Building Forest Carbon Projects

Step-by-Step Overview and Guide

FOREST TRENDS

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Building Forest Carbon Projects

Step-by-Step Overview and Guide

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* A Note about this Version:

The 2011 *Building Forest Carbon Projects* series has expanded upon Forest Trends' 2010 publication, *Building Forest Carbon Projects: A Step-by-Step Guide, Version 1.0*: this overview has updated the 2010 publication and is now complemented by eight guidance documents covering a range of critical aspects of forest carbon project design. The series will be updated as major changes shape the market and regulatory landscape and as we receive feedback from researchers and experts in the field. Suggestions for improvements and updates to this series are welcome and may be sent to Jacob Olander (jolander@ecodecision.com.ec) or Johannes Ebeling (ebeling.johannes@gmail.com).

Forest Trends' mission is to maintain, restore, and enhance forests and connected natural ecosystems, life-sustaining processes, by promoting incentives stemming from a broad range of ecosystem services and products. Specifically, Forest Trends seeks to catalyze the development of integrated carbon, water, and biodiversity incentives that deliver real conservation outcomes and benefits to local communities and other stewards of our natural resources.

Forest Trends analyzes strategic market and policy issues, catalyzes connections between producers, communities and investors, and develops new financial tools to help markets work for conservation and people.

www.forest-trends.org

The **Katoomba Incubator** provides comprehensive support to bring promising ecosystem services projects to the point where they can access markets or other sustainable finance. The Incubator focuses primarily on communities and small to medium landowners, a sector that plays a critical role in providing ecosystem services but faces particular barriers and challenges to finance, providing an integrated suite of support that can include technical, business and legal resources.

www.katoombagroup.org/incubator

EcoDecision is a social enterprise dedicated to developing new ways to finance conservation. EcoDecision is a pioneer in the emerging ecosystem services markets of climate change mitigation, water source protection and biodiversity conservation.

Established in 1995 by Jacob Olander and Marta Echavarria, EcoDecision is based in Quito, Ecuador, and works throughout Latin America with a broad array of clients and partners, including international and national non-governmental organizations, businesses, and government institutions.

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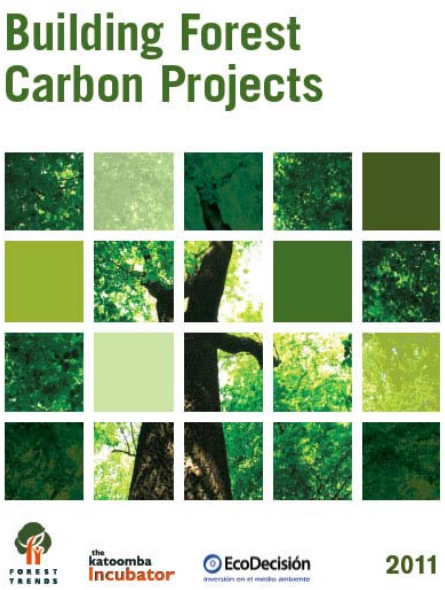

This guidance document is part of a Forest Trends series *Building Forest Carbon Projects*
Available at http://www.forest-trends.org/publications/building_forest_carbon_projects.

Other documents in this series, referred to throughout this document, include:

REDD Guidance: Technical Project Design
Joerg Seifert-Granzin

AR Guidance: Technical Project Design
Johannes Ebeling and Álvaro Vallejo

Carbon Stock Assessment Guidance: Inventory and Monitoring Procedures
David Diaz and Matt Delaney

Community Engagement Guidance: Good Practice for Forest Carbon Projects
Tom Blomley and Michael Richards

Legal Guidance: Legal and Contractual Aspects of Forest Carbon Projects
Slayde Hawkins

Business Guidance: Forest Carbon Marketing and Finance
Phil Covell

Social Impacts Guidance: Key Assessment Issues for Forest Carbon Projects
Michael Richards

Biodiversity Impacts Guidance: Key Assessment Issues for Forest Carbon Projects
John Pilgrim, Jonathan Ekstrom, and Johannes Ebeling

Acronyms

ACoGS	Avoided Conversion of Grasslands and Shrublands
AFOLU	Agriculture, Forestry and Other Land Use [VCS project scope]
ALM	Agricultural Land Management
A/R	Afforestation and Reforestation [CDM project category]
AR	Afforestation and reforestation [standard neutral]
ARR	Afforestation, Reforestation and Revegetation [VCS project category]
CAR	Climate Action Reserve
CCB	Climate Community & Biodiversity [Alliance or Standards]
CDM	Clean Development Mechanism
CER	Certified Emission Reduction [CDM]
DNA	Designated National Authority [for the CDM]
EIA	Environmental Impact Assessment
FGDC	Federal Geographic Data Committee
FPIC	Free, prior, and informed consent
GHG	Greenhouse gas
GIS	Geographic information system
GPS	Global positioning system
IFM	Improved Forest Management [VCS project category]
IPCC	Intergovernmental Panel on Climate Change
lCER	Long-term Certified Emission Reduction
LoA	Letter of Approval [CDM]
MoU	Memorandum of understanding
MRV	Measurement, reporting, and verification
NGO	Non-governmental organization
PD	Project Description [VCS]
PDD	Project Design Document [CDM]
PIN	Project Idea Note
PoA	Programme of Activities [CDM]
PRC	Peatland Rewetting and Conservation
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDD+	Reducing Emissions from Deforestation and Forest Degradation, conservation of forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks
tCER	Temporary Certified Emission Reduction
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard (formerly Voluntary Carbon Standard)
VCU	Verified Carbon Unit [VCS]

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Context and Introduction

Developing forest carbon projects is complex and often daunting for project proponents, whether they are from the private sector, government, or civil society. Successful project development requires complying with rigorous standards of analyzing and documenting carbon benefits, working through an array of legal, business, and community relations issues, and actually carrying out the challenging work of reforestation and forest and land management activities that go beyond business as usual in order to create carbon benefits.

This document aims to provide streamlined guidance to project proponents and developers to help navigate these challenges.[1] It focuses on outlining key steps and components of developing a forest carbon project that can produce marketable emissions reductions under what are currently the most widely utilized carbon standards: the Verified Carbon Standard (VCS), the Clean Development Mechanism (CDM), and, for co-certification, the Climate, Community & Biodiversity (CCB) Standards.[2]

Forest carbon project development requires carbon benefits to be quantified using rigorous methodological approaches, elaborated in a Project Design Document (PDD), independently validated, and later verified for issuance of certified carbon credits. A significant portion of this guide focuses on these technical elements.

However, project development requires work far beyond the already-challenging PDD compilation and (at least two) third-party auditing processes; it also encompasses crucial business, legal, environmental, and community relations dimensions. This guide attempts to outline the key actions and considerations to ensure a successful and sustainable project. A considerable amount of guidance information is already available for forest carbon project developers, and this guide aims to complement rather than replace these (see Box 1), referring to existing tools and resources for specific steps of the project development process.

Box 1. Key References for Comprehensive Project Development Guidance

In addition to specific tools and references mentioned throughout this guide, valuable comprehensive guidance for project proponents and developers can also be found in:

- Calmel, Marie, Anne Martinet, Nicolas Grondard, Thomas Dufour, Maxence Rageade, and Anouk Ferté-Devin. *REDD+ at Project Scale: Evaludation and Development Guide.* ONF International, 2010. Available at: http://www.onfinternational.org/en/publications/313-qguide-redd-a-lechelle-projetq-guide-devaluation-et-de-developpement.html.
- Ingram, J. Carter, et al. *WCS REDD Project Development Guide.* TRANSLINKS, Wildlife Conservation Society and USAID, 2009. Available at: http://www.katoombagroup.org/documents/cds/uganda_2011/Key%20Elements/WCS%20REDD%20Project%20Guide.pdf.
- Pearson, Timothy, Sarah Walker, Jessica Chalmers, Erin Swails, and Sandra Brown. *Guidebook for the formulation of Afforestation/Reforestation and bioenergy projects in the regulatory carbon market.* Arlington, VA: Winrock International, 2009. Available at: http://www.itto.int/technical_report/.

[1] In this series, the term *project proponents* is used to refer to those individuals or organizations generally responsible for the overall organization, management, and legal representation of the forest carbon project. *Project developers*, on the other hand, is used to refer specifically to entities tasked with the technical design aspects of the project as required by the carbon and/or co-benefit standard(s).

[2] Other standards, such as the Plan Vivo Standards and CarbonFix Standard, may provide alternative project development and financing options and are also referred to throughout this guide, though they are not discussed in detail.

This guide also indicates the points at which project proponents should seek specialized guidance and support. An outside perspective can be vital for ensuring realistic project aims and design; moreover, the complex and fast-changing nature of methodologies, standards, and market demands mean that expert advice is often indispensible.

There continues to be considerable uncertainty in the policy and market environment for forest carbon projects. Reforestation projects are still excluded from key regulatory markets, international REDD+ negotiations remain inconclusive, and the actual volume of forest carbon offset transactions remains relatively small. Recent trends in regulatory proposals under the United Nations Framework Convention on Climate Change (UNFCCC) and in the United States increasingly point towards national-level emissions reduction accounting and government-mediated forms of financing. How and if projects may "nest" within government-led frameworks is undefined and leads to considerable uncertainty for project proponents and investors.

We nevertheless believe that the approaches to effectively generating and quantifying carbon benefits that are currently used by projects will continue to be relevant. Afforestation and reforestation (AR) activities may continue as discrete projects, or may eventually be integrated as part of an international REDD+ framework, but will nevertheless serve as important precedents for evolving national systems. Projects are likely to form an important component of many national systems, providing a crucial, tangible entry point for local benefits, private investment, and bilateral support measures. In addition, there are no indications that voluntary carbon markets would disappear in the presence of regulatory schemes. In fact, given the uncertainty regarding when and if regulatory schemes will be created and to what extent they will incorporate carbon credits and market elements, voluntary markets remain for now the most certain market outlet. Indeed, though absolute volumes of forest carbon transactions remain relatively small, forest carbon was one of the few bright spots in a weak 2010 voluntary carbon market: as a whole, the sector benefited from a significant increase in demand and a 42% share of the voluntary market, with REDD projects accounting for fully 29% of the voluntary market (Peters-Stanley, et al. 2011). With this in mind, we have focused this guide principally on the approaches required by the CDM and the VCS--the leading standards and methodological pioneers for forestry under the Kyoto and voluntary markets--as well as the CCB Standards, which provide assurance of significant, additional social and biodiversity benefits.

This guidance is presented as a series of logically sequential steps. Projects will vary in their approaches and requirements, however, and many activities will need to occur in parallel or in a slightly modified sequence. Similarly, it may be advantageous to break down certain steps into independent parts which can first support project evaluation, the design of activities, and stakeholder engagement early on while leaving some of the more costly components for later, when major regulatory and financial roadblocks have been cleared (Waage and Hamilton 2011).

Box 2. Key VCS, CDM, and CCB Resources Referred to throughout this Guide

The following key documents of the VCS, CDM, and CCB Standards are commonly referred to throughout the guide. Project proponents should be aware, however, that guidance, document templates, and policy documents are updated periodically, particularly under the VCS and CDM. Therefore, the policy update sections listed below should be regularly consulted. In addition, it is usually indispensible to seek specialist advice in order to be aware of and compliant with any recent updates and changes.

Verified Carbon Standard (VCS)

All VCS program documents, including program and process guidance and templates, are available at http://v-c-s.org/program-documents/info. This includes, in particular:

- *VCS Program Guide* (2011)
- *VCS Standard* (2011)
- *Agriculture, Forestry, and Other Land Use (AFOLU) Requirements* (2011)

VCS Program Announcements, including updates to guidance and documentation, can be found at http://www.v-c-s.org/program-announcements.

On March 8, 2011, the VCS Association released VCS Version 3, the latest version of the VCS that streamlines documentation and integrates updates released since VCS 2007.1 was released. VCS Version 3 is available for immediate use and becomes mandatory on September 8, 2011. Information on VCS Version 3 is available at the link above, and a synopsis of the updates is available at: http://www.v-c-s.org/sites/v-c-s.org/files/VCS%20Synopsis%20of%20VCS%20Version%203%20Release,%208%20MAR%202011.pdf.

Clean Development Mechanism (CDM)

The official portal to all CDM rules, procedures, methodologies, tools, etc., including updates, clarifications, and guidance is http://cdm.unfccc.int/Reference/index.html.

CDM documentation can sometimes be difficult to navigate as it consists of an accumulation of multiple UNFCCC and Executive Board decisions. Even when working on VCS forestry projects, some of this documentation will need to be accessed. A very useful synthesis and explanation of relevant terms, procedures, and tools is provided by Baker & McKenzie's CDM Rulebook, which also includes updates on recent policy developments. It is available at: http://cdmrulebook.org.

From the official CDM portal, key sections include:

- Approved AR Methodologies and Tools: http://cdm.unfccc.int/methodologies/ARmethodologies/approved
- Procedures (including procedures for determining land eligibility): http://cdm.unfccc.int/Reference/Procedures/index.html
- Guidance, guidelines and clarification (including treatment of significance, GHG emissions accounting, project boundaries, and other topics): http://cdm.unfccc.int/Reference/Guidclarif/index.html
- Forms (including PDD template): http://cdm.unfccc.int/Reference/PDDs_Forms/index.html

Climate, Community & Biodiversity (CCB) Standards

The CCB Project Design Standards (Second Edition) were released in 2008 and are available at: http://www.climate-standards.org/.

Overview of Steps

1. PROJECT IDEA AND PRELIMINARY ASSESSMENT
2. PROJECT DESIGN AND PLANNING
3. DEVELOPING A PROJECT DESIGN DOCUMENT
4. REVIEW PROJECT ACTIVITIES AND DEVELOP PROJECT IMPLEMENTATION STRATEGY
5. FINALIZING FINANCING AND INVESTMENT ARRANGEMENTS
6. APPROVALS, VALIDATION AND REGISTRATION
7. IMPLEMENTATION AND MONITORING
8. VERIFICATION AND ISSUANCE

1. Project Idea and Preliminary Assessment

1.1 Project Conceptualization

Project proponents need to define from the outset what the project's objectives are, what the activities will be to achieve these objectives, and where the project will take place. They also need to identify project participants and partners who will be critical to implementing activities and reaching objectives.

While it may seem obvious, defining what the project will do to enhance or maintain forest cover and biomass should be the very first step of designing a carbon project. A surprising number of project proponents embark on a complex project design process focusing on measuring and monetizing carbon benefits, without having thoroughly defined what the project will actually do to create the carbon benefits.

Planning how forests will be conserved or managed should be the very first step of project design.

A key conceptual and practical distinction in this regard is between the project activities that generate carbon benefits – i.e., planting trees, conserving forests, improving forest management – and the technical design component – i.e., calculating and documenting the carbon benefits created by the project activities and getting them certified under a specific standard. In addition, there may be an *underlying project* that goes beyond these components and is linked to proponents' broader objectives (see below). This is true of integrated conservation or rural development projects and may also hold for commercial enterprises that involve components which are not integral to the *carbon project* but nevertheless important to the overall enterprise (e.g., timber processing). More important than terminology is the realization that a carbon project involves more than quantifying carbon benefits, and this has to be kept in mind throughout project design and feasibility assessments.

1.1.1 Clearly Stating Objectives

For all forest carbon projects an essential objective will involve either increasing carbon stocks or reducing carbon stock losses. However, there will almost always also be other objectives more closely related to the core mission of the organization proposing the project, for which carbon finance is a valuable tool. These objectives could relate to rural development and poverty alleviation, the protection of biodiversity, or generating corporate revenues.

In any situation, the creation of economic returns, whether for local resource holders, private investors, or both, will feature as a key component of project objectives and is needed to ensure long-term viability of the project and its overall sustainability. Economic returns need not exclusively arise from the sale of carbon credits. Though some restoration or conservation projects may be focused on carbon as the primary or sole source of revenue, aiming to create more than one revenue stream can lead to a much more resilient and attractive project (e.g., through the sustainable production of timber in an AR, REDD, or IFM project). For more on the strategic relationship between a project's objectives and finances, see the Business Guidance of this series.

1.1.2 Preliminary Definition of Project Activities

What underlying activities will achieve project objectives? At this early stage, not all details will be fully defined, but project proponents -- consulting potential participants and seeking outside advice – should be as comprehensive as possible in defining key project interventions that will lead to emissions reductions or removals. In principle, several different types of project activities may be combined in a single project description under the VCS, though each will

likely require application of distinct methodologies. In general, projects with a single activity type are more straightforward in terms of technical design and validation.

Afforestation and Reforestation (AR) Projects

AR refers to planting trees or otherwise converting non-forested to forested land.[3] *Afforestation* refers to establishing forests on land that has historically not had forest cover, while *reforestation* refers to lands that had been deforested, generally prior to a specific cut-off date. At a minimum, AR project proponents will likely need to:

- Assess available areas for reforestation, with an eye to (1) favorable geographic and ecological characteristics, (2) relatively secure land tenure, and (3) eligibility criteria of the target standards.[4] How many hectares could the project realistically cover, and where are lands located?
- Describe species mix and planting arrangements taking into account the objectives of effective carbon sequestration as well as other aims, such as producing timber or generating biodiversity benefits.
- Determine overall management and silvicultural approaches, including possible harvest regimes.

The VCS category for these activities is ARR (Afforestation, Reforestation and Revegetation), broadening the scope to add a third category of activities – revegetation – which increase carbon stocks in woody vegetation, without resulting in the creation of a forest.

Reduced Emissions from Deforestation and Degradation (REDD) Projects

REDD projects aim to avoid the conversion of forests to non-forested areas (deforestation) or to avoid activities that reduce their carbon stocks without leading to outright conversion (degradation). It is worth noting that the VCS distinguishes between legal and illegal degradation and logging. Only illegal, or unplanned, degradation and logging form part of the REDD category, while areas that have been designated or approved for logging by regulatory bodies fall into the Improved Forest Management (IFM) category (described below). At this early stage, proponents of REDD projects will need to:

- Analyze key drivers and agents of deforestation as the basis for defining specific activities – within the control of the project proponent and potential partners – that will be implemented to address these deforestation pressures. Project proponents should be as specific and realistic as possible regarding the likelihood that an intervention will influence deforestation drivers and regarding the capacity of their organization and partners to implement these interventions. For example, what sort of alternative agricultural production systems, conservation area management, incentive payments, land titling, land or concession acquisition, etc. will be put in place to lower deforestation or degradation pressures?
- Develop a causal model and a systematic driver-agent-analysis, which can provide a useful framework for a preliminary description of pressures and help identify counter-measures (causal models and analysis of drivers and agents are discussed in greater depth in the Social Impacts and REDD guidance documents of this series).

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[3] AR is defined under the CDM as the "direct human-induced conversion of non-forested to forested land through planting, seeding and/or the human-induced promotion of natural seed sources" on lands where no forest has existed for 50 years (afforestation) or where deforestation has taken place more recently but prior to 1989 (reforestation) (UNFCCC, *16/CMP.1,* 2005, Annex A.1.a-b). Under the VCS, Afforestation, Reforestation and Revegetation (ARR) is defined as "activities that increase carbon stocks in woody biomass (and in some cases soils) by establishing, increasing or restoring vegetative cover through the planting, sowing or human-assisted natural regeneration of woody vegetation." (VCS, *Program Definitions*, 2).

[4] See AR Guidance for an overview of these and other considerations for AR projects.

Improved Forest Management (IFM) Projects

IFM projects seek to actively improve forest management to maintain and/or increase carbon stocks in forest areas or remaining forests. At a minimum, proponents designing an IFM project will need to:

- Analyze key drivers of degradation or unsustainable forest management.
- Describe the specific actions, within the control of the project proponent and potential partners, that will counter degradation pressures and/or lead to improved forest management. This could include, for example, extension of rotation length, reducing logging damages through improved road planning, increasing conservation set-aside areas, and introducing practices to enhance regeneration.

There is no fixed minimum size for a project, but very small projects are likely to find project development costs prohibitive.

The VCS also covers two additional Agriculture, Forestry, and Other Land Use (AFOLU) project categories which are not covered in this guide, and the VCS Association is discussing the inclusion of an additional category (Avoided Conversion of Grasslands and Shrublands, or ACoGS):

- **Agricultural Land Management (ALM)** for projects that reduce net greenhouse gas (GHG) emissions on croplands and grasslands by increasing carbon stocks in soils and woody biomass and/or decreasing GHG emissions from soils; and
- **Peatland Rewetting and Conservation (PRC)** for projects that reduce GHG emissions by rewetting or avoiding the drainage of peatland.

1.1.3 Preliminary Determination of Project Scale, Area, and Boundaries

At this stage, project proponents should aim to clearly identify the scale and location that will be subject to project interventions (reforestation, improved forest management, and/or REDD). Project boundaries are likely to be modified over the course of project development, landowner outreach, and land acquisition, but a preliminary and conservative estimate of project boundaries and size provides an essential starting point. Particular attention should be paid to specific standards and methodologies before engaging in additional outreach or land acquisition, since these can significantly impact the project size and boundaries (discussed in greater detail in Section 3.2 of this Overview and in the AR and REDD guidance documents of this series). Project areas need to be under the control of the project proponent to implement activities.[5]

Existing forest carbon projects range from small – several hundred hectare reforestation efforts – to large – REDD projects covering hundreds of thousands of hectares or more. The voluntary market and carefully crafted partnerships may provide a niche for even tiny projects. It is important to consider, however, that transaction costs of project development (validation, monitoring, verification, and market engagement typically cost hundreds of thousands of dollars per project) will prove prohibitive for many small projects. While there is no fixed lower bound, most market intermediaries and investors look for projects offering 10,000-20,000 tons of CO_2 emissions reductions

[5] In this case, *project proponent* refers to the person or entity with control over the land, forest or land management practice. Under the VCS, the project proponent is "the individual or organization that has overall control and responsibility for the project, or an individual or organization that together with others, each of which is also a project proponent, has overall control or responsibility for the project." This responsibility may or may not be legally deeded to a representative (e.g., project developer).

per year, at a bare minimum. This means, for example, that it will be difficult for AR projects covering less than a few thousand hectares to be economically viable, especially if slow-growing tree species are used.

This size barrier might be overcome if areas form part of an aggregated set of projects, known as Grouped Projects under the VCS or a Programme of Activities (PoA) under the CDM.[6] PoAs have proven complex to implement to date (with only a handful of registered PoAs under the CDM, none of which are forestry). VCS Version 3 now provides full guidance for grouped projects allowing for the addition of new areas (new "project activity instances") after validation, if these meet defined baseline, additionality, and eligibility criteria as set out in the original Project Description (PD). Several Grouped Projects, and at least one methodology for grouped REDD projects, are now under development under these new VCS rules.

1.1.4 Defining the Key Project Participants

Projects are likely to involve multiple participants for different phases and activities. These include groups involved in implementing project activities (e.g., farmers engaged in improved agricultural practices, or an NGO introducing new techniques and coordinating training efforts) as well as land and/or forest owners. For many REDD+ projects, participants will also include neighboring populations benefiting from current land uses and deforestation.

Project development prior to implementation typically involves a number of different entities (discussed in more detail in Section 2.3). It is important to determine the leaders and partners for each aspect of project development (e.g., design, coordination, and implementation of strategies and activities) so that the most competent partners implement parts of the project that may be outside the core capacity of the project proponent or lead organization (e.g., certain forestry or agricultural activities).

1.2 Draft Project Idea Note

A Project Idea Note (PIN) is a summary description of a proposed project. It is commonly used as an initial summing up of the project and is useful for engaging governments, investors, and technical support. It should be noted that developing a PIN is not a formal requirement under the VCS or CDM, and PINs do not have to follow any particular format. In some countries, however, a PIN is required by the Designated National Authority (DNA) for issuing the formal Letter of Approval required for CDM projects.[7] A PIN can also be used to secure an early Letter of Endorsement, which may be useful to indicate conditional government support for a project when engaging with potential investors. A Letter of Endorsement may also provide additional credibility for voluntary market projects, which do not otherwise require any formal government approval.

Writing the PIN should be considered a valuable opportunity for project proponents and others to review basic assumptions about the project. It should reflect all the elements highlighted above (project objectives, activities, and participants), as well as:

- *Characterization of the baseline:* What, realistically, would happen without the project? Who are actors and what are the driving forces of land use and land-use change? For REDD: Is the process primarily one of degradation, deforestation, or a sequence of degradation leading to deforestation? To the extent possible,

[6] California's Climate Action Registry has also developed guidelines for aggregating forest projects, though initial applicability is limited to North America.

[7] A Designated National Authority, under the CDM, refers to the official government entity granted responsibility to authorize and approve participation of CDM projects and in particular to review their contribution to the country's sustainable development. A list of DNAs can be found at http://cdm.unfccc.int/DNA/index.html.

proponents should describe and substantiate this scenario with data on historical degradation or deforestation trends in the project area or its vicinity. Any recent changes in land-use trends should be noted (e.g., through a comparison of deforestation trends in the last ten versus five years). Proponents should be careful to critically re-examine common perceptions of land-use and environmental degradation trends and should try to find objective evidence for such developments. See the REDD and AR guidance documents for detail on baseline characterization.

- *Estimate of forest carbon stocks or sequestration potential:* What are the carbon stocks of any existing forests on project lands (differentiating between intact forests and degraded forests, as well as different forest types)? What are carbon sequestration rates of planted trees or regenerating forests? This information should ideally be based on available data from the project site or similar forests or plantations. In the absence of local data, project developers should use default values from the Intergovernmental Panel on Climate Change (IPCC) and, for AR projects, potentially consult existing carbon calculators (see Box 3).
- *Preliminary estimate of carbon benefits*: This refers to the differential between baseline (without-project) and project scenario, i.e., net carbon losses or gains (see Section 3.3.4). What is the realistic impact of the proposed project activities in terms of reducing emissions? What is the time scale? How fast can planting activities be launched and scaled up? Project developers should be conservative and realistic in their assumptions here– overly optimistic calculations and inflated objectives are unlikely to convince investors, auditors, or other stakeholders; a cautious and well-documented argument is more likely to impress.
- *Additionality:* What are the arguments for claiming that comparable project activities or carbon benefits would not have happened in the absence of a carbon project? Is the expectation of generating carbon revenues truly vital for implementation of activities?
- *Social and environmental impacts:* What are likely key impacts on local populations, ecosystem services and biodiversity? How will potential adverse impacts be managed and mitigated? How will any financial benefits be allocated? These questions can be important arguments for convincing certain types of stakeholders and investors to become engaged in the project; project proponents should be brief and objective in laying out these aspects.

The World Bank's BioCarbon Fund has developed a PIN format that is now commonly used (see Box 3). More important than the specific format, however, is a succinct and substantiated summary of the above aspects that is easily accessible to the target audience. Many DNAs have also prepared guidance tools and can provide support in this regard to project developers.

The elaboration of a PIN should not lead project proponents to believe that project feasibility is assured. A critical and rigorous feasibility assessment needs to be carried out (see next step) before significant resources are committed or any firm engagements with other parties are made. If a PIN is shared with potential investors and government authorities before a feasibility analysis has been completed and led to positive findings, it is advisable to indicate that feasibility still has to be assessed. It should be noted that many of the preliminary assessments carried out while developing a PIN can later be used in a more thorough feasibility analysis.

Box 3. Useful Resources and Tools for PIN Development and Feasibility Assessment

PIN Development

BioCarbon Fund. *PIN Template for LULUCF Projects.* Available at: http://wbcarbonfinance.org/Router.cfm?Page=DocLib&CatalogID=7110.

Carbon Assessment

IPCC. *Good Practice Guidance for Land Use, Land-Use Change and Forestry.* Hayama, Japan: Intergovernmental Panel on Climate Change, 2003.

> *Default values for carbon stocks and sequestration potential are presented in Annex 3A.1, available at: http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/Chp3/App_3a1_HWP.pdf.*

USAID and Winrock International: Forest Carbon Calculator Tool

> *An online tool designed for providing a rough estimate for carbon benefits of different project types (reforestation, REDD, forest management, agroforestry) using drop-down menus and project-specific details. An overview of this tool is available at:* http://www.usaid.gov/our_work/environment/climate/docs/forest_carbon_calculator_jan10.pdf.

CO2FIX. *CASFOR-II: Modeling Carbon Sequestration in Forest Landscapes. Available at:* http://www.efi.int/projects/casfor/

> *A forest carbon sequestration software package developed by several research institutions with input data for a range of commercial timber species in tropical and temperate countries.*

Financial Assessment

CCBA and SOCIAL CARBON®. *REDD Financial Feasibility Tool.* Available at: http://www.climate-standards.org/projects/redd.html

> *The CCBA, together with SOCIALCARBON®, has developed a tool for evaluating the financial feasibility of REDD projects.*

Risk Assessment

VCS. *AFOLU Non-Permanence Risk Tool.* VCS Version 3 Procedural Document, Washington, DC: Verified Carbon Standard, 2011. Available at: http://www.v-c-s.org/sites/v-c-s.org/files/AFOLU%20Non-Permanence%20Risk%20Tool%2C%20v3.0.pdf.

> *This tool can provide a very useful framework for identifying key issues for project performance and long-term viability at an early stage.*

Additionality Assessment

Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities. Available at: http://www.v-c-s.org/tool_VT0001.html.

Tool for the Demonstration and Assessment of Additionality in AR Projects. Available at: http://cdm.unfccc.int/EB/Meetings/021/eb21repan16.pdf

Overall Project Feasibility Assessment

Waage, Sissel, and Katherine Hamilton. *Investing in Forest Carbon: Lessons from the First 20 Years.* Washington, DC: Forest Trends, 2011. Available at: http://www.forest-trends.org/publication_details.php?publicationID=2677.

Provides a list of project screening criteria based on a review of forest carbon project investments.

Katoomba Incubator. *Project Feasibility Assessment Template*. Available at: http://www.forest-trends.org/~foresttr/publication_details.php?publicationID=2550.

This project assessment template used by the Katoomba Incubator may help prospective project proponents to assess feasibility and select an appropriate project site. For an example of this feasibility assessment in practice, see a study from Uganda available at: http://www.forest-trends.org/publication_details.php?publicationID=2549.

ENCOFOR. *Feasibility and Pre-Feasibility Assessment Modules.* Available at: http://www.joanneum.at/encofor/tools/tool_demonstration/prefeasibility.htm and http://www.joanneum.at/encofor/tools/tool_demonstration/feasibility.htm

ENCOFOR developed spreadsheet-based decision support systems for pre-feasibility and feasibility assessments focused on CDM AR projects.

Behrens, W. and P.M. Hawranek. Manual for the Preparation of Industrial Feasibility Studies. Vienn1: UNIDO, 1995. Available for purchase at: http://www.unido.org/index.php?id=o3423.

Provides a comprehensive toolbox for feasibility assessments.

The Rainforest Alliance is developing a tool for the rapid assessment of forest carbon project feasibility for early-stage projects. It will employ a step-wise approach and project type- and standard-based modules, and provide guidance about data collection strategies to answer questions of the tool. It will be released shortly at www.rainforest-alliance.org.

Finally, developing a theory of change (or a causal model) of a project's social impacts and conducting a driver-agent-analysis for land-use trends can help examine whether the preliminary project activities match what is needed to achieve project objectives (see Social Impacts Guidance).

1.3 Conduct a Thorough Project Feasibility Assessment

There are many challenges to preparing a feasible carbon project. Carbon prices remain generally low while no comprehensive international regulatory framework is in place for forest carbon activities, and thus only a subset of forest carbon projects are financially viable. Furthermore, forest carbon methodologies are written primarily for specific circumstances and may require such exacting accounting and monitoring approaches that they can only be implemented in certain situations. Most importantly, however, implementing sizeable reforestation activities and effectively tackling deforestation and degradation are ambitious objectives in and of themselves.

A feasibility assessment is an opportunity to take a critical look at the project—and to decide whether carbon finance is truly a viable option.

For these reasons, before embarking on the next steps in project design, it is essential to conduct an initial assessment of project potential. The feasibility assessment is not simply a formal step in the project cycle but rather a

key decision point and an opportunity to take an open-minded, critical, and comprehensive look at the project. It has to be clear during the exercise that a positive outcome cannot be taken for granted, and that the project may have to be re-designed or abandoned.

We suggest, where possible, involving an independent expert or entity for a (pre-) feasibility assessment, both to bring in additional technical and market expertise and to provide some valuable outside perspective. Many project proponents, seeking finance for rural development or conservation objectives at a specific site, see their project through the lens of their broader objectives, but may tend to downplay or ignore some of the particular requirements and constraints of forest carbon projects. This can be an important moment for a "reality check" to review whether a project is likely to be viable. If conducted in this way, the feasibility assessment can help to identify a project that will ultimately not be viable early on, thereby avoiding creating unrealistic stakeholder expectations and unnecessarily spending significant human, technical, political, and financial resources. Conversely, a solid feasibility analysis can also add value for project proponents, increasing investor and stakeholder confidence.

For community-based projects, feasibility assessment should also involve consultation and review of assumptions and preliminary outcomes with local stakeholders. Although the changeable nature of project specifics can present challenges, a transparent and iterative discussion of project benefits, risks, uncertainties, and overall design can be an effective way to build shared understanding of project possibilities and to manage unduly high expectations.

Box 4. Overview of Elements for a REDD+ Project Feasibility Study

Adapted from *Katoomba Incubator REDD+ Project Feasibility Assessment Template*, available at: http://www.forest-trends.org/~foresttr/publication_details.php?publicationID=2550.

- A general description of project context and background
- Project objectives and main activities, including how the activities will address projected land-use trends
- Preliminary definition of project boundaries and scale (hectares, number of landowners, landholdings or communities involved)
- Tenure and policy issues
    - Land tenure situation: general context and specific status of project lands
    - National REDD+ policy context and how it may treat project-level activities
    - -Existing legislation and REDD+ policy affecting current and future forest carbon rights situation
- Estimates of project carbon benefits
    - Forest types (preliminary stratification) and available information about carbon stocks
    - Description of drivers and agents of deforestation and degradation – historic, current and projected
    - -Preliminary baseline scenario: including availability of information for projection, possibility of identifying a suitable reference region and estimate of baseline emissions
    - With-project scenario: estimate of effectiveness of proposed project activities in changing land use and projected with-project emissions
- Leakage
    - Potential types
    - Assessment of risks and mitigation strategies
- Fit with carbon standards and methodologies
    - Identification of applicable standards and applicable methodologies
    - Availability of crucial data
    - Review of additionality
- Risks
    - Review of risks to project performance
    - Risks to permanence of GHG benefits, ideally using VCS *Non-Permanence Risk Tool*

- Financial feasibility
  - Potential carbon revenues and transaction costs
  - Potential non-carbon revenues
  - Opportunity and implementation costs
  - Attractiveness to buyers and markets, and impact on carbon prices
- Social and community impacts
- Biodiversity impacts
- Assessment of implementation capacity and identification of project participants

A feasibility assessment should be conservative and should include sensitivity analyses on key assumptions. Initial estimates should always strive to be conservative; projects that are only marginally viable under initial assumptions are unlikely to survive further scrutiny during development. In addition to developing carbon credit generation and revenue scenarios, it is crucial to develop a very clear understanding of land-use trends in the project region, particularly for REDD+ projects. Given that project success will rest on being able to change baseline trends, a sound picture of drivers and agents of land-use change must be developed (see REDD Guidance), and the feasibility of interventions to tackle these patterns needs to be assessed. The latter includes assessing the capacity and experience of project participants that would be needed to effect these changes and interventions.

Four recurring pitfalls that take root at this early stage of project development are:

- *Initial overestimation of project scale*: Projects seem to commonly suffer a process of shrinkage from initial conception to final validation and execution. Emissions and sequestration numbers typically need to be scaled down as baseline estimates are revised, carbon stock measurements become more reliable, and discounts are applied for leakage and risk buffers. It is also common that project areas need to be revised downwards as key stakeholders are consulted, land measurements and surveys are completed, and non-eligible land areas are excluded.
- *Underestimating project costs:* Project development and implementation are each frequently far more lengthy and costly than project proponents initially assume. Especially at the current time, when many of the rules of the game – including methodologies and government regulations – are still in formation, getting a project to the point of validation can be more expensive than initially foreseen. Perhaps even more importantly, project proponents often typically underestimate the costs of establishing and managing forest plantations, or the costs of effectively addressing the drivers of deforestation and developing alternative land-use practices, interventions that sometimes include thousands of actors.
- *Optimistic assumptions about carbon finance:* Over-estimations in terms of project size and carbon benefits obviously translate into the risk of over-estimating potential carbon revenues. In addition, the feasibility assessment must consider the preferences and likely demand from forest carbon buyers, which are a very small segment of the overall carbon market. Project proponents commonly focus on the higher end of carbon prices that may exist in different markets (e.g., the price of non-forestry Certified Emission Reductions (CERs) or even EU Emission Allowances) and simply assume their project would fall into a niche with exceptional prices, count on uncertain future carbon price increases, or base their financial projections on forward sale of credits (or even upfront payments) without significant price discounts. In most cases, and especially for AR projects, carbon credits cannot be counted on as a sufficient revenue stream to fund project activities; instead, other financing sources must be sought out (e.g., the sale of timber or other products or non-market finance).
- In addition, projects typically face a finance gap, with significant costs in the start-up phase and carbon credits generated after several years and only with a gradual start. Frequently, projects face further delays in generating revenue if the development, validation, and verification processes take longer than projected.

And finally, proponents must remember that, depending on the standard, a significant portion of the credits are likely to be withheld in a risk buffer account and will not be available for trading. The risk buffer and financial gap are further discussed in Sections 2.4 and 5, respectively.

- *Not defining the project activities clearly:* Every project needs a clear plan of action in order to execute successfully and attract investors. Poorly-specified activities are especially an obstacle in many REDD projects which implicitly assume that the key constraint for reducing deforestation is simply lack of funding. Although a critical component, carbon finance needs to be translated into a clear strategy for channeling resources to the right stakeholders and the right set of activities to effectively address deforestation pressures. In the case of AR, project proponents frequently underestimate the financial resources and technical capacity needed to realize reforestation at a scale that makes a project viable in terms of sufficient sequestration volumes.

Some projects that would struggle with transaction costs and methodological requirements under the VCS or CDM may want to explore other options. For example, a project with agroforestry activities on 500 hectares of smallholder land is unlikely to ever recover current transaction costs under the VCS or CDM, but it may well be viable under standards such as Plan Vivo or CarbonFix.[8] When choosing alternative standards, however, proponents should be aware that the market segment of potential buyers and funders will also shift and, most likely, shrink significantly.

While every project setting will be somewhat unique, there are some questions that will be common to almost any forest carbon project. A comprehensive list of screening questions is included in the Incubator Feasibility Assessment Template (see Box 3 for an overview), and the forthcoming Rainforest Alliance feasibility tool gives further guidance on information collection strategies. Both are provided along with a list of other useful tools in Box 3.

1.4 Re-Assess and Adjust Project Design

The previous steps will allow project proponents to define their project more clearly and to determine if it is likely to be viable before investing far more effort and resources. A significant number of projects spurred on by the current enthusiasm for carbon finance as a solution for poverty alleviation and forest conservation continue to invest resources in projects that, in all likelihood, will not meet requirements of carbon markets and/or standards. It is important to realize that not every project that produces GHG benefits is a viable carbon project under the current standards, markets, and policy conditions.

In other cases – the focus of the remainder of this guidebook - carbon finance can be a powerful resource. Even so, it may be necessary to revise the project concept in an updated PIN, based on the results of the feasibility analysis – including definition of project activities, partners, boundaries, and sites – to reflect necessary adjustments and to better fit applicable standards.

Keeping track of feasibility and re-evaluations: In many cases it may not be possible to confidently conclude whether a project is feasible or not because important data items are missing (e.g., on applicable baseline data) or because important roadblocks and risks cannot be judged well enough at this early stage (e.g., obtaining permits, engaging partners for core project activities). It is therefore advisable to identify key risks and uncertainties that may endanger the viability of the project and that may only become apparent at a later stage, and to consistently keep track of any new insights and developments throughout the further process. This will help proponents to realize early on when a project strategy needs to be modified, or when a project should finally be considered unviable.

[8] Refer to the REDD and AR Guidance for further information on the comparative advantages of various standards for these kinds of activities.

2. Project Design and Planning

Over the course of preceding steps, project proponents should have developed a clear preliminary design for their project, identified key gaps, and made an informed decision to continue to invest (or not) in project development based on positive (or negative) results from feasibility analysis. They can now move on to the concrete and detailed phases of project planning and design.

VCS, CDM, and CCB are the most widely-accepted standards for forest carbon projects.

The following steps of project planning and design include the technical and procedural elements required to prepare a Project Design Document (PDD) or Project Description (PD) for external validation. In addition, they encompass a broader range of issues relating to project activities, legal matters, finance, and stakeholder engagement.

This phase, leading up to securing project finance and validation – and achieving *both* of these is required for success – will demand significant resources and time, as well as patience and perseverance. Securing adequate finance for the planning and design phase is a challenge that must be addressed early on.[9]

2.1 Define a Target Market or Standard

Based on the project's characteristics, projected scale of carbon benefits, location, and fit with available methodologies, project proponents need to define which standard to use, and in consequence, which market segment they are aiming for.[10] This decision will impact a number of further steps, most importantly regarding the targeting of buyers and investors and the methodological steps for formal project design (PDD or PD), but similarly regarding conversations with regulatory authorities and interaction with auditors and standard-setting organizations.

This overview and it accompanying guidance documents are primarily focused on the CDM, the VCS, and the CCB Standards as the predominant standards applied to forest and land-use projects in the developing world. The CDM allows projects in developing countries to produce credits for the Kyoto markets and has laid the groundwork for rigorous forestry methodologies, albeit limited to AR projects. The VCS is by far the most preferred carbon accounting standard by buyers in the voluntary and pre-compliance markets and captures the majority of all forest carbon transactions. The CCB Standards, which do not lead to the issuance of carbon credits, are the most prominent standard for ensuring social and biodiversity co-benefits.

In 2010, VCS was reported to cover more than half of the volume contracted in the forest carbon market, with the next carbon accounting standard covering less than 15%. Even more of the market was contracted by projects that reported using the CCB Standards for co-benefits certification, with 95% of the VCS volume also holding CCB certification. These data highlight the emergence of VCS as the dominant standard for forest carbon accounting, especially for projects in developing countries. In addition, such widespread CCB certification suggests that this standard offers a market access premium (if not a price premium as well), particularly for projects also seeking VCS certification (Ecosystem Marketplace 2011, forthcoming).

Standards development is a quickly evolving space, and there are a number of standards beyond the VCS and the CCB Standards that may meet the needs of a variety of projects and buyers (see Box 5). While these other standards vary

[9] See Business Guidance for more detail on the challenges of and strategies for securing finance for early stages of project development.

[10] More detailed background guidance on the main options is provided in the REDD and AR guidance documents.

in some specifics, many of the steps described in this guide will continue to apply as good practice across a variety of standards. Keep in mind that the geographical applicability and eligible project types are limited for some standards. It is also important to note that not all of these other standards lead to the issuance of carbon credits (e.g., the CCB, SocialCarbon, and ISO Standards do not). They may, therefore, fulfill different aims (e.g., certifying co-benefits), rather than acting as an actual alternative to carbon standards like the VCS.

Community-based projects working with small landholdings and initially limited overall project areas may struggle with VCS or CDM transaction costs. However, if they are otherwise solidly designed and generate clear carbon benefits, they may want to consider using the Plan Vivo Standard. Similarly, AR projects (whether community-based or not) may consider the CarbonFix Standard as an alternative (see Box 5). Both standards provide flexible approaches for projects to grow in size by adding new areas over time, and they are thus not necessarily limited to small project sizes.

Climate Action Reserve (CAR) credits are favorably positioned in the US market, based on the expectation that these offsets are likely to be accepted under compliance regimes in California and, possibly, other regional or federal US schemes in the future. The CAR forestry protocols currently only cover projects within the United States, though protocols for reforestation and REDD projects in Mexico are under development. Given that CAR protocols are not internationally applicable at this time, they are not treated in this guide. However, project proponents should check developments as these may well become important alternatives for markets and methodological guidance in the future.

The choice of a standard and target market is a complex one; for this reason project proponents are advised to consult the business guidebooks listed in Box 13 and Section 5.1 and to seek specialist advice.

Box 5. Other Standards for International Forest Carbon Projects

American Carbon Registry (ACR) Forest Project Standard

http://www.americancarbonregistry.org/

The ACR is an enterprise of Winrock International and publishes standards, methodologies, protocols and tools for project accounting. The ACR's Forest Carbon Project Standard is available for AR, IFM and REDD projects globally. It largely follows an approach similar to the VCS, and so far mainly uses tools and methodologies based on CDM and VCS, although it is implementing an innovative alternative risk non-permanence insurance approach. It issues Emission Reduction Tons (ERTs) to projects.

CarbonFix Standard

http://www.carbonfix.info/

The CarbonFix Standard (CFS) is limited to AR projects. CFS uses its own methodology (integrated into the standard itself) which is based on IPCC good practice guidelines and provides very compact guidance (compared to CDM and VCS). Projects are issued CO2-certificates which can be ex-ante / future certificates (issued upon validation), or ex-post or ex-post forward certificates.

Climate Action Reserve (CAR)

http://www.climateactionreserve.org/

The CAR program emerged from the California Climate Action Registry (CCAR), a California-based non-profit organization overseeing emissions reporting and offsets in that state. CAR's Forest Protocol covers AR, IFM and REDD. It is currently only applicable to projects in the U.S., though efforts are underway to adopt protocols for all of North America, including Mexico. Projects are issued Climate Reserve Tonnes (CRTs).

ISO 14064

http://www.co2offsetresearch.org/policy/ISO14064.html

ISO 14064 is a greenhouse gas project accounting standard developed by the International Organization for Standardization (ISO). The standard does not lead to the issuance of carbon credits but might be used provide some additional assurance of integrity of climate benefits for projects that do not aim to sell carbon credits . It does not apply restrictions on project types, size, location or other aspects. Unlike standards approving scientific methodologies, ISO 14064 offers only general guidance, with tools defined by the greenhouse gas program or standard under which the standard is used. See Stockholm Environment Institute, "ISO 14064-2," Carbon Offset Research & Education.

Plan Vivo Standards

http://www.planvivo.org/

Plan Vivo accepts a range of land-use projects, including AR, agroforestry, restoration, and REDD. These are developed with small-scale farmers based on a broader "Plan Vivo" livelihood strategy. Unlike other standards, Plan Vivo does not generally provide methodologies, and each project must instead devise its own Technical Specification (which can use elements of existing methodologies, e.g., from the CDM, or develop own approaches) adapted to the specific realities of the project, which is reviewed by external experts. Projects are issued Plan Vivo Certificates on an ex-ante basis in order to ensure sufficient start-up funds for farmers (though payments are only disbursed gradually).

SOCIALCARBON

http://www.socialcarbon.org/

SOCIALCARBON is a standard designed to demonstrate social and environmental co-benefits of carbon offset projects, as well as to increase active participation of local stakeholders, and is in some ways comparable to CCB. This standard is always used in conjunction with another approved carbon-accounting standard (VCS, CDM, etc.) and therefore does not define its own project type or methodologies. Similar to the CCB Standards, it does not issue carbon credits.

In most cases, the choice between VCS and CDM for AR projects may be delayed until a later point in project development, given that CDM methodologies and tools will currently be applied. However, differences in the definition of eligible land areas and activities (related to forest definitions) may be decisive earlier on (see Section 3.3). Apart from this, the non-permanence risk assessment and the ex-ante calculation of credit generation (due to different types of credits) will be the main differences in preparing PDDs for the VCS and the CDM, though the risk assessment is useful to conduct in either case (see AR Guidance for more on differences and similarities to take into account).

2.2 Ensure Effective Community Engagement

Not all forestry projects are community-based, but virtually all will need to incorporate local communities and landowners in some way, either as direct project participants, rights holders, stakeholders in forest and land resource use, and/or neighbors. These communities may be at very different levels of socio-economic development and lifestyles, poverty, and vulnerability, and projects may affect communities through different types of activities. Working with communities is far more than a "step" in the development of most projects. Rather, it will need to be an ongoing process that includes many of the activities over the course of the project development and implementation cycle. Different projects will require different levels and types of community engagement; for example, a commercial reforestation project on private lands will be different from a community-managed REDD

project. It is recommended that all projects assess the appropriate degree and mechanisms for community involvement early and continuously in the project cycle.

Both CCB and VCS place emphasis on effective community involvement. The CCB Standards require projects to document how stakeholders have been involved in project design, including the stakeholder dialogue process, and to implement a plan for continuous communication and consultation between project managers and all community groups (Indicators G3.4 and G3.8). The VCS non-permanence risk analysis of AFOLU projects requires an assessment of "community engagement"– including, most notably, evidence that a significant portion of the population dependent on the project area has been consulted. Failure to fulfill these criteria increases overall VCS risk buffer ratings, directly affecting project financials.

Community engagement can be critical to project success and is emphasized by the CCB Standards and the VCS.

Free, prior, and informed consent (FPIC) has emerged as a key issue and as a guiding principle for REDD+. FPIC is based on the principle that a community has the right to give or withhold its consent to proposed projects that may affect the lands or resources they customarily own, occupy, or otherwise use. The critical importance of this principle is increasingly being recognized, mainly due to growing concerns about vulnerable communities potentially losing access to traditional lands or livelihoods through increased forest protection efforts. FPIC is not just a "one-off" exercise carried out at the end of planning project interventions; instead, it defines an entire way of engaging and planning with local stakeholders through a rights-based approach. Ensuring adequate understanding and engagement of stakeholders is important on ethical grounds, and it can also lay the groundwork for project performance and sustainability by incorporating local knowledge and strengthening long-term commitments. These efforts should therefore not be seen as transactions costs but as long-term investments in project success.

For those projects affecting communities' ownership, occupation, or use rights, some key elements of effective engagement and FPIC include:

- *Identifying customary land areas and tenure systems*: involving community members in data gathering, using indigenous names and land-use classifications, identifying important religious, cultural or economic sites, identifying all users and rights holders, working with neighboring groups to define and agree boundaries;
- *Engaging with representative organizations*: involving customary institutions recognized by the state and accepted by people, such as local government and ad-hoc institutions established by the community to deal with outsiders;
- *Providing information* about potential impacts, costs and benefits, risks, conflicts, opportunities, obligations and duration as well as legal implications, communicating in local language and ensuring widespread participation;
- *Ensuring consent is freely given*: avoiding any form of coercion, allowing legal representation, allowing all interest groups and representatives to participate;
- *Ensuring consent is prior*: for community-based projects, planning the project together with communities through an iterative process, with the "no-project" option being presented as real alternative, rather than presenting the project as a "done deal" at the end;
- *Ensuring there is consent*: allowing time for institutions to consult with and obtain feedback from the wider community, ensuring effective communication of potential implications of proposed intervention; the output being a written agreement; and

- *Addressing gender issues*: recognizing that men and women typically have very different roles and interests in natural resource management and can contribute complementary skills and knowledge, as well as having different levels of power, influence, and control—all of which need to be taken into account to avoid perpetuating or accentuating gender inequity.

Box 6. Useful Resources for FPIC and Community Engagement

Herbertson, Kirk, Athena Ballesteros, Robert Goodland, and Isabel Munill. *Breaking Ground: Engaging Communities in Extractive and Infrastructure Projects.* Washington, DC: World Resources Institute, 2009. Available at: http://www.wri.org/publication/breaking-ground-engaging-communities.

Useful generic guidance to community engagement.

Free, Prior and Informed Consent and the Roundtable on Sustainable Palm Oil: A Guide for Companies. Mareton-in-Marsh, England: Forest Peoples Programme, 2008. Available at: http://www.forestpeoples.org/sites/fpp/files/publication/2009/12/fpicandrspocompaniesguideoct08eng.pdf.

A good, practical guide on FPIC within the oil palm industry in Indonesia. Despite its geographical and investment-specific focus, it is a useful starting point for REDD+ projects.

Anderson, Patrick. *Free, Prior, and Informed Consent in REDD+: Principles and Approaches for Policy and Project Development.* Bangkok, Thailand: RECOFT and GIZ, 2011. Available at: http://www.recoftc.org/site/resources/Free-Prior-and-Informed-Consent-in-REDD-.php.

Comprehensive analysis of FPIC and REDD.

UN-REDD. *Engagement of Indigenous Peoples & other forest dependent communities.* UN-REDD Programme Operational Guidance, United Nations, 2009.

The UN-REDD program is in the process of developing guidance on FPIC that will be incorporated into this guidance document.

Ensuring effective community engagement will often require dedicated effort in building capacity to enable participation. For practical reasons, it is often necessary to communicate and negotiate project design and planning through a community institution that can speak on behalf of the wider community. This institution should also be able to ensure that those project activities that are undertaken on a group basis can be effectively executed. It must be recognized, however, that where local institutions are present, they may not be representative, accountable, or transparent. When determining budgets, providing capacity-building support for community organizations should be considered as an investment. It should also be part of the ongoing process leading to the definition of management structures. Throughout, particular attention should be paid to gender and representation of potentially less vocal groups throughout the process.

2.3 Plan for Project Design

The following series of preparatory decisions and activities will help structure the project design work.

2.3.1 Define Roles and Responsibilities for Project Design and Implementation

Projects typically involve multiple stakeholders in different roles and need to cover a broad array of different skills and areas of expertise including technical aspects, forest management, community development and rural enterprise

development, legal and business acumen. Some entities will be involved mainly in project design, others throughout the project lifetime. Defining roles and responsibilities as early as possible can make many processes more efficient and avoid confusion and conflict later. These arrangements should ideally take the form of formal agreements and Memoranda of Understanding (MoUs).

It is worth reviewing early on whether the project proponents have the capacity to deliver on the suite of actions required for project success. Designing a project can seem complex, but making it work in practice is even more so and is a much more long-term commitment. Reforestation, conservation or forest management projects represent complex social, technical, and operational challenges that not all entities are prepared for. If this is the case, the early conception and assessment stages are the right time to identify realistic limitations, seek external support and establish partnerships where needed. A checklist of potential roles in project development is provided in Box 7, and additional guidance on key agreements between project proponents and supporting entities can be found in the legal and business guidance documents of this series.

The CCB Standards explicitly refer to management capacity as one of their core evaluation criteria (Criteria G4), and the VCS considers project management and the experience of the management team in particular as variables in assigning the risk rating that determines how many credits need to be set aside in a risk buffer (VCS, *Non-permanence*, 4-5).

2.3.2 Agree on Management and Allocation of Carbon Revenues (Benefit-Sharing)

An important question to agree on is how carbon revenues that are generated from project activities will be allocated and managed, an issue commonly referred to as *benefit-sharing* in community-focused projects. Multiple partners–from landowners to project implementers to monitoring teams to investors--may have a claim on carbon revenues or credits, touching on legal questions of carbon rights (Section 2.6). More importantly, however, carbon revenues will be vital for implementing core project interventions (regardless of whether they are made available through upfront investments or ongoing proceeds). Stakeholders implementing certain activities will therefore have a legitimate claim on a certain share of revenues, even if they are not legal owners of forest carbon, and they will need to be able to incorporate carbon revenue expectations into their own decision-making.

For this reason, a transparent and solid agreement on managing carbon revenues (or credits) and other finance streams needs to be reached between all relevant stakeholders at the earliest point possible. Ideally, these should be reflected in the form of formal and legally-binding agreements that take into account the project's unique constellation of partners and economic interests (see Legal Guidance).

The project design and the determination of the overall costs and revenues of the project will evolve. At early planning stages it may be prudent to establish agreements about guiding principles for revenue allocation and benefit-sharing, with further details to be developed as project design advances. This may be particularly relevant for community-based projects, where the question of equitable intra-community benefit sharing can be complex and requires special attention to aspects of gender equity, potential elite capture, and needs of vulnerable and marginalized groups. Establishing fair and transparent mechanisms may also involve building adequate management capacity (see Community Engagement Guidance).

Generally speaking, it is important that monetary and non-monetary incentives are aligned among key project participants in order to create compatible interests for investing effort to advance the project. To determine the best options, it can be valuable to consider different scenarios in order to prepare for cases where actual resulting benefits are different from what was originally anticipated. Actual revenues may be different, due to, for example, severe delays in project implementation and registration, additional costs, different carbon prices, or other contingencies.

When devising cost and revenue allocation mechanisms, it should be kept in mind that there will be essential investments that need to be made to create GHG benefits, such that the final revenue situation may or may not allow for a sharing of net profits beyond recouping the initial investment. This means that, generally, it will not be appropriate to agree on a simple percentage-based sharing of gross revenues between participants, although this seems to be a popular approach with some proposed projects. Project design and benefit-sharing structures need to ensure that they lead effectively to improved carbon outcomes, meaning that funding for essential project interventions (e.g., tackling insufficient agricultural productivity) has to be ring-fenced before there can be a sharing of net profits, although the two can obviously be combined.

Box 7. Roles and Responsibilities in Project Development and Implementation

General

- Overall project lead and coordinator
- Owner of forest carbon, empowered to enter into agreement for sale or transfer
- Owner of the land

Technical

- Providers of existing data regarding land use, carbon stocks, growth rates, drivers and agents of degradation/deforestation
- Producers of additional data to quantify emissions reductions or removals (e.g., biomass inventories, land-use change mapping, socioeconomic data, property boundaries)
- Provider of technical support for project design, drafting of PDD and preparation of project documents for validation
- Assessors of social and biodiversity impacts

Business and Legal

- Developer of legal agreements
- Negotiator with potential buyers/investors
- Broker, intermediary or buyer
- Provider of funding for project development phase
- Provider of funding for upfront investment into implementation; insurance and guarantees
- Administrator of project development funds and carbon revenues

Stakeholder Relations

- Community liaison
- Government liaison
- Coordinator of reporting (to donors, investors, regulators)

Project Implementation

- Coordinator of forest and land management activities (useful to break this down into detailed components and phases of project execution)
- Executors or service providers for land management
- Provider of technical assistance for land management

Monitoring and Third-Party Audit

- Coordinator/Implementer of monitoring efforts and data storage and management
- Coordinator of validation process and liaison with external auditor
- Coordinator of verification process and liaison with external auditor

2.3.3 Prepare a Roadmap: Budget and Work Plan

An overall budget, timeline, and work plan for project development should now be laid out. Costs may easily range from $150,000 to over $300,000 for these pre-implementation stages. Actual costs will vary significantly between projects depending on factors such as scale, complexity, available data, and previous planning experience.

Table 1. Common Forest Carbon Project Cost Categories

Project Design and Implementation	Notes
DESIGN PHASE	
Local staffing / coordination	Human resource requirements are frequently underestimated, particularly if stakeholders grapple with issues for the first time--highly variable.
Design of project activities	Reforestation or forest management plans, elaboration of agricultural extension programs, etc. Costs highly variable and project-specific.
Methodology development	If no approved methodology is applicable (costly and risky – revision of existing methodology may be an option).
Imagery & analysis	For identification of eligible land areas, determination of historical land-use change. Satellite imagery may often be free, but it can take several person-months by a specialist to analyze the data.
Ground-truthing / forest inventory	Commonly needed for REDD projects, dependent on scale, heterogeneity.
Carbon baseline and modeling	Specialized spatial projections, costs dependent on scale, methodology.
Social and biodiversity assessment of starting conditions	For CCB certification.
Social and biodiversity reference scenario and monitoring plan	For CCB certification.
Stakeholder consultation, agreeing on benefit sharing	Frequently under-estimated--highly variable.
PDD drafting	Integration of above elements.
Legal advice	Due diligence on tenure rights, project approvals, agreements between partners, purchase agreements, etc. Costs can be significant to meet international norms.
IMPLEMENTATION PHASE	
Third-party validation	Contracting of approved validator.
Implementation costs	Depending on activities, such as land acquisition, agricultural extension, land preparation and planting, boundary control and enforcement, equipment and machinery, salaries, community incentive payments, alternative livelihood activities, etc.
Taxes	Carbon-specific and general income tax. Often not considered in initial financial projections, still undefined in many jurisdictions, but potentially significant.
Monitoring	Ongoing monitoring of forest cover, carbon stocks, agents and driver (for REDD+/AR projects) and social and biodiversity indicators (for CCB projects)
Third-party verification	Contracting of approved verifier
Registration and issuance fees	Varies by standard, registry, and project scale
Other needs	Contingency

In laying out a work and time plan, it is important to recognize uncertainties and to define key decision points so that these are taken into account in timelines and in communications with investors and other stakeholders. These plans should consider hurdles that may lead to unforeseen complications or delays, such as government approval processes, clarifying rights to carbon, the availability of applicable methodologies, and determining effective project activities and suitable partners. Ideally, project proponents should identify options for dealing with these contingencies, e.g., non-carbon bridge financing, or switching standards or methodologies.

The more developed the project is, the higher the value of expected carbon credits. However, investment and purchase agreements may be negotiated at any point in the project development process.

It is important to emphasize the need to be realistic when establishing timelines for activities and expected revenues and to build in contingencies in the case of delays. Significant delays in moving to different project stages and in realizing carbon revenues have been a reality for many projects. These can arise, for example, from delays in implementation activities, a lack of understanding regarding studies or documentation needed, or delays in external approval procedures that may be partly outside the control of project proponents. Similarly, the outcomes of stakeholder consultation processes and social impact assessments cannot be taken for granted—these may necessitate revisions to project design and timelines. It is crucial to communicate and prepare for these risks with all project participants.

Developing and maintaining an internal roadmap with key milestones and decision points that need to be reached before investing in major next steps can be a valuable exercise and can help all involved to recognize early on when a project strategy needs to be modified.

2.4 Secure Project Development Finance and Structure Agreements

As described above, project design and technical development can require significant resources. Whereas the initial conceptual and assessment phase can often be completed with limited internal resources by organizations already engaged with forest-related activities, taking projects through the development phase will require significant additional resources.

The more developed the project is, the lower the risks and the higher the value of expected carbon credits. Offset volumes are only certain after they have been verified and issued, but there are reasons why project proponents may choose to enter into finance agreements earlier in the project development process:

- Securing working capital for project startup;
- Accessing valuable technical and business expertise through partnerships; and
- Mitigating market price risk given the volatile nature of carbon markets.

Possible alternatives for finance (discussed in greater depth in the Business Guidance of this series) include:

- Self-financed. For well-resourced organizations, their own financial and human resources may be invested in project development. Organizations capable of self-financing will have a quicker path to project development and will be able to retain more of the long-term financial project benefits. However, risk management considerations may lead even those organizations to seek outside financial support or co-investors. In-kind contributions from project participants must be carefully assessed because they may represent real costs through significant demands on project participants' staff and resources.

- Donor support. Much current forest project development is at least partially supported by overseas development assistance or private donors. This may be an ideal option from a project developer and investor perspective as it shields them from many project development risks. In many cases, projects that are not viable from a strictly commercial perspective may be feasible with additional "soft" funding. It is not uncommon, however, that projects initiated with donor assistance languish while project proponents struggle to find funding needed for project completion. Importantly, the availability of donor support for early stages should not lead project developers to skip over a thorough feasibility assessment. Similarly, participants should not underestimate future costs and commitments on internal resources, including staff, beyond donor-supported phases.
- Forward finance from investors, buyers or commercial project developers. Investors and buyers may be willing to provide some upfront finance in exchange for rights to future carbon credits or revenues. Commercial project developers will combine this investment with technical expertise to manage key aspects through the design process and beyond to validation and verification. Engaging commercial project developers at early stages – as with all sources of commercial investment – implies trade-offs for project proponents. The sacrifice in terms of future project revenues may be substantial, but the early cash flow and additional commitment and expertise can spell the difference between success and failure. In addition, navigating through the different steps towards final issuance of credits more quickly and with fewer risks of set-backs can translate into significant additional net income, while a reduced risk profile will increase access to important market segments and enable higher final prices of credits. The share of project revenues claimed by investors will always be related to the level of risk they absorb.

Investment and purchase agreements may be negotiated at any point in the project development process. Some projects put in place investment or forward purchase agreements early on to secure working capital for project design and early implementation. Others proceed through verification with other sources of capital. Further summary guidance on legal issues is provided in Section 2.9 and the Legal Guidance of this series, while the Business Guidance reviews some of the key pricing and business aspects.

2.5 Draft Design of Project Activities

In early stages of design, project proponents should plan general project activities (Section 1.1). As project design progresses, these activities will need to be described in far greater detail--for example, an AR project may require a reforestation plan with specific techniques, timelines, and resources. Detailed project activities and objectives provide the basis to assess carbon benefits and prepare a PDD. For community-based projects, this planning exercise must be participatory, bringing in multiple stakeholders and striving to ensure adequate representation and broad involvement (see Community Engagement Guidance).

In many cases, this step may usefully be integrated with baseline projections of deforestation (see Section 3.3 and REDD Guidance) which will include a causal model of land-use change and help identify drivers and agents that need to be targeted, as well as analyses carried out for social impact assessments (see Section 2.7 and Social Impacts Guidance). Specific project activities will vary enormously among sites and different kinds of projects (e.g., afforestation, reforestation, agroforestry, natural forest management, and conservation).

It is essential to plan project interventions carefully. Though this may seem obvious, it is striking how many proposed projects – especially REDD projects – fail to lay out a clear strategy for dealing with drivers of land-use change and linking finance to improved outcomes on the ground. Similarly, AR projects frequently tend to underestimate the substantial financial resources and technical capacity that are required to carry out tree planting efforts at a scale that leads to viable carbon projects. Project activities will include forestry interventions such as tree planting, silviculture practices for improved forest management and protection and conservation activities. Similarly, projects will typically

need to think beyond "forestry" to deal with underlying drivers and leakage risks (e.g., through improved crop production, or increased efficiency in fuelwood use).

Rights over forest carbon are still not specifically regulated in most places—careful review of forest and land tenure laws can help substantiate proponents' claims.

Project activities will generate various costs (including opportunity costs), risks, and benefits for project participants that will vary depending on the nature of the activities and the role of participants in project implementation. Project design and budgeting must include a balanced approach to the distribution of payments and other benefits at the community level, should seek to offset the opportunity costs incurred by individuals or groups from changed land-use practices, and should aim to address the needs of vulnerable and marginalized groups. A possible mechanism for doing so could be a blend of individual or group payments, supplemented with in-kind, public good investments. Section 2.3.2, Business Guidance, and Community Engagement Guidance discuss these aspects of community cost compensation further.

2.6 Legal Due Diligence and Carbon Rights

2.6.1 Carbon and Tenure Rights

Local circumstances and tenure laws can vary considerably for different countries and regions. Rights over forest carbon are still not specifically regulated in most jurisdictions and, in these cases, must be inferred from existing law. Because forest carbon is closely tied to land and natural resources, rights to credits may be considered part of project participants' property and use rights to land and forest in the project area. Some governments, however, claim that ecosystem services belong to the country's people as a whole, and therefore that any ecosystem services transactions must pass through the government.

For GHG benefits, the VCS requires clear "proof of title" of the project proponent's "right of use" of GHG benefits generated by the project.[11] Similarly, the CCB Standards require project proponents to "demonstrate that the project proponents have clear, uncontested title to the carbon rights, or provide legal documentation demonstrating that the project is undertaken on behalf of the carbon owners with their full consent" (CCBA 2008, 21).

Where the law does not explicitly specify ownership and transfer rights over forest carbon, a careful examination of existing applicable law will be necessary to determine whether carbon rights can most logically be inferred for the person or group that holds rights in land and forest, for the government, or for some other person or entity. There are likely to be differences between AR, REDD, and IFM projects in terms of carbon and tenure rights. Planted trees are usually considered "industrial fruits," with strong rights associated to the entity that has established them, while trees in natural forests are commonly considered "natural fruits" and rights may be more closely linked to the owner of the land or the government. Some insight on carbon rights in various jurisdictions can be drawn from case studies

[11] Right of use means the "unconditional, undisputed and unencumbered" right to claim the project's GHG reductions or removals (VCS, *Program Definitions*, 2011; pers. comm. with VCS Association, June 10, 2011). Types of rights of use that are acceptable under the VCS include (i) a right established by law or regulation; (ii) a right stemming from the ownership of the process that generates the emission reductions or removals; or (iii) a contractual right to emission reductions or removals (rights assigned by the project owner to the investor, for example).

analyzed by Conservation International (Takacs 2009) and from reviews in national Readiness Preparation Proposals.[12]

Importantly, large areas of natural forestlands in many developing countries are formally state property. This means that the central government may often have to transfer carbon rights or the right to commercialize carbon to REDD project proponents (under existing legislation) if the latter wish to enter into agreements with buyers. Governments may have to grant licenses to transfer (commercialize) carbon rights even where forests are under private or community ownership (similar as for sales of other forest products, e.g., timber harvests).

It is important to note that any claims to carbon rights based on inferences and interpretation of existing laws could quickly be challenged by new legislation, and more specific regulation is to be expected in many countries. Project proponents therefore need to remain vigilant about any evolving legislation or even new interpretations of the existing framework. In any case, a formal government endorsement (or some other written statement) of the project and/or its rights should be very useful for any project, even those implemented on private lands. Detailed due diligence, including property surveys to confirm the size and boundaries of project areas, is also advised (see Legal Guidance).

At the very least, property and use rights of land and/or forests should be clearly defined before projects proceed and clear evidence will be required by any carbon standard. Apart from potential challenges to legal carbon rights, project participants who have insufficient rights in the project area cannot guarantee that underlying project activities will continue as promised, resulting in risks to carbon credit generation. Carbon standards require compliance with applicable national and local laws as a pre-condition for validation and verification, meaning that project participants must be able to lawfully perform project activities. Moreover, most standards also require forest carbon project participants to give evidence that they have "control over the project area"[13] so project participants must have at least:

- Use rights sufficient to perform the project activities (such as planting trees), and
- The right to exclude or prohibit uses incompatible with project activities (e.g., agricultural encroachment).

Box 8. Resources for Legal Aspects of Project Development

Katoomba Group. *Katoomba Group-Legal Initiative: Online PES Contract Management Center.* Available at: http://www.katoombagroup.org/regions/international/legal_contracts.php.

> *The Katoomba-CARE* Online PES Contract Toolkit *houses a growing collection of transactional resources for use by communities, project developers and lawyers interested in contracting for carbon and other ecosystem services. This includes template contracts, contract drafting and design guidance, and topical publications and links.*

Curnow, Paul. *Implementing CDM Projects: A Guidebook to Host Country Legal Issues.* Roskilde, Denmark: Baker & McKenzie and UNEP Risoe Centre, 2009. Available at: http://www.bakermckenzie.com/FSOperatingGlobalMarketsImplementingCDMProjects/.

> *Addresses legal and regulatory issues relevant to CDM and voluntary carbon projects.*

[12] These may be accessed at: http://www.forestcarbonpartnership.org/fcp/node/257.

[13] At the very latest, this needs to be demonstrated during the first verification event but should ideally be clarified earlier. See the REDD and AR guidance documents of this series for further guidance.

Takacs, David. *Forest Carbon -- Law and Property Rights.* Arlington, VA: Conservation International, 2009. Available at: http://www.conservation.org/Documents/CI_Climate_Forest-Carbon_Law-Property-Rights_Takacs_Nov09.pdf.

The World Bank Group. *Doing Business.* 2011. Available at: http://www.doingbusiness.org/.

Available for many countries, this guide is a good place to start when assessing, e.g., the availability and feasibility of property or title registration in the host country.

2.6.2 Review Local Regulatory Requirements

Review of applicable legislation and regulation is a formal requirement of the CDM and both the VCS and the CCB Standards and is a key part of project planning for compliance over the course of project development and implementation, as in order to obtain necessary approvals and inform government agencies in a timely fashion. Binding laws and regulations will include land-use, forestry, environmental, and, potentially, labor laws and regulations, as well as any specific requirements established for carbon projects. Depending on types of project financing and revenues, legal due diligence also needs to include laws covering business conduct, taxation, and (foreign) investment regulations. See Box 8 and Legal Guidance for further discussion.

Environmental impact assessments (EIAs) may be a requirement for any AR or forest management activity in many countries. Mitigation measures for potential negative environmental impacts may be required, for example in AR projects employing non-native species, species with high water demand, and planting techniques that disturb soils significantly. Communication with regulatory authorities and legal compliance should be seen as an important ongoing part of the project development process, and this is further elaborated in Section 2.9.

2.7 Social and Biodiversity Impact Assessment

Projects aiming for CCB certification will require detailed social and biodiversity impact assessments, beyond meeting potential local regulatory requirements for EIAs. In particular social impact assessments should be built into the project design process as early as possible to support the development of effective strategies for project implementation and long-term sustainability. If well structured, they can also provide the following less obvious benefits:

- Improved overall project design, in particular regarding an effective understanding of land-use change pressures and motivations, as well as a reduction of non-permanence risks;
- Early identification and mitigation of potential negative impacts, as a valuable starting-point for an adaptive management process;
- Basis for designing effective incentives to local stakeholders, including benefit sharing mechanisms; and
- Improved market position and pricing, with many buyers expressing strong preference for CCB certified projects.

To satisfy the CCB Standards and provide a useful planning and management tool, assessments should include:

- Description of the pre-project social and biodiversity starting conditions in the project area and also the surrounding project zone (and potential reference areas or control sites); [14]

[14] The CCB Standards define the "project zone" as the project area and the land within the boundaries of the adjacent communities potentially affected by the project.

- Description of the likely reference or baseline scenario of social and biodiversity conditions in the absence of the project;
- Projection of with-project social and biodiversity conditions, based on a sound causal model;
- Identification of potential negative impacts and definition of mitigation strategies;
- Identification of appropriate and cost-effective indicators and measurement methods; and
- Monitoring plan of actual net positive and negative project impacts, potentially including control sites.

The *Manual for Social Impact Assessment of Land-Based Carbon Projects* (see Box 9) provides guidance on developing a project theory of change as a credible and cost-effective assessment approach for forest carbon projects (and an implicit CCB requirement). This has wider benefits for projects because developing a logical, causal argument about project strategies, activities, and impacts will help design a project that will deliver carbon benefits more effectively, as well as ensure that social and environmental impacts are identified.

A practical and succinct approach for monitoring biodiversity impacts is provided by BirdLife International's guidebook (see Box 9), which is applicable to many project settings, although not prepared specifically with forest carbon projects in mind. Additional detailed guidance on tools and approaches are presented in the Social Impacts and Biodiversity Impacts guidance documents of this series.

Box 9. Additional Guidance for Social and Biodiversity Impact Assessment

Richards, Michael, and Steve Panfil. *Manual for Social Impact Assessment: Part I. Version 1.* Washington, DC: Forest Trends, Climate, Community & Biodiversity Alliance, Rainforest Alliance and Fauna & flora International, 2010. Available in English and Spanish at: http://forest-trends.org/publication_details.php?publicationID=2436.

An updated version, based on experience in the field and with additional guidance on biodiversity impact assessments, is in preparation and expected for fall of 2011.

Gardner, T. *Monitoring Forest Biodiversity: Improving Conservation through Ecologically-Respnosible Management.* London: Earthscan, 2010. Available at: www.earthscan.co.uk/?tabid=102271.

A good introduction to, and overview of, monitoring forest biodiversity.

BirdLife International. *Monitoring Important Bird Areas: A Global Framework.* Cambridge, UK.: BirdLife International, 2006. Available at: http://www.birdlife.org/regional/americas/apm_documents/Background%20paper%2011.2_IBA%20Monitoring%20Framework.pdf.

Monitoring framework developed for Important Bird Areas (IBAs) which is practical has broad relevance.

2.8 Assess Non-Permanence Risks and Develop Mitigation Strategies

All forest carbon projects face multiple potential risks that may undermine their performance (i.e., achieving carbon benefits) or the permanence of emission reduction and removals. Permanence (or non-permanence) is perceived as a key issue for forest carbon projects since any carbon removed or emissions avoided, could potentially be re-released into the atmosphere through future clearing, burning or dieback. This marks a fundamental difference between forest carbon projects and activities that achieve emissions reductions by reducing fossil fuels consumption.

Identifying risks early is a crucial aspect of project development and needs to be reflected in the design of project activities and specific risk mitigation strategies. An evaluation of risks is called for under CCB (Criterion G3.5) and by VCS, and this is a highly recommended exercise for any project to ensure project performance and to anticipate potential challenges, irrespective of the standard or project type.

Risk assessment is important for good project design, and under VCS it affects the number of carbon credits proponents may claim.

The VCS specifically mandates an assessment of risks using the systematic *AFOLU Non-Permanence Risk Tool*, to be conducted by the project proponent and assessed by an independent auditor. This is used to determine a percentage of a project's carbon credits to be retained in a non-permanence risk buffer which are not available for trading. This pooled buffer ensures against project failures or future reversals of carbon benefits, and thereby underscores the integrity of issued credits. Risk discounts can be as high as 60% for high-risk projects and are based on apparent risks and a project's capacity to manage these risks. Risks fall into different assessment categories, namely internal risks (e.g., project management capacity or financial viability), natural risks (e.g., occurrence of fires and pests), and external risks (e.g., land tenure conflict) (see Box 10). In severe cases, projects can fail the risk assessment and, consequently, validation.

The presence of risks (e.g., construction of roads, population growth) does not in itself lead to a high buffer discount. Instead, project proponents can lower this percentage by demonstrating that threats have been clearly identified and that effective risk mitigation strategies, monitoring systems and response measures are in place. Where information about particular risks is lacking, this can be an important warning sign. A project's buffer credits may be released over time based on ongoing project performance and risk assessments, conducted at every verification event. In the case of the CDM, this type of risk assessment is not formally required since permanence risk for AR projects is dealt with through the issuance of temporary CERs (see Section 3.3.7).

Box 10. Summary of Potential Non-Permanence Risk Factors

Internal Risks

- Project Management, including new use of non-native species, need for ongoing enforcement to protect carbon stocks and capacity of management team.
- Financial viability
- Opportunity costs and associated pressures of alternative land uses
- Project longevity based on legal agreements or requirements

External risks

- Land tenure, including ownership and resource access/use rights
- Community engagement, consultation of households inside and within 20 kms of project boundaries
- Political risk, based on World Bank Institute Worldwide Governance Indicators, adjusted if country is engaged in international REDD+ readiness initiatives

Natural risks

- Significance and likelihood of fire, pest and disease outbreaks, extreme weather events such as hurricanes, and geological risk such as earthquakes and volcanoes

Source: VCS AFOLU Non-Permanence Risk Tool (2011)

2.9 Maintain Ongoing Liaison with Regulators

More than a "step" in the project development process, communicating with government agencies and other stakeholders should be an ongoing effort, and this responsibility should be clearly designated among project participants. In most countries, regulatory frameworks for forest carbon projects are still evolving, and this creates a level of risk that can be partially mitigated by maintaining good government relationships. Even where formal procedures and regulations are relatively clear, maintaining personal contact to inform and receive input from relevant government agencies, especially the Designated National Authority (DNA), is very important to avoid delays in review and approval processes.

This is especially critical for REDD/REDD+ projects, considering currently evolving national strategies and policy frameworks in many countries. It is indispensable to ensure that projects conform to new rules and procedures as they take shape, for example regarding measurement, reporting, and verification (MRV) requirements (see REDD Guidance). In addition, individual projects can help inform policy with reality-based, practical experience on strategies to lower deforestation and address technical, social and financial challenges. Ideally projects can help create good national regulations and may want to invest some effort into building government capacity through dialogue and information sharing. At the same time, expectations regarding carbon revenues and "benefit-sharing" need to be carefully managed, especially in the context of weak governance and institutional frameworks.

In addition to liaising with host-country authorities, project proponents should closely follow developments and updates from carbon standard-setting bodies (e.g., the UNFCCC or the VCS Association). Rules and requirements are constantly evolving, and this can impact projects at any stage of their design and implementation, for example regarding changes in methodologies, documentation requirements, deadlines etc. (see Box 2). The VCS initiative on "Jurisdictional and Nested REDD" is another important space to watch, as it may soon provide guidance on nesting projects into evolving national accounting frameworks and also inform host-country policies in this regard. Depending on the project's stage of development, proponents may also wish to maintain regular contact with the validator or verifier to get feedback on any planned or potential changes in VCS requirements.

3. Developing a Project Design Document

A Project Design Document (PDD) is the key source of information and analysis that summarizes project characteristics, quantifies carbon benefits, and lays out a monitoring plan, thereby providing the basis for independent project validation and verification of its emission reductions or removals. The same document is called Project Description (PD) under the VCS. Following common parlance, this guidebook uses PDD as the general term.

3.1 Structure PDD Team

The development of a PDD can be a daunting challenge for first-time project developers. Methodologies available under the CDM and VCS are complex, and, as described in the REDD and AR guidance documents, also draw on supplementary tools for specific needs (land eligibility, additionality, leakage, etc.) which are not directly integrated into the methodologies themselves. In most cases it will be very useful to have specialized external input towards the development of the PDD, and there are a growing number of consultants and commercial project developers who have this expertise.

While external support can be invaluable, it is important for project proponents to remain closely involved and have an understanding of the PDD's content and data sources and, crucially, the monitoring plan. Project proponents will need to manage the project in accordance with the PDD and monitoring plan. At the time of validation and verification, proponents will also need to demonstrate a good understanding of both documents to third-party auditors. Completely outsourcing these responsibilities, particularly to a short-term contractor, will imply risks for long-term project success and can lead to lengthy delays during validation and verification. A good balance must be struck between development of internal capacity that will remain with the project management team over the project's lifetime and outside expertise.

Methodologies are complex and evolving quickly. Seeking expert advice when selecting a methodology may be invaluable.

3.2 Choose a Methodology

Under the VCS and the CDM, project developers must use an approved methodology.[15] The long time lags in developing and approving these fundamental tools have been a critical bottleneck for forest carbon projects. Methodologies are continuously evolving, and a robust set of options now exist for AR projects.[16] For many types of REDD and IFM projects, methodologies exist under the VCS, and further methodologies are expected throughout 2011.[17] Overviews of existing (and draft) methodologies may be found in the REDD and AR guidance documents of this series.[18]

Methodologies provide the core framework for the quantification of carbon benefits and include instructions for the establishment of a without-project baseline, measurement and monitoring changes of carbon stocks, and the assessment of leakage and project emissions. Methodologies will vary in their suitability for different project settings based on their specific applicability criteria, and more than one methodology may be applicable to a given project. The choice of methodology is not merely technical, but one with potential implications for monitoring requirements (impacting costs), eligible carbon pools (impacting the overall volume of creditable carbon benefits), and other key aspects of the project. Given the complexity and dynamism of this field, the choice of a methodology is an area where project proponents are strongly urged to seek expert advice. Supporting resources for AR projects may be found in Box 11.

Box 11. Tools for Assisting with AR Methodology Choice

BioCarbon Fund and CATIE. *TARAM (V1.4) – Tool for Afforestation and Reforestation Approved Methodologies*. Available at: http://wbcarbonfinance.org/Router.cfm?Page=DocLib&CatalogID=49187.

This tool is helpful for selecting between AR methodologies, though it is not up-to-date for new methodologies.

[15] In the case of the CDM, project methodologies must be approved by the Executive Board. Under the VCS, methodologies are approved once they have passed through a double validation process by two accredited validators.

[16] See http://cdm.unfccc.int/methodologies/index.html for approved and proposed CDM AR methodologies.

[17] Check http://v-c-s.org/methodologies/find for approved VCS methodologies, in addition to CDM methodologies.

[18] Alternatively, projects not seeking certification under CDM or VCS will design their project according to procedures outlined by the relevant standard. The Climate Action Reserve (CAR) instead uses "Protocols." while under Plan Vivo every project needs to develop specific "Technical Specifications."

Chenost, Clément, Yves-Marie Gardette, Julien Demenois, Nicolas Grondard, Martin Perrier, and Matthieu Wemaere. *Bringing Forest Carbon Projects to the Market.* ONF International, 2010. Available at: http://www.unep.fr/energy/activities/forest_carbon/index.htm.

Annex 1 (p. 130-135) provides a useful overview comparison of different AR methodologies.

UNFCCC. *Clean Development Mechanism Methodology Booklet.* Bonn, Germany: United Nations Framework Convention on Climate Change, 2010. Available at: http://cdm.unfccc.int/methodologies/documentation/index.html.

Provides an up-to-date overview over all approved CDM methodologies and tools, together with a summary of key principles.

Proponents of certain project types and in particular circumstances will recognize that there are significant gaps in approved methodologies. Aspects of technical project design that have yet to be settled include:

- Soil carbon sequestration or maintenance;
- Avoided degradation, especially where practices are illegal (and therefore even harder to quantify and project);
- Enrichment planting and some other improved forest management practices;
- Some agroforestry systems (that may not meet accepted forest definitions);[19]
- Reforestation projects causing complicated forms of leakage; and
- Carbon stock maintenance (without a demonstrable deforestation or degradation threat).

The lack of an existing methodology does not preclude project development, however, and developing new methodologies is an important starting point to expanding the array of land-use based mitigation options. The VCS has also put in place a compensation system to encourage the development of new methodologies in certain cases. The development and validation of a new methodology will, however, add very considerable costs and time to project development (most likely well over a year). There may also be serious reasons (technical challenges or uncertain or limited carbon benefits) why no one has yet developed a methodology for a specific setting.

In some cases it may be quicker to revise a pre-existing methodology, rather than to write a new methodology from scratch, if project activities are broadly similar. The VCS allows this as a methodology revision which must still pass the double-audited methodology approval process (more details can be found in the VCS Standard Version 3). Though approval can take time, the CDM also allows for revisions to exiting methodologies resulting either in new versions (if changes are minor) or new methodologies (in the case of major changes). Developers should also check the VCS website to see if there are any draft methodologies under development (i.e., having entered the validation process) that may cover their own project situation.[20]

[19] The VCS allows the use of CDM AR methodologies to be used, in some cases, for "revegetation" projects, where the project activity will not result in a forest. See new guidance: http://v-c-s.org/sites/v-c-s.org/files/VCS%20Guidance%2C%20CDM%20AR%20Methodology%20for%20VCS%20Reveg%20Project.pdf.

[20] See http://v-c-s.org/methodologies/in-development. Inactive methodologies may indicate that there have been significant challenges to resolving particular technical questions linked to this type of project activity.

3.3 Conduct PDD Analyses

This guide cannot provide comprehensive and in-depth instructions for the steps and analyses required by carbon project methodologies. In the following, we give a condensed overview of the key elements that are common to all methodologies. See Section 1.3 for further guidance on some aspects and Section 2.8 for the non-permanence risk assessment. The REDD and AR guidance documents of this series provide more in-depth discussion of and resources for conducting all of the following steps. It is of utmost importance to establish and store credible and verifiable documentation during each step of the process and for all claims made in the PDD so as to be able to back up all statements and assumptions effectively during validation and verification (see Box 16).

3.3.1 Spatial Boundaries

Project proponents need to identify the forest or land areas that will form the basis for project activities, monitoring and verification. This can include discrete parcels of land and should encompass all the areas that may be significant emissions sources or sinks due to project activities, and for which the monitoring effort is economical. In addition, REDD methodologies may require the definition of baseline reference areas and a leakage belt. All of these areas should be clearly delimited by remote-sensing and/or ground-based global position system (GPS) technology, and information stored using geographic information system (GIS) applications. Project proponents need to be consistent when presenting discrete parcels throughout the PDD and any supporting documentation or other project documents, such as forest management plans.

It is important to ensure that all project areas described in the PDD are in fact under the project proponent's control and that this can be demonstrated. Project boundaries will be fixed at validation and cannot be changed thereafter. Only PoAs (CDM) or Grouped Projects (VCS) allow for adding areas after validation.

3.3.2 Land Eligibility

Project areas must meet certain eligibility criteria under the CDM or the VCS. For AR projects, these criteria focus on preventing perverse incentives to deforest and later claim carbon credits for reforestation. For this purpose, the CDM requires proof that project lands were not forested at project start and in 1990. The VCS, rather than defining an arbitrary cut-off year, demands that no native ecosystems (forest or other) were cleared to create carbon credits; however, such proof is not required if clearing occurred at least 10 years prior to project start.[21] The VCS thus allows for substantially more flexibility in including land areas for reforestation than the CDM, which can be a decisive factor for choosing a standard, particularly for restoration projects or other activities in areas of recent land-use change. Land cover status will need to be supported by documentary evidence at the time of validation including, e.g., satellite imagery, aerial photographs, or local testimony. In addition, the VCS prohibits the conversion of natural, non-forest habitats (e.g., grasslands, peat swamps) for reforestation projects.

The CDM has created a forest definition that includes minimum thresholds for area (from 0.05 to 1 ha), tree height (from 2 to 5 meters of height at maturity), and crown cover (from 10 to 30 percent). Within these ranges, threshold parameters must be defined by each host country.[22] If no forest definition has been adopted, then no AR CDM

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[21] The VCS's *AFOLU Guidance: Additional Guidance* (2001, 5) states: "Evidence shall be provided in the project description that any…project areas were not cleared of native ecosystems to create GHG credits… Such proof is not required where such clearing or conversion took place at least 10 years prior to the proposed project start date. The onus is upon the project proponent to demonstrate this, failing which the project shall not be eligible."

[22] Parameters for forest definition adopted by some individual countries can be found at http://cdm.unfccc.int/DNA/allCountriesARInfos.html.

project can be implemented in that country. Projects using the VCS have more flexibility: they can use this same host-country definition, adopt the Food and Agriculture Organization's definitions, or use any other internationally-accepted forest definition. Even where projects cannot find an appropriate forest definition, they can be developed as a "revegetation" activity under the VCS, while using an AR CDM methodology.

Conversely, forests protected under REDD projects must also use accepted forest definitions to define deforestation in the baseline and in project monitoring. Beyond formal criteria, it is important to ensure that the chosen definition fits well with remote-sensing imagery that is available for both historical analyses and forthcoming monitoring efforts. If the REDD+ policy process in a host country has already set a forest definition, this should be adopted by projects to avoid clashes with anticipated regulatory decisions on MRV and accounting requirements.

3.3.3 Additionality

Carbon project proponents need to demonstrate that they undertake activities because they expect to generate carbon credits and revenues. Not every project that creates net GHG benefits will be additional in the sense of a carbon project, especially in cases where organizations involved in the project can be expected to pursue similar activities regardless of access to carbon finance. Both the CDM and the VCS have developed dedicated toolsto guide project proponents through a logical sequence of analytical steps to demonstrate additionality (see Box 3).[23] Key considerations concern barriers to implementing project activities or insufficient financial attractiveness of the project, especially compared to alternative land uses, in the absence of carbon finance. When relying on a barrier analysis for the proof of additionality, it is recommended to provide a very robust justification of one barrier, rather than anecdotal or weak evidence of several barriers.

3.3.4 Starting Conditions, Baseline, and With-Project Scenarios

The emission reductions or removals achieved by any forestry project can only be quantified by contrasting project outcomes with a counterfactual baseline scenario. A baseline scenario describes future conditions and outcomes that would be expected if no project activity were to take place and is sometimes also referred to as the business-as-usual scenario. Projects generate carbon offsets to the extent that they reduce emissions or sequester more carbon compared to what would have been the case under the baseline scenario.

The CCB Standards, which do not lead to the creation of carbon credits, also use the concept of baselines: developers must demonstrate that community and biodiversity conditions are better with the project than they would have been according to the baseline scenario.

To determine the project's net impact, it is indispensible to accurately capture conditions at project start (also called *time-0 measurements*, *starting conditions*, or *original conditions*). From this starting point, quantified and evidence-based scenarios need to be developed to predict what would likely happen in the future (the baseline) and how the project will modify that outcome (*ex-ante* estimation of emissions reductions). Carbon standards, such as the CDM and VCS, focus on accounting carbon stocks and emissions in the project area (and potentially reference areas) under these different scenarios. These can be summarized as follows:

- The **time-0 measurements** of carbon stocks in the project area, and potentially any reference and leakage belt areas, need to be assessed following inventory procedures laid out in IPCC Good Practice Guidance

[23] When using small-scale AR CDM methodologies, developers will demonstrate additionality using the approach described in the methodology itself; the basic steps, however, are similar to those of the dedicated tool.

(2003) and/or the specific requirements of the relevant standard and methodologies. These techniques are well-established and are further described in the Carbon Stocks Assessment Guidance.

- The VCS *AFOLU Guidance* (2011) provides a comprehensive overview of **establishing a baseline scenario**. Detailed guidance for specific project settings is contained in CDM and VCS methodologies. The various issues related to analyzing historic trends and modeling future developments are discussed in the REDD and AR guidance documents of this series. Readers may also refer to the Social Impacts and Biodiversity Impacts guidance documents.

For estimating **project impacts** on carbon, as well as social and biodiversity aspects (under the CCB Standards), project developers must compile information on land-use agents and drivers and develop credible causal hypotheses about how the project will modify the business-as-usual scenario (called the project "theory of change"). These must be carefully substantiated by documented evidence for underlying assumptions and/or verifiable expert judgment.

Figure 1. Four Hypothetical Baseline Scenarios that Illustrate the Net Positive Impacts of a Project

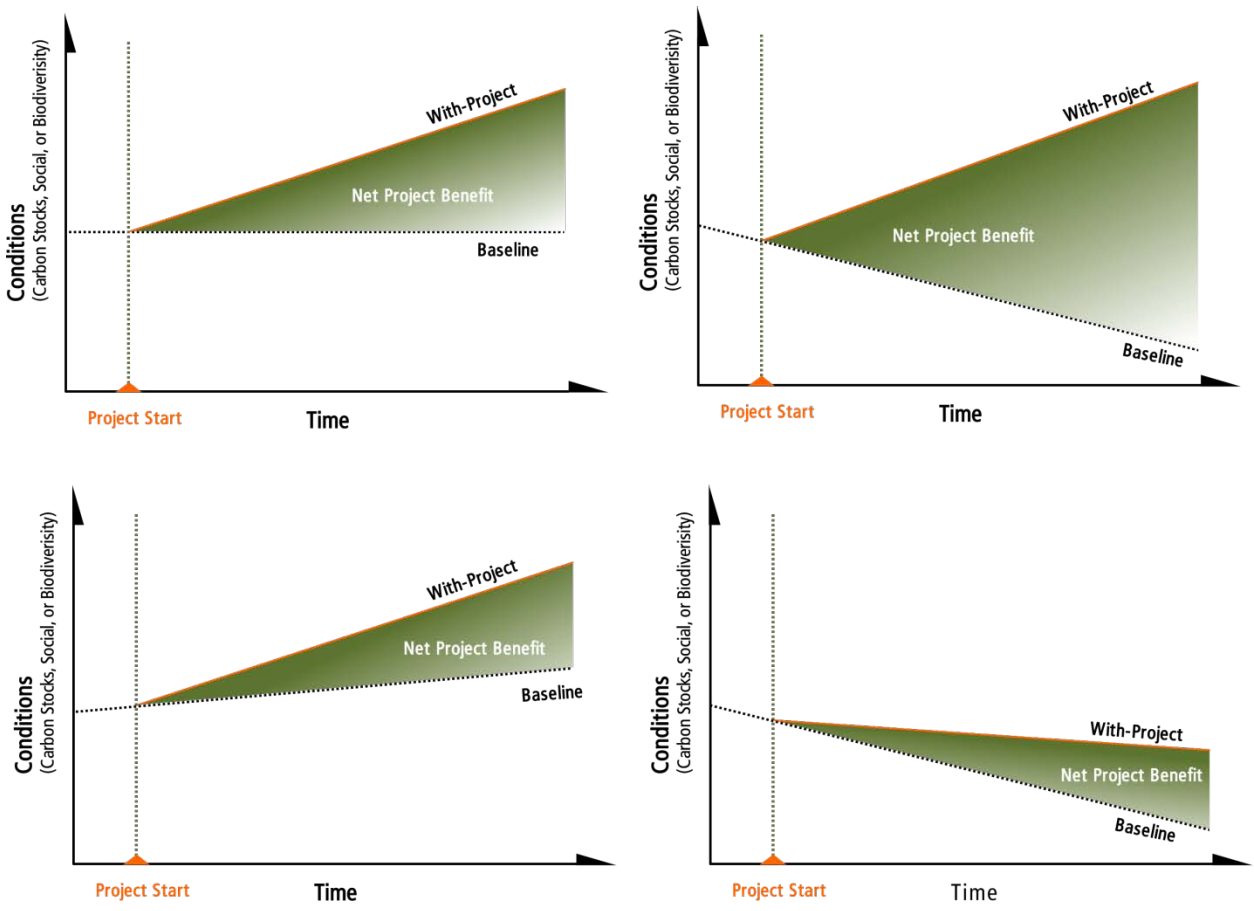

Figure 1 illustrates a set of possible combinations of starting, baseline, and project conditions – though there are infinite possibilities. Baseline conditions in these generic figures might refer to carbon stocks, social conditions, or the state of biodiversity. The first graph depicts a project in which initial conditions are projected to be stable or constant over time, with the project projected to improve on these. Examples of this type of project might include a reforestation project increasing carbon stocks or wildlife habitat on degraded pasture lands. The second graph (bottom left) describes a situation in which initial conditions are improving under the baseline, and the project would accelerate this improvement. Examples of this might include cases where incomes (or other social conditions) are

already improving for reasons independent of the project and where the project would contribute to further improvements, or where carbon stocks on degraded lands or forests are already increasing through regeneration but where improved management or reforestation will further increase these stocks. The third and fourth graphs (top right, bottom right) show baseline scenarios under which conditions are declining and where the project would improve on these. Examples of this might include an avoided degradation or IFM project that halts degradation or reduces logging and so enhances carbon stocks or biodiversity values compared to the counterfactual. Many projects may aim not just to lessen the rate of reduction of carbon stocks, livelihoods, or biodiversity but to generate absolute improvements over starting conditions (as in the top right graph). But note that in the bottom right graph, the with-project conditions are projected to be inferior to initial conditions – indeed, carbon storage or biodiversity benefits need not necessarily be better than current conditions as long as they are a demonstrable net improvement over the baseline.

3.3.5 Quantification of Emission Reductions or Removals

Estimates of future carbon benefits must be projected and quantified in the PDD based on the specifications of the chosen standard and methodology. Fundamentally, this entails projecting land use for the project site under the baseline scenario, determining the volume of carbon that would be stored (or emissions created) by these baseline land uses, and comparing this to the land uses and volume of carbon stored (or emissions) under the project scenario. The exact volume of carbon credits that will be created based on GHG benefits will depend on actual project performance and monitoring results, as reviewed and verified by an independent auditor (see Section 8).

It is important to ensure that assumptions underlying these estimates are as solid, transparent, and credible as possible. Thus, the estimates should take into consideration likely sub-optimal project performance, data uncertainties, and discounts that may be required to account for leakage and non-permanence risks. There are at least three reasons for cautious, conservative predictions:

- Many project proponents seek to secure finance or forward sales agreements based on figures in the PDD, and potential buyers need to be convinced of the soundness of the business case.
- Credible projections of carbon revenues may be crucial to underpin additionality claims and may therefore be scrutinized considerably during validation.
- These projections form the basis of registration fees levied under the CDM (see Section 6.4), with higher projections leading to higher upfront fees.

3.3.6 Leakage

Risks of leakage, whether in the form of activity-shifting or market leakage, are inherent to most forest carbon projects as different actors compete for scarce land resources. Careful consideration of leakage risks is a requirement of all carbon methodologies, and a sound analysis of risks can be valuable for improving the design of project activities and assessing social impacts (see Section 2.8 above and Social Impacts Guidance). Leakage that cannot be avoided through project design must be quantified and debited from overall project benefits, through monitoring or the application of discount factors (as in the case of timber market leakage under the VCS).

Leakage assessment procedures are relatively well-established for AR projects;[24] however, guidance is still evolving and is partially incomplete for some other project types (see AR and REDD guidance documents). Assessing leakage can prove to be a major challenge for projects and can also restrict the choice of methodologies (i.e., some methodologies may not be applicable because they do not include approaches to quantify and monitor certain types of leakage that may occur in a project setting). If considering using a methodology that requires detailed leakage accounting, project developers should carefully determine whether the data needed to meet accounting requirements is available.

The VCS *AFOLU Requirements* (2011) include some clarifications on leakage assessments that are intended to streamline requirements and provide further guidance and tools for project developers. At the time of writing, the VCS Association is revising the requirements for accounting for leakage from AFOLU projects in response to comments and lessons learned. Fully revised leakage requirements were posted for public consultation in June 2011 and revisions to AFOLU requirements with regard to leakage are expected to be released in late 2011. There will be a grace period for projects and methodologies to come into compliance with the revised requirements.

Leakage discounts can often be reduced or even avoided – a great benefit in terms of carbon credits and revenues – by addressing risks in the project design, conscientiously choosing activities, and selecting the project site carefully. For example, understanding the actors and causal chains associated with land use may help address underlying causes of deforestation causes rather than just combating apparent drivers in the project forest area itself (see REDD and Social Impacts guidance documents). Appropriate activities to mitigate leakage may include intensifying agriculture on non-project lands, creating alternative sources for fuelwood and timber, reducing inefficient uses of wood and timber, creating alternative employment opportunities, and conducting integral zoning and development plans that preclude activity shifting.

3.3.7 Non-Permanence Risk Assessment

Under the VCS, a formal assessment of non-permanence risks needs to be carried out using the VCS *AFOLU Non-Permanence Risk Tool* and presented along with the Project Description (see earlier discussion in Section 2.8). This is not a trivial exercise; the tool clearly states (p. 3), "project proponents shall clearly document and substantiate the risk analysis covering each risk factor applicable to the project. During the analysis, the validation/verification body shall evaluate the risk assessment undertaken by the project proponent and assess all data, rationales, assumptions, justifications and documentation provided by the project proponent to support the non-permanence risk rating."

Under the CDM, the non-permanence issue is addressed through the issuance of temporary credits, and the PDD must specify the choice of the project as regards the two options available (tCERs and lCERs). For a discussion of temporary credits and the relative advantages of each type, see Chenost, et al. (2010) and Pearson, et al. (2009).

3.4 Prepare the PDD

Once all the analyses and planning exercises described up to this point have been carried out, compiling required information in a PDD is a relatively straightforward process. All supporting documentation should be carefully stored and be accessible for validation.

[24] See http://cdm.unfccc.int/methodologies/ARmethodologies/approved_ar.html for specific leakage assessment tools for displacement of grazing, agriculture or fuelwood collection. Interviews and participatory rural appraisal (PRA) are key accepted approaches for AR CDM projects.

The CDM provides a mandatory template for PDDs, both for full size and small-scale projects.[25] An official annotated version also exists that contains useful guidance for elaborating specific sections.[26] The VCS also provides mandatory templates for the PD and for the AFOLU Non-Permanence Risk Report.[27] For projects seeking to combine VCS with CCB certification, a combined PDD may be presented if the same auditor carries out the assessment; however, some projects prefer to have two documents that cross-reference one another.

Following some general guidelines can help ensure a smoother preparation and validation process. Project developers should:

- Carefully study the standard and methodology they use, and ensure that documented evidence shows conformance for all of the standards criteria, that the project complies with all applicability criteria of the methodology, and that the PDD explains how each step of the methodology has been executed.
- Be clear and concise. The PDD should not elaborate on any topic more than necessary, and it should carefully analyze the type and scope of the required studies. PDDs should emphasize key information about project design and emissions reductions calculations and remain focused on essential information that can be monitored and verified over the project lifetime. It should not say more than it needs to say, nor more than the developer is completely certain of (and able to prove); the project will be held to account for all content of the PDD at validation and verification.
- Make reference to external documents and background studies containing information that is not essential for achieving validation, rather than including that information in the document itself. Developers should avoid overloading the document with information, e.g., on co-benefits or ecological characteristics, that is not required for VCS or CDM validation. Similarly, they should avoid including information that cannot be backed up with supporting evidence.
- If a project has already been underway for some time and has achieved results (trees planted, deforestation avoided), refrain from putting these in the PDD. The PDD is the plan document, even if it is written retrospectively. Results belong in monitoring reports.
- Maintain complete, organized "documented evidence" for key data and assumptions (e.g., agents and drivers of deforestation, bibliographical support for allometric models), as well as a central repository for collecting all supporting material (including scanned copies of printed documentation). Likewise, developers should define fixed and mandatory rules for naming, organizing, sharing, storing, and backing up files for the entire PDD writing team, including outside consultants. Metadata standards28 should be agreed upon and applied in compiling GIS data and remote sensing imagery.
- Review all documents for consistency in arguments, data assumptions, and dates.

Reviewing examples of successfully validated PDDs can provide a useful indication of generally accepted scope and style. These are publicly available on the CDM, VCS, and CCB websites (see Box 12). However, do not assume that particular arguments or statements that have been accepted in a PDD by one validator will not be challenged in a different project case, by a different validator.

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[25] Available at: http://cdm.unfccc.int/Reference/PDDs_Forms/PDDs/index.html.

[26] Available at: http://cdm.unfccc.int/Reference/Guidclarif/pdd/index.html.

[27] Available at: http://www.v-c-s.org/program-documents.

[28] The international metadata standard for geographic information (ISO 19115) and its XML scheme application (ISO 19139) are widely recognized. The US Federal Geographic Data Committee (FGDC) is currently developing the North American Profile of ISO 19115. Common GIS packages generally support both, ISO, and FGDC.

Box 12. Resources for Successful PDD Development and Validation

Hinostroza, Miriam. *Clean Development Mechanism PDD Guidebook: Navigating the Pitfalls.* Third edition. Roskilde, Denmark: United Nations Environment Program, 2011. Available at: http://www.cd4cdm.org/Publications/PDDguidebook_3rdEdition.pdf.

Builds on a wealth of experience of developing PDDs across all CDM sectors, and provides practical guidance on avoiding common stumbling blocks in passing validation and verification.

Validated PDDs can also provide valuable models for project developers and are publicly available at the VCS, CDM and CCB websites:

The VCS Project Database. Accessible at: http://www.vcsprojectdatabase.org/.

Contains a list of all validated VCS projects, including each project's registration documents.

CDM Project Search. Accessible at: http://cdm.unfccc.int/Projects/projsearch.html.

Search "Registered" and "Afforestation and Reforestation."

CCB Projects. Available at: http://www.climate-standards.org/projects/index.html.

4. Review Project Activities and Develop Project Implementation Strategy

4.1 Re-Assess Feasibility and Adjust Project Activities

Project design is an iterative process based on feedback from technical analyses of carbon benefits, evaluation of risks, legal considerations, social and environmental impact assessments, as well as results of stakeholder consultations and liaison with regulators. It is quite likely that at the time when final calculations are completed in the PDD, certain assumptions that were used in the initial feasibility assessment will have changed. Therefore, it is worthwhile to pause again and re-assess overall project viability in light of any new information, to make adjustments to project design, and even to consider with an open mind whether to advance with the project or not. Project interventions and stakeholder engagement strategies may have to be adjusted based on the wealth of information generated by various analyses on agents and drivers of land-use change, leakage and permanence risks, and social impacts.

4.2 Budgeting and Financial Projections

Based on a more definitive description of project activities and projections of carbon benefits from the PDD, the project proponents should now have the elements in hand to adjust financial projections and budgets. These should cover the final stages in project development, as well as long-term costs of project implementation, monitoring and verification. Some typical cost items are listed in Table 1 under Section 2.3.

Revenues from carbon may be generated once there are verified emissions reductions, which will usually only occur after several years of implementing project activities, especially in AR projects. All projects will therefore need to develop financing structures to cover the gap between the start of project implementation and the issuance and sale of carbon credits. Some approaches are discussed in Sections 2.4 and 5. For a more in-depth discussion of cost items and revenue, see the Business Guidance.

Carbon revenue alone may not cover all project costs. Revenue from other forest products or services can be essential.

As indicated earlier, carbon revenues alone usually will not be sufficient to cover all project costs. Financial projections should therefore include other realistic revenue streams (e.g., timber sales) as well as costs of raising additional or bridge capital. Beyond the more basic tools used to assess project feasibility (see Section 1.3), a financial model should be developed at this stage to reflect the project's unique cost categories, revenue streams, financing arrangements, and organizational structure; these will be essential data in discussions with potential investors.

4.3 Defining Management Structure for Implementation

Project proponents and partners need to clearly define roles, responsibilities, and management structure for project implementation, including which activities will be carried out by different implementing entities (see Box 7). Project implementation and financial management may require the creation of new entities in the form of partnerships, corporations, non-governmental organizations, or fiduciary trusts. Given the variety of possible project activities and circumstances, financial requirements, objectives and local regulations, it is recommended to contract legal advice to develop and review options. Some valuable guidance on organizational set-up and management is also contained in Chapter 5 of Calmel, et al. (2010).

For community-based projects, planning for effective ongoing management will often entail investments in strengthening governance and management capacity to ensure transparency and effectiveness at the community level, including:

- **Organizational development**: Helping set goals and strategic directions; improving management and communication; and developing leadership skills;
- **Strengthening financial management, record keeping, and oversight**: Introducing simple and transparent financial management and accounting procedures to track revenues; creating mechanisms and opportunities for financial records to be subjected to public scrutiny;
- **Improving governance and accountability of leadership**: Increasing opportunities for transparent information sharing between leadership and members; raising awareness of members of the roles and functions of their executive committees; and supporting conflict resolution procedures;
- **Ensuring representation of interest groups in decision making:** ensuring that different groups, including marginalized ones, have representation at management committee levels;
- **Improving rural education, literacy, and numeracy***:* Developing community members' skills to allow for more effective engagement in decision-making;
- **Creating mechanisms and opportunities for partnerships and networking**.

5. Finalizing Financing and Investment Arrangements

Securing investment for project implementation may occur at any point in the process of project development, so its placement in this "step-by-step" framework is arbitrary to some degree. In principle, agreements for finance or sale may be established at the earliest idea stage, during the PDD drafting process, after validation, or after verification and credit issuance. Different arrangements may be agreed upon with different buyers or investors at different stages and can apply to different tranches of the overall carbon credit volume, generated in a specific period. These different options will impact the risk (and price) discounts applied to carbon revenues and the level of upfront finance and expertise that can be brought into project development, as discussed in Section 2.4. The Business Guidance contains an in-depth discussion of these and the following aspects of marketing and financing forest carbon.

5.1 Commercializing Forest Carbon

Defining the most advantageous financing arrangement and finding the right partner can be a challenging exercise. There is usually a great distance between the places where projects are implemented and the centers of finance and offset demand. In addition, the various types of sales and investment arrangements all have advantages that may become more or less applicable as projects advance or priorities of stakeholders change. Not least, the array of players can be hard to evaluate with new companies and players emerging seemingly on a daily basis--some reputable, competent, and honest, and others potentially less so.

It is important to understand that finance or revenues may come from several possible kinds of entities:

- *Buy*ers acquire offsets to meet their regulatory or voluntary commitments. They may provide upfront finance, guarantee a future price, commit to purchasing a certain volume and/or purchase verified and issued credits. Intermediary buyers (traders and aggregators) will have access to a larger array of final – including large and usually more risk averse – buyers, but they may offer lower prices. Pricing may be more favorable with final buyers, but these may be challenging to identify and doing so can create significant marketing costs.
- *Investors* have an interest in realizing returns from financing provided to the project (in the form of a share of credits, or profits when credits are sold). In return for assuming more of the project risk, an investor will likely want some control over project activities. Some buyers may become partial investors into project activities through upfront payments or by assuming external transaction costs.
- *Brokers* do not actually buy the project's carbon credits but rather find buyers and match them with sellers (projects), often according to previously agreed conditions. They typically receive a percentage of the transaction value as fee for their services.
- *Donors* may be willing to provide complementary funding for some core activities, in effect valuing other conservation or community attributes besides the emissions reductions benefits.

Each type of entity can play a valuable role for different projects or at different stages. Different commercialization models will determine the timing of carbon revenues, prices, costs of marketing and the likelihood of finding certain types of buyers. Further guidance on commercialization strategies and developing the carbon "product" can be found in the Business Guidance as well as in the resources highlighted in Box 13.

Box 13. Useful Resources for Commercialization and Finance

Peters-Stanley, Molly, Katherine Hamilton, Thomas Marcello, and Milo Sjardin. *Back to the Future: State of the Voluntary Carbon Markets 2011.* Washington, DC: Ecosystem Marketplace, 2011.

Ecosystem Marketplace. *State of the Forest Carbon Markets 2011.* Washington, DC: Forest Trends, 2011, forthcoming.

Extensive, must-read information on voluntary carbon markets can be found in the State of the Voluntary Carbon Market and the State of the Forest Carbon Markets reports. These reports are available at http://ecosystemmarketplace.com/.

Neef, Till, et al. *The Forest Carbon Offsetting Report 2010.* Dublin, Ireland: EcoSecurities, 2010. Available at http://www.ecosecurities.com/Standalone/Forest_carbon_offsetting_report_2010/default.aspx.

Provides more targeted market information from a survey of forest carbon buyers.

Chenost, Clément, Yves-Marie Gardette, Julien Demenois, Nicolas Grondard, Martin Perrier, and Matthieu Wemaere. *Bringing Forest Carbon Projects to the Market.* ONF International, 2010. Available at: http://www.unep.fr/energy/activities/forest_carbon/pdf/Guidebook%20English%20Final%2019-5-2010%20high%20res.pdf

This 165-page manual, available in English, Spanish, and French, focuses almost entirely on business and financial aspects of forest carbon project development, with five case studies.

EcoSecurities and UNEP. *Guidebook to Financing CDM Projects.* Roskilde, Denmark: UNEP CD4CDM, 2007. Available at: http://www.cd4cdm.org/Publications/FinanceCDMprojectsGuidebook.pdf.

Though written for CDM project developers, this guidebook has very thorough sections on risk and financing options that apply to projects aimed at voluntary markets as well as CDM.

Pricewaterhouse Coopers and World Council for Sustainable Development. "Sustainable Forest Finance Toolkit." Pricewaterhouse Coopers. Available at: http://www.pwc.co.uk/pdf/forest_finance_toolkit.pdf.

5.2 Establishing Agreements for Finance

Negotiating and drafting carbon transaction agreements is likely a theme with which project proponents have less experience than with other aspects of project development. Legal advice should be sought to properly analyze the particular circumstances and needs of the project and to attain clarity on central questions like risk, liability, and cost implications of a particular agreement. It is important to keep in mind that buyers' lawyers have an obligation to negotiate the best possible deal for their clients – the buyers – which may not conform to the sellers' interests. Contracting a legal advisor and having them present in negotiation with buyers can save project proponents time and money over the long run while reducing commercial risks that may be hard to understand.

The most widely used type of agreement for commercializing carbon credits is a **purchase agreement**, also known as an emissions reduction purchase agreement (ERPA). This deals, in essence, with the sale of verified or future emissions reductions. Purchase agreements typically include provisions addressing:

- Delivery of carbon credits;
- Allocation of risk and delivery liabilities;
- Provisions for dealing with default and remedies;
- Costs and taxes;
- Reporting and monitoring obligations;
- Validation and verification;
- Contract duration; and
- Communication with third parties, representations and warranties, confidentiality, termination, notices, amendments, governing law, assignment and novation, survival, definitions, and other miscellaneous provisions.

For further guidance on these issues see the Legal Guidance and the supporting documents in Box 14.

Box 14. Useful Guidance for Purchase and Investment Agreements

CERSPA Initiative. *Certified Emissions Reductions Sale and Purchase Agreement (CERSPA Template).* Version 2.0, http://www.cerspa.com, 2009.

> *The Certified Emission Reductions Sale and Purchase Agreement (CERSPA) is a free, open-source contract template for buying and selling Certified Emission Reductions (CERs) generated under the Kyoto Protocol's Clean Development Mechanism (CDM). An associated Guidance Document explains the terms contained in the CERSPA and provides alternate clauses that can be tailored to different transactions.*

Hawkins, S. et al. 2010. *Contracting for Forest Carbon: Elements of a Model Forest Carbon Purchase Agreement.* Forest Trends: Washington, DC. Available at: http://forest-trends.org/publication_details.php?publicationID=2558.

Katoomba Group. *Katoomba Group-Legal Initiative: Online PES Contract Management Center.* http://www.katoombagroup.org/regions/international/legal_contracts.php.

A selection of template ERPAs developed for use under the CDM are available at: http://www.katoombagroup.org/regions/international/legal_contracts_cdm.php.

6. Approvals, Validation, and Registration

Project proponents must ensure that all required documentation, permits, approvals, and agreements are firmly in place as the project moves beyond the preceding design and development steps. This includes documentation mentioned below for potential formal host-country approval and for the validation process. It also includes any other local or national permits that may be needed and which are not linked to the carbon component of the project (e.g., taxes, operational permits, approved EIAs – see Section 2.6). Failing to have all of the necessary permits in place, on either the carbon

Though voluntary market standards may not require formal government approval, official endorsement can provide confidence to investors.

standard or national regulatory level, may block the implementation of the entire project and, consequently, create significant investment risks. Furthermore, any internal contractual arrangements (e.g., on financial management, revenue distribution, transfer of carbon rights, and implementation roles and responsibilities) must be finalized.

6.1 Host Country Approval

Ongoing engagement with host country regulatory authorities is an important project development activity (Section 2.9). Good government relations and awareness of regulatory developments will be helpful for every carbon project, even voluntary ones.

CDM projects require a formal Letter of Approval (LoA) from the Designated National Authority in order to be registered and generate carbon credits. This LoA needs to state that the project complies with the host country's criteria defining sustainable development. The process and requirements for securing this LoA vary country-by-country and should be identified as early as possible in order to avoid lengthy delays in generating carbon revenues. See Baker & McKenzie's CDM Rulebook (Box 2) for detailed guidance.

Neither the VCS nor the CCB Standards require a formal government approval. A firm signal of government endorsement, however, can be critically important for many pre-compliance buyers or investors in the voluntary market. Such endorsement reduces the risk of any later regulatory conflicts or delays in obtaining approvals that may become necessary in a rapidly evolving legal environment for forest carbon activities.

6.2 Stakeholder Consultation

Local stakeholder input is usually critical to the success of forest-based carbon projects. It should be undertaken from early stages of project conception and throughout the process of defining project activities and assessing feasibility, i.e., Steps 1-4, 2.2, and 2.5. It is also a requirement of key standards, although they differ in their formal demands:

- Formal stakeholder consultation and public comment is required under the CDM. Prior to validation the proponents must invite local stakeholder comments and the project must be presented "in a manner which allows the local stakeholders to understand the project activity" and providing them with a "reasonable time" for comments (CDM Executive Board 2003, 2b). There is limited guidance provided by the CDM on how to conduct local stakeholder consultation; however, some host countries define certain minimum standards that must be met. In the absence of specific guidelines, international best practice should be followed.
- Stakeholder consultation is "encouraged," but not required, under the VCS. However, this is evaluated as part of the risk assessment and affects the volume of credits that need to be set aside in the risk buffer (i.e., there are strong financial incentives for conducting this process properly).
- Stakeholder consultation is a key CCB requirement and forms part of several criteria including participation in project design and goals, communication during the public comment period (see Section 6.3), and review of the monitoring plan.

The CCB Standards also can be referenced for good practice even for projects seeking VCS or CDM certification alone. For example, they indicate that consultations should employ socially and culturally appropriate methods and be gender and inter-generationally inclusive. Stakeholders should be able to raise concerns about project design and state desired outcomes during project development, and they should continue to provide input during implementation (CCBA 2008, 17).

In addition, public comment – through posting of project documents on the standard's website – is a required step during the CDM and CCB validation phase (see below).

6.3 Validation

Validation is the process whereby an independent accredited auditor reviews the project documentation and design in order to certify that it meets the criteria and rules of the respective standard and applicable methodology. Validation makes a project eligible to generate carbon credits and is necessary to be formally accepted and registered under the respective standard. This process will typically comprise a period of desk review, public comment,[29] site visits, preparation of a draft validation report, requests for additional information (Clarification Requests) or adjustments to project design, description, or analyses (Corrective Action Requests), before a final report is issued by the auditor. This report will be made publicly available on the CDM or VCS Registry website.

Similarly, the CCB validation audit, as part of an add-on certification in addition to CDM or VCS, will result in a draft report including indications of any data gaps or failing criteria that are not met. The project proponent then has up to 6 months to address and remedy these issues before the auditor will prepare a final report, which will be made publicly available prior to certification.[30]

Validation is conducted by an audit team employed by an entity[31] accredited under the chosen standard for the specific project activity scope (e.g., AR under CDM, AFOLU under VCS). It is the responsibility of the project proponent to identify, contract, and pay the validator. There has frequently been a bottleneck for project development at this stage due to a relative shortage of accredited validators, particularly those with forestry experience. Therefore, it is recommended to begin planning for validation by identifying and contracting auditors at least 3 months in advance of the planned validation start date.

Under the CDM, the final decision on whether to register the project will rest with the CDM Executive Board (see below). The CDM Rulebook (Box 2) provides probably the most systematic information regarding the process of validation, verification, and issuance under that standard.[32] The process is outlined for the VCS in the Section 4.3 of the *VCS Program Guide.*[33]

Common pitfalls during validation, and tips to avoid them, are described in Box 16. Validation and verification are a complex and sensitive process, and it may be a valuable exercise for project proponents to do a test run prior to the formal audit. This can avoid clarification and correction requests, thereby saving time and effort later, and it lowers the risk of failing this step. Project proponents may also wish to consult the CDM Validation and Verification Manual,[34] which establishes requirements for validators, to get a sense of what these will be looking for.

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[29] CDM PDDs must be made publicly available for a 45-day public comment period as part of the validation process (UNFCCC, 5/CMP 1., paragraph 15.c.). The VCS has no formal requirement for public comment. However, project documents will be publicly posted at the time of registration.

[30] CCB Standards also involve a public comment period during which the Project Design Document (or equivalent) will be posted online for 30 days.

[31] Known as a Designated Operational Entity (DOE) under the CDM, or a "validation/verification body" under VCS.

[32] Additional valuable guidance can be found in Pearson, et al. (2009, 37).

[33] Available at: http://v-c-s.org/sites/v-c-s.org/files/VCS%20Program%20Guide%2C%20v3.0_2.pdf.

[34] Available at: http://cdm.unfccc.int/Reference/Manuals/accr_man01.pdf.

Box 15. Finding and Choosing a Validator or Verifier

There are a growing number of accredited entities available for validation and verification under different carbon standards. Under the VCS, validation and verification may be conducted by the same body, while for large-scale CDM projects these must be conducted by separate entities. It is advisable for project proponents to request and compare offers from several different potential auditors. Some key points to take into consideration are:

- *Experience and expertise of the proposed audit team*. Developers should ensure that the proposed team has previous experience in the actual project types and methodologies.
- *Scope of proposed work*. The proposal should cover, in detail, all the activities to be carried out by the auditors and the level of assurance of the validation.
- *Proposed timeline*. The auditor proposal should include a well-defined timeline for each activity and expected time for completing the validation report. There may be options for fast-tracking, and contractual penalties should be considered in the case of severe delays.
- *Pricing*. Prices may vary considerably from one auditor to another, depending on their quality, experience, availability, and local presence. Price should, however, not be the only factor to consider when selecting the right entity.
- *Local/regional presence.* It should be confirmed if the auditor company maintains a presence in the country or region where the project is located. Often, the communication with auditors is more efficient if this is the case.

CDM: A list of accredited auditors, known in the CDM as Designated Operational Entities (DOEs), can be found at http://cdm.unfccc.int/DOE/list/index.html. Note that not all DOEs are accredited for the AR sector.

VCS: Validators and verifiers accredited under certain other schemes, such as the CDM, can be used in the VCS. Not all validators/verifiers are accredited for the AFOLU sector. A list of validators and verifiers for different project scopes can be found at:
https://vcsprojectdatabase1.apx.com/myModule/rpt/myrpt.asp?r=208.

CCB: Approved auditors for application of the CCB Standards can be found through:
http://www.climate-standards.org/standards/using.html.

6.3.1 Timing of Validation and Risk Assessment

Under both the VCS and the CDM, validation can take place before project implementation actually begins, although this is not mandatory. Validation, in principle, may be postponed until after the start date of project activities.[35] This makes forestry projects an exception to the general rules for the CDM (in other sectors, carbon credits can only be generated for GHG benefits created after the start of validation; see CDM Executive Board 2005, paragraph 64). Under the VCS, validation may even be combined with the first verification event and conducted by the same third-party auditor, providing for costs savings.

Delaying validation until after project start allows project activities to begin carrying out project activities and to gather information for adjustments to the project design, the monitoring plan, and other aspects contained in the PDD, before such aspects are fixed. Although some changes are possible after registration, under the CDM this entails

[35] The starting date of the project under the CDM is defined as the earliest point at which any implementation or "real action" on the project (such as signing of contracts, committing funds) takes place (CDM Executive Board 2009), and under VCS as the "date on which the project began generating GHG emission reductions or removals" (VCS, *VCS Standard*, 2011).

re-approval by the Executive Board, adding another layer of complexity to the process. It is therefore advisable to be very certain about the project design and monitoring plan before validation begins.

On the other hand, delaying validation also means that eligibility criteria and methodology requirements that the project needs to meet may change, and this can creating significant risks. Similarly, carbon revenues from ongoing activities may be endangered if GHG reductions cannot be demonstrated because the monitoring plan is not accepted by the validator. If project activities begin prior to validation it is extremely important to document thoroughly why the expectation of carbon revenues is essential to project investment and implementation in order to be able to comply with additionality criteria.

Apart from these aspects, early validation may serve as an important signal to investors and other stakeholders because successfully passing this step shows that the project is credible and carries reduced risks, given that its eligibility to earn carbon credits has been confirmed. Finally, it may be prudent to schedule validation early on, considering that this has been a significant bottleneck for CDM projects, often taking over one year.

Validation under CDM or VCS may usefully be combined with CCB validation, especially if the chosen auditor is accredited under both standards

Box 16. Advice for Project Developers: Preparing for and Managing Validation and Verification*

- Support all assumptions, arguments, data, and parameter selections with documented and verifiable evidence.
- Avoid unnecessarily repeating things in the PDD. This makes the PDD shorter and reduces the risk of introducing internal contradictions. However, note that the CDM requirements for completing the PDD form require a certain amount of repetition.
- Double-check the applicability conditions of the chosen methodology. For AR projects, more than one methodology may be applicable, and it usually makes sense to choose the "easiest" option requiring the least monitoring parameters.
- Document clearly in the PDD how each step of the methodology (and/or tools) has been followed. If steps are not applicable, explain why, and if a number of steps have been merged in one calculation/paragraph, say so. Likewise, label every equation in accompanying Excel spreadsheets with the number or step of the methodology it represents.
- Ensure that the project meets all the methodology requirements and eligibility rules before embarking on a validation. Under the VCS, deviations from a methodology can be accepted by the validator if it can be proven that they do not undermine the conservativeness of the approach, but under the CDM, any deviation, however minor, must be approved by the Executive Board (and there may be a cost involved of submitting these requests via a DOE).
- Conduct a quality check (performed by someone other than the person who prepared the PDD) to review the correct application of the methodology, evidence supporting additionality argument and emission reduction calculations, and make sure these are consistent throughout the document. A checklist can help to carry out this quality check.
- Provide any emission reduction calculations in a clearly presented and traceable spreadsheet. Ask a peer not familiar with the project to check calculations. Mistakes due to incorrect formulas, illogical flows of data, and erroneous units are common.
- For VCS validation, seek confirmation that non-permanence risk and market leakage assessments have been done correctly.

- For AR CDM validation, double-check land eligibility and precise documentation of project boundaries. Historical remote-sensing imagery may be difficult to align with the applicable (or host-country) forest definition. In addition, all project areas shall be subject to reforestation, documented by a management plan. Boundaries need to be carefully delineated with GPS and starting conditions (including biomass measurements) documented before project implementation.
- Confirm that the monitoring plan accurately reflects the monitoring systems and processes designed and applied in practice in the project, in addition to following the methodology exactly. Often, changes during the project design are not reflected in the final PDD. Note that many parameters may be fixed at validation and cannot change thereafter, though VCS Version 3 does allow deviations in procedures for monitoring (not eligibility or quantification of GHG benefits) if these are conservative and remain in compliance with the methodology.
- Standard Operating Procedures must have been defined for the major monitoring activities. Sample plots must have been placed following an unbiased approach and must be sufficient to meet required levels of accuracy and precision.
- A full data trail must be clearly established and transparent. The verification bodies must be able to follow the data through the operational, business, and accounting system over project lifetimes of two or more decades and multiple staff changes. The more robust and transparent the data management system, the less time the auditing body will need to review data, reducing costs.

6.4 Registration

Following successful validation, registration is the point at which the project is formally recognized as eligible to generate credits under the relevant carbon standard. This is therefore an important milestone which generates significant visibility and credibility for any project. However, validation and registration do not yet result in the issuance of credits, nor do they demonstrate the viability and effectiveness of a project. This only occurs once the project has begun to generate actual carbon benefits, and once these have been *verified* and *issued* (see below).

Under the CDM, achieving project registration is another step that has, in some cases, led to more project delays. The CDM Executive Board has the right to refuse to register a project even once it has been validated by an accredited auditor, though this is relatively rare, or it may issue review requests that can take some time to resolve. Registration can be requested only once the final validation report is issued by the auditor and submitted to the CDM Executive Board, and requires that host-country approval has been provided. Large-scale projects must pay a one-time registration fee, calculated based on the expected average annual net GHG removals from the project over its crediting period,[36] unless they are based in Least Developed Countries[37] (see Baker & McKenzie's CDM Rulebook for further details).

In contrast, registration represents less of a hurdle and is more streamlined under the VCS. Registration is only formally required at the time where project proponents request issuance of credits based on verification results. It consists of a submission of all the required documentation by the project proponent and a completeness check

[36] Registration fees are currently set at USD 0.10 per expected average annual net GHG removals by sinks for the first 15,000 tCO_2e, and USD 0.20 per tCO_2e for any amount in excess of 15,000 tCO_2e. No registration fees are assessed for CDM A/R projects with GHG removals over the crediting period below 15,000 tCO_2e (EB 36, Annex 21, paragraph 3).

[37] Based on the status of the country on the date of the publication of the request for issuance (CDM Executive Board 2010, *EB 52, Annex 53,* paragraph 8).

conducted by the approved VCS Registry. However, earlier registration can provide valuable visibility and certainty to the project, and can be done once the project is validated. Full information on the process is available in the VCS document, *Registration and Issuance Process* (2011). Note that process guidance has been updated as part of the VCS Version 3 release (see Box 2). In brief:

- The project proponent must open an account in one of the approved VCS registries (currently these are APX Inc., Caisse de Dépôts, and Markit). This may occur even prior to validation but at the latest for project registration and carbon credit issuance.
- The project proponent submits to VCS registry administrator the project documentation, including among other things, the PDD, the validation report and validation statement, Proof of Right and Project Proponent Registration Representation.
- The VCS registry administrator conducts a completeness check on the submitted documentation. If all documents are complete, the project is listed as registered on the VCS database[38] and available for public view.

The VCS registries charge fees for creating a registry account (roughly similar to VCS issuance fees) but may allow for special fees for charitable organizations or small projects.

7. Implementation and Monitoring

7.1 Implementation

Implementation of project activities – planting trees, avoiding deforestation, improving forest management – may begin at any point prior to validation (and registration), so its placement at this point in the "step-by-step" framework is somewhat arbitrary. However, significant investment and activity on the ground may typically await validation to reduce risks and uncertainty (see Section 6.3.1).

The details for project implementation will be unique to each project and span an enormous range of local contexts and project types and scales. It is important to bear in mind that implementation is the phase that will require the vast majority of project effort, resources, and commitment - and this over many years. Therefore, we emphasize again that it is essential to invest time and effort into carefully designing, planning, and reviewing the underlying project activities at every stage in project development.

Implementation must follow exactly what has been laid out in the PDD, and verification will include a review of how the project has followed original design specifications.

7.2 Monitoring

Monitoring is one of the most critical steps in actually realizing carbon value from the project. Without complete and documented monitoring results, there is little verifiable evidence that the project is generating GHG benefits. Poor quality monitoring plans - or poor implementation of monitoring on the ground - can therefore cause significant loss

[38] Accessible at: http://www.vcsprojectdatabase.org/.

of carbon credit revenue. Monitoring of project activities will follow the monitoring plan contained in the PDD, as well as additional social and biodiversity impact monitoring in the case of CCB-certified projects.

Once the project has been validated, project participants should aim to implement all steps and measures contained in the monitoring plan (though certain deviations, discussed below, are permitted under CDM and VCS.) This is a precondition for successful verification and issuance of credits. Monitoring is conducted by project participants or outside contractors and will remain an ongoing activity throughout the project cycle.

Monitoring data, calculations, and results need to be thoroughly documented and presented to third-party auditors during the verification process (see Box 16). Monitoring is required on an ongoing basis, although formal monitoring results only need to be compiled into a monitoring report prior to each intended verification event. However, it can be very useful to compile monitored data more frequently, and, in fact, the frequency of monitoring of each parameter or data item is normally specified in the methodology and in the monitoring plan laid out in the PDD. Regular reassessment of the implementation of the monitoring plan on the ground can provide valuable feedback on project performance and help identify problems early on. In addition, having a reasonably good idea of carbon benefits that have been generated up to a certain point is important when deciding when to invest resources into a costly external verification.

Apart from this, certain project risks and disturbance events may need more frequent monitoring efforts, and any unforeseen carbon stock losses may need to be assessed as soon as possible after the event (see Carbon Stocks Assessment Guidance).

Accurate, transparent, and verifiable data, well thought-through monitoring systems, quality assurance processes, and an efficient overall management approach are all crucial elements to achieving carbon credit issuance. Not following the monitoring plan contained in the validated PDD or not accurately and transparently collecting and storing data is a common hurdle during verification and can jeopardize the issuance of carbon credits (see Box 16). Thus, at the time of validation the project developers must have a very clear and detailed understanding of exactly how monitoring will be done and must be very sure that the monitoring plan is completely feasible and that the designated project participant is competent and able to implement it on the ground.

Under the CDM, changes from the approved monitoring plan are only allowed if these do not reduce the level of accuracy and completeness of monitoring; these can take the form of either revisions[39] (due to changing project conditions) or deviations[40] (to achieve consistency with the monitoring methodology or improve accuracy and completeness) and must be approved by the CDM Executive Board, which can increase the time until verification is complete. If the deviations for a CDM project are considered significant, then the PDD monitoring plan would have to be amended, requiring formal re-approval and, consequently, further delays. Because of the very limited experience with verifications of forestry projects under the CDM, project proponents are advised to be very conservative in their approach and to not count on any flexibility. The pipeline of first projects that are expected to go formally through this process in the coming year will provide lessons learned.

VCS provides a slightly greater degree of flexibility; VCS Version 3 (3.5, 3.6) allows for deviations from the monitoring plan with regards to procedures for monitoring and measurement (e.g., monitoring technology, intervals) if these do not impact the conservativeness of quantification and comply with the applied methodology. These deviations are to be validated at the time of verification. Further guidance on project monitoring is provided in the Carbon Stock Assessment, REDD, AR, Social Impacts, and Biodiversity Impacts guidance documents of this series.

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[39] CDM Executive Board, *Procedures for requests* (2009)

[40] CDM Executive Board, *Procedures for revising monitoring plans* (2009)

8. Verification and Issuance

Verification is the key step preceding actual issuance of carbon credits. During verification, an external auditor reviews and certifies the volume of GHG benefits that the project has actually achieved – and monitored. This audit is based on monitoring results which have been collected by the project developer, based on the monitoring plan validated as part of the PDD.

Under both VCS and CDM, verification involves the following basic steps:

- *Submission of a monitoring report to the third-party auditor*. The project developer prepares a monitoring report summarizing the calculation of emission reductions based on the monitored data during the period for which it is intended to claim carbon credits (i.e., the monitoring period).
- *Site visit by auditor*. After an initial desk review by the auditor, a site visit is conducted. During this site visit the auditor checks that the data records, monitoring systems and equipment, and organization follow the monitoring plan described in the PDD.
- *Draft verification report*. After the site visit the auditor will prepare a draft verification report with their findings, requesting to provide further clarification or correction to the issues identified during the desk review and site visit. The project proponent needs to provide satisfactory responses to the auditor until all the issues raised are cleared.
- *Final verification report and issuance of verification statement*. Once all clarification and correction requests raised by the auditor have been addressed and clarified, the auditor will issue the final verification report. The verification report will indicate the volume of carbon credits generated during the corresponding monitoring period. At this stage, the project will be ready to request issuance of the carbon credits to the corresponding issuance body.

It must be stressed that there is very limited precedent and experience with verification and issuance of forest carbon credits under both the CDM and VCS. No AR credits have yet been issued under the CDM, and only two ARR projects and one REDD project have been verified and issued credits under the VCS. How, for example, deviations from the PDD and monitoring plan may be treated by auditors in practice is still somewhat unclear (although general guidance exists).

Timing of the first verification event is an important decision for project proponents. Each verification event can be costly (~ USD 20,000 - USD 50,000) and will involve additional monitoring effort. However, early verification can help achieve early revenues, with higher prices for issued credits compared to forward sales. Ongoing monitoring (even if only involving a reduced set of key indicators) can help determine trigger points where the volume of offsets generated is likely to justify the expense of external verification. In addition, a first verification round can serve as an important test for the efficiency of a project's monitoring system. Methodologies may also be quite specific as to how frequently some or all parameters in the PDD need to be monitored, limiting the flexibility of project proponents.

Validation and verification can be undertaken by the same accredited entity for VCS and CCB but must be conducted by different auditors under the CDM, except for the case of small-scale projects. Verification and issuance are somewhat different in nature and form under VCS and CDM. Verification plays a quite different role for CCB as the standard does not issue any carbon credits.

- *Under the CDM,* first verification can be undertaken at any time, with subsequent verifications every 5 years. The verifier reviews emissions reductions and formally "certifies" the GHG benefits of the project by communicating to the CDM Executive Board that the project has resulted in a specific volume of emission removals during a defined period of time. This formal communication is termed the "certification report"

and constitutes a request for issuance of carbon credits (UNFCCC, 3/CMP.1, 2005). If the request for issuance is granted by the Executive Board, it then instructs the CDM Registry administrator to issue the CERs.

- *Under the VCS*, the request for issuance is made by the project proponent to an approved VCS Registry, where they must have opened an account (see Section 6.3). Upon successful verification, the verifier will issue a verification report and verification statement (a legal document certifying that the project has resulted in emissions reductions or removals under VCS rules).41 The project proponent then presents a request for registration and issuance including the verification statement and other project documentation to VCS registry administrator. The VCS Registry Administrator will review documentation and then issue Verified Carbon Units (VCUs) into the account of the project proponent. Please note updates to this procedure as part of the 2011 update to VCS Version 3.
- *Under CCB*, a verification audit of the project must be conducted at least every 5 years. The audit verifies that net positive climate community and biodiversity impacts have been achieved according to the project design and monitoring plans. Please note again that CCB does not issue credits, so for CCB verification only results in the continued certification of the project as a "CCB project" adhering to this social and biodiversity-focused standard.

Similar to registration, issuance is a more substantial hurdle under the CDM than it is under the VCS. The CDM Executive Board quite frequently issues review requests, which take time to resolve, and may even reduce the actually-issued volume from what has been documented in the verification report. Issuance requests are much more of a formality under VCS once all the required documentation has been assembled. The VCS Association does not itself receive issuance requests; rather, these are simply instructions to allow registries to perform the necessary steps to issue credits.

The VCS stipulates no mandatory minimum or maximum interval for verifications. However, the buffer pool creates an incentive for renewed verification because this can lead to the release of a part of the credits held back in the buffer pool. If subsequent verification demonstrates that risks have been reduced through successful project implementation, the risk buffer discount may be reduced. If the assessed risk level remains constant, or if it is lower than at the previous verification, 15% of all buffer reserve credits (including newly verified credits) are released every 5 years, upon verification.

Conversely, not seeking renewed verification under the VCS within a maximum of 5 years leads to automatic cancellation of 50% of the project's buffer reserve credits. After 15 years of not submitting a verification report, buffer credits equal to the total number of credits issued to the project are cancelled from the pooled buffer account (on the assumption that there may have been a reversal due to failure or abandonment of the project). See REDD Guidance for more on calculating the risk buffer.

Under the CDM, issuance is contingent on payment of an issuance fee, which is based on the volume of CERs and deducted from registration fees paid previously.[42] Similarly, the VCS Association charges a fee (known as an issuance levy) for every VCU issued in a VCS Registry.[43] In addition, the companies operating the registries charge their own

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41 Validation and verification reports and statements may be combined under the VCS in cases where validation and verification are conducted in a single event.

42 Currently set at USD 0.10 for the first 15,000 tCO_2e, and USD 0.20 for volumes in excess of 15,000 tCO_2e (CDM Executive Board, 2007, paragraph 2).

43 Currently USD 0.10 per VCU.

fees for opening a registry account, issuing VCUs, and transferring VCUs. These fees may vary and should be consulted directly with the VCS registries (see Section 6.4).

Box 17. Carbon Credits: Different Standards, Different Units

Standards vary in the types of carbon credits they generate. Though all are denominated in CO_2-equivalents, they are not fungible (exchangeable).

- VCS: Verified Carbon Units (VCUs)
- CAR: Climate Reserve Tonnes (CRTs)
- American Carbon Registry: Emissions Reductions Tons (ERTs)
- CarbonFix: CO2-certificates (ex-ante or ex-post)
- Plan Vivo: Plan Vivo Certificates
- CCB, ISO, and SocialCarbon: No carbon credits issued
- CDM: Certified Emissions Reductions (tCERs and lCERs for AR projects)

References

BirdLife International. *Monitoring Important Bird Areas: A Global Framework.* Cambridge, UK.: BirdLife International, 2006.

Calmel, Marie, Anne Martinet, Nicolas Grondard, Thomas Dufour, Maxence Rageade, and Anouk Ferté-Devin. *REDD+ at Project Scale: Evaludation and Development Guide.* ONF International, 2010.

CCBA. *Climate, Community & Biodiversity Project Design Standards: Second Edition.* Arlington, VA: CCBA, 2008.

CDM Executive Board. *CDM Glossary of Terms.* Version 5, Bonn, Germany: UNFCCC, 2009.

CDM Executive Board. *Clarifications on validation requirements to be checked by a Designated Operational Entity.* EB 8, Annex 3, Bonn, Germany: UNFCCC, 2003.

CDM Executive Board. *Further guidance related to the registration fee for proposed A/R Clean Development Mechanism project activities.* EB 36, Annex 21, Bali, Indonesia: UNFCCC, 2007.

CDM Executive Board. *Guidelines on the registration fee schedule for proposed project activities under the clean development mechanism.* EB 52/Annex 53, Bonn, Germany: UNFCCC, 2010.

CDM Executive Board. *Procedures for requests for deviation prior to submitting request for issuance (version 1).* EB 49, Annex 26, Bonn, Germany: UNFCCC, 2009.

CDM Executive Board. *Procedures for revising monitoring plans in accordance with paragraph 57 of the modalities and procedures for the CDM (version 2).* EB 49, Annex 28, Bonn, Germany: UNFCCC, 2009.

CDM Executive Board. *Twenty-First Meeting Report.* EB 21, Bonn: UNFCCC, 2005.

Chenost, Clément, Yves-Marie Gardette, Julien Demenois, Nicolas Grondard, Martin Perrier, and Matthieu Wemaere. *Bringing Forest Carbon Projects to the Market.* ONF International, 2010.

Ecosystem Marketplace and Business for Social Responsibility. "Offseting Emissions: A Business Brief on the Voluntary Carbon Market." Washington, DC, 2008.

Ecosystem Marketplace. *State of the Forest Carbon Markets 2011.* Washington, DC: Forest Trends, 2011, forthcoming.

Gardner, T. *Monitoring Forest Biodiversity: Improving Conservation through Ecologically-Respnosible Management.* London: Earthscan, 2010.

Hinostroza, Miriam. *Clean Development Mechanism PDD Guidebook: Navigating the Pitfalls.* Third edition. Roskilde, Denmark: United Nations Environment Program, 2011.

Ingram, J. Carter, et al. *WCS REDD Project Development Guide.* TRANSLINKS, Wildlife Conservation Society and USAID, 2009.

IPCC. *Good Practice Guidance for Land Use, Land-Use Change and Forestry.* Hayama, Japan: Intergovernmental Panel on Climate Change, 2003.

Pearson, Timothy, Sarah Walker, Jessica Chalmers, Erin Swails, and Sandra Brown. *Guidebook for the formulation of Afforestation/Reforestation and bioenergy projects in the regulatory carbon market.* Arlington, VA: Winrock International, 2009.

Peters-Stanley, Molly, Katherine Hamilton, Thomas Marcello, and Milo Sjardin. *Back to the Future: State of the Voluntary Carbon Markets 2011.* Washington, DC: Ecosystem Marketplace and Bloomberg New Energy Finance, 2011.

Price Waterhouse Coopers and World Council for Sustainable Development. "Sustainable Forest Finance Toolkit." Price Waterhouse Coopers. n.d. http://www.pwc.co.uk/pdf/forest_finance_toolkit.pdf (accessed September 8, 2010).

Richards, Michael, and Steve Panfil. *Manual for Social Impact Assessment: Part I. Version 1.* Washington, DC: Forest Trends, Climate, Community & Biodiversity Alliance, Rainforest Alliance and Fauna & flora International, 2010.

Takacs, David. *Forest Carbon -- Law and Property Rights.* Arlington, VA: Conservation International, 2009.

UNFCCC. *16/CMP.1 Land use, land-use change and forestry.* FCCC/KP/CMP/2005/8/Add.3, Montreal: United Nations Framework Convention on Climate Change, 2005.

UNFCCC. *3/CMP.1 Modalities and procedures for a clean development mechanism, as defined in Article 12 of the Kyoto Protocol.* Montreal, Canada: UNFCCC, 2005.

UNFCCC. *5/CMP.1 Modalities and procedures for afforestation and reforestation project activities under the clean development mechanism in the first commitment period of the Kyoto Protocol.* Montreal: UNFCCC, 2005.

VCS. *AFOLU Guidance: Additional guidance for VCS Afforestation, Reforestation, and Revegetation projects using CDM Afforestation/Reforestation Methodologies.* VCS Guidance Document, Washington, DC: Verified Carbon Standard, 2011.

VCS. *AFOLU Non-Permanence Risk Tool.* VCS Version 3 Procedural Document, Washington, DC: Verified Carbon Standard, 2011.

VCS. *Agriculture, Forestry and Other Land Use (AFOLU) Requirements.* VCS Version 3 Requirements Document, Washington, DC: Verified Carbon Standard, 2011.

VCS. *Program Definitions.* VCS Version 3 Requirements Document, Washington DC: Verified Carbon Standard, 2011.

VCS. *Registration and Issuance Process.* VCS Version 3 Procedural Document, Washington, DC: Verified Carbon Standard, 2011.

VCS. *VCS Program Guide.* VCS Version 3 Requirements Document, Washington, DC: Verified Carbon Standard, 2011.

VCS. *VCS Standard.* VCS Version 3 Requirements Document, Washington, DC: Verified Carbon Standard, 2011.

Waage, Sissel, and Katherine Hamilton. *Investing in Forest Carbon: Lessons from the First 20 Years.* Washington, DC: Forest Trends, 2011.

Glossary

For CDM projects, readers may wish to refer to the official definitions provided in the CDM Glossary of Terms, available at: http://cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf.

VCS also provides standard Program Definitions, which are available at: http://www.v-c-s.org/sites/v-c-s.org/files/Program%20Definitions%2C%20v3.0.pdf.

Additionality – The principle of carbon additionality is that a carbon project should only be able to earn credits if the GHG benefits would not have occurred without the revenue (or expected revenue) of carbon credits. The same principle of additionality can be applied to social and biodiversity benefits.

Attribution – The isolation and accurate estimation of the particular contribution of an intervention to an outcome, demonstrating that causality runs from the intervention to the outcome. That is, attribution demonstrates that benefits claimed by the project (usually *co-benefits*) have been caused by the project and not another phenomenon.

Baseline – See *reference scenario*.

Biodiversity target – Biodiversity features which the project will target in its efforts to achieve net positive impacts on biodiversity. These will usually comprise High Conservation Values.

Causal model – See *theory of change*.

Co-benefits – Benefits generated by a forest carbon project beyond GHG benefits, especially those relating to social, economic, and biodiversity impacts.

Control – In the context of impact assessment for forest carbon projects, an area that does not experience project interventions but is otherwise similar to the project area. Controls are used to monitor the reference scenario and to demonstrate the attribution of outcomes and impacts to the project.

Counterfactual – The outcome that would have happened had there been no intervention or project – i.e., the final outcome of the reference scenario.

Evaluation –The systematic and objective assessment of an on-going or completed project, program or policy, and its design, implementation, and results.

GHG benefits – Any emissions reductions from reducing carbon losses or emission removals from enhanced carbon sequestration due to the forest carbon project activities.

Impact – The positive and negative, primary and secondary, short- and long-term effects of a forest carbon project. Impacts may be direct or indirect, intended or unintended. Impacts result from a chain of inputs, outputs, and outcomes.

Indicator – A measurable variable that reflects, to some degree, a specific monitoring information need, such as the status of a target, change in a threat, or progress toward an objective.

Inputs – The financial, human, and material resources used for a forest carbon project. Most relevant in discussion of outputs, outcomes, and impacts.

Leakage – The geographical displacement of GHG emissions – or social, economic, or biodiversity impacts – that occurs as a result of a forest carbon project outside of the forest carbon area. Leakage assessments must consider adjacent areas as well as areas outside of the project zone.

Measurement, Reporting, and Verification System – A national, subnational, or project-level set of processes and institutions that ensure reliable assessment of GHG benefits associated with real and measurable emission reductions and enhancement of carbon stocks.

Methodology – An approved set of procedures for describing project activities and estimating and monitoring GHG emissions.

Monitoring – A continuing process that uses systematic collection of data on specified indicators to provide indications of the extent to which objectives are being achieved.

Multiple-benefit projects – Projects that generate sufficient environmental and social co-benefits, in addition to GHG benefits.

Outcomes – The likely or achieved short-term and medium-term effects of an intervention's *outputs*.

Outputs – The products, capital goods, and services that result from a forest carbon project.

Project area – The land within the carbon project boundary and under the control of the project proponent. (The CCB Standards use distinct language for *project area* and *project zone*.)

Project developer – The individual or organization responsible for the technical development of the project, including the development of the PDD, the assessment of social and biodiversity impacts, monitoring and evaluation, etc. Although the term does not necessarily describe a commercial entity, it often refers to an external company that is contracted to do work on the ground.

Project Design Document – A precise project description that serves as the basis of project evaluation by a carbon standard, commonly abbreviated to PDD. (Alternatively, VCS calls this the "project description," or PD)

Project participant – Under the CDM, a Party (national government) or an entity (public and/or private) authorized by a Party to participate in the CDM, with exclusive rights to determine the distribution of CERs – equivalent to *project proponent* under the VCS. In the voluntary market, project participant is used more loosely to describe any individual or organization directly involved in project implementation.

Project proponent – A legal entity under the VCS defined as the "individual or organization that has overall control and responsibility for the project." There may be more than one project proponent for a given project. Carbon aggregators and buyers cannot be project proponents unless they have the right to all credits to be generated from a project.

Project zone – The project area plus adjacent land, within the boundaries of adjacent communities, which may be affected by the project. (The CCB Standards use distinct language for *project area* and *project zone*.)

REDD – A system that creates incentives and allocates emissions reductions from reducing emissions from deforestation and forest degradation.

REDD+ – A system that creates incentives and allocates emissions reductions from 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; and (e) enhancement of forest carbon stocks.

Reference scenario – An estimated prediction of what will happen in a given area without the project. Reference scenarios may cover land use patterns, forest conditions, social conditions, and/or biodiversity characteristics. Also called the "business-as-usual scenario" and the "baseline."

Starting conditions – The conditions at the beginning of a project intervention. Also called "original conditions" in the CCB Standards and sometimes referred to as the "baseline" in the field of impact assessment. This can, however, lead to confusion, considering that CCB Standards and carbon standards use the same term to describe the "reference scenario" of a forest carbon project.

Theory of change – The hypothesis, as developed by the project design team, of how the project aims to achieve its intended goals and objectives, including social and biodiversity objectives. This is sometimes referred to as the *causal model.*

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