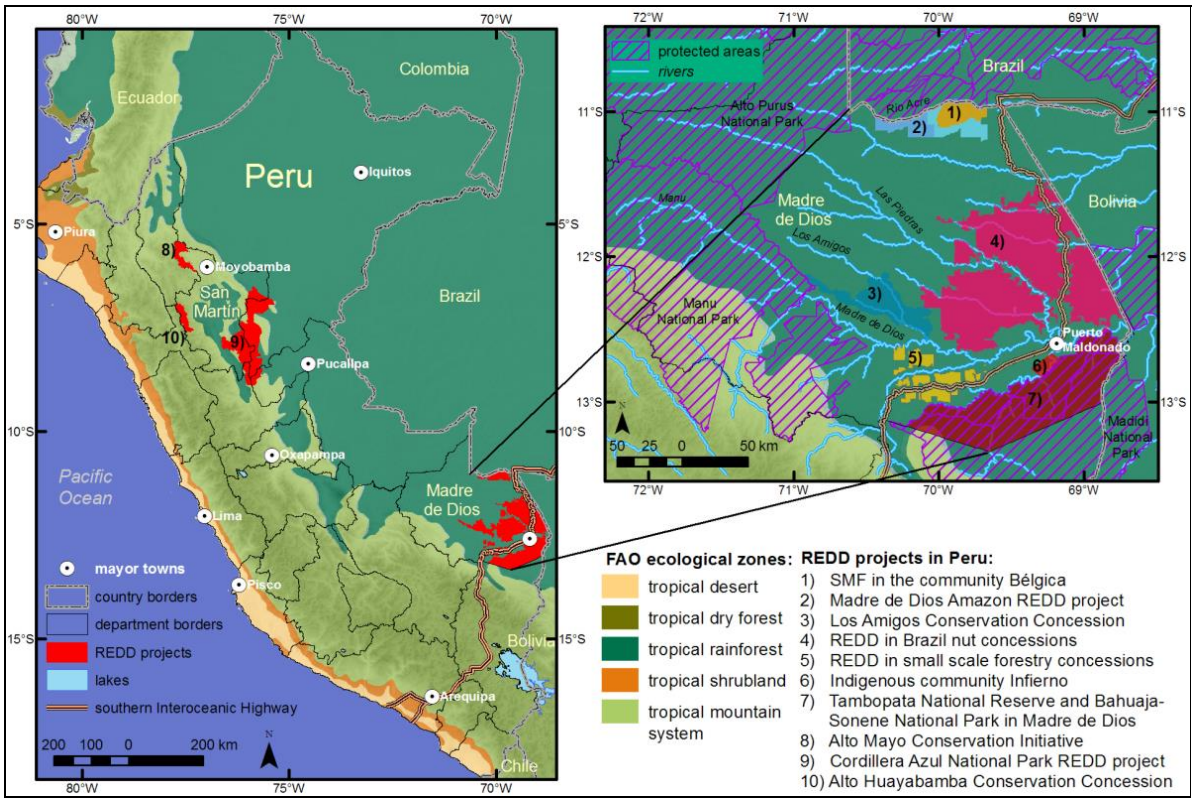

Fig. 4.1: Location of REDD projects in Peru (as of December 2010). The project numbers correspond to the numbers in Tables 4.3 and 4.4 (source: FAO 2001; USGS & WWF 2006; IUCN & UNEP 2009; Regional Government Madre de Dios).

4.3.2 **General problems related to the implementation of REDD+ projects**

During the analysis of the project descriptions and interviews some general problems became evident. For example, high deforestation rates often derived from insufficient cooperation between governmental entities. Consequences that were mentioned in the interviews included superposition of concessions for the extraction of different natural resources. Although there were efforts to develop spatial plans for the regions – e.g., the economical-ecological zoning of Madre de Dios was completed in 2009 (e.g., INADE 2007; CADENILLAS et al. 2008) – unsatisfactory communication between governmental entities managing different natural recourses and unspecific legal frameworks still resulted in frequent land use conflicts between forestry and mining. A constant threat for forest concessionaires was that forests could be damaged when subsoil-resources were discovered and exploited. Furthermore law enforcement and prevention of illegal encroachment or logging was considered by most actors to be restricted due to limited financial and human resources and corruption. The vulnerability of forest land not only resulted in deforestation, but also reduced the incentives for long-term investments in forest concessions and for application of sustainable forest management practices.

Other problems mentioned by almost all actors interviewed included inflated expectations of people regarding the benefits supposedly generated by REDD+. Lack of the understanding of the underlying principles of REDD+ and carbon markets, especially amongst local actors, contributed to this problem. This was related to the fact that REDD+ projects have frequently been implemented by NGOs with a bad reputation regarding their way of approaching forest-dependent communities: there were statements in the interviews that accused some NGOs involved in the implementation of REDD+ projects of not working transparently and trying to impose certain development strategies on local people. Similar findings are presented in the literature (CABELLO 2010; RUGNITZ 2012).

Furthermore, almost all actors complained about missing legislative frameworks for the commercialization of ES, and that the two ministries relevant for the forest sector at the national level, i.e., MINAM and the Ministry of Agriculture, lacked a strategy regarding for the introduction of REDD+ – and other schemes for Payment for Ecosystem Services (PES). The situation was even worse in subnational governments. The general need for operational laws that define the rights to commercialize ES, regulate revenue-distributions, determine the market rules and, therefore, create incentives to invest in PES was expressed often.

4.3.3 **Important actors in Peru**

Central organizations from the public and private sector as well as from civil society that were strongly involved in REDD+ at the time of data collection are presented in alphabetical order.

Association for Integrated Research and Development (AIDER)

The NGO AIDER specializes in the management of natural resources, PA and PES. It coordinates several projects in different parts of Peru, including REDD+ activities in Madre de Dios and San Martín (cf. Section 4.3.4.7). AIDER has been working with REDD+ since 2008 and has recruited additional GIS specialists and other experts. In the interviews, AIDER was considered the leader regarding methodology development and remote sensing application for REDD+ in Peru. Its specialists were frequently consulted on various aspects of REDD+, and AIDER has a strong influence on regional and national processes. AIDER has been participating in regional REDD working groups since 2009 and has been involved in the establishment of regional deforestation reference scenarios.

Amazon Conservation Association (ACCA)

The environmental NGO ACCA is working on the investigation and conservation of biodiversity in Madre de Dios, especially in the Los Amigos Conservation Concession, which has been managed and administered by ACCA since its establishment in 2001 (ACA 2008). REDD+ is seen as a source of funding for the management and protection of the area (cf. Section 4.3.4.3). ACCA focuses on sustainable management of forests, governance, and land management and has been successful in protecting and carrying out research in the conservation concession.

Association Amazonian People for Amazonia (AMPA)

AMPA is an NGO that works in conservation and sustainable development in different regions in the northern Peruvian Amazon. Since 2007, AMPA has been the concessionaire for the Alto Huayabamba Conservation Concession, located in San Martín. The concession has been granted for a period of 40 years. AMPA sees REDD+ as a tool to generate additional funds for the management of the area (cf. Section 4.3.4.10). AMPA also collaborates with other NGOs that are involved in the management of communal PAs and is one of the coordinators of the regional REDD+ working group. At the time of data collection a biodiversity management plan was under development.

Bosques Amazónicos (BAM)

The for-profit forestry company has been working with PES schemes since at least 2008. BAM has Columbian, Chilean and US-American capital, but the largest share remains Peruvian. BAM is the main developer of two REDD+ projects in Madre de Dios (cf. Sections 4.3.4.4, 4.3.4.5) and an important investor and driving force for REDD+ implementation in the region, since it invests in the development of REDD+ projects and necessary methodologies. BAM cooperates with NGOs and the local government. Besides its REDD+ projects in Madre de Dios, BAM has an A/R project in the Ucayali region, where it intends to reforest up to 16,000 ha of previously degraded pastureland (AIDER & BAM 2010).

Conservation International (CI)

CI is an US-American environmental NGO that works globally in biodiversity hotspots. CI sees REDD+ as a mechanism that potentially channels more money into the conservation sector. CI has been working in Peru for decades and wants to promote REDD+ as a viable mechanism for reducing deforestation. For its REDD+ activities in Peru, CI builds on and amplifies its experiences from other carbon and REDD+ projects, such as the Corridor Ankeniheny-Zahamena project in Madagascar (HARVEY et al. 2010).

Centre f. Conservation, Research & Management of Natural Areas in Cordillera Azul (CIMA)

The Peruvian environmental NGO CIMA has been managing the Cordillera Azul National Park since 2008, when the Peruvian Government granted CIMA a 20-year administration contract. CIMA sees REDD+ as a tool to sustainably finance activities that lead to the stabilization of land use dynamics and deforestation (cf. Section 4.3.4.9). CIMA was involved in spatial planning activities in the Park, environmental education, land titling and capacity building to improve and diversify agricultural production in the buffer zone. CIMA was also involved in developing a monitoring system for the Cordillera Azul National Park (PEQUEÑO 2007).

Regional Government of Madre de Dios

The Regional Government of Madre de Dios recognizes REDD+ as a way to halt deforestation and welcomes the REDD+ projects in the region. The Government created organs to

facilitate the implementation of REDD+ and the promotion of PES schemes to sustainably use and manage natural resources in Madre de Dios. In December 2009, the Government assigned its Regional Administrative Office of Natural Resources and Environmental Administration the task of implementing a REDD working group in Madre de Dios with the aim of generating an official deforestation baseline. Group members include different bureaus of the Government, representatives of the National Service for Natural Protected Areas (SERNANP), the Native Federation of Madre de Dios and its Tributaries (FENAMAD), as well as a range of public research institutions and organizations from both private and public sectors. While the President of the regional government is officially chairing the working group, the private sector and NGOs lead, in effect, the thematic and technological discussions.

A subdivision of the working group, the "REDD consortium", was founded to generate data on deforestation and to develop appropriate methodologies to estimate future deforestation. It is composed of actors from different sectors, including NGOs (ACCA, AIDER, WWF and CI), private companies (BAM, Carbon Decisions International) and the University of Madre de Dios and is a forum for sharing knowledge and experience and for designing and consolidating REDD+ projects and programs that promote sustainable use of biodiversity.

Regional Government of San Martín

The Regional Government of San Martín wants San Martín to become a recognized example region for Peru in terms of forest protection, sustainable forest management and the implementation of REDD+ projects. It supports open and active participation of all interested actors and chairs the regional REDD working group. However, the main driving forces of the projects in the region are environmental NGOs. Members of the government considered it fairly "green" and conservationist, and agricultural production, reforestation and the production of biofuels are seen as important strategies for the Government to ensure a sustainable energy supply. The objective of the REDD working group is to develop technical, legal, financial and social solutions regarding the construction and application of a regional deforestation model. It is led by the regional government and coordinated by AMPA, CIMA and the "Centre for Development and Investigation of the Selva Alta" (CEDISA). Other participating organizations include universities, producers' cooperations and environmental NGOs.

World Wide Fund for Nature (WWF)

The WWF recognizes the potential of REDD+ in Peru and has prioritized Peru as a REDD+ focal country. However, it also perceives a number of different challenges and possible pitfalls (WWF 2009). Madre de Dios is one of the two geographical regions that have been prioritized for conservation within the WWF program of bolstering the value of natural ecosystems/forest. The WWF supports and participates in the national and regional REDD working groups. At the time of data collection, WWF was developing a P-DD for a REDD+ project involving indigenous communities. The project will focus on a buffer of land along the Interoceanic Highway.

4.3.4 **Description of REDD+ projects in Peru**

The REDD+ projects take place in different land use categories and involve different stakeholders. General characteristics of the projects are shown in Tables 4.3 and 4.4.

4.3.4.1 SMF in the community Bélgica

Description of actors and area

The indigenous community Bélgica consists of persons of Yine and Huitoto origin (Table 4.3) and is covered by subtropical humid forests. The community center is about 30 km to the west of the town Iñapari, located directly on the Interoceanic Highway at the border to Brazil (Fig. 4.1). Although the road that connects the community with Iñapari is at times in bad condition, the community can be accessed easily via the Acre River. According to representatives of the community, harvesting and selling timber was the community's main economic activity. The community forest land was considered to be readily accessible for migrants and illegal loggers clearing the forests for agriculture. Regardless, the community forest still has carbon stocks that are high enough to make a REDD+ project viable (ASESORANDES 2010, Table 4.4). In 2009, the community was approached by the Lima-based brokerage company Asesorandes SAC, who suggested implementing a REDD+ project on communal lands. A contract, set for 30 years, was signed in 2010. According to representatives of the community, 80% of the net revenues from the carbon sales should go back to the community, and no additional commitments or obligations for the community (other than compliance with the management plan and "taking care of the forest") resulted from the contract. It was stated that Asesorandes covers the projects' upfront costs and helps with legal issues and the establishment of forest management plans. However, other sources described the negotiations between the community and Asesorandes as not as advanced and that the modalities for the commercialization of carbon credits have not been defined yet (RUGNITZ 2012).

Links to (sub) national REDD+ strategy

Although community members mentioned that there was some exchange regarding REDD+ with the regional government, this REDD+ project had so far relatively little influence on the development of a national or subnational strategy, since Asesorandes SAC had neither been part of the regional nor the national REDD+ working group.

Strategies/expectations

The project strategy included the application of sustainable forest management in the area. While there was no specification of the activities available, actors stated that forest management supposedly included low impact logging (extraction rate: 0.6 trees ha^{-1} a^{-1}) and improved management of natural resources, especially fishing and hunting. Incomes generated by REDD+ were budgeted to be reinvested in alternative and sustainable income strategies to reduce the pressure on the forest as well as to support the establishment of monitoring schemes and to carry out evaluations and forest restoration (ASESORANDES 2010). The community was interested in becoming certified according to the standards of the Forest Stewardship Council (FSC). Agriculture and ecotourism were considered as potential additional strategies in the interviews.

Issues relating to project implementation

The community did not perceive any risks resulting from REDD+ and regarded the negotiation process with Asesorandes as fair. However, it also became apparent that there was little knowledge about the concept of REDD+ in the community, e.g., through the statement of a community representative “s[S]ure, we understand that [REDD+] is good, but there should also be more information.” It is therefore likely that the community was not able to estimate how much money the REDD+ project will actually generate. Another issue that became apparent during the interviews was that fair and equal distribution of the revenues among the community members was not ensured, given that contracts were signed only by the president and most community members were not involved in REDD+ negotiations.

Implications for biodiversity

The flora of the communal land corresponds in general to the species also detected in the adjacent area of the logging concessions Maderyja SAC (cf. Section 4.3.4.2) and hosts a diverse flora and fauna, including threatened species (BARRIO 2005; BARRIOS 2008). While there were only few biodiversity studies available for the community area (e.g., CESVI 2007), uncontrolled hunting and fishing already had significant impacts on threatened species in the region. according to community members, the number of animals hunted and fished had gone down considerably in recent years, as well as the number and regeneration rate of valuable timber species. The impact of invasion and unsustainable forest management was visible in the area.

Table 4.3: Locations, area, proponents and local stakeholders of REDD+ projects in Peru. Numbers correspond to those in Fig. 4.1 (data as of 12.2010, if possible, updated).

Project	Region, location	Area (ha)	Proponent and partners	(Upfront) funding	Local communities
1. SMF in the community Bélgica	Madre de Dios, indigenous community "Bélgica"	53,400	Asesorandes, "Bélgica" community, Maderyja SAC	Asesorandes	~ 90 members of the community, migrants
2. Madre de Dios Amazon REDD project	Madre de Dios, Maderyja / Maderacre forestry concessions	98,900	Maderyja/ Maderacre SAC, AIDER, Greenoxx	Maderyja / Maderacre SAC	Adjacent villages (incl. native communities). Locals are hired for the project
3. Los Amigos Conservation Concession	Madre de Dios, Los Amigos Conservation Concession	146,000	ACCA, SPDA, BAM, Carbon Decisions International	Moore Foundation, BAM	Adjacent (native) communities, communities in voluntary isolation
4. REDD project in Brazil nut concessions	Madre de Dios, Brazil nut concessions	291,600	BAM, Carbon Decision International, FEPROCAMD, CAMDE Peru,	BAM: US$ 1 million	~ 370 concessionaires signed a contract. Other concessionaires within reference area
5. REDD in small scale forestry concessions	Madre de Dios, concessions for afforestation and reforestation	85,000 (project objective)	BAM, Carbon Decision International, FEFOREMAD	BAM	~ 80 small-scale forestry concessionaires signed a contract with BAM
6. Indigenous community Infierno	Madre de Dios, indigenous community "Infierno"	10,000	ITTO, AIDER, Community Infierno, Ministry of Agriculture	ITTO, Ministry of Agriculture (ITTO 2010)	Native community Infierno, ca. 150 families
7. Tambopata National Reserve/ Bahuaja-Sonene National Park	In PAs Tambopata and Bahuaja-Sonene (Madre de Dios region)	572,500	AIDER, BAM, different NGOs involved in biodiversity monitoring	BAM (BAM 2011c)	~ 50 communities in the buffer zone of the PA, about 11,300 people
8. Alto Mayo Conservation Initiative	San Martin, Alto Mayo Protection Forest	182,000	CI, AIDER, ECOAN, SERNANP, SPDA, AVMM	Walt Disney Cruise Lines (CI 2009)	~ 1,000 families inside the area, 12,000-16,000 people using the resources (CI 2012b, a)
9. Cordillera Azul National Park REDD project	San Martin, Ucayali, Loreto Huánuco (Cordillera Azul National Park)	1,35 million	CIMA, Field Museum, Winrock, Terra Carbon, SERNANP	Exelon (US $ 1.5 million (MONGABAY 2008)	270,000 people with access to PA; isolated communities inside the area (CIMA 2012)
10. Alto Huayabamba Conservation Concession	San Martin, Alto Huayabamba Conservation Concession	145,000	AMPA, CIMA	Blue Moon Foundation, WWF, CI	~ 85 families in the eastern and ~ 120 families in the western part

Table 4.4: Strategies and estimated annual GHG reductions of REDD+ projects in Peru. Numbers correspond to numbers in Fig. 4.1 (data as of 12.2010, if possible, updated).

Project	REDD+ strategies and objectives	Certification	GHG red. (t CO_2-e yr^{-1})	Forest management
1. SMF in the community Bélgica	SFM: sustainable development with alternative income strategies, improved agricultural practices, capacity building, ecotourism (BROTTO 2010)	P-DD: VCS, CCBS Planned: FSC	n/a; 1.65 million t aboveground CO_2e (ASESOR-ANDES 2010)	SFM: FSC certified extraction of (non) timber forest products
2. Madre de Dios Amazon REDD project	Avoided deforestation: improved monitoring and project delimitation, alternative incomes for local communities, environmental education (SCHROEDER 2009; BROTTO 2010)	Approved: VCS, CCBS (gold level), FSC	659,793 (GREENOXX 2012)	SFM: FSC certified timber extraction
3. Los Amigos Conservation Concession	Avoided deforestation: improved monitoring and patrolling, education, increase life quality and incomes for local communities	P-DD: VCS, CCBS	n/a; 79.4 million t aboveground CO_2-e stock (WINROCK 2006)	Private PA: non-timber forest products (e.g., Brazil nuts)
4. REDD project in Brazil nut concessions	Avoided deforestation: add value to Brazil nuts and processed products by establishing a processing plant, additional income through carbon credits and non-timber forest products, improved monitoring system	Approved: VCS P-DD: CCBS	2,086,089 (BAM 2012)	non-timber forest products / timber according to management plans
5. REDD in small scale forestry concessions	Avoided deforestation: improve forest use via added value to timber products through the establishment of a processing plant (BAM 2011d), improved monitoring	Approved: VCS P-DD: CCBS Planned: FSC	n/a	Certificated timber extraction using management plans
6. Indigenous community Infierno	Gain experience of commercializing ES with native communities (ITTO 2010), SFM	Elaboration of "Project Idea Note"	n/a	SFM (certification from FSC desired)
7. Tambopata National Reserve/ Bahuaja-Sonene National Park	Avoided deforestation: improved biological monitoring and evaluate REDD+ as a mechanism for PA financing (AIDER 2010b), improvement of the monitoring system, sustainable extraction of non-timber forest products	Approved: CCBS (gold level) P-DD: VCS	339,754 (AIDER 2010b)	PA (part of SINANPE): only extraction of non-timber forest products, ecotourism
8. Alto Mayo Conservation Initiative	Avoided deforestation: improved park management, sustainable resource use, development of PES, conservation agreements with local, sustainable development (CI 2012b)	Approved: VCS, CCBS (gold level)	515,268 (CI 2012a)	PA (part of SINANPE): conservation agreements
9. Cordillera Azul National Park REDD project	Avoided deforestation: strengthen park protection, engage local communities, build local capacity for sustainable land use (CIMA 2012)	Under validation: CCBS P-DD: VCS	1,821,281 (CIMA 2012)	PA (part of SINANPE): sustainable use of NTFP products
10. Alto Huayabamba Conservation Concession	Sustainable financing and management of the CC through zonation, improvement and partial intensification of agriculture (AMPA 2010)	P-DD in preparation: CCX, CCBS	n/a	Management according to conservation agreements

If the community is to become certified according to the FSC for their forest management activities or/and certification according to the CCBS, conservation objectives and a monitoring plan must be established. For monitoring activities the community has already established a forest committee to monitor illegal timber extraction along the Acre River and along the border to the adjacent logging concession Maderacre SAC, and to register animal tracks. In this way, the traditional knowledge, which is still preserved to a certain extent, could be incorporated into a monitoring and management scheme. However, the proposed monitoring scheme was still rather vague and had not been implemented at the time of data collection.

4.3.4.2 Madre de Dios Amazon REDD project in timber concessions

Description of actors and area

This REDD+ project takes place on the forest concessions Maderyja SAC (property of Chinese investors) and Maderacre SAC (association of Peruvian forest owners) in subtropical humid forests, including low terrace forests and lower montane forests (SCHROEDER 2009). On both concessions timber is harvested and commercialized through the production of sawn wood and plywood for North American and Chinese markets (BROTTO et al. 2010). The concessions are managed almost identically and have received FSC certification. Because of this certification, the companies were granted the right by the government to use ES (besides extracting timber resources), including the commercialization of carbon credits (SCHROEDER 2009). The project is internationally recognized and can be regarded as one of the most advanced projects in Peru. It already sold certificates for at least 31,000 t CO_2-e to Scotia Bank Peru (GREENOXX 2010b) and organizers of the Rally Paris-Dakar (DAKAR 2011). Prices were estimated to be around US$ 7 t CO_2-e^{-1}.

The developer, investor and intermediary for the commercialization of carbon certificates is the Uruguay-based NGO Greenoxx (GREENOXX 2010a). An important associate for the project implementation was AIDER, which was responsible for satellite image interpretation, modeling and the development of the reference scenario. AIDER's motivation was to obtain a share from the carbon certificate sales in order to cover their own costs and gain experience which they could then use for their own project (cf. Section 4.3.4.7). Already before REDD+ implementation, WWF and other NGOs had been involved in the FSC certification process and biodiversity monitoring in the area.

For the REDD+ project, agreements have been established with the native community Bélgica (cf. Section 4.3.4.1), the village closest to the concession, to support and improve basic education in order to facilitate access to higher technical jobs in the forest sector (SCHROEDER 2009). Actors mentioned that there were no degraded forest areas in the concessions, with the exception of an over-extraction of mahogany and cedar. Around 10 timber species are being harvested as part of the sustainable forest management strategy, with an annual extraction rate of about 2 m^3 ha^{-1}, which is less than 10% of the standing biomass. The logging cycle is 20 years, using selective logging and reduced impact techniques (SCHROEDER 2009). According to the actors, one reason for the rapid advance of the project was the absence of social conflicts and superposition of land rights on the project area and that many inventories of forest resources made for FSC certification could also be used for the elaboration of the P-DD and the certification according to the CCBS.

Links to (sub) national REDD+ strategy

Maderyja SAC has been participating in different events relating to technical and political aspects of REDD+ and the project has been presented in international forums. Despite these activities, there is currently no major cooperation between the project developers and MINAM or the regional REDD working group.

Strategies/expectations

The REDD+ project is designed to operate for 38 years and is supposed to generate funding to reduce illegal encroachment and logging. The additionality regarding reduction of emissions was explained with increasing amounts of migrants attracted by the Interoceanic highway. The revenues from carbon sales were regarded to be important to reduce the pressure on the logging concessions and to guarantee sustainable management in accordance with FSC certification. One strategy is to improve monitoring, and maintaining borders and control posts in order to reduce encroachment and illegal logging. Other strategies include the development of sustainable income strategies for local communities in participative processes (SCHROEDER 2009).

Issues relating to project implementation

To date, there has been relatively little demand for FSC certified timber in Peru (BROTTO et al. 2010). Other problems include persistence of illegal logging and forest fires that spill over from agricultural slash and burn practices. Since there are hydrocarbon stocks under the area of the forest concessions, they are always under threat of becoming subject to exploitation activities.

Implications for biodiversity

The biological inventories on mammals and birds in the concessions (BARRIO 2005) that were made for obtaining FSC certification were used for the P-DD of the REDD+ project. Actors found that REDD+ potentially improves biodiversity monitoring schemes, e.g., because of the requirements of the standards used for the project. The project obtained the CCBS gold level for creating exceptional biodiversity benefits. Biodiversity conservation objectives mentioned in the P-DD included endangered species and habitats (SCHROEDER 2009). A major limitation in this context is lacking local human resources. A potential ecological long-term risk inherent to forestry concessions is that genetic diversity might be lost due to the constant extraction of young trees (FINKELDEY & ZIEHE 2004). Safeguards against such problems include restricting harvest to trees that have surpassed a minimum diameter and retaining seeding trees (SCHROEDER 2009).

4.3.4.3 Los Amigos Conservation Concession

Description of actors and area

For ACCA, REDD+ was expected to contribute to the protection of vulnerable forests, make the management strategies more rigorous and add more structure to forest management practices (e.g., through standards certification processes). In the Los Amigos Research and Training Centre, located in the concession, research is carried out by national and international biologists and ecologists (ACA 2008). The research was considered a precondition for the REDD+ project, e.g., regarding the establishment of biological baselines. The Concession is covered by tropical humid rainforest with an altitudinal range between 200 and 350 m (FOSTER et al. 1994). Deforestation occurred especially in the regions where the conservation borders the Madre de Dios River (Fig. 4.1) and near some native communities (SPDA 2009). ACCA was therefore in contact with indigenous peoples associations to combat deforestation in the region. ACCA also contributed technical advice in collaboration with the Peruvian Association of Organic Brazil Nut Collectors to export certified, organically-produced Brazil nuts as fair trade products. Another activity, for which ACCA developed a project information note, is the Castaña Corridor REDD Project (ACCA 2010).

Links to (sub) national REDD+ strategy

Being a member of the regional REDD working group, ACCA has been involved in developing appropriate methodologies for REDD+ implementation and could contribute its experience generated during the establishment of a carbon baseline for the conservation concession (WINROCK 2006). ACCA also cooperated with the Carnegie Institution for Science in Stanford in a project to measure above-ground carbon stocks in parts of Madre de Dios using airborne LiDAR technique (ASNER et al. 2010). Also national governmental organizations, like the MINAM participated in this project.

Strategies/expectations

The P-DD for certification under the VCS and the CCBS standard had been completed at the time of data collection. The REDD+ strategies included hiring additional park rangers, improving income and living quality of the neighboring communities, e.g. by developing alternative income strategies, including aquaculture, agroforestry systems and also a paved road to facilitate market access for local products (MULANOVICH 2010).

Issues relating to project implementation

A number of actors emphasized an especially problematic interaction between ACCA and local communities, which did not accept the presence of ACCA and its conservation approaches. Additionally, at time of data collection, it remained unclear if the big investments made in implementing the project actually result in the fulfillment of expectations regarding financial revenues that could be re-invested in the management of the project.

Implications for biodiversity

The Los Amigos Conservation Concession is located, amongst other PAs, next to Manu National Park, a Natural World Heritage site (Fig. 4.1). It is located in the watershed area of the Los Amigos River; and its area comprises the confluence of the Los Amigos River and the Manu River. The Manu River is navigable and can be used to access the Manu National Park. Consequently, actors claimed that the concession protects not only the upstream area of the watershed of the Los Amigos River, but also Manu National Park, given that it is possible from some control posts in the Los Amigos Conservation Concession to monitor illegal loggers or entering the National Park via the Manu River (ENTENMANN & SCHMITT 2011). Patrolling in the area is done by about ten rangers.

ACCA realized a feasibility study for establishing a biological corridor between the Concession and the Tambopata national reserve. At time of data collection, ACCA was in the process of establishing a biodiversity baseline for the project. The concession and the corridor can act as a connection between the Tambopata National Reserve and Manu National Park, potentially contributing to the overall connectivity of the ecological corridor Vilcabamba-Amboró, which stretches from the Vilcabamba mountain range in south-central Peru to central Bolivia (CEPF 2005). However, implementation of this project, which also includes elements of REDD+, is not straightforward since there are many different users managing the area between the PAs, such as forestry concessions, native communities, ecotourism concessions, mining concessions and agricultural lands.

4.3.4.4 REDD in Brazil nut concessions in Madre de Dios

Description of actors and area

The project aims to reduce emissions from Brazil nut tree (*Bertholletia excelsa*) concessions, which are usually semi-natural tropical humid lowland forests (BAM 2012). Between 2002 and 2006, the government granted concessions to Brazil nut collectors (castañeros) to extract the nuts from these forests. There are more than 1,000 Brazil nut concessions in Madre de Dios, covering a total area of about 1.2 million ha. The individual size of a Brazil nut concession ranges from 100 to 3,000 ha. One concession is usually managed by a single family. During the harvest period, additional people are employed, making Brazil nuts a significant economic factor in the region.

Although Brazil nut concessions must be managed according to a five year management plan, and their management is therefore sustainable de jure, it was mentioned by actors that it is possible and necessary to further reduce forest-based emissions in the concessions. It is expected that one third of all the forests in the Brazil nut concessions will disappear over the next 30 years (BAM 2012). Explanations provided by the actors included that prices of the Brazil nut product vary considerably (US$ 0.5 kg^{-1} on average) and, at times, harvest is not economically feasible. During harvest periods, prices are lowest. Only the concessionaires with storing facilities are able to withstand these fluctuations. Alternative sources of income include agriculture and timber commercialization from their concessions. Such activities must be carried out according to an additional management plan that has to be approved by the local forest authority. However, timber extraction volumes from Brazil nut concessions are

comparable, and sometimes exceed, extraction rates from forestry concessions (COSSIO-SOLANO et al. 2011).

Brazil nut concessions are normally not monitored year-round by the concessionaires and are therefore vulnerable to encroachment. Forest patches were often cleared for agricultural use and the Brazil nut trees were left standing on these patches. Due to frequent burning the trees would die within a number of years. In addition, it was mentioned that not all castañeros knew exactly where the boundaries of their areas lie. While BAM is the project initiator and main investor, collaborations exist with the Federation of Brazil Nut Producers of Madre de Dios (FEPROCAMD) (BAM 2011b). Before its creation, the concessionaires worked independently and had a weak position in negotiations with processing companies about prices for Brazil nuts. According to a representative of FEPROCAMD, they entered negotiation with BAM because they were in search for investors for a processing plant to generate added value for their products. The obligations of the Brazil nut producers, as stipulated in the contracts with BAM, were just to comply with the existing legislation and their forest management plan. The NGO Environmental Conservation and Development in Peru (CAMDE Perú) supports the castañeros in preparing five-year management plans and in demarcating their land.

Links to (sub) national REDD+ strategy

The project can be regarded as an example of the importance of the private sector in the REDD+ process in Peru, since BAM is a very influential actor in promoting further on-ground experiences as well as finding solutions for methodological problems. BAM is very active in the REDD working groups at different levels. It aims to further explore future possibilities for the commercialization of ES.

Strategies/expectations

The rationale of the project is that when value is added to forest products, the forests also are conserved. Therefore a processing plant with facilities for drying, peeling and storing was planned to be constructed. The plant will be owned jointly by both castañeros and BAM (BAM 2011a). Another objective is to improve the link between producers and the market. Production of Brazil nut oil was mentioned to be another option, since it has stable market prices. According to FEPROCAMD, other potentially marketable non-timber forest products in Madre de Dios were copaiba oil (*Copaifera officinalis*), products from the huasaí palm (*Euterpe oleracea*), aguaje (*Mauritia flexuosa*), hungurahui (*Oenocarpus bataua*) and cocoa (*Theobroma cacao*).

According to the actors, 70% of the monetary value added to the Brazil nuts by the processing plant would remain with the castañeros and 30% with BAM. Of the carbon revenues generated, 70% remain with BAM and 30% with the castañeros. The expectations of the castañeros were mostly associated with the revenues to be generated by the processing plant rather than through REDD+. The establishment of control posts to detect invasion and fire was mentioned to be another strategy, as well as creation of awareness among the castañeros for environmental issues and business administration.

Issues relating to project implementation

In the contract, the concessionaires assigned their rights to commercialize the ES to FEPROCAMD who, by means of another contract, assigns these rights to BAM. Some concessionaires did not exactly know the terms of references of the contracts made with FEPROCAMD and BAM. Since the castañeros remain the concessionaires of their lands, no social risks were perceived to result from the contracts. Some of the concessionaires received a credit from BAM prior to signing the contract, raising the possibility that they may have made a biased decision when doing so.

Implications for biodiversity

According to Brazil nut production specialists interviewed, the mean natural distribution density is about 0.8 trees ha^{-1} for the eastern part of Madre de Dios. The project potentially contributes to the protection and sustainable use of the severely degraded population of Brazil nut trees (classified as vulnerable, IUCN 2012) and the conservation of habitat for wild fauna species (BAM 2012). It was often emphasized by different actors that Brazil nut trees produce only in ecologically intact areas. As a consequence, to safeguard sustainable harvests – and to avoid further deforestation – a biodiversity monitoring system is very important. Relevant monitoring objects would be, e.g., small mammals that were considered to be important for seed dispersal by the actors and in literature (TERBORGH et al. 2008; NASI et al. 2010). Such systems were, however, not operational at the time of data collection.

4.3.4.5 REDD in small scale forestry concessions in Madre de Dios

Description of actors and area

With BAM being the main developer, this project is similar to the Brazil nut project (cf. Section 4.3.4.4.) in terms of strategies, benefit sharing, forest threats and influence on regional and national REDD+ strategies. The project aims to increase the value of timber products from the forestry concession to reduce deforestation pressure on forests (BAM 2011d). Emissions are also supposed to be reduced by applying sustainable forest management strategies, according to strict management plans.

The small-scale forest concessionaires have been working on their forestry areas, located in the sphere of influence of the Interoceanic Highway, for many – some for more than 30 – years. Before a new forest law was introduced in 2001, the concessionaires had forest contracts with the regional government that had to be renewed annually. With the new forestry law the forest-use contracts were transformed into concessions. There was competition for the concessions and only financially competitive actors had a chance to obtain one. Small-scale forest concessionaires were threatened to be taken-over by strong, solvent forestry companies. Through negotiations with the government the concessionaires achieved exclusion from the competition and obtained concessions over a period of 40 years for the reforestation of former agricultural patches and selective extraction of about 20 different tree species. The motivation of the about 200 members of the Federation of Forestation and Reforestation Concessionaires in Madre de Dios (FEFOREMAD, founded in 2007) behind the collaboration with BAM was the need for a processing plant in order to increase the value added

to the timber. According to the actors, biodiversity objectives included the conservation of valuable timber species.

Strategies/expectations and issues relating to project implementation

Peru imports high-value wood products and exports predominantly secondary processed wood products (BROTTO 2010). This means that a demand for domestically processed timber products – especially FSC certified – has yet to be created. At the time of data collection, the wood products of the concessionaires have not been certified. Certification potentially places a burden on forest managers in terms of supervision, monitoring and reporting (BROTTO et al. 2010). However BAM is supporting the FSC certification process in the area – also because of the synergies between FSC certification and REDD+ implementation.

4.3.4.6 Indigenous community Infierno

Description of actors and area

The project “Sustainable forest management and utilization of ES in forests managed by the Ese'Eja native community in Infierno, Peru” is carried out under the auspices of the International Tropical Timber Organization (ITTO). According to government representatives, it aims to find strategies for improving community forest management by selling carbon credits. Also the Peruvian Ministry of Agriculture is involved. Contracts among the community, ITTO, the Government of Madre de Dios and AIDER have already been signed in 2010.

The community land is covered by subtropical humid forest. While the principal economic activity is agriculture, ecotourism contributes to some extent to the income of the community. A good road connects the community to Puerto Maldonado and public transport is available. Since 1998, the community has maintained the lodge Posada Amazonas (RAINFOREST EXPEDITIONS 2010), visited by about 80 persons every day. Infierno has a contract with Rainforest Expedition, who provides support in marketing their lodge as an ecotourism destination. The contract will expire in 2016 and the community is building up human resources for independent administration and marketing. Due to their openness the community has been considered an apt project partner. In contrast to most other projects, 100% of the revenues generated by the project were supposed to go to the community.

Links to (sub) national REDD+ strategy

The project is widely known among the participants of the local and national REDD working groups. Since the project is co-financed by the Peruvian government and ITTO (Table 4.3), the results and experiences generated are likely to have an impact on the design of REDD+ at the national and international level.

Strategies/expectations

AIDER develops a strategy for SFM in the community forests and to increase the protection of the forest against land use conflicts with externals. The community holds a communal land title, and the land is divided into patches of roughly 30 ha each for individual use. It was stated that improved management of the forest areas is one strategy to increase income, reduce

the pressure on the forest and to reduce emissions from these forest areas. The project furthermore aims to generate experiences regarding the definition and marketing of rights to natural resources (ITTO 2010). There is a capacity building component in the project to assist the community in planning and establishing PES schemes.

Issues relating to project implementation

It has been stated by representatives of the community that all of the decisions regarding the REDD+ project were made within the community and that everyone was involved. However, in fact not all the community members had knowledge of the project. Consequently if information on the project is not distributed among the community in the future, there might also the threat of unequal distribution of benefits. According to a representative of the community it also took some time to build trust between the community and the AIDER in order to sign an agreement. At the time of data collection, AIDER was still in the process of providing information to the community. Although the project is of interest for the developers of the national or subnational REDD+ strategies in terms of methodology, benefit sharing and generation of experiences regarding PES schemes, the community had not yet seen concrete results from the project. This might lead to reduced motivation to participate in the project in the long term.

Implications for biodiversity

It is expected that if the project is implemented successfully, it will reduce the deforestation pressure on the adjacent Tambopata National Reserve (cf. Section 4.3.4.7, Fig. 4.1). Hereby the ecotourism element was considered to be important by community representatives. Also in literature it has been found that ecotourism can contribute to forest conservation in the region of Madre de Dios (KIRKBY et al. 2010a; KIRKBY et al. 2010b).

4.3.4.7 Tambopata National Reserve and Bahuaja-Sonene National Park within the Territory of Madre de Dios

Description of actors and area

The project is located in the Tambopata National Reserve and the area of the Bahuaja-Sonene National Park within the borders of the Madre de Dios (Bahuaja-Sonene National Park extends also into the adjacent Puno region) (Fig. 4.1). The area is classified as humid subtropical rainforest (SERNANP 2011). Since 2008, AIDER has had a seven-year administration contract for the PA and is responsible for monitoring and evaluation in the area. Until 2010, AIDER was financed by BAM to initiate monitoring and evaluation within the area. The contract, which includes the option of a 20-year extension, states that AIDER should seek economic self-sufficiency. It is estimated that until 2030 more than 3% of the PA will be deforested, with much stronger impacts in the buffer zone (AIDER 2010b), the main drivers being gold mining and agriculture. REDD+ was regarded to be one option to generate income for the activities of AIDER in the area and to implement activities to reduce deforestation and forest degradation. BAM, being the most important source of upfront financing for the REDD+ pilot, will commercialize the carbon credits generated in the project (BAM 2011c).

Some economic activities, such as Brazil nut collection and ecotourism take place within the direct-use zones of Tambopata National Reserve. For example, the Association of Castañeros in the Tambopata National Reserve has a permit to collect and extract Brazil nuts from the reserve.

Strategies/expectations

Central strategies include the development of alternative sustainable economic activities, establishment of conservation agreements, and – in collaboration with other institutions – I improvement of the overall governance of the natural resources in the area (AIDER 2010b). To a large extent, project activities focus on the buffer area of the PAs (about 200,000 ha). The first steps in developing a REDD+ strategy were to identify the principal economic activities and the main actors in the buffer zone. According to an actor, another central strategy is to improve the existing control system.

Issues relating to project implementation

The implementation costs of the project are more extensive than initially expected, and it is unclear if the revenues generated by REDD+ can really cover the costs of both monitoring, reporting, and implementing REDD+; and complying with the administration contract, i.e., monitoring and evaluation in the PAs.

AIDER's goal is to coordinate the research that is going on in the area and intends to establish an online database for the research activities in Madre de Dios using the data generated by the different cooperating organizations that carry out research in the areas (AIDER 2010a). Regarding the management of the online database, an improvement of the internet connection in Puerto Maldonado was considered important.

Implications for biodiversity

The PAs belong to the most species-rich regions in Peru, have high ecotourism potential and provides a habitat for many threatened species (SERNANP 2011). The main objective of the REDD+ project is to contribute to the maintenance and protection of the conservation objectives in the PAs. These consist of a) the characteristic forest types, b) Brazil nut forests (castañales), c) the "pampas del Heath" grasslands, d) wetlands, e) salt licks, f) jaguars, g) other threatened mammals and, h) threatened birds. These conservation objectives are reflected in the projects' HCV as defined in the P-DD (AIDER 2010b).

The actors did not expect the REDD+ project to have any negative impacts on biodiversity in or outside the project area given that the project's objective is to contribute to biodiversity conservation in the PAs and their buffer zones. Within the parks the historical deforestation rate was not too high, excluding reforestation/plantation activities and thereby also the risks of plantations and/or introduction of alien species.

In order to enable an efficient, replicable monitoring scheme for biodiversity, AIDER has agreements with many research institutions, including the Frankfurt Zoological Society (monitoring of giant otters), Association Fauna Forever (monitoring of threatened species), Univer-

sity of Texas (monitoring of salt licks), Wildlife Conservation Society (analysis of results of monitoring activities and human intervention) and the National University of Madre de Dios (AIDER 2010a).

Actors mentioned that AIDER was generating a plan to coordinate the research conducted in the parks including the creation of infrastructure, facilitation of the procedure for providing investigators with access to the areas, creation of scientific centers and the organization of annual symposia, where the results of the research conducted are presented. They also intended to compile information generated within the parks to make sure that the results of research, which is carried out by local, Peruvian and to a large extent also by international researchers, remain in the region.

4.3.4.8 Alto Mayo Conservation Initiative

Description of actors and area

The Alto Mayo Protection Forest received protection status in 1987 (INRENA 2008). The area consists of tropical lower montane rain forest (36%), tropical lower montane wet forest (30%) and tropical montane rainforest (23%) (INRENA 2008). In the region, forest encroachment has been a constant problem during the last decades, especially after the paving of the Highway Fernando Belaúnde Terry in 1975. Also the Protection Forest was threatened by encroachment since its creation and it is one of Peru's most affected PAs in terms of deforestation (CI 2012a).

The Alto Mayo Conservation Initiative is the flagship project of CI in Peru. CI works especially at the national and subnational level and cooperates with local implementation partners. There are several NGOs as well as partners from the government involved in the project (HARVEY et al. 2010). Central allies include AIDER, the Peruvian Society of Environmental Law (SPDA), the Andean Ecosystems Association (ECOAN), which owns a resort for bird watching, the Management Committee of the Alto Mayo Protection Forest, the SERNANP and the users committee of the Alto Mayo watershed. The NGO Association of the Virgin of the Miraculous Medallion (AVMM) is an important associate for the promotion of conservation agreements. The NGO Mono Tocón focuses on investigation and conservation of the Andean titi monkey (*Callicebus oenanthe*) in and around the PA.

Links to (sub) national REDD+ strategy

CI considers itself to have an advisory function in the REDD+ process in Peru. It organizes workshops for REDD+ stakeholders in Peru, contributes information and supports the REDD+ development process. CI is part of REDD working groups at the regional and national level. Due to CI's international influence and its marketing strategies the project is already well known nationally and internationally.

Strategies/expectations

The project strategies include improving the governance and enforcement capabilities of the park authorities and implementing improved and diversified farming systems in the buffer

zone of the PA, i.e., agroforestry with coffee cultivation and cattle husbandry (CI 2012a). This will be supported by the provision of improved technical assistance, the facilitation of market access, and improving the communities' social organization (HARVEY et al. 2010). There are efforts to maintain the communication with a network of local farmers, settlers, landowners and government officials. Casting out "illegal" settlers that live within the area is a difficult and dangerous issue given that they often had no knowledge of the existence of the PA when they settled. Conservation agreements are used as tools to stabilize land use by compensating the settlers for abating overexploitation of natural resources (CI 2007). The settlers commit themselves to monitoring and contributing to the reduction of migration into the area, e.g., by not inviting relatives from other regions. Increasing the communities' environmental awareness and involvement in the conservation of the PA is another strategy.

Issues relating to project implementation

According to the actors, establishment of the deforestation baselines is difficult, especially because of the cloud cover and the steep terrain. Therefore aerial photography has to be applied to validate the analysis of LANDSAT and SPOT imagery. The carbon content of the different forest types, the exact location of informal settlements and trails are difficult to estimate, although this is crucial information to develop REDD+ strategies and estimate leakage. This makes a considerable amount of field work necessary.

In the interviews, park rangers identified their task with patrolling the area and establishing contact with the settlers. This was often complicated due to lacking basic equipment. Opportunities to increase the effectiveness included, e.g., GIS devices and a motorcycle to improve communication between the control posts. There were concerns about the legal status of the REDD+ project. Other NGOs complained that CI commercializes ES that are property of the state, because CI had not signed an administration contract with the SERNANP for the PA.

Implications for biodiversity

Although the biodiversity in the area is little known, it is prioritized for conservation at the national level (SERNANP 2010), especially because of the high level of endemism within the area (e.g., yellow-tailed woolly monkey (*Oreonax flavicauda*), Andean titi monkey (*Callicebus oenanthe*), and orchids species. Another important HCV is the delivery of hydrological ES emanating from the area (CI 2012b).

Actors identified synergies between the patrolling carried out by the 16 rangers in the area and biodiversity monitoring. Since always the same routes are used for patrolling, rangers could potentially keep track of species sightings or tracks. However, training and better equipment (such as field guides, computers, etc.) were required for such activities.

4.3.4.9 Cordillera Azul National Park REDD project

Description of actors and area

CIMA holds a 20 year administration contract with the SERNANP for the Cordillera Azul National Park since 2008. The area is covered by tropical (lower) mountainous wet forest (CIMA

2012). CIMA operates from various offices in the four administrative regions to which the PA extends (Fig. 4.1), each of which having its own communication strategy with its partners.

Although there are attempts to invade the park and some sites have already been cleared, the park is currently not populated – with the exception of one cattle rancher (CIMA 2012). The REDD+ strategies are supposed to be implemented in about 80% of the park's total area and also target the buffer zone (RUIZ 2009). The main activity of settlers and migrants living adjacent to the park is agriculture. There is an increasing pressure on the forest areas inside the PA for slash and burn agriculture, hunting, extraction of medicinal and ornamental plants (especially orchids) and selective logging of valuable timber species.

An important partner in terms of the biological monitoring is the Chicago-based Field Museum. The non-profit organization Winrock International was contracted first for a vulnerability analysis and the development of the reference scenario, as well as for capacity building of the CIMA staff regarding carbon measurements. Later, CIMA worked with the carbon markets consultancy Terra Carbon LLC to establish a deforestation baseline for the Park. Projected deforestation is in the range of 0.3-0.9% annually for the period of 2008 to 2017 (TERRA CARBON 2010), whereas the national average was 0.2% between 2005-2010 (FAO 2010a).

Links to (sub) national REDD+ strategy

CIMA is directly cooperating with the local governments and is one of the chairs of the REDD working group in San Martín. CIMA participates in the national REDD working group and is in contact with MINAM and SERNANP via its office in Lima. There are thus possibilities for an immediate dissemination of the experiences generated with REDD+ in the PA to national and subnational governmental actors.

Strategies/expectations

Boundaries of the actual REDD+ project lie within the Park itself, but not within its buffer zone. However, the buffer zone and its population are an important target group. One strategy to stabilize the pressure on the natural resources of the park is to allow people living in the buffer zone to enter designated areas of the park for hunting and collection of plants. Strategies to control invasion and slash and burn agriculture in the area include maintaining and adapting the monitoring systems and supporting capacity building to increase agricultural productivity in the buffer zone.

There are also efforts to apply spatial planning in the park in order to halt the advancing agricultural frontier. It is also part of the strategy to raise awareness in the different governmental entities that are involved in the management of the park, especially regarding the impacts of deforestation in the area on the hydrological cycle. Most of the actors interviewed in this region deemed that the hydrological processes are already disturbed.

Issues relating to project implementation

CIMA, which has successfully reduced deforestation in the area over the last seven years, must now prove that it is not possible to counteract future deforestation pressure without additional payments from carbon projects (RUIZ 2009). Proving the additionality of the project, which is an important precondition for certification, has been mentioned to be a challenge. Another major issue in the trans-regional project is that halting deforestation is prioritized differently by the subnational governments.

Implications for biodiversity

The HCV described in P-DD for the CCBS include species richness, designation of the area as a National Park, the high number of threatened and endemic species as well as important cultural and socioeconomic ES (CIMA 2012). REDD+ is used as a tool to protect these conservation objectives that are also stated in the master plan of the PA (INRENA 2006). The park has a high level of biodiversity, and many new species were discovered in the area during a rapid inventory (ALVERSON et al. 2001). CIMA is recognized for its innovative biodiversity monitoring system (PEQUEÑO 2007) and its overall park management, which has been regarded as very efficient. The objective of the monitoring system is not to know the number of individuals of certain species that live in the park, but to determine if the numbers of species sightings, traces or noise recordings are stable over time.

Especially large mammals are monitored that are thought to be cost effective biodiversity indicators. About 45 park rangers, mostly recruited from the local communities, monitor the park from control posts and by patrolling small overland trails. The rangers keep track of the number of people entering the park, extraction rates and the species being hunted. There are animals that are allowed to be hunted, including the peccary (*Tayassu pecari*), red brocket (*Manzama* ssp; *Pudu* ssp.) as well as some that are prohibited, like tapirs, primates, felids, and bigger birds, e.g., curassow (*Mitu tuberosum*). Fishing practices involving explosives and poison are also prohibited. The park rangers persecute those who infringe these regulations.

The information collected on the extraction of animals, combined with biodiversity data on sighting of species and related relevant information that is collected during patrols are maintained in data bases.

4.3.4.10 Alto Huayabamba Conservation Concession

Description of actors and area

In order to generate some additional funding for the management of the Alto Huayabamba Conservation Concession, AMPA wants to implement a REDD+ project. The eastern part of the concession contains special types of mountain and cloud forests (Yungas forest). The western part is covered by high-Andean grassland (Jalca). The biodiversity value is derived – amongst other factors – from the habitat quality for birds, like the Andean condor (*Vultur gryphus*), and for threatened mountain amphibians (CDC-UNALM & TNC 2006).

Agriculture and livestock husbandry often take place in locations with little suitability for such activities. This, in addition to the lack of agricultural capacity, made productivity low and led

to overgrazing. External threats included the establishment of highways, mining activities and illegal land trafficking.

Links to (sub) national REDD+ strategy

Together with CIMA and CEDISA, AMPA coordinates the regional REDD working group in San Martín. Cooperation with the regional government was considered important for controlling possible leakage of deforestation.

Strategies/expectations

Direct synergies were seen by AMPA between the REDD+ project and the management of the Alto Huayabamba Conservation Concession, including reduction of forest fires, development of sustainable economic activities, as well as environmental and social monitoring.

According to the actors interviewed, conservation strategies included various components: cooperation agreements to prevent the migration of new settlers were made with the locals. Micro-zonation activities aimed to inform the families about the limits of their territory and the suitability of the land for certain activities. Workshops to build capacity on fire management, and to improve the farmers` livestock husbandry skills to increase meat quality and reduce the number of animals in the area was another part of the strategy. Ecotourism (e.g., bird-watching), beekeeping and seed production were seen as further alternative income strategies. Improved primary education with a strong focus on environmental education was considered as important for creating awareness for nature and ES.

Issues relating to the implementation of REDD+

Since AMPA's overall expectations with regards to the financial benefits of REDD were fairly low, the risk of creating inflated expectations was considered to be a problem by the actors. In general, the main social risks resulting from REDD+ were considered to be similar to problems that occurred in other types of carbon projects that have been deficiently implemented. These included, e.g., inequalities between the project developer and local stakeholders regarding knowledge on carbon trading.

Implications for biodiversity

Given that AMPA's highest priority for the Conservation Concession is the protection of biodiversity in the and not the creation of incomes from REDD+ activities, REDD+ was not expected to pose direct risks to biodiversity, e.g., through the creation of perverse incentives by the actors. The protection of the concession included the support of the socioeconomic development of those people living in the area and the protection of the area's ES and biodiversity. Conservation priorities for the area included a) the wetlands of Jalca and Yunga, b) Queñuales (characteristic tree communities including Polylepis species), c) Palmeras andinas (characteristic tree communities for the mountain forests of San Martín), d) transition forests, e) community of amphibians, f) endemic primates of the mountain forests, g) pre-

Hispanic archaeological relicts and h) protection of the migratory cerulean warbler (*Dendroica cerulean*) (AMPA 2008).

The conservation of hydrological ES, i.e., the buffer functions of the wetland ecosystems in the region, was a very high priority, since they were considered important for ensuring a stable water discharge from the area. The Alto Huayabamba Conservation Concession is located adjacent to Rio Abiseo National Park, which – because of its significant archaeological sites and large forested area – was declared as UNESCO Natural and Cultural Heritage, mixed category, in 1992 (SERNANP 2010). This means that a big part of the Concession also lies within the buffer zone and therefore acts like a continuum of the National Park.

4.4 REDD+ projects in Kenya

Enhancement of carbon stocks is one of the candidate strategies in the Kenyan R-PP to reduce forest-based emissions, besides reducing deforestation pressure on forests for agriculture, promoting sustainable utilization of forests, and improving forest governance (GOK 2010b). An emphasis is put on arid and semi-arid lands that can be described as a mosaic of woody savannas and grasslands (UNEP 2009). They broadly correspond to the FAO ecological zone of tropical shrubland, which covers large area of Kenya (Fig. 4.2). Drastic degradation of the shrubland habitat over the last decades have been described (WESTERN 2007).

Kenya proposed ambitious objectives in its REDD+ strategy related to enhancement of carbon stocks on degraded lands and sustainable forest management. In accordance with the Kenya Vision 2030, a governmental strategic paper containing mid-term development goals (GOK 2007), focal areas for forest conservation are water catchment areas, such as Mt. Elgon, Mt. Kenya or the Mau complex (GOK 2010b, Fig. 4.2). Clear synergies are seen between the conservation of these “water towers” and REDD+. However, there are many fundamental problems regarding resource management that must be addressed by Kenya during the REDD+ preparation phase.

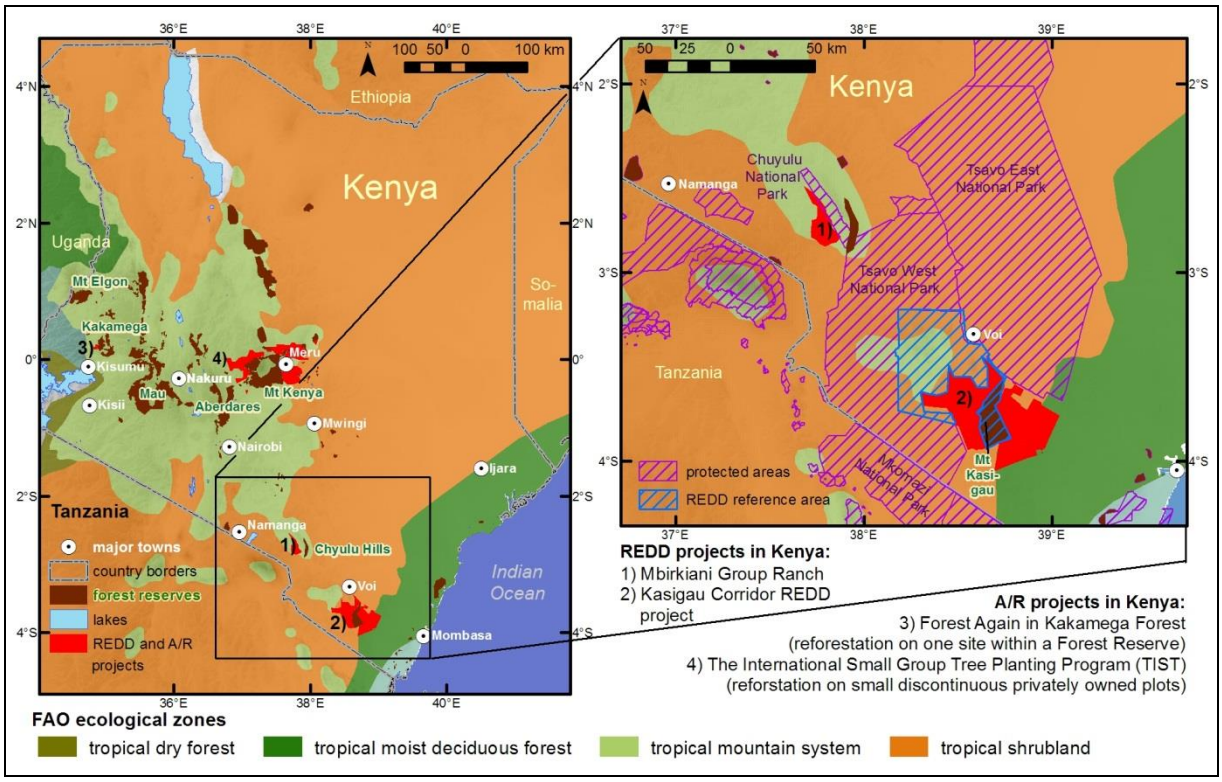

Fig. 4.2: Location of REDD and A/R projects in Kenya (as of December 2011). The project numbers correspond to the numbers in Table 4.5. Forest reserves (managed by KFS) include the few closed-canopy forests in Kenya. They usually belong to the national PA-network (managed by KWS). Source: (FAO 2001; USGS & WWF 2006; IUCN & UNEP 2009; UNEP 2009).

For example, many actors complained about the insufficient integration of forest user associations and other representatives of civil society in the REDD+ process. Such problems are more evident in Kenya than in Peru, where national and regional REDD working groups have been described to be rather active (CHE PIU & GARCÍA 2011). Other social and interethnic conflicts are related to tenure security, conflicts between formal and informal tenure systems, weak institutions, and a lack of necessary reforms (UNRUH 2008). There were concerns that deficiently managed projects actually increase pressure on poor communities in terms of security of land tenure and access to resources, often resulting in opposition from activist groups and indigenous peoples' organizations to REDD+ (MASINDE 2010). Such social issues also have a profound impact on biodiversity.

The intensity of land use conflicts is exemplified by the fact that further disbursement of FCPF grants for REDD+ implementation will be closely linked to the outcomes of how conflicts with local indigenous communities regarding tenure and access rights are resolved. Such conflicts emerged in the World Bank funded Natural Resource Management Project in the Mt. Elgon region (WORLD BANK 2011; FCPF 2012b). Other problems include sudden changes in government and inconsistency in forest conservation policies.

Despite these problems, Kenya hosts both the first REDD+ and A/R projects that had their project designs, their greenhouse gas reductions and the consideration of biodiversity and community aspects during the implementation period verified by both the VCS and CCBS (CAAC 2011a; PROLMAN 2011) (cf. Sections 4.4.2.2, 4.4.2.3).

4.4.1 **Important actors in Kenya**

Central organizations that were strongly involved in REDD+ implementation, as well as REDD+ projects in Kenya are presented in alphabetical order.

African Wildlife Foundation (AWF)

The AWF is one of the oldest conservation NGO in Africa. Its general aims include achieving biodiversity conservation in their working areas and to reduce the impacts of climate change, to provide training and capacity building and to secure funding for mitigation and adaptation programs (MASINDE 2010). In its Heartland Program, the AWF identified nine areas in Africa with a high significance for biodiversity, i.e., the heartlands. There are different strategic pillars to managing and conserving these areas, including “conservation enterprises”. AWF is involved in developing three REDD+ projects in Africa (AWF 2011a). REDD+ is seen as a tool for reducing land degradation, improving rural livelihoods and securing the provision of ES. Connectivity between habitats is supposedly improved and migratory corridors are created. The AWF holds close connections with government representatives working on REDD+.

Carbon Africa

Carbon Africa is a private company involved in energy-related CDM projects and REDD+ projects. It is in the process of developing some smaller REDD+ projects, one being in proximity to the AWF project (Section 4.4.2.1) and the Wildlife Works project (Section 4.4.2.2). The actors mentioned that dryland ecosystems are highly interesting for the implementation of REDD+ projects: even though relatively few carbon credits are generated compared to REDD+ in rainforest ecosystems, there is no need to find many different buyers, which reduces transaction costs. Synergies between REDD+ and biodiversity conservation were seen, but also various risks that could occur during the implementation of REDD+ projects, especially for smaller companies or NGOs.

Kenya Forest Service (KFS)

The KFS is an organ of the Ministry of Forestry and Wildlife. It is the focal point for the national REDD+ strategy and was the main organization responsible for the establishment of the R-PP. The KFS divided the country into ten forest conservancies and identified the crucial water catchment areas. It is responsible for the management of most of the country’s closed-canopy forests, the majority of which are forest reserves (Fig 4.2). The forest reserves can be considered as PAs under the auspices of the KFS. KFS is heavily involved in different REDD+ and A/R projects since these often take place in forests under KFS management.

Kenya Wildlife Service (KWS)

The Kenyan Wildlife Service (KWS) is responsible for the Kenyan network of PAs and all the wildlife in the country inside and outside the national PAs. Its headquarters are located in Nairobi, but additional local offices exist for each national PA (some of which are depicted in Fig 4.2). The KWS is also the Kenyan focal point of the CBD (SCBD 2011) and is automati-

cally involved in any project that affects wildlife and is also actively participating in the development of the national REDD+ strategy.

Wildlife Works

Wildlife Works is a San Francisco-based company that has been active in Kenya since 1997 (WILDLIFE WORKS 2012). With the Kasigau Corridor REDD+ Project, Wildlife Works developed the most advanced REDD+ project in Kenya (cf. Section 4.4.2.2). Wildlife Works is currently developing projects in Asia, Central and South America. One of the underlying motivations for the company and for the project is to show that communities living close to PAs need to profit in some way from the wildlife and other natural resources in these areas. Wildlife Works is in contact with the local and national governmental entities that are concerned with wildlife and forest conservation.

4.4.2 **Description of REDD+ projects in Kenya**

The projects involved REDD+ projects and A/R projects in different land use categories and ecosystems. Their locations and general characteristics are shown in Fig. 4.2 and Table 4.5.

4.4.2.1 Mbirikani Group Ranch Carbon Project

Description of actors and area

At the time of data collection the AWF was preparing a REDD+ project on an area in the binational Kilimanjaro heartland, located on the Kenyan-Tanzanian border, as part of its 'environmental enterprise' strategy. The proposed REDD+ project is located adjacent to a PAs (Fig. 4.2) in an important wildlife migration corridor used by elephants, predators (lions, leopards, jackals) and other animals. The forest lands (Table 4.5) are threatened by mosaic deforestation and forest degradation, caused by encroachment of agriculture, logging for firewood and charcoal, and the harvesting of poles for building small houses and corals. Trees and shrubs are frequently cut for carvings and walking sticks. A much larger area is affected by degradation than by deforestation (AWF 2012). There are also problems with poaching and human-wildlife conflicts.

There are many community owned group ranches, like the Mbirikani Group Ranch, which is run by Maasai pastoralists. They hold a permanent lease from the government and keep about 60,000 - 90,000 head of livestock on it. The communities living in the area are negatively affected by the predators that migrate into the area. Therefore, an important strategic partner for the project is the Maasailand Preservation Trust, which supports the pastoralists, e.g., through a predator compensation fund and an educational program. It also employs local men as game scouts. The P-DD is being developed in cooperation with the Kenyan company CAMCO and the NGO Planet Action, who carried out the field work and made the calculations for the carbon estimations.

Strategies/expectations

The main aim of the project is to protect about 19,000 ha of forest on the group ranch from deforestation and forest degradation. The main strategies include capacity building (developing cattle-keeping skills) and the development of improved and alternative livelihood strategies for community members, including alternative cookers, sustainable eco-charcoal (which is produced in quantities and with extraction techniques that enable the plants to regenerate), and improved market access for other agricultural and artisanal products from the communities. Community members are compensated for setting land aside for conservation activities. According to an actor responsible for the project, the compensation of about US$ 75 ha^{-1} is more than they would normally earn in the area. However, an operational benefit sharing mechanism for the revenues of the carbon project had not yet been developed apart from the compensations. Some reforestation activities were also planned to be carried out in the area.

Issues relating to project implementation

Degradation is the main source of forest-based emissions in the project area. Due to the forest cover, which is relatively sparse in many parts of the area, the degradation analysis has proven to be difficult. In denser forests it is easier to visually interpret degradation using satellite imagery (AWF 2011c).

Implications for biodiversity

The forests on the ranch provide an important habitat for elephants, lions, cheetahs, leopards, giraffes, buffalos, impalas and gazelles (AWF 2012). Beside the carbon benefits, protection of the habitat and the animals are among the most important benefits of the project. In the P-DD, the project's contribution to the conservation of the area as a wildlife corridor is highlighted. The preservation of the corridor's function has potentially positive impacts on the conservation of the whole area.

Some provisions, however, have to be made to reduce the wildlife conflicts between migrating animals and local dwellers, including electric fencing of agricultural plantations during the migrating season to keep the animals away. Water is also provided to prevent the animals from entering agricultural fields. Some jobs will be created for local people who are employed as local game scouts to report poaching activities.

Table 4.5: Summary of the characteristics of REDD+ and A/R projects in Kenya. Project numbers correspond to numbers in Fig. 4.2 (data as of 12.2011, if possible, updated).

	1. Mbirikani Group Ranch REDD project	**2. Kasigau Corridor REDD project**	**3. Forest again A/R project**	**4. TIST A/R project**
Province	Rift Valley Province	Coast Province	Western Province	Eastern and Central Provinces
Area	129,500 ha (whole ranch), REDD+ project on 19.000 ha	30,169 ha + ca. 170,000 ha (phase I + II)	490 ha (total area), 110 ha were already reforested	11,540 ha total area (28,983 individual sub-projects)
Proponents/ partners	AWF, CAMCO, Planet Action, Mbirikani Group Ranch, Maasailand Preservation Trust	Wildlife Works, community groups of landowners, KFS, KWS, community based organizations	Eco_2librium, a local Community Forest Association, KFS, KEEP, ACT!	Clean Air Action Co-operation
Local communities	15,000 people live on the ranch (managed by ca. 4,500 Maasai pastoralists) (AWF 2011b)	Around 100,000 people within 5 km of the project boundary (KORCHINSKY et al. 2011)	Ca. 57 villages around project area (250,000 people) (ECO2 2010)	About 20,000 registered members (VCS 2012)
Threats to forests	Slash and burn, extraction of wood for charcoal production	Slash and burn, extraction of wood for charcoal production	Slash and burn deforestation, grazing	n/a, project aims at planting new trees on forest land
(REDD) strategies	Avoided deforestation/degradation: improved management of rangelands, alternative incomes (cookers, improved market linkage, reforestation)	Avoided deforestation/degradation: protection of dryland forests and wildlife; alternative incomes (WILDLIFE WORKS 2008) reforestation outside project area	Reforestation on forest land inside a forest reserve. Growing of seedlings of indigenous trees in for reforestation (ECO2 2010)	Afforestation/ reforestation on private land, environ-metal education, capacity building (sustainable agriculture) (TIST 2010)
Forest types	Tropical shrubland, including open woodland, closed forests (on lava formations /cloud forest) (AWF 2012)	Tropical shrubland, Acacia-Commiphora savanna (90%), grasslands, montane forests) (KORCHINSKY et al. 2011)	Tropical mountain system, including tropical rain forest areas (ECO2 2010)	Tropical mountain system, project takes place on private land (TIST 2010)
Biodiversity values and HCV	Within a wildlife corridor, rare lava forests, presence of threatened mega-herbivores	HCV defined in P-DD, project is in a wildlife corridor between two national parks (Fig. 4.2),	Use of indigenous trees, reforestation of indigenous forests within a rare forest ecosystem	Farmers receive financial incentive when they choose to plant indigenous trees
Monitoring schemes	Participatory monitoring is planned, but not yet implemented	Rangers (n=70) monitor animals in transects (daily logs); camera traps	Bird monitoring, patrolling on the reforestation site	Monitoring of tree growth and tree species composition
Verif. GHG reductions	n/a	1,200,981 + 212,895 t CO_2-e in 2011 (DNV 2012b, a)	n/a, estimated carbon sequestration ca. 11,000 t CO_2-e yr^{-1} (ECO2 2010)	44,762 t CO_2-e yr^{-1}; total verified reduction: 337,732 t CO_2-e (based on ES 2012)
Certification	P-DD preparation: VCS, CCBS, CarbonFix	Approved: VCS, CCBS (gold level)	Approved: CCBS (gold level)	Approved: VCS, CCBS (gold level)

4.4.2.2 The Kasigau Corridor REDD Project

Description of actors and area

The project, located in a semi-arid savanna and dry forest ecosystem (Table 4.5), was developed and implemented by Wildlife Works. It was the first REDD+ project in the world to receive verification of its carbon reductions according to the VCS (PROLMAN 2011) and already sold carbon credits to different clients, including the clothing manufacturer Puma. Implementation has been split into two phases (I and II) and takes place on the land of different group ranch associations.

The chairman of Wildlife Works owns about 90% of the Rukinga Group Ranch, on which phase I of the project was implemented. Phase II involves 13 other ranches owned by various stakeholders. Since the areas have little potential for cattle grazing, the ranches used to run losses. Local communities living near the areas extracted wood in an unsustainable way and there has been bush meat poaching in the area (WILDLIFE WORKS 2008; KORCHINSKY et al. 2011). Wildlife Works signed conservation easements with the group ranches, which granted Wildlife Works the rights to conserve and commercialize the carbon. According to the contract, one third of the carbon revenues go to the land owners, which is usually a much larger amount than what they normally gain from ranching activities.

The landowners kept their land titles, but have to indicate any activity involving cutting trees. Another third of the revenues goes to the communities around the project area. In the case of the first disbursement of money to the community, the community, represented by an elected carbon committee, decided that 80% was to be invested in water systems and 20% in education. One third of the revenues from the carbon sells stays with Wildlife Works and is used for project implementation. The project will operate for 30 years. The project is the only project described in the Chapter that considers the soil organic carbon, which accounts for about two thirds of all baseline emissions (FREUND 2011).

Other partners are local offices of the KWS, which support Wildlife Works rangers tracking elephant movements beyond the project border. The armed KWS rangers are also alarmed if there are incidences of poaching in the project area. There is also some collaboration with national and international universities on specific topics like vegetation and bird sampling. A small environmental education center exists in the area, which is managed in collaboration with Kenya National Museums.

Links to (sub) national REDD+ strategy

Wildlife Works has close contacts with the national headquarters of KFS and the KWS and there are regular meetings with government representatives that work on the preparation of the national REDD+ strategy. The project is also frequently presented in international forums like the UNFCCC conferences. The model of the project is thought to be replicable in other areas of Kenya or other African countries.

Strategies/expectations

When they started working in the area in 1992, the initial objective of Wildlife Works was wildlife conservation. Poaching and human-wildlife conflicts posed threats to wildlife. Improved monitoring schemes were required as a precondition to mitigate these threats.

The main objective of the project is to sell carbon credits generated on the ranches and, by compensating the communities and landowner, to reduce degradation and deforestation. Alternative incomes include production of eco-charcoal, jojoba planting and commercialization, and the establishment of clothing factories, also in cooperation with Puma clothing factory. Wildlife Works has become the biggest employer in the area, employing over 300 people. Future options include the establishment and amplification of ecotourism activities. There are some additional activities that support the natural regeneration of vegetation cover and reforestation activities outside the project area in the Mt. Kasigau area.

Issues relating to project implementation

There have been no major problems or objections to the implementation of the project from the civil society or the adjacent communities. One challenge is to monitor and patrol the extensive project area. Within the project area there are no permanent water bodies, and elephants (seasonally up to 1,500) are attracted to irrigated maize plantations that have been established adjacent to the project area and within the reference area of the project. Necessary countermeasures include establishment or improvement of dams.

The land owners often made contracts with external Somali-herders that brought their cattle to graze on the lands. However, the herders often disregard the maximum number of cattle agreed on, seriously challenging the potential for ecotourism in the area.

Implications for biodiversity

Due to the location and the protection of the project area between the National Parks Tsavo East and Tsavo West (Fig. 4.2), the project claims to increase connectivity and facilitate wildlife migration between the parks. According to an actor, the considerations necessary to increase the suitability of a corridor for wildlife migration apart from measures to protect the habitat include prevention of poaching and digging of dam to provide water for elephants with the goal to reduce human-wildlife conflicts. At the time of data collection there were no complaints of local people regarding problems with increased numbers of elephants in the areas.

An important implication of the project for biodiversity included the improvement of the protection and the biodiversity monitoring system in the project area. There are over 70 rangers patrolling the project areas on a daily basis. The expenses for the rangers and supporting administration was ca. US$ 430,000 in 2011 (for Phase II of the project, FREUND et al. 2012). Total costs for anti-poaching efforts are estimated at US$ 2.50 ha^{-1} yr^{-1} (DINERSTEIN et al. 2013). This is about 4% of the total turnover that was generated by the sale of the 1.2 million verified carbon units (DNV 2012a; calculated with a price of US$ 8.5 t CO_2-e^{-1}, cf. PETERS-STANLEY et al. 2012).

The rangers protect the carbon stock, i.e., by preventing charcoal logging and wood collection, and control poaching and keep track of species sightings. At the time of data collection

there was no community involvement in the monitoring activities. However, this might be useful for elephant monitoring in the reference areas of the project, where some communities live (Fig. 4.2) and incidents of wildlife-livestock conflicts occur. Community-based monitoring can also be a positive signal to the local communities, i.e., that the project proponents are ready to intervene in case of conflicts.

4.4.2.3 Forest again - Kakamega forest

The Kakamega Forest is one of the very few rainforest areas in Kenya (Table 4.5). It was part of a once vast forest system with a connection to the Congo Basin, now only remaining in small fragments (Fig. 4.2). Currently the area is still being deforested (SCHLEUNING et al. 2011). The A/R project aims to reforest areas within the Kakamega Forest Reserve, which is under the jurisdiction of the KFS, with the aim of selling certificates for the carbon that accumulates in the growing trees on the voluntary carbon market.

Various stakeholders are engaged in the project, including local Community Forest Associations, the local NGO Kakamega Environmental Education Programme (KEEP), the nationally operating NGO ACT! and the carbon trading company Eco2librium (ECO2 2010) (Table 4.5). The project started in 2009. In 2010 funding from US-AID facilitated the planting of about 110,000 indigenous trees on 110 ha in cooperation with the local Community Forest Association. The seedlings were grown in local tree nurseries of the Community Forest Association. A key challenge involved in the project was that the cultivation of the indigenous trees requires much knowledge. For example, their shade tolerance has to be taken into account and they cannot be planted directly in the sun. Therefore they need to grow under fast growing trees, which provide them with shade. A further challenge for the project was the need to monitor the project area and nurture the seedlings constantly given that domestic animals destroy the seedlings and local people extract firewood from the project site. Natural and human-induced forest fires also created a problem.

Actors interviewed assumed that the first verified carbon credits can be sold in 2013-2014; the total greenhouse gas reduction was about 425,790 t CO_2-e within 40 years (ECO2 2010). The project shows the importance of receiving sustained flow of income until the seedlings are established. However, there was no funding available for monitoring and protection of the seedlings after they have been planted and until the forest becomes established. This seriously challenged the success of the project, since the members of the Community Forest Association had to nurture the trees at their own expenses.

4.4.2.4 The International Small Group Tree Planting Program (TIST)

This project is implemented by Clean Air Action Cooperation (CAAC), an USA-based company active in developing projects related to the reduction of air pollutants. CAAC implemented TIST, a reforestation and sustainable development project, in 1999. TIST is now operating in Kenya, Tanzania, Uganda, India, Nicaragua and Honduras. In Kenya, the project focusses on private lands and woodlots in the Mt Kenya region (Fig. 4.2). It was the first forestry carbon project to receive validation and verification from both the VCS and the CCBS (CAAC 2011a). The basic strategy is to provide farmers that are willing to plant trees on their

land with additional income from selling the carbon credits from the A/R activities on the voluntary market.

Until the sequestered carbon can be sold at the voluntary market (which is usually after 6 years) the farmers receive about US$ 0.02 per planted living tree per year. Farmers then receive 70% of the revenues from the carbon sale, from which the up-front financing is subtracted. CAAC claimed that farmers immediate benefit from participating in TIST by receiving education in conservation farming, which supposedly helps the farmers to increase their yields.

In Kenya, more than 6 million trees have been planted so far in the course of TIST (TIST 2011). By far the most often planted species are *Eucalyptus* spp. (about 80%, see, e.g., CAAC 2011b), *Grevillea robusta* and *Cupressus* spp., which are clearly preferred by the participating TIST farmers because they grow faster than indigenous trees and can be used as poles or other construction materials. The project proponents mentioned that the voluntary market would not recognize the benefits for the environment or biodiversity. However, with funds provided by US-AID, incentives are being created for the farmers to increase the share of indigenous trees they plant. According to an actor, farmers receive an additional US$ 0.01 when the share of eucalyptus trees does not exceed 30% of all the trees reforested and if they are not planted within a range of 100 meters of the next waterway.

In 2011, the program began to extend into the Mara region in the south-western part of the country. At the same time the plan came up to expand the tree planting activities into deforested gazetted forest land. Such reforestation activities are distinct from the afforestation activities on private land, since forest management is under the auspices of KFS.

The program's monitoring system is implemented by about 50 quantifiers, i.e., trained local people who visit participating farmers annually and check if the planted trees are still alive. Each tree is therefore counted every year and diameters are measured. The areas are logged with GPS devices. The monitoring system is regarded as efficient, low-cost and potentially contributes to obtaining new knowledge on the growth of indigenous trees. Since the increment of the trees is measured regularly, the monitoring system is a potential source of information on the growth rates of indigenous trees, on which little information exists yet.

4.5 Challenges and opportunities for biodiversity consideration in REDD+ projects

At the time of data collection, the implementation of the national REDD+ strategies and the REDD+ projects was still in an early phase in both Peru and Kenya. Actors at the national and project level were mostly concerned with the definition of deforestation baselines, measurements of carbon stocks or broader socioeconomic problems rather than with integrating specific biodiversity considerations (cf. Sections 4.3.2, 4.4). At the same time, actors confirmed the importance of biodiversity and a number of the projects had identified specific biodiversity conservation objectives, HCV and monitoring schemes in their P-DD (cf. Sections 4.3.4, 4.4.2).

Actors in both countries generally anticipated direct positive effects on biodiversity generated through the REDD+ projects, mostly because they assumed a direct relation between the protection of forest habitats and the conservation of animals and plants. In addition to these

expected direct positive relations between REDD+ implementation and biodiversity conservation, some specific – and often overlapping – issues and potential solutions were identified through the interviews. These are discussed in the following Sections.

4.5.1 **Empty forests through hunting and poaching**

One of the issues that became evident was that even forests in good structural condition can be in danger of losing essential biodiversity components and functions and thus turning into "empty forests" (cf. NASI et al. 2010). It was also mentioned by some actors in the interviews that even if forests that potentially provide suitable habitats are conserved as a result of effective REDD+ projects, they could still become depleted of typical fauna. In most cases, such forests develop as the result of bushmeat consumption, poaching, pollution, or isolation. However, only few actors considered the threat of the development of empty forest as an immediate or significant threat.

For Peru, empty forests are described in Madre de Dios in the literature (TERBORGH et al. 2008). An actor involved in biodiversity monitoring in the context of REDD+ projects in Madre de Dios mentioned that large areas within the watershed of the Madre de Dios River (Fig. 4.1) could be considered empty forest. Hunting and empty forests were also issues for REDD+ projects in the region of San Martín, where the rangers have to keep track of the number of animals hunted in the park (cf. Section 4.3.4.9). In Kenya, empty forests were not explicitly mentioned by the actors. However, the increasing pressure from wildlife poaching (MAINGI et al. 2012) made additional measures necessary in order to protect wildlife (cf. Section 4.4.2.2).

The absence of animals with important ecological functions like seed dispersal might disrupt natural regeneration and finally lead to forest degradation (STONER et al. 2007; TERBORGH et al. 2008). Such species include, e.g., small rodents, which are an important component of the functional diversity in forest ecosystems. These are often threatened, e.g., through hunting or noise pollution. Some projects – mostly outside PAs (cf., Sections 4.3.4.4, 4.3.4.5, 4.4.2.4) – had not yet defined concrete biodiversity objectives or monitoring schemes for such animal species. Maintaining the population of seed dispersers – and other species with important ecological functions – is likely to contribute to the ecosystem resilience of the project (THOMPSON et al. 2012). It must be mentioned, however, that knowledge of the actual functional significance of such animals that are considered to be important in the project descriptions is often restricted.

It is also important to mention that in Kenya some components of biodiversity are at times considered to have potential negative impacts on forest functions like carbon storage and biodiversity and can also cause human-wildlife conflicts. For instance, destruction of replanted sites and standing forest caused by elephant movements was mentioned in the interviews and in the literature (CAUGHLEY 1976). Such destruction can result in the loss of tree species and destruction of seedlings in reforestation activities (cf. Section 4.5.3). Additionally, there are also significant risks for local communities, since increasing numbers of elephants potentially increase the threat for crop damage. This problem is aggravated through increasingly confined elephant movements through built-up areas, fences and roads. While negative impacts on the woody biomass and carbon contents in shrubland have been reported (GULDEMOND & VAN AARDE 2008), elephant migration was not considered to have a serious

negative impact on carbon stocks in the REDD+ projects in Kenya. However, interventions to reduce human-wildlife conflicts were considered important by managers of REDD+ projects in savannah and dryland ecosystems in Kenya. In Peru, no human-wildlife conflicts or negative impacts of any component of biodiversity on forest carbon stocks were identified.

4.5.2 **Creation of perverse incentives for deforestation through REDD+**

While maintaining functional diversity in forests is important, conservation of forest habitats must be a central objective in any activity aiming to conserve forest biodiversity (compare SHEIL 2001). The possibility that REDD+ – by providing financial compensation for avoided deforestation – might incentivize deforestation or degradation in those areas that are later considered for REDD+ activities was mentioned by only few actors in Peru. Examples included that natural forests could be cut and converted into oil palm or timber plantations as part of governmental strategies or by individual private companies in order to generate income through both the enhancement of carbon stocks and the commercialization of the plantation products (cf. Section 4.5.3). This was noted by actors working in the Government of San Martín and by an actor working in forestry concessions in Madre de Dios. These actors emphasized that the growing demand for timber, non-timber forest products and biofuel would make the risk of deforestation and conversion of natural forests more likely. However, only one actor in Peru and none in Kenya regarded the risk of perverse incentives as particularly pressing at the time of data collection. The actors explained that this perception was based on the fact that many people lacked a deep understanding of carbon markets. Another explanation was that deforestation for the establishment of biofuel or timber plantations is excluded for A/F projects by different carbon standards, which prescribe a 10 year minimum time-span between deforestation of forests and reforestation activities (see, e.g., VCS 2011).

In summary, although the risk of perverse deforestation incentives by REDD+ projects was considered to be relatively low, minimum time spans before REDD+ activities to enhance forest carbon stocks and exclusion of conversion of natural forests can still be regarded as important safeguards.

4.5.3 **Enhancement of forest carbon stocks**

As mentioned in the previous Section, increasing demand for timber and non-timber forest products and the growing recognition of the different ES provided by forests are strongly related to the activity of enhancement of forest carbon stocks. On a global scale, there is a large potential for enhancement of forest carbon stocks through reforestation, forest restoration, or induced natural regeneration (PIPER et al. 2009). Especially in Kenya, where reforestation activities are part of the national development agenda (GOK 2007), many actors mentioned the link between enhancements of forest carbon stocks as a part of REDD+ and ecological benefits. The REDD+ projects described in Kenya also included some reforestation activities. These were not included in the projects' carbon accounting schemes, but were seen as a useful strategy to provide jobs for local people and to generate ecological benefits. Expected benefits from reforestation included biodiversity conservation through the creation of forest habitats, income generation through the commercialization of non-timber forest products, reducing pressure on natural forests through increasing timber stocks and protec-

tion of soils and watersheds. In the projects described in Peru, there was less experience with enhancement of carbon stocks.

The choice of tree species and the techniques to enhance carbon stocks influence the ecological value and provisions of ES from the forest areas (BROCKERHOFF et al. 2012). For example, forest restoration activities using indigenous species are likely to create more environmental benefits than plantation-style reforestation activities. However, based on the experiences of the A/R projects on non-forest land in Kenya (cf. Section 4.4.2.4), it can be expected that local people will almost always prefer exotic tree species in reforestation activities because of their fast growth.

In Kenya, there is a debate between the promoters of eucalyptus as a timber source and the organizations that criticize its use because of the impacts of exotic species on ES and biodiversity (cf. OBALLA et al. 2010). Representatives of the KFS argued that the plantation of exotic, fast growing, non-invasive species is an important measure to protect indigenous forests by providing timber and firewood. They emphasized that the choice of an appropriate location is the most important precondition to exclude negative ecological impacts of the plantations. For example, eucalyptus plantations in watersheds can reduce the water discharge and should be avoided. In contrast, representatives of NGOs like the Green Belt Movement argued that exotic trees, especially eucalyptus would generally contribute to soil degradation and water shortage, and that their use should be restricted to agricultural lands. They also argued that plantations, which are often designed as monocultures, have little value for biodiversity and do not provide suitable habitats for forest animals.

Some Kenyan actors, including government representatives and project developers, mentioned that there are indigenous species, e.g. the Meru oak (*Vitex keniensis*) that grow very fast and can be used for timber production. However, this knowledge is not widely distributed. In A/R projects on forest land, indigenous trees are usually used for reforestation. The Forest Again project (cf. Section 4.4.2.3) showed the importance of considering the necessity and the costs of nurturing and protecting plantations after planting and until a new forest is established. This usually takes longer and requires more skills than reforestation with fast growing exotics. If no financial means are available to prevent damage (e.g. caused by grazing of domestic animals or elephants) until the forest has established areas may become degraded.

4.5.4 **Certification for additional biodiversity benefits**

In light of the challenges mentioned, certification of REDD+ projects can potentially support synergies between REDD+ activities and biodiversity at the project level. This is because some standards usually provide frameworks and guidelines for integrating biodiversity concerns in forest carbon projects (PILGRIM et al. 2011). They can be regarded as the project-related counterparts of the international guidelines and safeguard frameworks for national REDD+ implementation. Actors mentioned that certification according to the CCBS reduces potential biodiversity risks that may occur in REDD+ project areas, including over-extraction of species or non-timber forest products (e.g., plants for roof building, handicrafts, timber). Actors that were implementing REDD+ projects in conservation concessions stated that compliance with guidelines provided by the standards would make the management of the

areas more rigorous and that they would help to stipulate clearer and more accountable objectives for biodiversity conservation.

There are synergies between standards commonly used for REDD+ projects, like the CCBS, and other forest-related certification schemes. Due to the highly specified requirements of the FSC, covering many of the social and environmental requirements of the CCBS (BROTTO et al. 2010), REDD+ projects with FSC certification were able to develop relatively fast (cf. Section 4.3.4.2). Although less often used in REDD+ project activities, the Plan Vivo Standard, which "promote(s) sustainable land-use practices that benefit communities in rural areas," (PLAN VIVO 2008) is considered by many project proponents and has provisions for biodiversity in REDD+ projects.

However, while certification has been regarded as a very important minimum provision for including biodiversity concerns in REDD+ projects, direct evidence of the impacts of certification on biodiversity conservation does not always exist. For example, assessments of the impact of certification schemes are often not systematic, and are mostly based on secondary information from case studies (NUSSBAUM & SIMULA 2004). Furthermore, actors acknowledged that there was not always a scientifically proven link between the indicators used in the certification process and important ecological processes and functions in the areas. It was mentioned by a biodiversity officer in a REDD+ project that mostly indicators for the state of biodiversity are used for the CCBS; i.e. the number of animals that live in the area (e.g., elephants, in this case). An actor in a central biodiversity research organization in Peru mentioned that extensive lists of species alone, which are generally used in the P-DD as biodiversity indicators, do not always allow conclusions to be drawn about their ecological functions, and that much more knowledge is needed to set conservation priorities.

Consequently, state indicators represent important biodiversity components of the project areas. However, an increased integration of elements that indicate direct threats to biodiversity (e.g., poaching), ecosystem functions, or the impacts of conservation activities on ES in certification schemes could facilitate a more integrative and systematic assessment of the biodiversity conservation strategies applied in REDD+ projects.

4.5.5 **Biodiversity monitoring in REDD+ projects**

Certification was also considered to be a good basis on which monitoring systems can be built. While Chapter 5 of this report deals more exhaustively with issues regarding the assessment and monitoring of biodiversity under REDD+, some specific aspects of monitoring in REDD+ projects are covered in the following paragraphs.

Synergies between carbon and biodiversity monitoring

It is often anticipated that REDD+ can create synergies between carbon and biodiversity monitoring (THEOBALDELLI et al. 2010). Most actors in Kenya and Peru who were involved in the implementation of REDD+ projects mentioned that some aspects of biodiversity can be monitored alongside carbon monitoring activities. In the first place, inventories of vegetation communities and tree species are normally an integral component of any carbon monitoring activity. For the calculation of the carbon content of the biomass in the project areas, data are collected that contain relevant biodiversity information on the structure and composition

of vegetation and soils. For instance, for LiDAR-based measurements of carbon stocks in the Madre de Dios region in Peru (ASNER et al. 2010), vegetation maps of the existing forest types have been updated. Satellite images used for the calculation of the deforestation baselines are also useful for biodiversity monitoring at the landscape level (TURNER et al. 2004). Most actors mentioned, however, that although the use of satellite imagery is apt for structural habitat characteristics, it cannot be used for biodiversity monitoring at finer scales or at the species level.

The recording of sightings or vocalizations of certain species or other evidence of animals' presence during carbon measurements in permanent field plots established for carbon monitoring was also noted. Species mentioned in this context were almost exclusively birds and larger mammals. Making records of species sightings and hunting activities during monitoring activities to identify tree cutting and encroachment in the project area were also considered possible and important in order to keep track of the changes in animal populations over time in the project areas. This is, however, only possible when there is appropriate infrastructure and the terrain is accessible, which is more often the case in plain savanna ecosystems than in dense rainforests with often rugged topographies. The only elaborated monitoring scheme that takes place on a regular basis could be observed in the Kasigau REDD project. For the monitoring of some specific biodiversity-related objectives, e.g., prevention of empty forests (cf. Section 4.5.1), there will always be the need for well trained staff and specific field studies. However, such monitoring systems are mostly independent from carbon monitoring schemes.

Community-based monitoring

Community-based monitoring is often used as a buzzword in the context of REDD+ implementation and many studies have investigated the applicability of community-based monitoring in REDD+ projects (e.g., BURGESS et al. 2010; DANIELSEN et al. 2010a; DANIELSEN et al. 2010b). However, most projects have not formulated applicable approaches to integrate local communities systematically in biodiversity monitoring schemes, though project proponents and local communities were aware of the concept and acknowledged its usefulness.

The challenge most often mentioned was the lack of available resources to train local people. However, an actor responsible for the Kasigau Corridor project (cf. Section 4.4.2.2) mentioned that community-based monitoring could be useful when the project areas are populated or crossed by mega-herbivores (especially elephants) and other animals with a high potential for human-wildlife conflicts (like predators, cf. Section 4.5.1). In such areas, special measures were regarded as necessary for reducing damage to domesticated animals, wildlife or humans. Local people could be much faster at locally identifying animals with high conflict potential than the project staff. If conflicts can be prevented in a timely manner by the alerted project staff, local communities might realize the overall usefulness of the project and their willingness to cooperate in the project and other conservation activities might increase.

4.5.6 **Protected areas**

In addition to certification and appropriate biodiversity monitoring schemes, implementation of REDD+ projects in PAs was mentioned in the interviews as an effective strategy for fostering the conservation of forest biodiversity in the context of REDD+. An impact of REDD+ implementation that was observed already at the time of data collection was that the communication between actors who were involved in various fields of conservation, like PA management, REDD+ implementation and biodiversity monitoring, has in many cases been intensified and improved in anticipation of benefits from REDD+. Independent of the eventual success of REDD+ to reduce deforestation, the compilation of biodiversity information and establishment of databases that was carried out in preparation for REDD+ projects is most likely to contribute to improved biodiversity management in PAs. Additionally, actors in both case countries identified various other interrelationships between the management objectives of PAs and REDD+ projects.

Prioritization and eligibility of protected areas for REDD+ projects

In many interviews it was assumed that synergies between biodiversity conservation and reduction of carbon emissions are highest in areas that are under deforestation pressure and have been defined by governmental entities as being of relevance for biodiversity conservation. These were often areas that belong to the national PA networks of the case study countries. Usually, management plans and biodiversity information exist for PAs, which in turn facilitate appropriate biodiversity management in the areas. Potential positive impacts on biodiversity notwithstanding, many actors in Peru acknowledged that the actual reason for implementing REDD+ projects in PAs is not because synergies between mitigation and conservation are strongest there, but rather because of the relatively low transaction costs: in PAs, there is usually only one formal land owner who also possesses the rights to use the natural resources. This is in most cases the state or, as in the case of Peru, organizations holding a conservation agreement with the state. Therefore, there is no need to negotiate with large numbers of stakeholders to implement a REDD+ project – at least in theory. In reality, the situation is often much more complex and involves informal settlers in the PAs or unregulated extraction of natural resources (cf., e.g., Sections 4.3.4.8, 4.4.1). It was frequently mentioned by actors in Kenya that many forest PAs, i.e., forest reserves gazetted by the KFS, demonstrated strong potential for REDD+ projects, but that social tensions with local people and politicians had prevented their implementation. Similar statements were made by actors in Peru.

Additionality of the REDD+ projects in PAs was an important issue. A project is additional if it can be convincingly explained in the P-DD that the desired project outcome would not have occurred anyway (see, e.g., CCBA 2008). In both countries, there were ongoing discussions about PA eligibility for REDD+ activities, and most REDD+ proponents have encountered some problems in proving additionality for REDD+ projects. This problem was not only mentioned by PA managers who might have used this argument to promote their success in managing the area, but also by other actors who mentioned that increasing deforestation rates in some PAs de facto make the REDD+ activities additional. PAs are eligible areas for carbon projects selling the certificates on the voluntary market. In fact, designation as a legal PA is even a HCV criteria (CCBA 2008). However, other actors, especially those working at

the governmental level, argued that existing PAs must be protected in by law and therefore fall short of meeting the additionality criterion. A likely reason for such statements is that there are concerns about the "neoliberalization of conservation" (HOLMES 2011) and that the state would lose even more control over natural resources.

Financing of protected areas

Initially, many actors at the national and project level in Peru considered REDD+ projects as a tool to sustainably finance PAs. In an analysis for the financial requirements of Peruvian PAs, a cost of US$ 1.1 million yr^{-1} was calculated for the Cordillera Azul National Park for the period 2005-2014. Annual costs of US$ 0.9 million and US$ 0.4 million were calculated for Tambopata National Park and Alto Mayo Protection Forest, respectively (PROFONANPE 2005). From these numbers, average annual costs of US$ 1.4 ha^{-1} were derived for these three PAs. Based on the estimated annual reductions of CO_2-e through the REDD+ projects that take place in PAs (Table 4.4), the average annual turnover from the carbon sales was about US$ 12.9 ha^{-1} (assuming an average price of US$ 8.5 t CO_2-e^{-1}; cf. PETERS-STANLEY et al. 2012). While no data could be obtained on the projects' costs or net revenues, most actors that developed REDD+ projects in PAs mentioned that they had to adjust their expectations during the implementation of the projects and anticipated rather small net benefits, as large shares of the REDD+ revenues will have to be reinvested and carbon prices are highly fluctuating.

Corridors between protected areas

By protecting forest habitat, REDD+ projects potentially amplify the effectiveness of PAs by increasing connectivity or extending the area under protection. Examples in Peru include the REDD+ project in the Los Amigos Conservation Concession (cf. Section 4.3.4.3) that is next to the buffer area of Manu National Park; or the Bahuaja-Sonene National Park (cf. Section 4.3.4.7), which directly borders the Madidi National Park in Bolivia. Many projects in Madre de Dios are located within the Vilcabamba-Amboró Conservation Corridor, which stretches from southern Peru to central Bolivia (CEPF 2005; ENTENMANN & SCHMITT 2011). The total area of REDD+ projects in this region that are not located in national PAs or conservation concessions – including projects in forestry concessions (cf. Sections 4.3.4.2, 4.3.4.5), Brazil nut concessions (cf. Section 4.3.4.4) and communal land (cf. Sections 4.3.4.1, 4.3.4.6) – amounts to about 0.5 million ha, or ca. 6% of the area of Madre de Dios. By increasing the forest area under some kind of protection, these projects potentially contribute to the effectiveness of the corridor.

Connectivity was even more topical in the Kenyan context. One of Kenya's mid-term development goals is to secure wildlife corridors and migratory roads between PAs (GOK 2007). Actors claimed that their projects had positive impacts on the connectivity between PAs, mostly through protecting the animals or making arrangements with the people living in the migration corridors to leave the animals undisturbed and to reduce human-wildlife conflicts. Actors mentioned that some additional effort needs to be invested to maintain the corridor function of the areas (cf. Sections 4.4.2.1, 4.4.2.2). Some issues might jeopardize the effects on connectivity. This included establishment of highways, built-up areas and negative impacts of mining activities on the water quality of rivers, which also have an important connectivity function.

4.6 Conclusions and outlook

The analysis of the two case studies revealed little immediate evidence for incompatibility between REDD+ related climate change mitigation actions and biodiversity conservation. Most actors considered the biodiversity risks arising from REDD+ projects to be low and expected REDD+ to generate direct biodiversity benefits, mostly through conserving or (re)establishing forest cover. Maintaining forest habitat is beyond doubt a crucial factor in biodiversity conservation, and the revenues from REDD+ projects developed by environmental NGOs were budgeted for reinvestment in conservation activities. Such biodiversity benefits notwithstanding, REDD+ is still a carbon-based financial instrument in which biodiversity conservation is a rather accessory objective. This is revealed in issues such as limited awareness of possible negative impacts on biodiversity and deficient consideration of the importance of functional biodiversity for ecosystem resilience in the project designs. Such issues may lead to undesired adverse effects.

As a consequence, biodiversity safeguards at the project and national level remain important. For example, to prevent the depletion of animals in forests it is important to monitor and, if necessary, to restrict hunting activities and to secure undisturbed access for animals. Another safeguard is to exclude the creation of perverse incentives for deforestation and consequent establishment of plantations. If activities target the enhancement of forest carbon stocks with indigenous tree species, local peoples' access to timber and firewood needs to be considered. Establishing plantations on non-forest land with fast growing, possibly exotic but non-invasive trees might contribute to the protection of indigenous forests. Further research on the suitability of indigenous species for timber production also remains important in this context.

Certification of the projects' environmental benefits has broad acceptance among project developers and can be regarded as an effective provision to exclude biodiversity risks. There is, however, scope to link biodiversity conservation even more explicitly to REDD+ activities. For example, standards could require a more extensive consideration of the impacts of the projects on ecological processes. In addition to listing flagship species, rare ecosystems and important ES as conservation objectives in the P-DD, the identification of important ecological interactions between focal species and ecological functions in the project areas could facilitate the formulation of efficient strategies for the conservation of species and ES and for increasing the ecological resilience of the areas.

Appropriate biodiversity monitoring designs that are able to provide evidence on long-term ecological impacts of the project activities also become important in this context. However, due to their carbon focus and restricted human and financial resources it is not realistic to expect that REDD+ projects apply highly sophisticated monitoring systems. Therefore, the integration of REDD+ project activities in broader biodiversity conservation approaches at the national and subnational level is required, where appropriate monitoring schemes can be implemented independently from carbon revenues. This requires, e.g., the integration of relevant ministries and other governmental organizations concerned with biodiversity conservation into the REDD+ implementation processes.

Areas that are already part of national PA networks have been identified as apt areas for REDD+ implementation. However, REDD+ in PAs is only an option if the areas are under some deforestation pressure and adjacent communities are properly organized, have low

opportunity costs for conservation and a willingness to find constructive ways to solve conflicts over land and resource use. In fact, these are preconditions for any REDD+ activity within and outside of PAs. While it was possible in some projects to successfully integrate local communities, independent REDD+ projects will not be able to halt inter-ecosystem leakage and biodiversity loss caused by impacts of long-distance migration or ambiguous land rights. Thus, many causes of deforestation and biodiversity loss can only be ameliorated through integrated land-use planning at subnational or national level.

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Annex: acronyms specifically used in Chapter 4

The acronyms correspond to their original wording in Spanish or English. For acronyms and abbreviations that are also used in other Chapters, cf. list of abbreviations.

ACCA	Amazon Conservation Association
AIDER	Association for Integrated Research and Development
AIDESEP	Interethnic Association for the Development of the Peruvian Amazon
AMPA	Association of Amazonian People for Amazonia
AVMM	Association of the Virgin of the Miraculous Medallion
AWF	African Wildlife Foundation
BAM	Bosques Amazónicos
CAAC	Clean Air Action Cooperation
CAMDE Peru	Environmental Conservation and Development Peru
CEDISA	Centre for Development and Investigation of the Selva Alta
CI	Conservation International
CIMA	Centre for Conservation, Investigation and Management of Natural Areas
DAR	Environmental Law and Natural Resources
DRIS	Sustainable Rural Development
ECOAN	Andean Ecosystems Association
FEFOREMAD	Federation of Afforestation and Reforestation Concessionaires in Madre de Dios
FENAMAD	Native Federation of Madre de Dios and its Tributaries
FEPROCAMD	Federation of Brazil Nut Producers of Madre de Dios
GIZ	German International Cooperation
HCV	High Conservation Values
IBC	Institute for the Common Good
IIAP	Peruvian Amazon Research Institute
ITTO	International Tropical Timber Organization
KEEP	Kakamega Environmental Education Program
KFS	Kenya Forest Service
KWS	Kenya Wildlife Service
MINAM	Ministry of the Environment of Peru

PA	Protected Area
P-DD	Project Design Document
PROFONANPE	Peruvian Trust Fund for National Parks and Protected Areas
SERNANP	National Service for Natural Protected Areas in Peru
SINANPE	National System of State Protected Natural Areas in Peru
SPDA	Peruvian Society for Environmental Law
TIST	The International Small Group Tree Planting Program
VCS	Verified Carbon Standard

5 Actors perceptions of issues in biodiversity assessment and monitoring under REDD+: Case studies from Peru, Ecuador, Kenya and Ethiopia

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5.1 Introduction

As the REDD+ mechanism has evolved, the pursuit of synergies between biodiversity and climate objectives and the avoidance of perverse incentives for biodiversity destruction has become increasingly important (see Chapter 2). Internationally, the UNFCCC has decided on a number of safeguards, including for biodiversity (Decision 1/CP.16), and requires countries to develop a safeguards information system (SIS) (Decision 12/CP.17). At the same time, the CBD is taking an increasing stake in developing recommendations and guidelines for biodiversity conservation under REDD+ (e.g., Decision 19/COP.11) (e.g., PISTORIUS 2012). Although the negotiations under the UNFCCC have not yet come to a conclusion regarding the final modalities of the REDD+ mechanism, many developing countries are already preparing national REDD+ strategies. Most are assisted by the World Bank FCPF and UN-REDD Programme and are required to follow the common guidelines for environmental and social considerations developed by these two organizations (FCPF & UN-REDD 2012).

Despite the international guidance and the growing body of scientific work concerned with biodiversity and land use planning under REDD+ (e.g., GARDNER et al. 2012; PARROTTA et al. 2012), countries are still struggling to integrate biodiversity concerns in national REDD+ strategies and initiatives. This is related to the intrinsic complexity of biodiversity, which includes the diversity of genes, species and ecosystems at different geographical scales (e.g., NOSS 1990; THOMPSON et al. 2012), and the level of scientific, technical and institutional capacity required for biodiversity assessment, management and monitoring (e.g., GARDNER et al. 2012; KAPOS et al. 2012). At the project level, an increasing number of REDD+ pilot projects can help in gaining experience and building capacity on how to combine biodiversity and climate objectives on the ground (see Chapter 4). In addition to certification through a carbon standard (e.g., Verified Carbon Standard, VCS), these projects usually aim for compliance with the Climate, Community and Biodiversity Standards (CCBS), which have high requirements for biodiversity and trigger better prices for carbon credits on the voluntary markets (ENTENMANN 2010). However, the challenge remains of how to scale-up data and expertise regarding biodiversity indicators and monitoring frameworks from the project to the national level.

Ideally, the consideration of biodiversity in national REDD+ strategies requires the definition of national and subnational biodiversity conservation objectives and the development of a framework for monitoring REDD+ impacts on biodiversity based on a robust set of structural

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and biological indicators (GARDNER et al. 2012). Structural indicators describe the structure of particular forest stands or the spatial pattern of entire forest landscape mosaics, while biological indicators refer to particular species or species groups. Structural indicators can be measured using remote sensing technology, whereas the survey of biological indicators predominantly has to be carried out in the field (GARDNER 2010; KAPOS et al. 2012). Furthermore, indicators can be classified into driving forces, pressure, state, impact and response indicators in order to convey environmental problems to policy-makers in a straightforward way (MAXIM et al. 2009).

Subsequently, monitoring is the repeated assessment of biodiversity indicators at regular intervals in order to detect biodiversity changes over time. Preferably, it involves three different levels of information (GARDNER 2010):

- *implementation monitoring*, i.e., assessing if agreed management practices are indeed being implemented;
- *impact monitoring*, i.e., tracking of indicators in order to ensure that the implementation of management guidelines translates into minimum levels of performance on the ground; and
- *validation monitoring*, i.e., evaluating the extent to which existing management standards are sufficient and how they can be further refined to ensure their contribution towards long-term conservation goals.

Countries will have to find individual solutions for dealing with biodiversity assessment and monitoring in the context of REDD+, because they can differ substantially in terms of the extent and type of forest, deforestation trends and technical capacities (e.g., GRISCOM et al. 2009; ROMIJN et al. 2012). The goal of this study was to evaluate the challenges and opportunities for the consideration of biodiversity under REDD+ in four case study countries – Peru, Ecuador, Kenya and Ethiopia. These countries were selected because they are representative of different types of REDD+ countries: Peru and Ecuador still have a vast forest cover, most of this being rainforests, and low historical deforestation rates, whereas Kenya and Ethiopia have a relatively small remaining forest cover due to a high historical rate of deforestation and their forests also include vast shrubland areas (see Table 5.1).

The study had three main objectives:

1. To identify the stakeholders in the national and subnational REDD+ processes who are involved in biodiversity management and conservation;
2. To evaluate the available indicators and methodologies for biodiversity assessment and monitoring under REDD+ in each country; and
3. To highlight the major challenges related to the implementation of a national biodiversity monitoring system under REDD+.

Comparison of the four case studies was expected to yield an overview of the key challenges related to the consideration of biodiversity in the REDD+ process under different country circumstances. The results will be used to develop recommendations for a better integration of biodiversity assessment and monitoring in REDD+ initiatives.

5.2 Forest biodiversity and forest cover in the case study countries

The case study countries host high levels of biodiversity: Ecuador and Peru belong to the world's 20 megadiverse countries and contain parts of the Amazon rainforest with high global biodiversity significance (MITTERMEIER et al. 1997; MITTERMEIER et al. 2003). All four countries comprise tropical mountain systems with dissected topographies that support montane forests with high rates of endemism (GENTRY 1992). Besides vast forest areas form part of biodiversity hotspots, which are defined by a high number of endemic plant species and high threat due to conversion of large amounts of the original habitat (MITTERMEIER et al. 2004) (Table 5.1).

The forest areas in Kenya and Ethiopia include significant amounts of tropical shrubland (Table 5.1). According to the UNFCCC (Decision 11/CP.7), shrubland is considered as forest if tree crown cover reaches 10 to 30% in a minimum area of land of 0.05 to 1 ha and minimum tree height is 2 to 5 m. Countries can establish their national forest definition within these margins: Peru opted for a minimum tree crown cover of 30% within 0.5 ha area of land and minimum tree height of 5 m (VELARDE et al. 2010), while Ethiopia and Kenya chose a minimum tree crown cover of 10% within 0.5 ha area of land and minimum tree height of 5 m (FAO 2010b; FDRE 2011).

Peru has by far the largest forest area amongst the four case study countries (Table 5.1), but since 2005, deforestation has increased significantly and emissions from the forest sector account for about 50% of the national GHG emissions (GOP 2011). By international standards, however, Peru still ranks as a country with a high percentage of remaining forest and low deforestation rates (HFLD) (GRISCOM et al. 2009). In contrast, Ecuador is a country with high a percentage of remaining forest and high deforestation rates (HFHD) (GRISCOM et al. 2009). Forest loss is high in terms of both absolute forest area and percentage of forest area (Table 5.1). The principal driver of deforestation in Ecuador is the expanding agricultural frontier, followed by other drivers that vary in importance depending on the geographical region, e.g. oil palm industry, logging, mining and infrastructure (STERN & KERNAN 2011).

Kenya and Ethiopia are classified as countries with a low percentage of remaining forest and low deforestation rates (LFLD) (GRISCOM et al. 2009); however, the FAO (2010) indicates high and still increasing deforestation rates for Ethiopia (Table 5.1). The two main drivers of deforestation and forest degradation in Ethiopia are the expansion of agricultural land and unsustainable fuel wood consumption (FCPF 2012a). Kenya is the only country amongst those studied where the net deforestation trend is actually slowing down. On the one hand, this could be related to the fact that the few remaining closed canopy forests are located in strictly protected forest reserves, while on the other hand there are an increasing number of reforestation initiatives.

Peru, Kenya and Ethiopia are mainly supported by the World Bank FCPF and have recently prepared their Readiness Preparation Proposals (R-PP). This is the second step in the FCPF Readiness Mechanism after acceptance of the Readiness Plan Idea Note (R-PIN). Ecuador is supported by the UN-REDD Programme and has prepared a National REDD+ Program (Table 5.1).

Table 5.1: Ecological zones, forest cover and national REDD+ strategy of the case study countries; for ecological zones of Peru and Kenya see Figs. 4.1 and 4.2, respectively.

	Peru	**Ecuador**	**Kenya**	**Ethiopia**
Dominant ecological zones (tropical)[a]	mountain systems, rainforest	mountain systems, rainforest	mountain systems, shrubland	mountain systems, shrubland
Biodiversity hotspots[b]	Tropical Andes, Tumbes-Chocó-Magdalena	Tropical Andes, Tumbes-Chocó-Magdalena	Eastern Afromontane, Coastal Forests of Eastern Africa	Eastern Afromontane
Forest cover (1,000 ha)[c]	67,992	9,865	3,467	12,296
Forest (% of land area)[c]	53%	36%	6%	11%
Deforestation (1,000 ha yr-1) / time period[c]: 1990-2000 2000-2005 2005-2010	 -94 / -0.14% -94 / -0.14% -150 / -0.22%	 -198 / -1.53% -198 / -1.73% -198 / -1.89%	 -13 / -0.35% -12 / -0.34% -11 / -0.31%	 -141 / -0.97% -141 / -1.05% -141 / -1.11%
National REDD+ strategy	R-PP (GoP 2011)	National REDD+ Program (GoE 2011)	R-PP (GoK 2010)	R-PP (FDRE 2011)
Supported by	FCPF (UN-REDD)	UN-REDD	FCPF (UN-REDD)	FCPF (UN-REDD)

[a] FAO 2001; [b] MITTERMEIER et al. 2004; [c] FAO 2010a

5.3 Methods

This study is based on a literature review and semi-structured interviews, which represent a qualitative and explorative research approach. This method was chosen because it helps to generate insights in new and emerging fields of research by capturing the views and experiences of a wide range of actors beyond the specific topics defined by the researcher (e.g., SCHÜTTLER et al. 2011). The term 'actor' in this study refers to a person who worked professionally in the REDD+ implementation process in one of the case study countries at the time of interview and had expertise related to biodiversity management and conservation. The investigation was limited to actors who affect the decisions regarding REDD+ and biodiversity conservation whereas those affected by the decisions were omitted (see REED et al. 2009).

First, a comprehensive literature and internet survey was carried out in order to gain an overview of the REDD+ process and the related biodiversity issues in each of the case study countries. The results of this survey helped to prepare the protocol for the semi-structured interviews. For the Peru case study, a document analysis was conducted including 58 documents on biodiversity indicators and monitoring techniques in Peru that were mentioned or provided during the interviews.

Second, the relevant actors for the case study context were identified using a combination of approaches (MAYERS 2005): On the one hand, the literature survey provided, e.g., lists of actors in the R-PP and participant lists of relevant workshops; on the other hand, actors were identified by approaching consultants and academics working in related fields. Furthermore

the snowball system was applied, i.e., actors were asked during the interviews to identify other relevant actors who were then also contacted (REED et al. 2009). Sampling continued until repetition occurred in the naming of new actors. The identified actors were contacted by email or phone, and in all countries virtually all contacted actors agreed to give an interview. The number of interviews in each country ranged between 18 and 34 (Table 5.2). In the case of Peru, the interviews constitute a subset of the interviews presented in Chapter 4 (Table 4.1), and for Kenya, the interviews are identical to those presented in Chapter 4 (Table 4.2).

The interviews were conducted with guidance from the protocols that were adapted to the specific country circumstances; interviews were recorded with prior consent of the actors. The interviewers made an effort to raise all topics consistently in the order outlined in the protocol, although the questions had to be adapted to the working area of the actors. The actors were never interrupted as long as their statements were relevant to the research questions. In fact, the interview protocols covered a broader range of research questions than those considered in this study, because they were part of a more comprehensive research project (see, e.g., Chapter 4 and WENDT 2012; ENTENMANN & SCHMITT 2013.; ENTENMANN & SCHMITT in prep.; ENTENMANN et al. under review). This study only considered those aspects of the interview surveys that were comparable across the case study countries.

Table 5.2: Formal details of the interview surveys conducted in the case study countries. More information on interviewed actors in Section 5.4 (Results).

	Peru	**Ecuador**	**Kenya**	**Ethiopia**
Interviewer	S. Entenmann	J. Delgado	S. Entenmann	V. Wendt
Year	2010	2011	2011	2012
No of interviews	30	21	34	18
Location	Lima, Regions of Madre de Dios and San Martín	Quito	Nairobi, Coast, Eastern and Western Provinces	Addis Ababa, Wondo Genet, Bonga
Language	Spanish (28) English (1), German (1)	Spanish	English	English
Average length of interviews	49 minutes	48 minutes	57 minutes	ca. 40 minutes

Interviews were transcribed verbatim and analyzed with MAXQDA (Version 10, Verbi Software) following a qualitative content analysis approach (MAYRING 2007). Analyzing the scripts line-by-line, relevant and recurrent statements were identified and coded, i.e., assigned to paraphrases which reflected the meaning of the statements (=codes). The creation and analysis of codes was guided by the research questions. During the course of the analysis, the wording of a code was constantly revised and adapted in order to reflect the content of all statements that were assigned to the code.

The biodiversity indicators identified during the interviews and document review were classified according to the Driving forces-Pressures-State-Impacts-Responses (DPSIR) framework, which was developed to pinpoint the relationships between environmental problems,

the socioeconomic domain and the policy level (MAXIM et al. 2009), and has previously been applied to biodiversity assessment and monitoring (e.g., DELBAERE 2003; EEA 2007). This study classified the indicators following DELBAERE (2003) and used the definitions developed by MAXIM et al. (2009: 19f):

- *Driving Forces*: “changes in the social, economic and institutional systems […] which are triggering […] Pressures on biodiversity”.
- *Pressures*: “consequences of human activities […] which have the potential to cause or contribute to adverse effects (Impacts).”
- *State*: “quantity of biological features […], of physical and chemical features of ecosystems, and/or of environmental functions, vulnerable to Pressure(s), in a certain area”.
- *Impacts*: “changes in the environmental functions, affecting […] the social, economic and environmental dimensions, and which are caused by changes in the State of the biodiversity”.
- *Response*: “a policy action, initiated by institutions or groups […] which is directly or indirectly triggered by [the societal perception of] Impacts and which attempts to prevent, eliminate, compensate, reduce or adapt to them and their consequences”.

It is important to note that Impacts refer to changes in the State of biodiversity and can thus only be detected and measured through repeated assessments, i.e. monitoring.

5.4 Results

5.4.1 **Peru**

Stakeholders in REDD+ implementation and biodiversity conservation

In Peru, the Ministry of Environment (MINAM) is the national REDD+ focal point, and there are plans to implement the national REDD+ strategy as part of the National Forest Conservation Program for the Mitigation of Climate Change with a zero net deforestation target by 2021 (GOP 2011). Peru is currently undergoing a decentralization process and has developed a ‘nested approach’ to REDD+, which is applied during all three phases: readiness, implementation and payment for results. This means that the regions constitute building blocks of the national strategy and regional governments have decentralized forest responsibilities and can grant rights to individuals, e.g., concessions, permits and authorizations (REDDDESK 2011b).

At the national level, there is a Forest and REDD+ Coordination Body for institutions with specific REDD+ responsibilities and a Lima based REDD working group with over 60 member organizations (HAJEK et al. 2011). It comprises representatives of MINAM, other ministries, NGOs, indigenous peoples and the private sector as well as governmental and non-governmental organizations that work mainly with the management and monitoring of biodiversity. The objectives of the working group include capacity building, collection and exchange of relevant information and contribution to MINAM’s policy-making process for REDD+ implementation. There are also REDD working groups at the subnational level, which aim at developing subnational REDD+ strategies and deforestation baselines (GOP

2011). This work is most advanced in the administrative regions of San Martín and Madre de Dios in the north-central and south-eastern Amazonian rainforest, respectively.

Interviews were conducted with selected members of the national and subnational (San Martín, Madre de Dios) REDD working groups who had expertise in biodiversity management and conservation (see Methods) (Table 5.3).

Table 5.3: Organizations selected for the interview survey in Peru. Interviews were conducted with one or several actors from each organization (n=30).

Organization	**Group (No of interviews)**
National REDD working group (15)	
Federal Ministry of Agriculture	Government (7)
Federal Ministry of Environment (MINAM)	
National Service of Natural Areas Protected by the State (SERNANP) (Lima head office)	
Asociación para la Investigación y el Desarrollo Integral (AIDER)*	NGO (5)
Derecho Ambiente y Recursos Naturales (DAR)	
Desarrollo Rural Sustentable (DRIS)	
Sociedad Peruana de Derecho Ambiental (SPDA)	
WWF Peru*	
Bosques Amazonicos S.A.C. (BAM)*	Private com. (1)
National University of San Marcos	Research (2)
Centre for Data Conservation, National Agrarian University**	
Subnational REDD working groups (15)	
Regional government (San Martín)	Government (3)
SERNANP (regional offices, San Martín and Madre de Dios)	
AIDER (regional office)*	NGO (10)
Amazónicos por la Amazonía (AMPA)*	
Asociación Fauna Forever	
Asociación para la Conservación de la Cuenca Amazónica (ACCA)*	
Centro de Conservación, Investigación y Manejo de Áreas Naturales*	
Centro de Desarrollo e Investigacion de la Selva Alta (CEDISA)	
Conservation International (CI)*	
Projecto Mono Tocón	
Maderacre S.A.C.*	Private com. (1)
Instituto de Investigaciones de la Amazonía Peruana (IIAP)	Research (1)

* involved in REDD+ project implementation at the time of interview
** important at national level but not involved in REDD working group

In addition to the nested approach, Peru is characterized by the large number of NGOs that participate in the working groups at the national and subnational level and are involved in the development and implementation of REDD+ projects (Table 5.3). In Peru, these projects mostly focus on avoided deforestation and many are being implemented in different types of protected areas. In addition, there are REDD+ projects in indigenous territories, forestry concessions and concessions for the extraction of non-timber forest products (see Chapter 4).

Indicators and methodologies for biodiversity assessment and monitoring

Most actors (90%) were aware of at least some of the different biodiversity indicators currently used in Peru (Table 5.4). State indicators at the species level were mentioned most often, especially those relating to charismatic mammal species, which were considered as important flagship species for conservation actions and tourism. Fewer interviews contained statements on indicators applicable at the ecosystem or landscape level (53%), and only 17% mentioned indicators at the policy level.

Table 5.4: Biodiversity indicators mentioned during an interview survey with actors in REDD+ implementation and biodiversity conservation in Peru (n=30; Table 5.3). Indicators classified according to the DPSIR framework (MAXIM et al. 2009) (Section 5.3). For further analysis see Entenmann et al. under review.

Indicator group	Examples mentioned by the actors	Indicator class
Species level		
Quantitative data	Mostly mammals, e.g., giant otter, tapir, jaguar, but also other taxa such as birds, amphibians, reptiles, insects, fish	State
Use data	(Non-) timber forest products, e.g., Brazil nut, mahogany, fruits of Buriti palm	Pressure
Landscape level		
Ecosystem structure	Location / extent of ecosystems, Deforestation rate, habitat destruction	State, Impact, Pressure
Ecosystem services	Water discharge, water from forest areas	State, Impact
Protected areas	Location / extent of protected areas	Response
Policy level		
Implementation of management guidelines	Number of control posts, implementation of land management plans, capacity of protected area staff	Response
Management agreements	Number of conservation agreements with local settlers (project level)	Response

The results show that the assessment of biodiversity at the species level mostly relied on singular surveys of species populations. At the landscape level, however, the use of pressure and impact indicators was more common because remote sensing and GIS methodologies allow for repeatedly measuring indicators, especially extent of forest cover, or for comparing them to a previously established baseline.

Two thirds of the actors mentioned that biodiversity data were available and ready to use, especially for protected areas and REDD+ projects. The actors were also aware of the biodiversity monitoring carried out in protected areas, communal reserves and REDD+ projects where biodiversity monitoring is required, e.g., for the CCBS certification process. Furthermore, it was mentioned that the information on biodiversity in Peru is improving, also through the use of remote sensing technology, which was seen as a useful tool for monitoring at the landscape level.

In most cases, no differences in opinions and statements between actors from the national level and subnational levels could be observed. One exception was that almost all actors at the subnational level mentioned existing or planned cooperation between NGOs, government and research organizations in the field of biodiversity assessment and monitoring, whereas actors at the national level mentioned this cooperation less often or complained more about insufficient cooperation, especially with regards to the participation of research organizations in REDD+ and the harmonization of different data sets.

The document analysis confirmed that the most widely used biodiversity indicators in Peru were state indicators, although many documents used a variety of different indicator classes (Fig. 5.1). As was already stated during the interviews, most biodiversity information was available from documents referring to the project level, e.g., species inventories, management plans and project descriptions, which were mostly based on field survey techniques, followed by GIS and remote sensing. At the national level, GIS and remote sensing were the most important techniques and documents included a larger number and proportion of response indicators. No driving forces were identified in the documents.

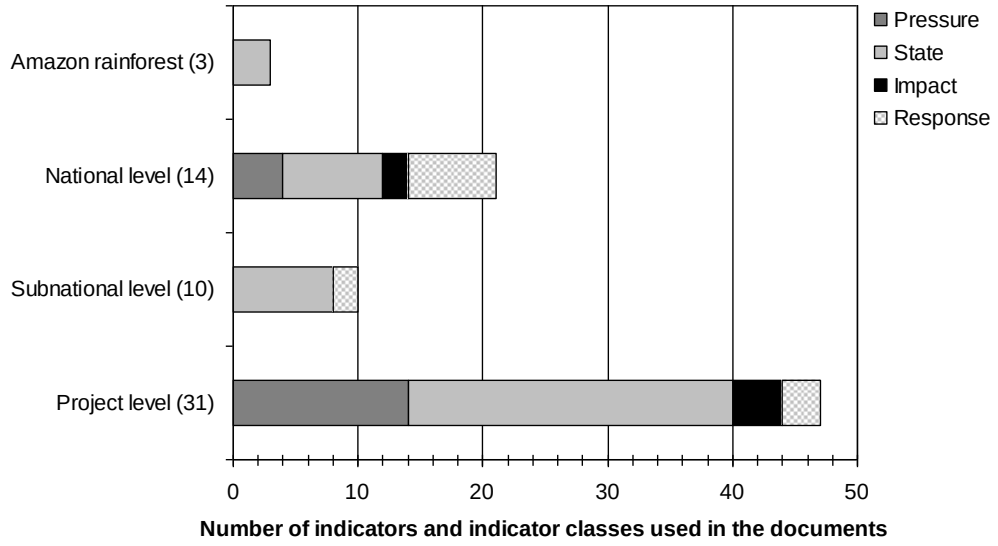

Fig. 5.1: Classification of documents (n=58) on biodiversity indicators and monitoring in Peru. Numbers in brackets refer to number of documents in each category. Most documents contained more than one indicator. Indicators classified according to the DPSIR framework (MAXIM et al. 2009) (Section 5.3). Amazon rainforest: covers several countries in the Amazon basin; Subnational level: 5 documents for Madre de Dios, 5 for San Martín; Project level: 23 documents in Madre de Dios, 8 in San Martín.

Opportunities and challenges related to biodiversity assessment and monitoring

The results from the interviews (Table 5.4) and document review (Fig. 5.1) indicate that there was already a pool of biodiversity data available in Peru, which can be used in the context of REDD+, although most information consisted of species data at the project level. Additionally, actors mentioned that there were a number of initiatives at the national, and especially the subnational level, to combine and harmonize existing data sets. Two thirds of the actors were convinced that synergies between REDD+ and biodiversity monitoring are possible and relatively easy to achieve, e.g., in REDD+ field plots for carbon assessment. Despite these positive statements, both actors from the national and subnational level also mentioned a variety of problems regarding biodiversity assessment and monitoring in Peru that were related to methods, data availability, data harmonization and the carbon focus of REDD + (Table 5.5).

Table 5.5: Challenges related to biodiversity assessment and monitoring under REDD+ as stated during an interview survey in Peru (see Table 5.3); N: national level actors (n=15), SN: subnational level actors (n=15).

Challenges mentioned during the interviews	**N**	**SN**
Related to methods	**12**	**10**
Examples: Lack of representative indicators, lack of standardized and appropriate methods, lack of human capacity and knowledge, remote sensing difficult to use in species monitoring, problematic territory (e.g., steep terrain), insufficient financing, lack of methods because biodiversity monitoring not yet considered in REDD+		
Related to data availability	**9**	**8**
Examples: Important data missing (e.g., baselines for biodiversity and deforestation, deforestation impacts on species, projections of future deforestation, prioritization studies), available data not representative or not reliable (e.g., lack of continuity in data collection, data too coarse at the national scale, biodiversity data from different parts of the country not comparable, studies predominantly on species richness)		
Related to data harmonization	**8**	**6**
Examples: Biodiversity information managed by different organizations, or not processed, thus problematic access, comparability and interpretation, little coordination between different national and subnational initiatives which manage biodiversity data (e.g., access to information stored in Lima difficult for local actors, data generated by subnational projects often not recorded in national databases)		
Related to REDD+ focus on carbon	**3**	**5**
Examples: More effort needed to include biodiversity concerns in REDD+, e.g., REDD+ project certification or national / subnational biodiversity safeguards		

5.4.2 **Ecuador**

Stakeholders in REDD+ implementation and biodiversity conservation

The Ministry of Environment (MAE) is the REDD+ focal point in Ecuador and coordinates all REDD+ initiatives and activities in the country (GOE 2011). The MAE is also responsible for the development and implementation of the National Climate Change Strategy (2010-2030). Amongst other goals, this strategy aims to protect the country's biodiversity, which is considered a crucial resource for the well-being and development of Ecuadorian society. The National REDD+ Program is part of the Climate Change Strategy and is related to several other national plans and programs such as the Forest Governance Model within the National

Strategy for the Development of Sustainable Forestry and the National Development Plan (Plan for Good Living 2009-2013), which includes the objective to reduce deforestation rates by 30% by 2013. In order to achieve this goal, the Socio Bosque Program was set up by the MAE in 2008 to conserve natural forests by providing financial incentives to private and community forest owners (REDDDESK 2011a).

Ecuador has launched several actions to engage key stakeholders in the national REDD+ process, e.g., the national REDD+ engagement program and the national Social and Environmental Standards Committee; a framework to regulate national REDD+ activities is under development (REDDDESK 2011a). All monitoring, reporting and verification (MRV) of carbon stocks will be carried out at the national level, but there will be the possibility for subnational projects (GOE 2011). At the time of research, the subnational activities underway in Ecuador were largely feasibility studies for potential REDD+ projects (around five), reforestation projects and around seven REDD+ projects preparing project design documents for evaluation by a project standard (REDDDESK 2011a; OLANDER et al. 2012a).

The country is one of the pilot countries that participated in developing guidelines for a comprehensive SIS under the REDD+ Social and Environmental Standards (SES) Initiative and used the standards in the development of the National REDD+ Program (REDD+ SES 2012). The REDD+ SES complement the common FCPF / UN-REDD approach to safeguards (FCPF & UN-REDD 2012) but include more specific provisions for biodiversity and ecosystem services. Furthermore the REDD+ SES strongly promote the delivery of social and environmental benefits (see also MOSS et al. 2011).

Interviews were conducted with selected actors who were involved in the development of the Ecuadorian National REDD+ Program and had expertise in biodiversity management and conservation (see Methods) (Table 5.6) In contrast to Peru, the REDD+ process in Ecuador is coordinated and developed at the national level. Thus actors were not separated by national and subnational affiliation, but were classified according to their organizational background based on OLANDER et al. (2012):

- *Executor actors*: work directly on REDD+ within development and implementation of national programs and REDD+ projects.
- *Support actors*: support and cooperate with those classified as executor actors.
- *External actors*: should be considered in and/or contribute information to national programs and subnational projects.

Table 5.6: Organizations selected for the interview survey in Ecuador. Interviews were conducted with one or several actors from each organization (n=21).

Organization	**Group (No of interviews)**
Executor (6)	
Ministry of Environment	Government (4)
PROFAFOR S.A.*	Private company (1)
BIOSUR (+)*	Project consortium[#] (1)
Support (10)	
CONDESAN (Consortium for sustainable development of the Andean Ecoregion)	Technical cooperation (5)
FAO	
EcoDecisión	Private company (2)
Conservation International	NGO (3)
External (5)	
Ministry of Agriculture	Government (2)
Rainforest Alliance	NGO (2)
Wildlife Conservation Society	
Catholic University of Quito	Research organization (1)

Indicators and methodologies for biodiversity assessment and monitoring

The interviews showed that, in Ecuador, state indicators (Figure 5.2) were the most widespread biodiversity indicators, e.g., indicators of species quantity and spatial or structural ecosystem characteristics (Table 5.7). Actors mentioned that the assessment of state indicators in Ecuador was usually based on inventories, i.e., the use of transect or plot methods in a defined area in order to generate information, e.g., on species, vegetation cover or forest structure. In line with the frequent mention of state indicators, the actors referred most often to inventories when talking about the methodologies for biodiversity assessment (Fig. 5.3). In addition, they mentioned remote sensing techniques and GIS, as well as rapid biodiversity assessment, which is a quick survey method using animal traps, foot prints, cameras and community knowledge, mostly focused on a single animal or plant species. The use of remote sensing and GIS in biodiversity assessment was only mentioned by support actors.

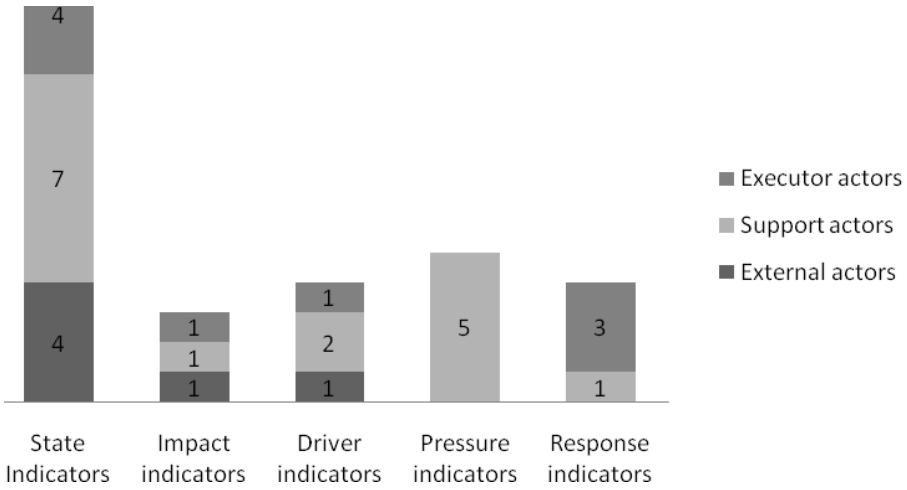

Fig. 5.2: Biodiversity indicators mentioned during an interview survey with actors in REDD+ implementation and biodiversity conservation in Ecuador (n=21; Table 5.6). Num-bers = number of interviews in which an indicator was mentioned. Indicators classi-fied according to the DPSIR framework (MAXIM et al. 2009) (Section 5.3).

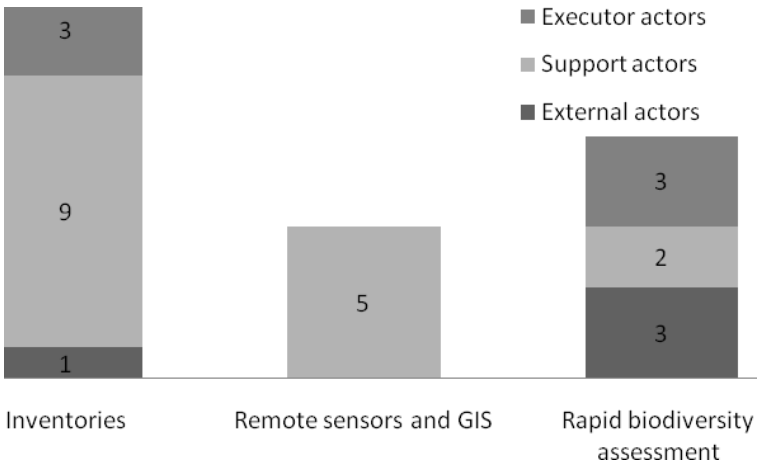

Fig. 5.3: Methodologies for biodiversity assessment mentioned during an interview survey with actors in REDD+ implementation and biodiversity conservation in Ecuador (n=21; Table 5.6). Numbers = number of interviews in which a methodology was mentioned.

Actors were aware of indicators at the species, landscape and policy level (Table 5.7) but most examples referred to state indicators at the species level (see Fig. 5.2). Indicators at the landscape level represented a larger variety of different indicator classes.

Table 5.7: Biodiversity indicators mentioned during an interview survey with actors in REDD+ implementation and biodiversity conservation in Ecuador (n=21; Table 5.6). Indica-tors classified according to the DPSIR framework (MAXIM et al. 2009) (Section 5.3).

Indicator group	Examples mentioned by the actors	Indicator class
Species level		
Species quantities	Number of species, Presence/ absence, Shannon indicator, Simpson Indicator	State
	Population changes due to human activity	Impact
Species properties	Red list, Endemism, Bioindicators, e.g., insects	State
Species values	Economic value of species	Driving
Landscape level		
Ecosystem structure	Vegetation coverage, Forest structure, Ecosystem area and distribution	State
	Measures of fragmentation and isolation	Pressure
Ecosystem quality	Remaining ecosystem, Ecosystem integrity	State
	Contamination	Pressure
Ecosystem services (ES)	Important areas for ES, Quality of soil or water	State
	Use of natural resources	Pressure
	Benefits derived from forest ES	Driver
Protected areas	Number of protected ecosystems in the country, Percentage of conservation	Response
Policy level		
Conservation planning / policies	Identification of areas important for conservation, Conservation programs, such as Socio Bosque	Response

Opportunities and challenges related to biodiversity assessment and monitoring

Almost all of the interviewed actors (88%) stated that there was the capacity in Ecuador to implement a biodiversity monitoring system. The main arguments to support this statement were that there were researchers with experience in this field, that there were good young scientists and that the communities held valuable knowledge. Nevertheless, 12% of the actors (all support actors) did not believe that there was enough capacity to implement a biodiversity monitoring system in Ecuador. Most actors mentioned some problems associated with implementing a biodiversity monitoring system in Ecuador (Fig. 5.4), e.g., lack of good information, which was a limitation because the available data were not reliable and therefore, could not be used as a baseline. Furthermore, at the time of interview, the biodiversity data were not located in a single, publicly accessible database. Lack of suitable methodologies was another problem because, for a monitoring system, it is necessary to create adequate methodologies that can be used over the whole country.

It is important to highlight that the executor actors did not consider the lack of information and methodologies to be a main problem in the country. They focused more on problems related to economic resources and political will (Fig. 5.4). The economic resources were a limitation

because there will be a need to invest in technology, human resources and data collection among other things, in order to create a monitoring system. Political will was an important issue because it is essential that there is an institution within the state that can undertake a monitoring program in the long-term and that takes on responsibility for the coordination between civil, private and state institutions.

In addition, the high biodiversity in Ecuador made monitoring difficult as there was a need for several methodologies, and more researchers and time. Finally, communities may be a problem, because they have had good or bad experiences with biodiversity studies. To carry out field work in their territories, their permission was needed, which may be difficult to obtain because they had little confidence in scientific work.

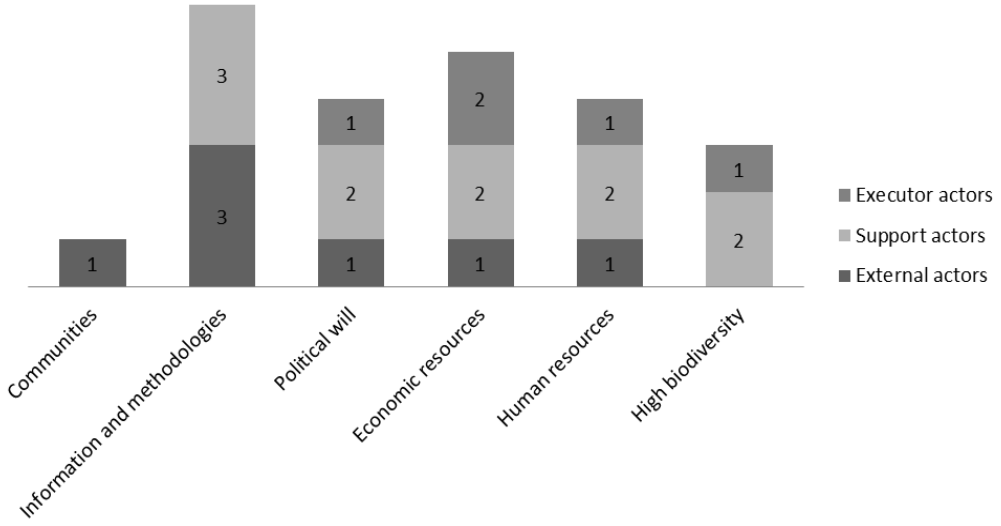

Fig. 5.4: Challenges in implementing a biodiversity monitoring system as stated during an interview survey in Ecuador (n=21; Table 5.6). Numbers = number of interviews in which a problem was mentioned.

5.4.3 **Kenya**

Stakeholders in REDD+ implementation and biodiversity conservation

The Kenyan REDD+ strategy is closely linked to the National Climate Change Response Strategy launched in 2009 (GOK 2010). The newly established Climate Change Secretariat within the Ministry of Environment and Mineral Resources is responsible for all climate change related activities, including a low carbon development pathway. Furthermore, the REDD+ strategy is linked to the National Development Plan (Vision 2030), which aims, e.g., at increasing forest cover in Kenya to 10% (GOK 2010). REDD+ readiness work is financially supported by the World Bank Natural Resource Management Project (NRMP, 2007-2013), which was initially set up to enhance institutional capacity to manage water and forest resources and to improve the livelihoods of communities in the co-management of these resources (FCPF 2012b). Under the NRMP, tensions related to land tenure and access rights had arisen between Indigenous Peoples and the Government. As these issues are also critical for REDD+ Readiness, the Readiness work was to start with the Strategic Environmental and Social Assessment (SESA) (FCPF 2012b).

The Kenya Forest Service (KFS), a state corporation established under the Ministry of Forestry and Wildlife (MoWF), acts as the National Focal Point for REDD+ (GOK 2010). The apex body for REDD+ management is the National REDD+ Steering Committee and recently, a National REDD+ Coordination Office was established with the mandate to operationalize the R-PP. Both institutions will receive advice from a National REDD+ Technical Working Group and six REDD+ Thematic Working Groups, providing expertise and oversight on specific REDD+ strategy options (FCPF 2012b). At the subnational level, REDD+ actions will be coordinated through the Local Conservancy Officers and special REDD+ Component Task Forces will be established. Emission reductions will be verified at the national scale, but monitoring and reporting may be implemented at sub-national and local scales (GOK 2010).

In Kenya, avoided deforestation and forest degradation projects mostly concentrate on savanna ecosystems, while afforestation and reforestation (A/R) projects are more often situated in the tropical rainforest zone (see Fig. 4.2). It is as yet unclear how previously established A/R projects relate to the REDD+ framework but generally acknowledged that the experience gained from these projects is relevant for REDD+ activities (RAVINDRANATH 2011; OLANDER et al. 2012b). Interviews were conducted with actors involved in the Kenyan REDD+ process who had expertise in biodiversity management and conservation (see Methods) (Table 5.8). National level actors were assumed to have more influence on the national REDD+ process, while subnational actors, mainly related to REDD+ and A/R projects, to have more experience with the practical issues of biodiversity management.

Table 5.8: Organizations selected for the interview survey in Kenya. Interviews were conducted with one or several actors from each organization (n=34).

Organization	**Group (No of interviews)**
National level (18)	
Ministry of Forestry and Wildlife (MoWF)	Government (8)
Kenya Forest Service (KFS) (head office)	
Kenya Wildlife Service (KWS)	
Interim Coordinating Secretariat of the Mau Forest	
Green Belt Movement (national expert)	NGO (5)
Kenya Forest Working Group	
Nature Kenya	
United Nations Environment Program (UNEP)	Multilateral cooperation (2)
World Bank	
Department of Resource Surveys and Remote Sensing (Ministry of Environment and Natural Resources)	Research organization (3)
Kenya Forest Research Institute	
Kenya National Museums	
Subnational level (16)	
Kenya Forest Service (KFS) (regional office)	Government (1)
African Wildlife Foundation (AWF)*	NGO (5)
Community Forest Associations (CFA)	
Green Belt Movement (project expert)*	
Kakamega Environmental Education Program (KEEP)	
US-AID	Techn. coop. (1)
Clean Air Action Cooperation (CAAC)*	Private company (9)
Carbon Africa*	
ECO_2LIBRIUM*	
Wildlife Works*	

* involved in REDD+ or A/R project implementation at the time of interview

Indicators and methodologies for biodiversity assessment and monitoring

Most biodiversity indicators mentioned during the interviews were classified as state indicators at the species level (Table 5.9). Actors stated that for some projects areas there were already extensive biodiversity inventories (plants and animals), and studies on individual species. In addition, actors mentioned a large number of indicators at the landscape level, which mostly comprised pressure indicators related to ecosystem services and poaching.

Response indicators at the policy level were mentioned by about one fifth of the actors. Actor group specific differences were not observed, with the exception that landscape level indicators were mentioned more often by national actors as compared to subnational actors (11 and 5, respectively).

Table 5.9: Biodiversity indicators mentioned during an interview survey with actors in REDD+ implementation and biodiversity conservation in Kenya (n=34; Table 5.8). Indicators classified according to the DPSIR framework (MAXIM et al. 2009) (Section 5.3). For further analysis see Entenmann & Schmitt in prep.

Indicator group	Examples mentioned by the actors	Indicator class
Species level		
Birds	Quantitative data: Forest dependent species, bird communities	State, Impact
Mammals	Quantitative data: Elephants, predators	State
Other taxa	Quantitative data: Amphibians, reptiles, insects, gastropods, fish, fungi, plants	State
Species quantities	Abundance, distribution, richness	State
Species properties	Endemism, threat, invasiveness	State, Pressure
Landscape level		
Ecosystem structure	Degree of fragmentation, deforestation	Pressure
Ecosystem quality	Amount of deadwood, soil pH	State
Ecosystem services	Hydrological services, pollination, climate regulation	State, Impact
	Charcoal extraction, grazing activities inside forest	Pressure
Poaching	Traces of poachers: vehicles, snares, ammunition, carcasses	Pressure
Human-wildlife conflict	Killed predators, crops destroyed by elephants	Pressure
Policy level		
Reforestation success	Presence of trees after reforestation activities	Response
Reduction of human-wildlife conflicts	Number of waterholes dug, areas fenced	Response
Implementation of conservation policies	Number of rangers available, number of protected areas	Response

Birds were more often mentioned than other species and regarded as state and impact indicators (Table 5.9). One actor stated that the observation of changes in forest bird communities is an indicator for pressures such as forest habitat degradation. The frequent mention of birds was probably related to the fact that Nature Kenya, an NGO maintaining and monitoring the Kenyan system of Important Bird Areas (IBA), was involved in the national REDD+ process as well as A/R projects, and that there was already quite a lot information on birds available. Generally, quantitative data on animals were seen as suitable for establishing biodiversity baselines in REDD+ and A/R projects, especially data on elephants and other large

mammal species. In addition to particular species, actors also mentioned special species properties, such as endemism, threat or invasiveness, as important features.

Regarding landscape level indicators, actors at the national level mostly mentioned ecosystem services, especially hydrological services from forested watersheds, while actors at the subnational level mostly referred to indicators related to poaching and human-wildlife conflicts. Poaching targets elephants for their ivory tusks and a wide range of edible forest and savanna species, whereas human-wildlife conflicts are often caused by migrating elephants that destroy crops and predators that kill domesticated animals. Actors stated that the consideration of human-wildlife conflicts, especially in savanna areas, was crucial for the success of REDD+ and A/R projects. Indicators at the policy level were mentioned less frequently and were mostly direct responses to the identified pressure indicators (Table 5.9).

Regarding methods for biodiversity monitoring, most statements were related to monitoring frameworks in project areas that involved rangers and/or local community members. Furthermore, actors already applied GIS and remote sensing techniques or envisaged their use in the course of REDD+ projects.

Opportunities and challenges related to biodiversity assessment and monitoring

Generally, there were more statements affirming availability of methods for biodiversity assessment and monitoring (Table 5.9) than statements on related problems (Table 5.10). No major differences between statements from national and subnational level actors were observed. Two actors complained that biodiversity monitoring currently concentrated on flagship species and on species for which data happened to be available instead of conducting a thorough species inventory followed by a science-based prioritization of biodiversity objectives.

Statements in interviews revealed challenges related to biodiversity monitoring including the lack of trained persons, lack of important infrastructure and basic equipment, and frequently restricted access to the project sites, e.g., due to damaged roads (Table 5.10). While most actors acknowledged the importance of biodiversity monitoring, many mentioned the as yet uncompleted task to define biodiversity indicators and objectives in the context of REDD+ at the national and the project level. Actors suggested that this had not yet been done, because biodiversity was not the main focus of REDD+. Another explanation was that actors had no doubt about the positive impacts of REDD+ on biodiversity and thus saw no need to quantify the benefits. In addition to biodiversity related capacity building, supplementary personnel and equipment for biodiversity monitoring would place an added burden on the budget of REDD+ projects. Lack of political will to act upon the monitoring results was also mentioned as a problem.

There were fewer statements on challenges related to data availability (Table 5.10) as compared to other the case countries (e.g., for Peru see Table 5.5). It was often pointed out that the National Museums of Kenya was the central body for assembling and managing biodiversity data collected by governmental organizations and NGOs, thus contributing to a wider dissemination and use of these data sets. Still for one project, it was mentioned that there were different institutions involved in monitoring activities and that biodiversity data were therefore difficult to compare. It was also stated that there were few data on ecosystem ser-

vices and few institutions monitoring changes in the output of ecosystem services, especially water. Some basic forest data, especially on forests types and distribution of plantations in the country were unavailable or outdated. There was information on the boundaries of the officially gazetted forest reserves, but lack of data on the actual forest cover within these.

Table 5.10: Challenges related to biodiversity assessment and monitoring under REDD+ as stated during an interview survey in Kenya (see Table 5.8); N: national level actors (n=18), SN: subnational level actors (n=16).

Challenges mentioned during the interviews	**N**	**SN**
Related to monitoring methods	**10**	**10**
Examples: Lack of capacity, equipment and infrastructure for biodiversity monitoring, monitoring systems not yet established, access to funding is difficult, lack of continuity in monitoring, comparability of different monitoring approaches,		
Related to data availability and harmonization	**4**	**2**
Examples: Data scattered and not comparable, lack of data on ecosystem services, lack of fundamental data at the national level		
Political will	**3**	**3**
Examples: Monitoring results without any impact, biodiversity was not a priority in REDD+ implementation		

5.4.4 **Ethiopia**

Stakeholders in REDD+ implementation and biodiversity conservation

Ethiopia is a Federal Democratic Republic composed of eleven Regional states. At the national level, REDD+ implementation is linked to the Climate Resilient Green Economy (CRGE) Strategy that aims at zero net emission economic development of the country. The REDD+ Secretariat was situated at the Environmental Protection Authority (EPA) during the R-PP development phase (2009-2011), but then moved to the CRGE unit of the Ministry of Agriculture (MoA) (FDRE 2011; FCPF 2012a). The national CRGE Technical Committee is designated as the REDD+ Steering Committee and hosts a multi-sectoral REDD+ Technical Working Group with the main function of reviewing REDD+ policies, programs and projects in order to inform decisions at Technical Committee and REDD+ Secretariat level. At the subnational level, eight (out of eleven) regional REDD+ focal points have been identified so far, and there are plans to strengthen or establish multi-sectoral regional REDD+ Technical Working Groups (WORLD BANK 2012). Regarding the implementation of reference (emission) levels and an MRV system both a national and subnational approach will be pursued (FCPF 2012a).

Interviews were conducted with actors who were involved with the REDD+ process and biodiversity conservation at the national level in Ethiopia (Table 5.11). Actors were selected based on their involvement in the R-PP (FDRE 2011) or relevant workshops and based on identification through other actors in the field (see Methods) and grouped according to their organizational background MAYERS (2005):

- *Internal actors*: have actual mandates and responsibilities within the national REDD+ process.

- *Interfacial actors*: members of the national REDD+ Technical Working Group and advisors from foreign aid organizations (technical cooperation).
- *External actors*: not active in any committee or working group, but with a special interest in biodiversity conservation, who might be consulted for advice during R-PP implementation.

Table 5.11: Organizations selected for the interview survey in Ethiopia. Interviews were conducted with one or several actors from each organization (n=18).

Organization	**Group (No of inteviews)**
Internal (2)	
Federal Ministry of Agriculture (MoA) - Natural Resources Management Directorate	Government (2)
Federal Environmental Protection Authority (EPA)	
Interfacial (10)	
Ethiopian Wildlife Conservation Authority (EWCA)*	Government (4)
Institute for Biodiversity Conservation (IBC)	
Environment and Coffee Forest Forum (ECFF)*	NGO (4)
Farm Africa*	
Frankfurt Zoological Society (FZS), Ethiopia*	
Nature and Biodiversity Conservation Union (NABU)*	
German Technical Cooperation (GIZ) - Sustainable Development of the Protected Area System of Ethiopia*	Technical cooperation (2)
Norwegian Agency for Development Cooperation (NORAD) / Norway's International Climate and Forest Initiative (NICFI)	
External (6)	
Ethiopian Wildlife and Natural History Society (EWNHS)	NGO (3)
Horn of Africa - Regional Environment Centre and Network (HOREC)	
Addis Ababa University (AAU) - National Herbarium	Research organization (3)
AAU - Science Faculty for GIS and Climate Change Related Studies	
Wondo Genet College - Forestry Faculty	

* involved in REDD+ project implementation at the time of interview

The interviews showed that the actual influence of the actors on the REDD+ process in Ethiopia was dependent not only on official mandates and responsibilities but also on a variety of other factors such as the actor's own initiative and commitment, human and financial resources, internal structure, REDD+ project size, expertise and reputation. Most of the interfacial actors were actively involved in the development and implementation of REDD+ projects, which were considered as important in developing Ethiopia's REDD+ capacity and thus received much attention at the national level.

Indicators and methodologies for biodiversity assessment and monitoring

At the national level, there were several initiatives for the development and implementation of biodiversity indicators that could also be used in future monitoring programs. The Biodiversity Indicators Development National Task Force (BIDNTF) identified populations and ranges of selected key species in national parks and a regular monitoring by the Ethiopian Wildlife Conservation Authority (EWCA) was envisaged for the future (BIDNTF 2010). The Ethiopian Wildlife and Natural History Society (EWNHS) identified IBA in Ethiopia (EWNHS 1996), and recently Key Biodiversity Areas were identified based on different taxa of species (CEPF 2012). Another set of indicators was established through the Woody Biomass Inventory and Strategic Planning Project (2000-2003) (WBISPP 2004) that used Landsat imagery and sample plots. It mainly aimed to provide state indicators related to land use and rural energy efficiency but also included, e.g., an indicator on forest cover trend. The Ethiopian government was at that time planning to develop a standardized forest inventory method based on the WBISPP framework (FDRE 2011).

Despite the national indicator initiatives, actors stated that there was still no complete inventory of plant and animal species that could be used as a baseline for biodiversity monitoring. Subnationally, however, regular forest monitoring was carried out, e.g., in the Moist Evergreen Afromontane Forest (Institute for Biodiversity Conservation, IBC) and in the Bale Mountains (Frankfurt Zoological Society, FZS); permanent plots were also established, e.g., in the Kafa Biosphere Reserve (Wageningen University) and through participatory monitoring initiatives (see below). Considering the high diversity of species and ecosystems in Ethiopia, the actors highlighted the need to concentrate surveys on priority species selected due to threat, endemism, economic importance and distribution in different forest types (Table 5.12).

Table 5.12: Biodiversity indicators mentioned during an interview survey with actors in REDD+ implementation and biodiversity conservation in Ethiopia (n=18; Table 5.11). Indicators classified according to the DPSIR framework (MAXIM et al. 2009) (Section 5.3).

Indicator group	Examples mentioned by the actors	Indicator class
Gene level		
Genetic diversity	Genetic diversity of, e.g., *Coffea arabica* and gum and frankincense producing species	State
Species level		
Species quantities	Abundance, Range, Regeneration, Mortality	State
	Population trends	Impact
Species properties	Threatened and endemic species of national and international conservation concern (by forest type)	State
Species values	Economic importance, Importance for subsistence	State
Landscape level		
Ecosystem structure	Change in wooded area	Impact
	Deforestation (by forest type)	Pressure
Ecosystem quality	Amount of dead wood in the forest	State

Ecosystem services	Amount of wood sold on markets	Pressure

In addition to professional species inventories and the use of remote sensing methodology for measuring indicators at the landscape and ecosystem level, actors frequently highlighted participatory monitoring approaches, as was also done in the R-PP: "[…] it is participatory movements that have so far managed to reverse deforestation and overgrazing while top-down decisions have always failed" (FDRE 2011: 133). There is much experience in Ethiopia with participatory forest management, which has successfully been introduced to many forest areas over the past 15 years, supported by field manuals and NGOs (e.g., JORDAN 2004; FARM AFRICA 2007). Actors mentioned advantages of participatory monitoring, e.g., related to species identification and counting, relatively low costs and potential continuity. The method is particularly useful where locals derive their livelihood primarily from forests and subsistence drivers are responsible for forest loss (for challenges, see Table 5.13).

Opportunities and challenges related to biodiversity assessment and monitoring

It becomes evident that in Ethiopia the issue of forest biodiversity conservation and monitoring is closely linked to socioeconomic and political issues because local livelihoods are strongly dependent on the diminishing forest resources. As stated by actors from NGOs, technical cooperation and research organizations, forest use rights were still unclear in many parts of the country, also owing to contested resettlement programs. These issues need to be resolved if participatory approaches are to be successful (Table 5.13).

Table 5.13: Challenges related to biodiversity assessment and monitoring under REDD+ as stated during an interview survey in Ethiopia (n =18; Table 5.11).

Challenges mentioned during the interviews (Number of actors)
Financial, institutional, human capacity (12)
Examples: Concerns regarding continuity of participatory monitoring when support (e.g., through NGOs) stops, research fees for foreign researchers, lack of hardware / software for remote sensing, tools for ground monitoring and related office supply (especially outside Addis), much work is done by consultants
Data availability and harmonization (10)
Examples: Lack of compiled baseline information, lack of a centralized biodiversity management institution
Political will (8)
Examples: Government not aware of the importance of biodiversity monitoring, existing monitoring capacity/software used for other sectors (urban planning), frequent restructuring of government agencies and uncertainty over responsibilities
Problems related to participatory monitoring (3)
Examples: Prohibition of participatory approaches in national parks, requires clear ownership rights, low technical capacity of locals, difficult in dry forests and woodlands where people do not primarily derive their livelihood from forest
Problems related to remote sensing (2)
Examples: Seasonality (woodlands), steep topography (Moist / Dry Evergreen forest), cloud cover (Moist Evergreen forest)

Two thirds of the actors agreed that biodiversity assessment and monitoring was hampered by the limited financial, human and technical resources in Ethiopia, but one actor stated that the main problem was the lack of strategic plans for biodiversity monitoring because such plans could easily attract investment from potential donors. Apparently, the decision makers at government level did not see the urgency for developing a framework for biodiversity monitoring under REDD+ because they were unaware of the potential negative effects of REDD+ on biodiversity and the related need for monitoring changes. It was also mentioned that much work related to biodiversity assessment and monitoring was done by foreign consultants, which prevents building capacity in Ethiopian governmental organizations and NGOs.

Actors from all groups (internal, interfacial, external) regarded the lack of baseline data as a crucial factor hampering the formulation of conservation objectives and the development of indicators and monitoring frameworks. They acknowledged the scattered information available from the above-mentioned activities at project and national level, but complained about the lack of cross-regional baseline data that could inform the identification of species of special concern and the assessment of changes in biodiversity. This constraint led to the demand for a centralized biodiversity database management institution that could compile scattered data sets from different sources, identify gaps, coordinate and guide monitoring and provide information to the public.

Some actors proposed that remote sensing could be conducted comparably cheaply, if Landsat imagery and free downloadable older data sets were used. They also suggested closer collaboration with the Regional Center for Mapping of Resources for Development in Nairobi, Kenya, which has so far mapped tree cover in Ethiopia. However, there were still many technical challenges related to the use of remote sensing in forest monitoring, e.g., due to steep topography, cloud cover and seasonality (Table 5.13).

5.5 Discussion

Stakeholders in REDD+ implementation and biodiversity conservation

The results show that there is a large variety of different stakeholders involved in the REDD+ processes at national, subnational and project level; this is despite the fact that the study concentrated only on those working at the interface of REDD+ and biodiversity management and conservation. In all case countries the national REDD+ strategies are embedded in or related to national climate change strategies and programs for national development, thus highlighting the cross-cutting and inter-sectoral nature of REDD+ governance (see also BURGESS et al. 2010 for Tanzania). In the global comparison all case study countries showed medium to high engagement in the UNFCCC process, indicating that their state of preparation for REDD+ is relatively advanced (ROMIJN et al. 2012).

The national REDD+ processes are impeded, however, by the general political entanglements that evolve around uncertainties over institutional responsibilities, frequent restructuring of government agencies and the involvement of NGOs and private companies in national politics. In Ethiopia, the decentralization process, which aims to grant more rights to the regional states, has often caused an institutional void and a flaring up of ethnic conflict (BELAY

et al. 2012). In Peru, a large number of NGOs, mostly funded by foreign organizations, is involved in REDD working groups. Additionally, private companies are strongly engaged in REDD+ processes at national and subnational level, e.g., in Peru and Kenya. On the one hand, this can help to enhance financial and human capacity throughout the REDD+ process, on the other hand, it can raise questions regarding the level of influence of foreign and private economic interests on national politics. Furthermore, both NGOs and government organizations often employ foreign consultants to carry out biodiversity studies (see Ethiopia, Table 5.13) who deliver a report but do not contribute to long-term capacity building in the country.

Despite the evidence for potential negative impacts of REDD+ activities for biodiversity (KAPOS et al. 2012; PHELPS et al. 2012), many of the interviewed actors in all four countries assumed intrinsic benefits of REDD+ for biodiversity and thus had little incentive to promote the immediate implementation of biodiversity impact assessment and monitoring. Moreover, governments are faced with more pressing issues in the REDD+ process, e.g., related to setting up institutional arrangements, getting prepared for the mandatory MRV of carbon stocks (see also ROMIJN et al. 2012), and resolving social issues that evolve around questions of land use rights and benefit-sharing as was shown for the cases of Kenya and Ethiopia. Generally, forest management has undergone a decentralization process in many developing countries over recent decades allowing local stakeholders increased rights and responsibilities. However, REDD+ could potentially interrupt this trend, leading to conflicts between governments and local forest users (PHELPS et al. 2010; BEYMER-FARRIS & BASSETT 2012). Ecuador, and more recently the San Martín Region in Peru, are positive examples because they apply the comprehensive REDD+ Social & Environmental Standards in government-led REDD+ programs, which place a significant premium on addressing and resolving social and environmental issues (MOSS et al. 2011; REDD+ SES 2012).

Availability of biodiversity data and indicators

Information on the range and distribution of biodiversity in a country is important in order to define a baseline against which the impacts of REDD+ activities can be measured (GARDNER et al. 2012). The interviewed actors named a large number of biodiversity indicators that were already being used in the case study countries. The indicators mentioned most often were state indicators, including biological indicators at the species level and to lesser extent structural indicators at the landscape level (Tables 5.4, 5.7, 5.9). There was a tendency in all countries to focus species inventories on charismatic species, e.g., those considered important for drawing attention to conservation and tourism initiatives (see Peru). Generally, the selection of conservation areas and indicators for biodiversity is often not science-based but driven by convenience or political factors (SCHMITT 2011). Considering the high biodiversity in many developing countries, selection of target species and ecosystems for biodiversity assessment and conservation is important; however, the selection needs to be based on a systematic evaluation of criteria such as threat, endemism, socioeconomic importance as well as species functions and distributions in different forest types as was also highlighted by the Ethiopian actors (compare GARDNER 2010; SCHMITT 2011). Moreover, only the Ethiopian actors mentioned the importance of assessing genetic diversity, which is crucial in rare species and species with high socioeconomic importance that are likely to be affected by climate change, e.g., Arabica coffee (DAVIS et al. 2012).

The results of this study showed that there are some areas in all countries, especially protected areas and reserves, for which a wide range of biodiversity studies and data are already available. Many of the emergent REDD+ projects are located in such areas or carry out their own biodiversity assessment in order to comply with the requirements of international project standards, such as the CCBS. The problem is that the project data sets are often not disseminated beyond the local level. Additionally, there is the challenge of upscaling and harmonizing local data sets at the subnational or national level, as was often highlighted by actors in Peru and Ethiopia. In this regard, the Kenyan case can serve as a positive example because the Center for Biodiversity at the National Museums of Kenya coordinates biodiversity research in the country (NM 2013) and, according to the interviews, successfully facilitates the exchange and dissemination of biodiversity data and studies. In addition, detailed information on bird species is available for the Kenyan and Ethiopian IBA, which were well known amongst actors in both countries, probably due to the fact that they were identified by local NGOs, i.e., Nature Kenya (MWINAMI et al. 2010) and the Ethiopian Wildlife and Natural History Society (EWNHS 1996), respectively. The recent initiative of the Critical Ecosystem Partnership Fund to deliver new funds for the evaluation and conservation of Key Biodiversity Areas in the Eastern Afromontane Biodiversity Hotspot could further boost the coordinated assessment of biodiversity in Kenya and Ethiopia (CEPF 2012).

The assessment of biodiversity at the national level can be facilitated by using structural indicators at the landscape level and by combining information relevant for carbon and biodiversity, e.g., the evaluation of deforestation patterns by ecological forest type (GARDNER et al. 2012). In this respect, the interviewed actors acknowledged the opportunities provided by remote sensing technologies but, in all case study countries, they complained about lack of financial, technical and human capacity (see Monitoring).

Relatively few actors in all four countries mentioned the possibility of using indicators other than state and impact indicators to measure and report on biodiversity. However, due to the inter-sectoral and interdisciplinary nature of REDD+, a more comprehensive approach is required to assess the biodiversity impacts of REDD+ (KAPOS et al. 2012). For instance, while state indicators are important to establish a biodiversity baseline as a starting point for measuring REDD+ impacts, the identification of driving forces, pressure and response indicators can help to link ecological changes to social and economic dimensions (MAXIM et al. 2009). This is important to convey environmental problems to policy-makers and to inform strategic planning at higher levels (see Monitoring). In addition, REDD+ projects need to identify pressures on biodiversity and adequate policy responses early on in the planning phase in order to facilitate successful project implementation. Some of the pressure and response indicators are relatively easy to measure, e.g., amount of wood sold on local markets and the number of rangers in protected areas, respectively.

Monitoring the biodiversity impacts of REDD+

In all case study countries, there are examples of existing biodiversity monitoring schemes in particular project areas, but these are often carried out by different organizations and there is also lack of continuity. Much of the monitoring is simply surveillance monitoring, which "is not linked to the assessment or evaluation of the management system in any specific way but […] a status report of general trends in biodiversity over time in a particular site" (GARDNER

2010: 45). In order to monitor REDD+ impacts on biodiversity, there is a need to assess if the recommended management activities have indeed been implemented and to relate the biodiversity monitoring to the implemented management activities. Based on these results, a validation and further refinement of management activities and monitoring efforts can be carried out (GARDNER 2010). Furthermore, the Intergovernmental Panel on Climate Change (IPCC) identified five monitoring and reporting principles for national GHG inventories, which can also inform biodiversity monitoring: consistency, transparency, comparability, completeness and accuracy (IPCC 2006). Considering the fact that many developing countries still fall short in meeting these principles in the context of carbon monitoring (ROMIJN et al. 2012), the principles can only be considered as ambitious guidelines for the even more complex biodiversity monitoring.

At project level, participatory monitoring is seen as a promising way to assign an active role to local people in the implementation and monitoring of REDD+ activities with a view to sustainable forest management (BURGESS et al. 2010; DANIELSEN et al. 2010). Amongst the case study countries, participatory monitoring plays the largest role in Ethiopia where there is already much expertise with participatory management approaches. For instance, in community managed forests local people regularly report on forest uses, dominant species, natural regeneration and other biological and structural indicators (JORDAN 2004). This was seen as particularly useful in forest areas where local livelihoods depend on the forest resources and where subsistence drivers are responsible for forest loss. The successful implementation of participatory forest management and monitoring, however, is closely linked to political issues such as the clarification of forest use rights, which is an enduring problem in Ethiopia where the State is owner of all lands (compare BELAY et al. 2012). It also requires good cooperation and trust between local communities and external organizations (see Ecuador).

Given that carbon monitoring schemes for REDD+ are currently being set up at the project and national level, it could be highly useful to combine the monitoring for carbon with biodiversity monitoring (GARDNER et al. 2012). Many actors, e.g., in Peru, saw the opportunity for synergies in this field. At the landscape level, the monitoring of deforestation and forest degradation with remote sensing techniques in the context of carbon MRV could generate important biodiversity information, e.g., regarding deforestation impacts on threatened or rare forest types, or regarding the analysis of forest structure through light detection and ranging (LiDAR) mapping (ASNER 2009; ASNER et al. 2012). In the case study countries that already have good to very good capacity to monitor forest area change, i.e. Ecuador, Ethiopia and Peru (see ROMIJN et al. 2012), there is the potential that the monitoring of forest area change can inform biodiversity monitoring at the landscape level. At the project level, e.g., woody species inventories for the assessment of carbon stocks could also be used for an analysis of species diversity. However, ROMIJN et al. (2012) assigned good forest inventory capacity only to Peru, while Ecuador and Ethiopia were rated as low and Kenya as limited, indicating that there is variable potential in the case study countries for the integration of biodiversity monitoring with forest inventories. It should also be taken into account that it is much easier to extrapolate carbon data from the local to the national level than biodiversity data (KAPOS et al. 2012).

The interviews confirmed that remote sensing techniques are increasingly being applied for forest monitoring in the case study countries; however, they still face some serious techno-

logical challenges. As actors in Peru pointed out, it is difficult to use remote sensing techniques for monitoring at the species level, which is often required at the project scale. At the landscape level, there are challenges related to steep terrain and cloud cover, rendering the use of optical remote sensing instruments extremely difficult in the rainforest areas of the case study countries (DEFRIES et al. 2006). Radar data could be used to complement optical data in environments with persistent cloud cover because long-wavelength microwaves are able to penetrate the clouds. However, this approach is still in the research and development phase and is not yet operational on a large scale (GOFC-GOLD 2010). Furthermore, the detection of forest degradation requires expensive high resolution images and needs to be followed-up with time consuming field surveys (e.g., HEROLD et al. 2011). Other challenges are related to the large shrublands areas in Kenya and Ethiopia with more open forest cover. In this case, it can be difficult to distinguish natural from degraded forest areas in digital images, and remote sensing surveys need to pay heed to seasonal changes (see Table 5.13). Especially in African countries, internet speed (and access to data) and coverage with Landsat TM data is more limited than elsewhere, which is an obstacle for creating a consistent monitoring system based on remote sensing data (ROMIJN et al. 2012).

In all case study countries, actors highlighted lack of human, technical and financial capacity as major problems in the implementation of a biodiversity monitoring system under REDD+. Considering these challenges, it is extremely important to tailor different monitoring intensities and methods to particular forest types and to the different eligible REDD+ activities in order to use the limited resources more effectively (KAPOS et al. 2012). For instance, large scale deforestation can be detected quite easily with remote sensing techniques at lower resolution, while monitoring small-scale clearings for agricultural activities and local settlements (e.g., Ethiopia) or the impacts of sustainable forest management requires more expensive technology with high special resolution and possibly field inventories (DEFRIES et al. 2006; HEROLD et al. 2011). Areas where strong biodiversity impacts are expected based on previous data sets and expert knowledge, require more intensive monitoring than e.g. remote forest areas (DEFRIES et al. 2006). Finally, as mentioned by actors in Kenya, it is also important that there is the political will at project and at national level to really react to the monitoring results.

5.6 Conclusions

Although there are already large amounts of biodiversity related data available in the case study countries, there is a strong need for a more systematic and scientific framework for biodiversity assessment in the context of REDD+ in order to establish baselines, fill gaps and make data comparable at the national level. Biodiversity indicators and their assessment need to be integrated into well designed monitoring programs. These need to go beyond simple surveillance monitoring and capture the biodiversity impacts of particular REDD+ activities as well as inform the validation and refinement of management guidelines. The key challenges impeding the implementation of such ambitious monitoring programs are not only technical; they are also related to institutional and political issues. The case studies showed that many actors at both national and subnational levels still assume that REDD+ actions entail automatic biodiversity benefits. Thus, there is little incentive to tackle biodiversity issues while other crucial problems – that stem from establishing cooperation between organi-

zations from different sectors, preparing for the obligatory carbon MRV and resolving tenure and land use issues – await to be resolved.

It is crucial to understand, however, that a well-designed biodiversity indicator and monitoring system can help save staff time and money and assist in meeting biodiversity objectives and in the enforcement of safeguards as required by the UNFCCC, the World Bank FCPF, UN-REDD and different project standards. To reduce the burden on national level monitoring it is possible to integrate biodiversity monitoring with the MRV required for carbon. Additionally, monitoring intensity can be adapted to different geographic areas within a country depending on forest type, REDD+ activity, level of threat and anticipated impact. For instance, it is advisable to prioritize areas or species for more intensive biological monitoring through field surveys and areas where monitoring structural components with remote sensing techniques will be sufficient. Furthermore, the use of biodiversity indicators that provide information on driving forces, pressures, impacts and responses can contribute to a more balanced consideration of environmental, socioeconomic and political issues in REDD+ initiatives. Finally, development and implementation of individually designed national biodiversity monitoring systems under REDD+ will be a significant step towards systematic and sustainable land use planning in the face of global change.

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6 Summary and conclusions

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The international financing mechanism now called REDD+ was put on the agenda of the UNFCCC in 2005, with the objective to address the large amount of greenhouse gas emissions resulting from deforestation and forest degradation in developing countries. The aim was to create a simple compensation mechanism by focusing on the role of forests in mitigating emissions through carbon storage and sequestration. However, the desired simplicity was not maintained in the negotiations that followed. As the risks associated with a focus on carbon became more and more apparent the initial enthusiasm vanished. The subsequent debates on the REDD+ mechanism and on its potential risks and benefits have triggered unprecedented dynamics at all policy levels. Although the international agreement on REDD+ – which could potentially mobilize significant funding – is still pending, a wide range of national policies, readiness activities and REDD+ projects are currently being developed or implemented. This project evaluated the prospects of jointly pursuing climate and forest conservation objectives at the international, national and project level and provides an overview of the major challenges related to the comprehensive consideration of forest biodiversity in the context of REDD+.

6.1 International level

The negotiations on REDD+ under the UNFCCC were slower and more complicated than expected owing to the strongly divergent interests of negotiating parties and stakeholders. These are related, for example, to the diverse drivers and underlying causes of deforestation and forest degradation in individual developing countries. In order to accommodate the interests and positions of different REDD+ countries, the scope of the mechanism has been broadened and now includes the three “+” activities: conservation of carbon stocks, sustainable management of forests and enhancement of carbon stocks. The original idea of a simple compensation mechanism was thereby lost.

Early on, public and private stakeholders from the conservation community as well as actors associated with the CBD recognized the potential of REDD+ to enhance synergies and additional benefits in terms of environmental objectives. At the same time they recognized the risks arising from addressing the cross-cutting issue of forest management with a carbon focus only. Therefore, they argued for a carefully designed REDD+ mechanism in order to address deforestation as a multilayer land use issue in a consistent and comprehensive manner. Moreover, the enhanced cooperation and coordination between the UNFCCC and the CBD was considered a prerequisite for adequately taking into account biodiversity and ecosystem services beyond mitigation.

In response to the internal and external pressures, the parties to the UNFCCC took up the issue of biodiversity safeguards in 2009, with the objective to ensure the environmental integrity of the mechanism. The negotiations culminated in a decision on safeguards at COP16 (Cancún, 2010) and on safeguard information systems (SIS) at COP17 (Durban, 2011); however, the agreed safeguards are nonspecific, lack definitions, and represent the lowest common denominator of what parties could agree to. In a similar fashion, the provisions for

national SIS leave much scope for parties to decide how they intend to report on, address and respect the safeguards. For instance, a documentation of the environmental impacts of REDD+ activities is not required and there are no consequences for non-compliance with the safeguards.

The CBD has sought to provide constructive input to the REDD+ negotiations since its COP9 (Bonn, 2008); yet, the same parties voicing concerns regarding safeguards in the UNFCCC process also reject more specific input and guidance from the CBD on the implementation of safeguards and the monitoring of REDD+ impacts on biodiversity. They fear additional hurdles related to accessing the future REDD+ funding and an interference with the sovereign rights over their natural resources. Finally, a mandate was given to the CBD secretariat at COP10 (Nagoya, 2010) to develop voluntary guidance on additional benefits, safeguards and the monitoring of REDD+ biodiversity impacts. Yet, COP11 (Hyderabad, 2012) did not include the results of this work in a COP decision but only provided another mandate for continued work on these issues.

When REDD+ entered the UNFCCC agenda, it was expected that the compensation mechanism would be agreed upon at COP15 (Copenhagen, 2009). This agreement was not reached, however, because its implementation is intricately linked to the successful negotiation of a post-Kyoto agreement under the UNFCCC. Since Copenhagen, these superordinate negotiations have made little progress. The roadmap agreed on at COP17 (Durban, 2011) schedules the determination of a new Kyoto agreement – including a REDD+ mechanism – for 2015, and aspires to a commencement of implementation in 2020.

Aware of the described weaknesses of the UNFCCC process and guided by the wish to promote trust and progress in REDD+, donor and beneficiary parties inaugurated the Interim REDD+ Partnership in 2010. Due to its voluntary and inclusive network character, it was expected to not preempt but rather to complement the negotiations in that it helps to coordinate the many ongoing activities. The start of the REDD+ Partnership was promising: after the initial difficulties it was able to establish a working environment that was perceived as constructive by many stakeholders: It involved party and non-party stakeholders at equal levels and focused mainly on technical and practical questions as well as on the sharing of lessons learnt. In theory, such partnership settings can well function not only in complementing the UNFCCC but also to demonstrate leadership on issues that may be hard to integrate on a formal basis, as in the case of safeguards.

With regards to these developments at the international policy level, and in addition to the awkward time void that has opened up for REDD+, there are a number of immediate tasks and challenges that need to be addressed:

Finalize negotiations on outstanding issues. First and foremost, the parties to the UNFCCC have to finalize the negotiations on outstanding issues, in particular on financing – i.e., how funding for performance-based payments will be raised and distributed among parties; on MRV – i.e., especially how individual performance will be verified in the phase when REDD+ will be fully implemented; and on governance – i.e., how and if existing institutions can provide the necessary functions. Further issues to be discussed are options for including payments for non-carbon benefits and the link between REDD+ and Nationally Appropriate Mitigation Actions.

Continued and timely support from the CBD. The CBD, with its biennial COP and the continued internal resistance by some parties to negotiating REDD+ issues, runs the risk that it is too slow in providing specific formal input to the UNFCCC negotiations. However, the implementation-oriented voluntary guidance provided through the work and coordination of CBD secretariat, in particular on criteria and indicators, remains an important source of knowledge for countries that aim at enhancing environmental benefits from their REDD+ activities. It is thus crucial that the CBD continues to provide such guidance and supports respective capacity building to countries on biodiversity related REDD+ issues.

Reform of the Interim REDD+ Partnership. The political practice in the Partnership differs quite substantially from its initial ambitious objectives. In order to fully unfurl the Partnership's potential, its protagonists have to cope with the pertinent procedural, organizational and structural weaknesses that undermine its legitimacy and have raised questions regarding the added value of the process. The Partnership notably suffers from its close vicinity to the UNFCCC, with, for instance, general political interests and tactics of the overall process spilling over. A greater distance seems to be a prerequisite to facilitate open and focused exchange on best practices and ways to scale up actions and finance. It remains open whether the partners will succeed in restructuring the interim process in a way that it enables to reach a more legitimate work program, for which to accomplish partners would have more time and resources. If the issues remain unaddressed, it is likely that it gets terminated or outcompeted eventually: The UNFCCC secretariat, for instance, has recently set up a virtual platform for REDD+ that seeks to build up an even stronger network of private and public actors.

6.2 National and subnational level

Despite the pending international agreement on REDD+, many developing countries are quite advanced in developing their national REDD+ strategies. The World Bank's FCPF and the UN-REDD Programme are two major organizations supporting countries in the national readiness process and providing common guidelines on how to address environmental and social concerns in the development of national REDD+ strategies. In addition, the multi-stakeholder REDD+ Social & Environmental Standards (SES) Initiative, including pilot countries such as Ecuador, has developed voluntary standards for government-led REDD+ strategies and plans. The REDD+ SES are more detailed than the FCPF/UN-REDD approach and have more ambitious provisions with an emphasis on achieving additional biodiversity benefits.

While this study focused on biodiversity issues, it became evident that environmental and social issues are often closely linked at national and project level and need to be considered jointly. For instance, avoided deforestation initiatives will only be successful if people in the concerned forest areas are provided with alternative livelihood options. Participatory approaches for forest management and monitoring can promote acceptance and participation of communities but require clarity about tenure and land use rights. Likewise, flawed information and insufficient benefit sharing arrangements in REDD+ projects can disappoint local stakeholders and create unwillingness to cooperate on future REDD+ initiatives.

In the case study countries Peru, Ecuador, Kenya and Ethiopia, the readiness process has enhanced cooperation and communication between actors from different sectors and backgrounds. In addition to the government-led initiatives at national and subnational level, there

are a growing number of private and public REDD+ projects, which usually aim at selling carbon credits on voluntary markets. They generate knowledge and expertise on REDD+ implementation, which are considered as highly useful for the UNFCCC related processes at higher policy levels. In all four countries, biodiversity experts from governmental organizations, NGOs and research organizations were involved in REDD+ initiatives at national, subnational and project level; yet, it was often assumed that the implementation of REDD+ activities will generate automatic biodiversity benefits. Thus, there was little incentive to immediately tackle biodiversity issues while other crucial problems were yet to be resolved, e.g., establishing effective cooperation between organizations from different sectors or resolving tenure and land use issues. Furthermore, one of the most pressing challenges for both countries and projects was the setting up of an MRV system for carbon stock changes, which is a crucial element for demonstrating performance and accessing REDD+ funding.

While monitoring the biodiversity impacts of REDD+ is often considered as a burden, at least in the case study countries there are already large amounts of biodiversity data and initiatives for biodiversity monitoring, especially at subnational and project level. Yet, the challenge is their assembly and to make them comparable. The most widespread methodological approaches were the use of state indicators, e.g., the number of species or distribution of ecosystems at one point in time, and surveillance monitoring, which simply shows changes in biodiversity over time. This is useful in providing general information on biodiversity trends but not suitable for tracking the biodiversity impacts of particular REDD+ management activities, improving management guidelines and relating changes in biodiversity to human induced pressures or policy responses. At the project level, there was general consensus amongst actors in the studied countries that the existing standards provide an adequate tool to avoid negative biodiversity impacts of REDD+ activities.

In conclusion, there is expertise and experience in the case study countries regarding biodiversity assessment and monitoring, but there is no coordinated monitoring of REDD+ biodiversity impacts, which could be facilitated through the following actions:

Support by multilateral programs. The FCPF, the UN-REDD Programme, bilateral aid programs and other initiatives that support REDD+ countries have a crucial role in facilitating biodiversity consideration in national strategies, and biodiversity-related capacity building. This could be done, e.g., in cooperation with the REDD+ SES Initiative in order to promote the use of high standards for safeguard implementation and creation of additional benefits.

Development of a national monitoring strategy. It is crucial that there is a national strategy for biodiversity monitoring under REDD+ that provides a common framework and coordinates the various monitoring programs implemented in different geographical areas and by different actors. This is especially important for detecting leakage effects on high biodiversity and low carbon ecosystems.

Systematic and coordinated biodiversity assessment. A more systematic and scientific planning of biodiversity assessments at national, subnational and project level is essential in order to use limited resources in a more effective manner. This includes compilation of biodiversity data from different organizations and geographic areas in a national database and use of biodiversity indicators in addition to state indicators.

Systematic and flexible monitoring programs. Biodiversity assessments should be integrated into systematic monitoring programs at national, subnational and project level, which capture

the biodiversity impacts of particular REDD+ activities and inform the validation and refinement of management guidelines. Effectiveness is increased by integrating biodiversity monitoring with the MRV for carbon and by tailoring the spatial resolution and biological detail of biodiversity monitoring to the particular national circumstances and REDD+ activities.

6.3 Final conclusions and outlook

This report shows that the prospects for a future REDD+ mechanism have triggered enormous political developments at all levels, including the renewed willingness to discuss forest issues in international forums. In addition, the proposed mechanism has prompted forest-related research on a wide range of topics such as forest governance, ecosystem services as well as carbon and biodiversity monitoring. The inter-sectoral and interdisciplinary nature of REDD+ has stimulated increased communication and new forms of cooperation between a wide range of different actors from governmental, non-governmental and research organizations and the private sector internationally, nationally and at the project level. However, it is too early to compare the outcomes of these developments in different countries or to conclude on the success of REDD+ projects; to do so will require continued scientific supervision and evaluation.

Regarding the treatment of biodiversity under REDD+, the UNFCCC eventually took up the environmental concerns and decided on safeguards and SIS. Despite the weak and general character of the decisions, these negotiations helped to create awareness of biodiversity, forest and land use issues and to enhance the exchange between the UNFCCC and the CBD. Many countries can already rely on a pool of biodiversity-related data and expertise that could be used in implementing SIS for biodiversity that exceed the basic UNFCCC requirements. For instance, it is possible to design effective, systematic and flexible systems for biodiversity assessment and monitoring, which are tailored to the particular circumstances in individual countries. They can facilitate the generation of additional biodiversity benefits, e.g., by identifying areas where synergies between biodiversity and carbon objectives are best achieved, and help in detecting unexpected negative biodiversity impacts. Furthermore, in the case that the UNFCCC remains stalled and the REDD+ mechanism does not materialize, environmentally and socially sound activities are more likely to attract other sources of public and private funding such as official development aid and market-based instruments, respectively. This is also important for the lapse phase until 2020.

Initially, the international REDD+ mechanism was expected to be implemented under a post-Kyoto agreement starting from 2012; however, this agreement is now scheduled for 2015. In practice, implementation of the post-Kyoto phase will thus not start before 2020, which also postpones the implementation of the potential REDD+ mechanism. This has led to a large difference in the speed of developments at the international and the national level. Many beneficiary countries have already invested considerable effort in preparing for REDD+ and are growing impatient considering that performance-based payments are unlikely to eventuate before 2020 – if at all. This international stalemate situation risks taking away essential momentum from the REDD+ idea. In this light, the time may be ripe to think of alternative futures for the national REDD+ strategies that are pending implementation. They could, e.g., make an important contribution to preparing developing countries for global change, including to the development of climate change adaptation strategies.

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