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REDD+ Projects

Snapshots of selected REDD+ project designs - 2013

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The aim of **the IGES Forest Conservation Team** is through strategic research, capacity building and outreach, to contribute to the development of policies and instruments for the sustainable management and use of forest resources.

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Foreword

Parties to the United Nations Framework Convention on Climate Change (UNFCCC) have agreed that the future global mechanism to mitigate climate change will include incentives for developing countries to protect and enhance carbon stocks in their forest, a concept known as REDD+. At the 19th Conference of the Parties (COP) in Warsaw in 2013, they agreed on a set of decisions known as the Warsaw Framework for REDD+ that cover sources of finance, national forest monitoring systems, forest reference emission levels, measuring, reporting and verification (MRV), the drivers of deforestation and forest degradation, and national reporting on REDD+ safeguards. The Warsaw Framework for REDD+ was the culmination of a number of UNFCCC decisions related to REDD+ that began with "Decision 2/CP.13 Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action" agreed by Parties at the 13th COP in Bali in December 2007.

Decision 2/CP.13 encourages support to developing countries to increase their capacity to estimate and reduce greenhouse gas emissions from forests, and encourages Parties to explore a range of actions, identify options and undertake efforts, including demonstration activities, to address the drivers of deforestation. The call for demonstration activities at the 13th COP has spurred the development of numerous REDD+ projects that can now be found in countries in Africa, the Americas and Asia. Many of these projects are targeting voluntary carbon markets. They are potentially important not only for the new financing that they are generating for forest conservation and management, but also because they are generating data, experiences and methodologies that can inform both the development of national REDD+ strategies and architecture and the climate change negotiations.

REDD+ projects are invariably complex. There is a need to extract and present the knowledge and lessons that are being generated by them in a systematic and accessible manner. The IGES publication *REDD+ Projects: Snapshots of selected REDD+ project designs* aims to contribute to meeting this need.

This work is generally based upon outputs produced through a REDD+-related project funded by the Ministry of Environment, Japan.

I would like to congratulate the authors for succeeding in bringing together this report, which I anticipate will be useful to people working on REDD+ issues from local to international levels.

Hideyuki Mori

IGES President

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Executive summary

- The call for demonstration activities at the 13th Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC) led to a rapid proliferation of REDD+ projects, which can now be found sprinkled across parts of Africa, Asia and the Americas. Many of these projects aim to generate carbon offsets and their proliferation is reflected in the growing trade of carbon offsets in the voluntary markets, the increasing volume of REDD+ carbon offsets issued, and the increasing number of REDD+ projects certified using third party standards.
- This report aims to present a succinct overview of selected REDD+ project designs to provide an understanding of their key design elements and to enable comparison between them. The review covers eight projects using a "snapshot" descriptive template that covers key issues for REDD+ projects aiming to generate carbon offsets without adversely affecting the well-being of local communities and biodiversity. This report focuses on designs that have been validated by third party certifiers, as validation indicates that the designs are well advanced and suggests that there is a reasonable likelihood that the projects will be implemented, though there is no certainty to this as project implementation depends on a number of other factors such as financing.
- This report is divided into two parts. This first part introduces the subject of REDD+ projects, provides a brief backgrounder on the UNFCCC decisions that set out the global REDD+ framework as it currently stands, provides an overview of voluntary carbon schemes, explains the snapshot template, and offers several reflections on the evolution of REDD+ projects. The second part of this report provides the snapshots of each project design. A description of what can be considered distinctive features of each project is provided as part of their snapshots.
- We have created the descriptive project template by combining the major requirements of the Verified Carbon Standard (VCS) and the Climate, Community and Biodiversity (CCB) Standards. The template can be used to provide snapshots not only of VCS and CCB Alliance validated project designs, but also designs validated by other schemes, such as the Gold Standard and Plan Vivo, as the issues covered can be considered important for any REDD+ project. The snapshots themselves are created using information that is publically available in the project documents provided on the websites of the voluntary carbon schemes.
- The following reflections on the development of national REDD+ systems and the international negotiations based on observations made when reviewing the project documents to fill in the templates are provided:
    - Integrating existing REDD+ projects with different methodologies under national REDD+ strategies and architecture will be challenging, though new jurisdictional approaches are being developed and their testing will aid understanding of how they can potentially help with integration and scaling up.

- While the number of traded REDD+ carbon offsets has increased rapidly, certified REDD+ projects have only transacted about half of the carbon offsets that they are able to trade. This suggests that the UNFCCC negotiations must lead towards targets for deep emissions cuts to generate the levels of funding required for REDD+ to be significant as an instrument for climate change mitigation.
- There is great opportunity for government officers and others to learn from the development of REDD+ project design processes, but this requires governments to be more involved. Governments can guide and even provide some funding for these projects to maximise their capacity building potential (e.g. the project developers could provide trainings on baseline development, application of participatory rural appraisal methods, etc.).
- A concern with the global REDD+ framework emerging from the UNFCCC negotiations is that there is no basic generic standard to ensure a minimum acceptable level of performance for the respect of the REDD+ safeguards related to governance, communities and indigenous peoples, and biodiversity. In the eight project designs, it is clear that the seven projects that have been validated against the CCB Standards have paid more attention to describing, analysing and setting out actions on community and biodiversity issues than the one project that did not target the CCB Standards. This observation suggests that UNFCCC Parties should consider developing a basic set of standards that each country can tailor to their own circumstances to ensure that the safeguards are respected and addressed.

List of figures and tables

Abbreviations and acronyms

AFOLU	Agriculture, forestry and land use
C	carbon
CCBA	Climate, Community and Biodiversity Alliance
CCB Standards	Climate, Community and Biodiversity Standards
CDM	Clean Development Mechanism
COP	Conference of the Parties (to the UNFCCC)
DBH	diameter at breast height
FAO	Food and Agriculture Organisation of the United Nations
FPIC	free prior informed consent
FSC	Forest Stewardship Council
GHG	greenhouse gas
GPG	Good Practice Guidance
ha	hectares
IFM	Improved Forest Management
IGES	Institute for Global Environmental Strategies
IPCC	Intergovernmental Panel on Climate Change
MRV	monitoring, reporting and verification
NFMS	national forest monitoring system
NGO	non-governmental organisation
PDD	project design document
PRA	participatory rural appraisal
PSP	permanent sample plot
RED	Reducing Emissions from Deforestation
REDD	Reducing Emissions from Deforestation and forest Degradation
REDD+	Reducing Emissions from Deforestation and forest Degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks
REL/RL	forest reference emission level and/or forest reference level
SIS	safeguards information system
tCO2e	tons carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit
VER	Verified Emissions Reduction

PART A: INTRODUCTION, EXPLANATION OF THE PROJECT DESCRIPTIVE TEMPLATE AND REFLECTION

1 Introduction

Climate change is one of the greatest environmental challenges of our time. The 4th Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) informs us that not only is climate change real, but that human activities have been driving climate change through the release of gases into the atmosphere that augment the Earth's natural "greenhouse effect" (IPCC, 2007). 195 countries have joined the United Nations Framework Convention on Climate Change (UNFCCC) in an endeavour to limit global temperature increase to avoid dangerous climate change and to cope with its impacts.

Deforestation contributes to climate change by reducing the potential for forests to act as sinks and stores of carbon and by releasing carbon dioxide and other greenhouse gases (GHGs) into the atmosphere from forest biomass and soils. The IPCC 4th Assessment Report stated that deforestation was responsible for about 17% of emissions from human activities (ibid.). Without taking action to reduce emissions from deforestation, it may be impossible to avoid dangerous levels of climate change (Eliasch, 2008).

Parties to the UNFCCC agreed that the future global mechanism to mitigate climate change will include incentives for developing countries to protect and enhance carbon stocks in their forest – a concept known as REDD+.[1] REDD+ projects can now be found in many developing countries and could provide important information and lessons for the development of national REDD+ systems as well as for the international climate change negotiations. The Institute for Global Environmental Strategies (IGES) has developed a REDD+ online database to make information on REDD+ project designs and selected national REDD+ strategies available in an accessible manner (http://redd-database.iges.or.jp/redd/).

This report aims to present a succinct overview of selected REDD+ project designs to provide an understanding of their key design elements and to enable comparison between them. The review covers eight projects using a "snapshot" descriptive template that covers key issues for REDD+ projects aiming to generate carbon offsets without adversely affecting the well-being of local communities and biodiversity. REDD+ project design documents can be highly complex and run well over one hundred pages in length. The snapshots in this report provide a comprehensive understanding of project designs within eight to 12 pages. Links are provided at the end of each snapshot to the project design documents for readers who wish to know more details about the project designs.

[1] UNFCCC decisions describe REDD+ as actions associated with reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

The eight project designs selected for review were not included in the first IGES publication on REDD+ project designs in 2013, which covered 27 projects. Some of the project designs discussed in the first publication had not progressed beyond a basic conceptual stage and some are unlikely ever to be implemented. This publication focuses on designs that have been validated by third party certifiers, as validation indicates that the designs are well advanced and suggest that there is a reasonable likelihood that the projects will be implemented, though of course there is no certainty to this as project implementation depends on a number of other factors such as financing. Table 1 lists the projects covered in this review.

Table 1: Projects covered by the review

Project name
The Kasigau Corridor REDD Project Phase II – The Community Ranches
Kariba REDD+ Project
REDD Project in Brazil Nut Concessions in Madre De Dios
Mai Ndombe REDD+ Project
Cordillera Azul National Park REDD Project
Florestal Santa Maria Project
ADPML Portel-Pará REDD Project
RMDLT Portel-Para REDD Project

This report is divided into two parts. This first part introduces the subject of REDD+ projects, provides a brief backgrounder on the UNFCCC decisions that set out the global REDD+ framework as it currently stands, provides an overview of voluntary carbon schemes, explains the snapshot template, and offers several reflections on the evolution of REDD+ projects. The second part of this report provides the snapshots of each project design. A description of what can be considered distinctive features of each project is provided as part of their snapshots.

2 Fleshing out the global REDD+ framework

Since the concept of reducing emissions from deforestation was first introduced to the agenda of the Conference of the Parties (COP) to the UNFCCC at its 11th session in Montreal in 2005, negotiations on a global REDD+ mechanism have witnessed relatively continuous progress. Decision 2/CP.13, agreed at the 13th COP in Bali in 2007, encouraged Parties to explore a range of actions, identify options and undertake efforts, including demonstration activities, to address the drivers of deforestation relevant to their national circumstances, with a view to reducing emissions from deforestation and forest degradation and thus enhancing forest carbon stocks through the sustainable management of forests.

The 16th COP in 2010 in Cancún was particularly important for the REDD+ negotiations. Decision 1/CP.16 requested developing countries intending to undertake REDD+ activities to develop (i) a national strategy or action plan, (ii) a national forest reference emission level and/or forest reference level (REL/RL) or, if appropriate, as an interim measure, subnational REL/RL, (iii) a robust and transparent national forest monitoring system (NFMS) for the monitoring and reporting of REDD+ activities, with, if appropriate, subnational monitoring and reporting as an interim measure, and (iv) a system for providing information on how

the safeguards referred to in Appendix I of the Decision are being addressed and respected throughout the implementation of REDD+ activities. Developing countries intending to implement REDD+ activities were also requested, when developing and implementing their national strategies or action plans, to address, inter alia, the drivers of deforestation and forest degradation, land tenure issues, forest governance issues, gender considerations and the safeguards. Parties agreed to seven safeguards for REDD+ activities: Consistency with objectives of national forest programmes and relevant international conventions and agreements; Transparent and effective national forest governance structures; Respect for the knowledge and rights of indigenous people and members of local communities; Full and effective participation of relevant stakeholders, particularly indigenous peoples and local communities; Conservation of natural forests and biological diversity and enhancement of other social and environmental benefits; Actions to address the risks of reversals; Actions to reduce the displacement of emissions.

The 17th COP in Durban in 2011 saw some progress on guidance related to modalities for REL/RL and the safeguards information systems (SIS). Parties agreed that developing countries should update their forest REL/RL periodically, taking into account new knowledge, new trends and any modification of scope and methodologies. Guidelines for submissions of information on RELs/RLs were also adopted. Agreement was also reached that developing countries should periodically provide a summary of information on safeguards via national communications (2/CP.17). On the difficult issue of financing, parties agreed that results-based finance provided to developing countries that is new, additional and predictable could come from a wide variety of sources - public and private, as well as bilateral and multilateral, including alternative sources (2/CP.17).

At the most recent COP in December 2013 in Warsaw, Parties built on these earlier decisions in agreeing to a set of new decisions known collectively as the Warsaw Framework for REDD+. The decisions adopted aim to provide guidance to ensure real, long-term emissions reductions from REDD+ activities, the foundations for transparency and integrity of REDD+ actions, and clarify ways to finance relevant activities and improve the coordination of support. Separate decisions were reached on: Addressing the drivers of deforestation and forest degradation; Modalities for national forest monitoring systems; Guidelines and procedures for the technical assessment of submissions from Parties on proposed RELs/RLs; Modalities for measuring, reporting and verifying; Coordination of support for the implementation of activities in relation to mitigation actions in the forest sector by developing countries, including institutional arrangements; The timing and the frequency of presentations of the summary of information on how all the safeguards referred to in decision 1/CP.16, Appendix I, are being addressed and respected.

3 Proliferation of REDD+ projects

Decision 2/CP.13 Reducing Emissions from Deforestation in Developing Countries:

Approaches to Stimulate Action encourages support to developing countries to increase their capacity to estimate and reduce forest emissions, and encourages parties to explore a range of actions, identify options and undertake efforts, including demonstration activities, to address the drivers of deforestation.

The 13th COP did not provide a precise definition of a demonstration activity, but provided indicative guidance to undertake and evaluate demonstration activities. The indicative guidance reveals that demonstration activities are thought of as activities that (i) reduce emissions from deforestation and/or forest degradation, (ii) provide results-based, demonstrable, transparent, verifiable and consistent estimates of emissions, (iii) use reference emissions levels based on historical emissions and take into account national circumstances to estimate the impact of the activity on emissions, and (iv) in the case of sub-national activities, assess emissions displacement.

The choice of the term "demonstration activity" implies that the activities aim to provide examples of how the concept of reducing emissions from standing forests can be applied. The UNFCCC website states "demonstrations are essential in order to establish a basic stock of practical experiences." [2] Demonstration activities can generate new knowledge and ideas, and Parties have been encouraged to share information on their activities through the UNFCCC REDD web platform. Demonstration activities could be particularly important in countries where proof of concept is needed to provide confidence that activities to protect or enhance forest carbon stocks can provide comparable benefits to alternative land use activities.

The call for demonstration activities at the 13th UNFCCC COP led to a rapid proliferation of REDD+ projects, which can now be found sprinkled across parts of Africa, Asia and the Americas. Many of these projects aim to generate carbon offsets and their proliferation is reflected in the trade of carbon offsets in the voluntary markets, the volume of REDD+ carbon offsets issued, and the number of projects certified using third party standards. In 2012, forestry and land use projects accounted for 32% of trade in the over-the-counter voluntary carbon markets (Peters-Stanley & Yin, 2013, p. x). Afforestation/Reforestation projects accounted for 12% of transactions; REDD, 9%; and Improved Forest Management, 5% (Peters-Stanley & Yin, 2013, p. xi). Clean cookstove distribution, which is an activity included in some REDD+ project designs, accounted for 8% of transactions (ibid.). REDD projects validated by the Verified Carbon Standard (VCS) that have already issued offsets can potentially generate and transact 9.6 MtCO2e (Peters-Stanley & Yin, 2013, p. 19) annually, while the Climate, Community and Biodiversity Alliance (CCBA) reports that more than 130 projects, 47% of which are REDD+ projects, are using or planning to use its voluntary certification standards, and that these projects would be responsible for annual GHG emissions reductions of over 30 million tons (CCBA, 2013, p. 3).

[2] http://unfccc.int/methods_science/redd/redd_web_platform/items/6679.php, accessed 03/01/2013

4 Voluntary carbon schemes

In the voluntary carbon schemes REDD+ projects are not treated as a single category; rather, they are separated into REDD projects and Improved Forest Management (IFM) projects. IFM projects aim to increase carbon stocks within forests through forest management activities and/or reduce greenhouse gas emissions from forestry activities when compared to business-as-usual forestry practices. Collectively, these two categories can be viewed as constituting the REDD+ projects under voluntary schemes.

Various organisations have set up voluntary carbon schemes that provide third-party standards, methodologies and auditing processes that project developers can use to have their emissions reductions certified. The REDD+ project designs covered in this report are all aiming to generate carbon offsets through voluntary carbon schemes. Carbon offsets from forest projects are mostly traded in the voluntary carbon markets. Unlike compliance markets, voluntary markets are not part of a cap-and-trade system and most carbon offsets are purchased from project-based activities.

There are five basic steps involved in the generation of forest carbon offsets (Fig. 1). Project developers first prepare a project design document (PDD) using standards and a carbon methodology that has been approved by the scheme they are targeting, or they may develop their own methodology and submit this for approval. Auditors recognised by the carbon scheme conduct the validation of the design. The audit process may include procedures for ensuring that the public has the opportunity to provide comments on the proposed project.

The PDD provides an ex ante calculation of expected GHG emission reductions from the REDD+ activities. The actual issuance of credits however, is based on ex poste monitoring of project performance by the project developer and verification of the monitoring by auditors. If the verification audit is successful, tradable carbon offsets are issued through a credit registry; either through an in-house registry, or another registry provider. Registries aim to track credit transactions and ownership, and reduce the risk of credits being sold to more than one buyer.

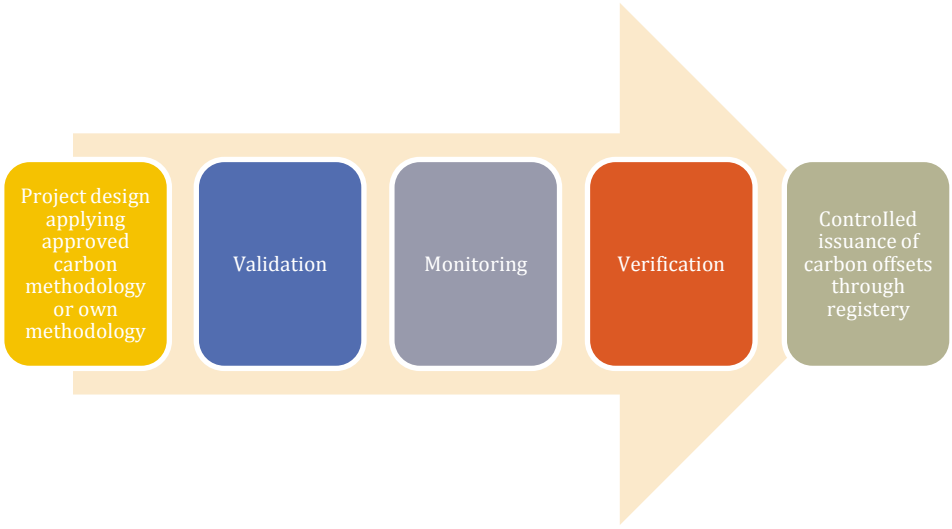

Figure 1: Steps involved in the issuance of forest carbon offsets

In addition to climate benefits, some voluntary schemes also cover environmental and social benefits in their standards. These schemes continue to grow in popularity (Peters-Stanley & Yin, 2013, p. v) .

There are several voluntary carbon schemes that could be considered by REDD+ project developers. Table 2 provides an outline of four schemes, and a more detailed description of each is provided below the table.

Table 2: Key features of voluntary carbon schemes

	Verified Carbon Standard (VCS)	Climate, Community & Biodiversity Alliance (CCBA)	Gold Standard	Plan Vivo
Aim	*Provide quality assurance in voluntary carbon markets that projects are actively reducing emissions	*Guide and evaluate performance of projects on reducing GHG emissions and providing benefits to communities and biodiversity	*Provide good governance in carbon markets and guide best practice	*Support communities to manage their natural resources more sustainably, with a view to generating climate, livelihood and ecosystem benefits
Standards	* Focuses on GHG	* Covers climate,	*Covers GHGs	*Design of Plan

	emission reductions and removals	community and biodiversity impacts, but cannot be used to issue carbon credits *Provides guidance and templates for CCB Standards to be used together with VCS	and sustainable development benefits in local communities	Vivo projects are community-led, but must conform with Plan Vivo Standards
Validation	*Validation conducted by independent, approved auditors *Project developers either use existing VCS methodology or apply to have their own methodology validated	*Validation by independent, approved auditors	*Validation by independent, approved auditors	*Project coordinator checks land management plans developed by community and calculates carbon credits
Verification	*Carbon credits issued after independent verification of project impacts by approved auditor	*Approved auditor verifies project impacts *CCB certification enables the addition of a 'CCB label' to carbon credits issued by VCS	*Approved auditor verifies project impacts	*Payments for carbon credits based on monitoring of project by project coordinator

4.1 Verified Carbon Standard

The Verified Carbon Standard (VCS) claims to be the world's most widely used voluntary GHG reduction program. The VCS was among the first global standards to develop requirements for crediting AFOLU (Agriculture, Forestry and Other Land Use) projects, which include REDD projects. Today VCS is the most widely used standard by AFOLU projects (VCS, 2012).

To generate carbon credits, REDD+ projects must have a methodology for estimating the expected impacts of the project on GHG emissions. Projects applying to the VCS can use a methodology already approved by the VCS or develop their own methodology as part of their project and then have it approved. The VCS methodology approval process

involves the submission of a proposed methodology by a "methodology element developer," a public call for submissions on the proposed methodology through the VCS programme website, and independent expert assessments. Final approval is given by the VCS Association, which manages the programme. While the focus of the VCS is on GHG emissions, it does require project developers to identify potential negative environmental and socio-economic impacts of their projects and takes steps to mitigate these impacts (Shoch, Eaton, & Settelmyer, 2011, p. 15).

VCS issues carbon credits (Verified Carbon Units) only after successful verification of a project's performance in delivering reduced GHG emissions. The verification is conducted independently by companies known as validation/verification bodies whose work is overseen by the VCS. The VCS uses a registry system to control the issuance of credits. In the registry credits are assigned unique serial numbers allowing any project and any credit to be searched for and tracked online.

4.2 Climate, Community & Biodiversity Alliance

The Climate, Community and Biodiversity Alliance (CCBA) is a partnership of international NGOs that was founded in 2003 with a mission to promote land-based carbon activities that credibly mitigate global climate change, improve the well-being and reduce the poverty of local communities, and conserve biodiversity. The CCB Standards thus aim to identify land-based projects that are designed and implemented using best practices to deliver robust and credible greenhouse gas reductions while also delivering net positive benefits to local communities and biodiversity. They can be applied to any land-based carbon project including REDD+ activities, agricultural land management and avoided degradation of non-forest ecosystems.

The CCB Standards must be used through a two-step process of validation and verification. Validation is conducted by independent, approved auditors and aims to demonstrate good project design to generate significant climate, community and biodiversity benefits. Verification of project achievements is also done by independent, approved auditors and enables a 'CCB label' to be used with carbon offsets for the same project verified by other carbon schemes.

4.3 Gold Standard

The Gold Standard was established in 2003 by the World Wide Fund for Nature and claims to be endorsed by 80 non-governmental organisations (NGOs) worldwide. It can be used to certify renewable energy; energy efficiency; waste management; and land use and forest carbon offset projects to ensure that they all demonstrate real and permanent GHG reductions and sustainable development benefits in local communities.

The Gold Standard project certification process consists of nine steps:

Step 1: Identify suitable renewable energy/energy efficient project (though this is being expanded to include land use and forests)[3]

[3] After a consultation process with key stakeholders, the Gold Standard Foundation made the decision to expand its scope to include land use and forests. In late 2011, the

Step 2: Open registry account

Step 3: Local stakeholder consultation

Step 4: Final project design documentation

Step 5: Stakeholder feedback and project implementation

Step 6: Independent auditor reviews and validates project

Step 7: Gold Standard reviews audit before project registration

Step 8: Gold Standard external verification

Step 9: Gold Standard reviews verification before issuance of credits

The Gold Standard Registry controls credits with its web-based software application that creates, tracks and enables the trading of Gold Standard Voluntary Emission Reduction (VER) credits around the world. All Gold Standard VER credits are issued and tracked within the Registry via unique serial numbers.

4.4 Plan Vivo Standards

The Plan Vivo Standards are part of a broader Plan Vivo System, which is a framework for supporting communities to manage their natural resources more sustainably, with a view to generating climate, livelihood and ecosystem benefits. The participants are rural smallholders and communities dependent on natural resources for livelihoods. Activities are implemented on smallholder or community land.

The key elements for Plan Vivo projects are:

- Community-led design

The Plan Vivo project design is community-led. Communities decide which land use activities (e.g. woodlots, agroforestry, forest conservation) will best address threats to local ecosystems and are of interest and value to them. The eligible activities for generating Plan Vivo Certificates are afforestation and agroforestry, forest conservation, restoration, and avoided deforestation.

- Writing 'plan vivos' and quantifying carbon services

Each 'producer' or 'producer group' (where the land is communally owned or managed) writes their own 'plan vivo', or land management plan. Each plan vivo is checked by a project coordinator to ensure it is realistic and in line with technical requirements, and will support the participants' livelihood objectives. Using the project's approved technical specification (which includes a methodology for calculating carbon sequestered or emissions avoided), the carbon services generated from each plan vivo are calculated.

- PES (payments for ecosystem services) agreements

Producers/groups enter into written agreements with the project coordinator, who commits to making staged payments and providing continued technical support.

- Monitoring and payments

Gold Standard Foundation acquired the CarbonFix Standard and announced partnerships with the Forest Stewardship Council (FSC) and Fairtrade International to build upon existing expertise and develop a comprehensive scheme.

The project coordinator monitors plan vivos over time. When participants meet agreed monitoring targets, a payment can be made.

5 Project snapshot template

Project developers draft their project design documents for the voluntary schemes they are targeting. In this report, we use the requirements of the voluntary schemes to create a template that provides a "snapshot" of the project designs. All the project designs covered in this report have been validated by both the VCS and CCBA, with the exception of the Florestal Santa Maria Project, which has only been validated by the VCS.

We have created a descriptive project template by combining the major requirements of the VCS and CCB Standards. The template can be used to provide snapshots not only of VCS and CCBA validated project designs, but also designs validated by other schemes, such as the Gold Standard and Plan Vivo, as the issues covered can be considered important for any REDD+ project.

The project snapshot template is presented in Figure 2 and beneath this an explanation of the template is provided. The explanation first covers key elements of general VCS REDD requirements and REDD methodologies, followed by key elements of the CCB Standards.

The snapshots are created using information that is publically available in the project design documents provided on the websites of the voluntary carbon schemes. The project design documents describe the proposed project, but some details on how the project will be implemented only become available after the design has been validated. This occurs as (i) the project developer may produce a detailed monitoring plan only after project validation, (ii) lessons will be learnt as the project is implemented and adjustments made to reflect these, and (iii) because during verification, auditors may request actions not identified in the project design document (corrective action requests) as a result of project monitoring. The snapshots thus provide a picture of the proposed project at the time of project validation. Data from monitoring and other project documents are included in some of the snapshots, when these provide a more complete picture of the actual project.

The text in the snapshot templates is mostly taken directly from the project design documents, though often abbreviated. Any text written specifically by the authors of this report appears in italics.

Figure 2: Project snapshot template

	Heading	Explanation
Locational factors		
	Location	
	Size	
	Land cover	
	Land use (drivers of forest change)	
Basic project features		
	Objectives	
	Proponent	
	Tenure/Carbon rights	
	Actors involved in project design	
	Upfront financing	
	Start date	
	Crediting period	
Baseline emissions		
	Methodology used	
	Reference area	
	Reference period	
	Stratification of project area	
	Deforestation rate and location	
	Carbon pools	
	Carbon stock changes	
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	
	Net emissions without project	
Project GHG emissions reduction strategy		
	Scope and measures	
	Additionality	
	Leakage avoidance strategy	
	Non-permanence risk mitigation strategy	
With-project emissions		
	Effectiveness of measures	
	Other emissions:	

	Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	
	Leakage	
	Non-permanence risk	
	Ex-ante estimated net greenhouse gas emissions reductions	
	GHG emissions impact monitoring	
Stakeholder identification and engagement		
	Stakeholders identified	
	Identification process	
Full and effective participation		
	Access to information and consultation	
	Participation in design and implementation	
	Anti-discrimination	
	Feedback and grievance redress procedures	
	Worker relations	
Communities		
	Without-project scenario	
	With-project community and other stakeholder scenario	
	Community impact monitoring	
Biodiversity		
	Biodiversity without–project scenario	
	Biodiversity with-project scenario	
	Biodiversity impact monitoring	
Progress		

Validation	
Verification	

Further information

5.1 General VCS REDD requirements and REDD methodologies

The VCS has developed general REDD requirements that apply to all REDD projects and approved REDD methodologies that set out the procedures for estimating GHG emissions in the with- and without-project scenarios. The key elements of the general requirements and methodologies are as follows:[4]

5.1.1 Project area

The project area is the area of the project to which the estimation of total net greenhouse gas emissions reductions from REDD activities will be applied. The VCS requires project developers to use internationally accepted forest definitions, namely the UNFCCC host country forest definitions or the Food and Agriculture Organisation of the United Nations (FAO) forest definitions (Shoch et al., 2011), and requires that REDD activities can only be accounted in land qualifying as forest for a minimum of 10 years prior to the project start date (i.e. the area must be 100% forested and at least 10 years old).

5.1.2 Tenure and carbon rights

The project developer is required to demonstrate tenure rights, including rights to the carbon, within the project area.

5.1.3 Project start date and crediting period

For all AFOLU projects, the VCS defines the start date as the date on which activities that lead to the generation of GHG emission reductions or removals are implemented, and allows project developers to decide a crediting period between 20 and 100 years for all REDD projects. However, to "pass" the VCS Risk Tool, a REDD project activity must be implemented for at least 30 years, monitored and reported for at least 20 years, and consider risks over at least a 100 year period (Shoch et al., 2011, p. 14).

5.1.4 Baseline emissions estimation

The baseline is the GHG emissions scenario that would occur if the proposed project is

[4] We have excluded IFM from this discussion, but the snapshot template can accommodate IFM projects.

not implemented.[5] For projects dealing with planned deforestation, the baseline can be assessed from permits and planning documents that give details of the planned location and extent of deforestation/degradation. For projects dealing with unplanned deforestation, the baseline scenario needs to be modelled based on historical rates of deforestation/degradation for a reference period and area. As drivers of deforestation/degradation can change over time, the VCS requires that baselines are re-assessed and revalidated every 10 years.

Baselines are calculated from land use and land cover change analysis to provide "activity data", i.e. data on the magnitude (or spatial extent) of human activity resulting in emissions or removals taking place during a given period of time, and carbon stock change assessment to provide "emission factors", i.e. the average emission rate of a given greenhouse gas relatively to a particular land use activity.

Drivers associated with forest change can vary over time and the expected changes must be modelled. Changes in drivers could be associated with the development of new roads, which increases access to the forest, demographic factors, such as population growth and migration, legal changes in land designation and tenure, and increasing scarcity of forests.

Reference period and area

In the case of unplanned deforestation, baselines are calculated not for the project area, but a similar area referred to as the reference area. VCS REDD methodologies provide procedures for determining the size of the reference area and assessing its similarity to the project area, and set requirements for the reference period.

Stratification

Project developers have the option of stratifying the project area into discrete, relatively homogeneous units to improve accuracy and precision of carbon stock and carbon stock change estimates. The homogeneous units may reflect factors that influence vegetation such as soils, elevation and drainage. As usually a project developer will not have inventory data across the forest to identify different strata, strata are usually identified and mapped from vegetation class maps, aerial photographs or high resolution satellite imagery.

Selection of carbon pools

REDD methodologies specify which forest carbon pools must be included in the assessment. Forest carbon pools include aboveground tree biomass; aboveground non-tree woody biomass (e.g. shrubs); belowground tree biomass (coarse roots); litter (forest floor); dead wood (standing and lying dead wood); soil (including peat); and wood products.

REDD methodologies allow for simplification of carbon accounting. They permit the omission of pools and emissions sources when the combined increase in project emissions they represent is deemed insignificant relevant to the total GHG emission reductions from the project. The VCS sets this threshold at less than 5%. REDD methodologies also allow for a conservative approach in which a pool or source can be ignored when its exclusion results in a conservative estimate of the net GHG emission

[5] The CCB Standards refer to this as the without-project land use scenario.

reductions from the project activities. The trade-off is that fewer credits will be secured by the project, but that the accounting procedures will be much simplified.

Estimation of carbon stocks

REDD methodologies provide procedures to estimate forest carbon stocks in the project area. These include the use of IPCC defaults or conservative estimates from the literature, the use of measurements from forests outside but representative of the project area, forest inventory, and the use of high-resolution aerial imagery. The data is used to estimate emissions in the baseline and with project scenarios.

Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.

REDD methodologies may require accounting of CO_2 from activities not directly associated with land use change (e.g. fossil fuel combustion), and non-CO_2 GHGs, such as nitrous oxide (N_2O) emissions from the application of nitrogen fertiliser and methane (CH4) emissions from the burning of forest to clear land, or where land use in the baseline involves rice or livestock management. These rules apply to both the baseline and the with-project scenario. The methodologies provide minimum thresholds for deciding whether these sources should be included in the calculations or not.

5.1.5 With-project emissions estimation

Scope and measures

Each VCS methodology has its own eligibility criteria, which sets the broad scope of the project. For example, to be eligible to use VCS VM0007 REDD Methodology Modules, projects must avoid planned deforestation/planned degradation in cases where the land is legally documented to be converted, or avoid degradation if the forest is expected to degrade through fuel wood extraction or charcoal production.

Project developers usually set out a range of measure to protect and/or enhance forest carbon stocks and these may target one or several drivers of forest change. For example, in a locality where a forest is being degraded by a logging company with concession rights and by local communities who are removing fuel wood from the forest without legal rights and above sustainable rates, the project developer might propose a variety of countermeasures, such as raising forest management performance to comply with independent certification standards, assisting communities to meet their fuel wood needs through agroforestry, and reducing demand for fuel wood by providing them with fuel efficient stoves.

Additionality

Additionality is a test that must be met to ensure the project would not have been implemented without the expected revenue from the carbon markets. The challenge for the project developer is to provide a counterfactual argument, i.e. what would otherwise happen without the project (the baseline) to ensure that the project provides GHG emissions reductions that would not have otherwise occurred. Types of additionality can include legal or regulatory additionality (i.e. that the activity is not a legal requirement), common practice additionality (i.e. the proposed activities are not common in the geographical area), and financial

additionality (i.e. the project would not be financially attractive without the carbon revenues) (McFarland, 2011). The approach specified by VCS to prove additionality is a step-wise process involving (i) identification of alternative land use scenarios, (ii) investment or barriers analysis, and (iii) common practice analysis (Shoch et al., 2011, p. 14).

Effectiveness

To calculate the benefits of the project's proposed measures in terms of reduced GHG emissions requires an assumption on the expected effectiveness of the activities. For example, the project developer may state that forest certification is expected to decrease degradation by 80% and the agroforestry and fuel efficient stoves to totally stop the extraction of fuel wood from the forest by the local communities. REDD methodologies provide little guidance on how to make such assumptions, as project achievements are dealt with ex poste during verification.

Leakage

Leakage, or emissions displacement, occurs when the REDD+ activities to protect or enhance forest carbon stocks result in GHG emissions from areas outside the project. This could occur through a shifting of the agents of deforestation or degradation to other locations ("activity shifting") or through market effects. When projects avoid planned deforestation, monitoring of other forests under control of the agent is required. When projects avoid unplanned deforestation, the project developer is required to identify and monitor a leakage area, i.e. the area where the deforestation agents are most likely to shift to. The baseline in the leakage area must be determined in order to track the impacts of leakage. Methodologies may also provide procedures to estimate leakage associated with future immigrants who would have settled in the project area but, because of project activities, will end up settling elsewhere. REDD methodologies also provide procedures for market leakage. Market leakage occurs when project activities result in a reduction of the supply of forest products to the market, which leads to an increase in supply from other areas.

Projects can also have a "positive leakage" effect by, for example, encouraging sustainable use and conservation of forests around the project area through demonstration of good forest management practices. Positive leakage is not credited by the VCS.

Non-permanence risk

In REDD+ projects, non-permanence risk refers to the risk that "GHG emissions in the project area will exceed the baseline rate of GHG emissions in future periods after credits have already been issued for earlier periods" (Shoch et al., 2011, pp. 15, 16). The VCS requires that all AFOLU projects place a proportion of the certified carbon offsets in a "buffer" account as insurance against non-permanence. The VCS provides a non-permanence risk assessment tool that all project developers must use to assess the type and magnitude of the risk.

Estimation of uncertainty of project activities

REDD+ methodologies require that uncertainty is quantified and accounted for when statistical methods such as sampling are used to measure forest cover, carbon pools and GHG emission sources.

The VCS requires confidence reductions when the uncertainty exceeds +/-15% of the mean at the 95% confidence level or +/-10% of the mean at the 90% confidence level (Shoch et al., 2011, p. 23). Uncertainty means a reduction in the credits issued, which provides an incentive to increase the precision and accuracy of project measurement and accounting.

Monitoring

REDD+ methodologies set out requirements for monitoring that specify the items to be monitored, usually forest cover, carbon pools, and GHG emission sources, procedures for measurement and managing quality assurance and quality control (Shoch et al., 2011, p. 23).

5.2 CCB Standards: Stakeholder, community and biodiversity criteria

Below we summarise the main requirements of the CCB Standards for stakeholder engagement, community and biodiversity, and omit the climate component of the Standards. The CCB Standards are comprised of 20 discrete criteria, including 17 required criteria and three optional Gold Level criteria. We only discuss the required criteria below. The discussion is limited to the immediate content of the CCB Standards and does not include discussion of any manuals or tools that the Standards refer project developers and auditors to.

5.2.1 Project zone and area

The CCB Standards define the project zone as the area encompassing the project area in which project activities that directly affect land and associated resources are implemented. The project area is defined as the area in which project activities aim to generate net climate benefits, which aligns with the VCS definition.

5.2.2 Objectives

The project developer is required to explicitly state the anticipated social and environmental impacts in the project design.

5.2.3 Stakeholder identification and engagement

Project developers are required to explain their stakeholder identification process and to explain how full and effective participation of communities and other stakeholders will be arranged in the project. The requirements extend to:

- Access to information
- Consultation
- Participation in decision-making and implementation
- Feedback and grievance redress procedures
- Worker relations.

5.2.4 Activities

Project designs must explain how the proposed project activities are expected to generate the anticipated environmental and community impacts.

5.2.5 Additionality

The same requirement of additionality for the anticipated GHG emission reductions also applies to anticipated community and biodiversity benefits. Project designs must explain how anticipated community and biodiversity benefits would not be

generated without the project, through analysis of financial, technological, institutional or capacity barriers.

5.2.6 Management capacity

The CCB Standards require that the project has adequate human and financial resources for effective implementation, and this extends to providing assurance that the project developer and any of the other project entities are not involved in any form of corruption.

5.2.7 Legal Status and property rights

The project must recognise, respect and support rights to lands, territories and resources, including the statutory and customary rights of indigenous peoples and others within communities and other stakeholders. Free, prior and informed consent of relevant property rights holders must be obtained at every stage of the project. If conflicts over land have occurred in the past 20 years, they must be documented and any measures proposed to solve disputes described.

5.2.8 Without-project community scenario

Descriptions must be provided of community characteristics, including social, economic and cultural diversity, and the differences and interactions between the community groups in the project zone. Indicators to explain the current well-being of communities and any expected changes to them in the without-project scenario need to be described. The project design must explain whether the project zone holds high conservation values important to community well-being, and how these are likely to change in the without-project scenario. Definitions/criteria of "well-being", "community characteristics", and "high conservation values" are provided.

5.2.9 With-project community and other stakeholder impacts

Appropriate methodologies to assess community impacts must be used and explained. The project design must describe any measures needed to avoid negative community impacts and how it will maintain and enhance high conservation value attributes. The project design must also explain how the net well-being impacts of the project are positive for all identified community groups. Potential positive and negative impacts on other stakeholders and planned actions to mitigate negative impacts must be described.

5.2.10 Community impact monitoring

Project designs must include a plan for monitoring community impacts, including the variables to be monitored (suggested variables include income, employment generation, health, market access, schools, food security and education), the stakeholders to be monitored, the types of measurements, the sampling methods, and the frequency of monitoring and reporting. Evaluation by the affected communities themselves is also required.

5.2.11 Biodiversity without–project scenario

Original biodiversity conditions in the project zone and expected changes under the without-project land use scenario must be described. The assessment must include high conservation values and their qualifying attributes, and areas that need to be managed to maintain or enhance these values. Rare ecosystems or associations of species must be included in the assessment. Habitat availability, landscape connectivity, and threatened species must be assessed in the without-project scenario.

5.2.12 With-project biodiversity impacts

The project must generate net positive impacts on biodiversity in the project zone, maintain or enhance high conservation values important for biodiversity, use native species, unless otherwise justified, and avoid the use of invasive species and genetically modified organisms. Appropriate methodologies must be used to estimate changes in biodiversity, and proposed actions to mitigate negative impacts and maintain and enhance high conservation values must be described. The design must justify any intended use of fertilizers, chemical pesticides, and biological control agents, and set out a process for managing any waste products from the project. Potential offsite biodiversity impacts outside the project zone, which could arise through the shifting of deforestation agents, must be evaluated and mitigation actions set out.

5.2.13 Biodiversity impact monitoring

The project design must describe how biodiversity impact monitoring will be conducted to assess the changes in biodiversity resulting from project activities within and outside the project zone. The monitoring plan must identify biodiversity variables to be monitored (these could include species abundance; population size, range, trends and diversity; habitat area, quality and diversity; landscape connectivity; and forest fragmentation), the sampling methods, and the frequency of monitoring and reporting. High conservation values significant to biodiversity must be monitored, and the monitoring plan and results must be publicly available.

6 Reflections

In the second part of this report that follows, the project descriptive snapshot template is applied to eight project designs. The discussion below does not go into the details of the individual projects. Rather, it provides a reflection on the development of national REDD+ systems and the international negotiations based on observations made when reviewing the project documents to fill in the templates.

A key distinction between REDD+ projects targeting voluntary markets and UNFCCC decisions related to REDD+ is that UNFCCC Parties have agreed that REDD+ must ultimately be implemented at a national level. This raises questions on how REDD+ projects can be integrated into national REDD+ systems and directs attention at the possible lessons that REDD+ projects might offer for national REDD+ strategies

and MRV architecture, as well as for the negotiations.

- **Integrating REDD+ projects into national REDD+ systems**

The proliferation of REDD+ projects can provide encouragement to countries undertaking REDD+ readiness when these projects demonstrate that they have secured new finance for forest conservation, management or restoration. They also offer lessons on how to develop and apply methodologies to estimate GHG emissions reductions and some may offer lessons on how drivers of deforestation and degradation can be tackled in ways that provide positive social and environmental impacts.

One concern that has been raised is how to integrate the existing REDD+ projects with their different methodologies under national REDD+ MRV architecture and RELs/RLs. New jurisdictional approaches are being developed and can potentially help with integration and scaling up. Two of the REDD+ projects covered in this review, ADPML Portel-Pará REDD Project and RMDLT Portel-Pará REDD Project provide ideas for how jurisdictional approaches can be applied. Both are located adjacent to each other in the northwest of Brazil, were prepared by the same project developer, and share the same approach to baseline development and monitoring. This approach suggests that if baselines and monitoring and reporting systems were established at jurisdiction levels (municipality, district, province, etc.) and the results of REDD+ actions were measured against the jurisdiction level baselines and monitored at the jurisdictional level, consistency would increase and costs would decline.

- **Need for deep emission cuts to incentivise REDD+**

A concern for project developers is how to sell the carbon offsets that their projects generate. While the number of traded REDD+ carbon offsets has increased rapidly, certified REDD projects have only transacted about half of the carbon offsets that they are able to trade (Peters-Stanley, Gonzalez, & Yin, 2013). Without compliance markets it is questionable whether the levels of funding to apply REDD+ actions at a significant scale (in terms of making a significant contribution to climate change mitigation) can be generated. This suggests that the UNFCCC negotiations must lead towards targets for deep emissions cuts to generate the levels of funding required.

- **Organising REDD+ projects for demonstration and capacity building purposes**

While UNFCCC Decision 2/CP.13 called for demonstration activities, most REDD+ projects targeting the voluntary market are not organised for demonstration purposes, i.e. governments are not involved in directing or guiding these projects to extract lessons or build capacity for the purpose of their REDD+ readiness. This can be seen in most of the REDD+ projects reviewed. In some REDD+ projects, governments are not involved beyond permitting and their knowledge of project design and implementation is likely very limited. The potential problems that arise from this lack of engagement include government opposition to projects arising sometime after the project has been designed (though this was not observed in any of the eight projects reviewed) and the fact that the opportunity to fully use

these projects to build awareness and capacity on REDD+ is being lost.

Putting together a REDD+ project design that succeeds in both VCS and CCBA validation is a highly complex undertaking. Typically, coalitions of actors are brought together to design the projects. The expertise required commonly includes detailed knowledge of the voluntary carbon scheme standards and approved methodologies; financial and legal expertise; expertise in remote sensing, geographic information systems, spatial modelling, and forest inventory to establish the baseline and monitor project impacts on GHG emissions and carbon stocks; expertise on the proposed REDD+ activities, e.g. forest and land management activities, livelihoods, local businesses, awareness raising and capacity building, education and health services, etc.; skills in applying stakeholder identification and engagement techniques; skills to conduct socio-economic analysis, including interviewing, focus-group discussions, workshops, etc., and to apply tools associated with participatory rural appraisal; and skills to assess and manage biodiversity. There is thus a tremendous opportunity for government officers and others to learn from the development of REDD+ project designs, but this requires governments to be more involved. The REDD+ project designs reviewed all have capacity building components, but governments can guide and even provide some funding for these projects to maximise their capacity building potential (e.g. the project developers could provide trainings on baseline development, application of participatory rural appraisal methods, etc.).

- **Need for comprehensive standards**

As explained earlier, project developers targeted validation against the VCS and CCB Standards for seven of the eight projects reviewed. While the CCB Standards aim to identify projects using best practices to deliver robust and credible greenhouse gas reductions, they do not validate the actual estimates of reduced emissions and thus cannot issue carbon credits. The VCS, on the other hand, provides validation of the emissions estimates and issues carbon credits on this basis, but cannot provide the same claims as the CCB Standards on community and biodiversity benefits. Dual VCS/CCBA certification is a goal for many voluntary REDD+ projects.[6]

In the eight project designs, it is clear that the projects that have been validated against the CCB Standards have paid more attention to describing, analysing and setting out actions on community and biodiversity issues than the one project that did not target the CCB Standards. Here we make no judgement on whether one project is better than another, but this observation highlights the importance of having comprehensive design standards for REDD+ activities. A concern with the

[6] There may be a financial motivation behind the interest in dual VCS/CCBA certification. Peters-Stanley et al. (2012, p. 32) reported that in 2012 projects certified both by the VCS and CCBA saw an additional average $0.5/tCO2e over the average price for VCS-only certified offsets. However, the interest in dual validation could also be a result of requests to the project developer from buyers, or project proponents aiming to demonstrate high social and environmental performance.

global REDD+ framework emerging from the UNFCCC negotiations is that there is no basic generic standard to ensure a minimum acceptable level of performance for the respect of the REDD+ safeguards related to governance, communities and indigenous peoples, and biodiversity.

7 Summary

This report primarily aims to make information on REDD+ project designs available in a succinct format for analysis and comparison between projects. A descriptive snapshot template has been created that covers key issues that all REDD+ projects aiming to generate real, long-term emissions reductions, without negatively impacting communities, indigenous peoples, governance and biodiversity would have to deal with. The project template is created from key elements of the VCS general requirements and approved REDD methodologies as well as the CCB Standards.

While the negotiations on REDD+ under the UNFCCC have been progressing, the reflection on REDD+ project designs points out a number of issues that need to be addressed. These include providing guidance on how to integrate existing REDD+ projects into national REDD+ systems; making progress towards commitments to deep emission reduction targets to generate significant funding for REDD+ actions; more proactive approaches from governments to maximise the capacity building potential of REDD+ projects; and discussion on the possibility of a generic standard or other approach to ensure a minimum acceptable level of performance in respecting the REDD+ safeguards.

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PART B: REDD+ PROJECT SNAPSHOTS

The Kasigau Corridor REDD Project Phase II – The Community Ranches

Distinctive features

The project proponent, Wildlife Works, has been involved in the project area since 1998 when it began construction of an "eco-factory" that sits on private land adjacent to the project area. In January 2000 Wildlife Works' founder, Mike Korchinsky, purchased the majority of the shares in Rukinga Ranching Company Ltd. from the then colonial owners in order to protect the investment made in the EcoFactory conservation project, because the land was to be sold to a Somali cattle slaughterhouse operator. Wildlife Works then took over financial responsibility for Rukinga Ranch forest monitoring and protection in January 2005. Rukinga has been protected by Wildlife Works as a forest habitat since this time but on a loss-making basis.

The objective of the Kasigau project is to protect in perpetuity those dryland forests that form a wildlife dispersal and migration corridor between Tsavo East and Tsavo West National Parks, to conserve the important biodiversity found in those forests, to provide alternative sustainable development opportunities for the local communities that live adjacent to the forests and to prevent the emissions that would otherwise occur were those dryland forests to be converted to subsistence agriculture using slash and burn methods.

The total area that will be protected is about 200,000 ha. This is a combination of private forested land, community owned group ranches, and community trust lands. In order to manage the complexity of such a large conservation initiative, the project was split into two phases.

The first phase design was validated by the CCBA at Gold Level in December 2009. This covered all that land known as Rukinga Ranch, a 30,166 hectare piece of wilderness at one end of the Kasigau Corridor.

Phase II of the project is the "Kasigau Corridor REDD Project Phase II – The Community Ranches" and this covers and addresses the forest conservation of 13 blocks of land owned by indigenous community ownership groups. These group/community ranches are managed by public companies owned by shareholders, but none conduct their own cattle ranching. Most have no economic activities and have been badly affected by the illegal charcoal trade. The project strategy includes conservation easements between the project proponent and the 13 community ranches, plus a range of local investments to build long-term community interest in the project, including investment in local eco-friendly businesses to generate livelihoods, education and reforestation.

	Heading	Explanation
Locational factors		
	Location	Coast Province in Southeastern Kenya
	Size	Project area: 169,741 ha
	Land cover	montane forest, dryland forest, savannah grassland
	Land use (drivers of forest change)	***In project zone*** ▪Taita people - subsistence agriculturalists who cleared the dryland forest and planted maize, with little success. ▪Duruma people - common practice for husband to bring his second or third wives to the project area to establish agricultural plots (mostly unsuccessful) ▪New government policy of giving individual family titles in community trust land ***In project area*** Group Ranches managed by public companies owned by shareholders, but none operate own cattle ranching. Most have no economic activities and have been badly affected by illegal charcoal trade.
Basic project features		
	Objectives	▪Prevent emission of over 49,000,000 tCO2e over crediting period ▪Provide finance for expansion of conservation project ▪Prevent the loss of biodiversity and protect the area as a wildlife corridor for important indigenous species ▪Reduce community pressure on forest and ensure long-term support from community for the project
	Proponent	Wildlife Works Carbon LLC Mission: To bring market-based solutions to biodiversity conservation
	Tenure/Carbon rights	**Tenure** 13 blocks of land owned by Indigenous Community Ownership Groups; Each owned by different legal entities formed years ago by the communities and the Government of Kenya to hold legal title to the land (12 leasehold; 1 freehold) **Carbon rights** Indigenous Community Group of landowners
	Actors involved in project design	▪Wildlife Works – project implementation and support ▪Community ranches – agreed to participate ▪Community group ▪Kasigau Development Trust – reforestation ▪Kenyan Agricultural Research Institute – Jojoba cultivation
	Upfront financing	Provided by Wildlife Works Carbon LLC
	Start date	1 January 2010
	Crediting period	30 years
Baseline emissions		
	Methodology used	VCS methodology VM0009 Methodology for Avoided Mosaic Deforestation of Tropical Forests V1-0 (Developed by Wildlife Works)
	Reference area	329,022 ha

Reference period	From 15 years prior to project start
Stratification of project area	▪Project zone divided into 7 land cover strata based on ecosystem type. ▪Project area not stratified – Classed as tropical dryland forest.
Deforestation rate and location	**Historical** *Not provided in project design* **Projected** *Not provided in project design* **Likely baseline scenario** Rapid deforestation due to unplanned slash and burn agricultural expansion by subsistence immigrants at the frontier of human expansion. **Modelling procedure** 2000 sample points in historic imagery beginning 15 years prior to the beginning of the project were used to build a cumulative deforestation model by examining forest transition for reference area. Observations of forest state from the reference region and applicable covariate data sets were used to fit the cumulative deforestation model. Population census data were considered as covariates to deforestation, but these covariates did not inform the model when compared to the model evaluated using only historical observations of deforestation. A linear rate was selected to predict the cumulative deforestation for project accounting purposes. The selected rate is y=0.031649x, where x is the number of days since the project start date, and y is proportion of area deforested.
Carbon pools	**Carbon pools included** ▪Aboveground tree biomass ✓ ▪Aboveground non-tree woody biomass ✓ ▪Belowground tree biomass ✓ ▪Litter × ▪Dead wood × ▪Soil ✓ ▪Wood products × **Estimation method** ▪429 17.84 m radius plots located across all 7 strata and 13 ranches in stratified random pattern. ▪DBH, height and canopy width of trees measured. Destructive sampling used to develop allometry for each dominant species. Mean of species-specific equations use for rare species. ▪Belowground biomass for all vegetation calculated using a root:shoot ratio of 0.4. ▪No. of stems of shrubs counted in plots and biomass calculated by multiplying by stem weight for species and size class. Height and diameter of shrubs with many stems measured to determine size class. Destructive sampling used to derive species-specific data to convert

		size to biomass. ▪Grasses harvested from four 1 m plots in each of the tree plots. Samples dried and weighed to obtain sample plot grass weights; area expansion factor applied. ▪Soil samples taken from randomly selected tree sample plot locations: 1m pits dug in two lifts, 0-30 cm and 31-100 cm; samples from each layer mixed, bagged and sent to independent soil testing lab for bulk density and soil organic matter analysis.
	Carbon stock changes	▪Loss of carbon in the baseline for above and belowground biomass trees, shrubs and grasses assumed to be 100% of the starting inventory for deforested area, as most likely replacement land cover is annual crops. ▪Loss of carbon in soil calculated through analysis of carbon in soil in project area and immediately adjacent to project area, on farm land with identical soil, rainfall and climate, which had been forest less than 20 years before.
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	*Not considered significant*
	Net emissions without project	1,253,588 tCO2e (for 1st monitoring period)
Project GHG emissions reduction strategy		
	Scope and measures	**Scope** Avoided deforestation and degradation **Measures** ▪Conservation easements between Wildlife Works Carbon LLC and 13 community ranches ▪Nurseries for citrus trees ▪Provide advice, act as distribution point and seed collection for cultivation and harvest of Jojoba ▪Donate elephant dung to women's group for use as fertiliser on their commercial mushroom farm ▪Financial rewards to communities for out planting 20,000 indigenous hardwood trees under 3 year reforestation project ▪Funding, training and logistics support to organised groups of Community Wildlife Scouts operating in the reference area to monitor and deter illegal activity ▪Sponsor youth participation in safari guide training programme ▪Promote ecotourism in one ranch, involving payment to ranch to stop cattle grazing ▪Open small eco lodge for conservationists ▪School construction and maintenance and sponsor students through secondary school and

		college/university ▪Construction/renovation of group ranch offices, including establishing a carbon office ▪Production of "ecocharcoal" by communities ▪Expand operation of soap factory using jojoba oil
	Additionality	▪No significant sources of income from the land to offset protection costs. ▪Aforestation of plantation species and agricultural activities cannot profitably be carried out in this ecosystem, due to a lack of water and a fragile ecosystem; hence, no credible alternative economic uses for this land that could compete with the project financially.
	Leakage avoidance strategy	▪Removing the local communities' need for more (disastrously poor) agricultural land. ▪Physically protecting the forest from immigrant agents trying their luck at finding unprotected land to farm for income.
	Non-permanence risk mitigation strategy	▪Experienced project management team located next to project. ▪Adaptive management plan including community feedback mechanism. ▪Project works with secure tenure arrangements and carbon agreements span project crediting period.
With-project emissions		
	Effectiveness of measures	**Assumptions** Measures assumed 100% effective in stopping deforestation in the project area **Modelling** None
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	*Not considered significant*
	Leakage	**Activity shifting** Any leakage expected to be compensated for by tree planting and positive leakage, which are not accounted. **Market effects** Not expected. Trees in project area not used commercially and fuel wood extracted only used for home consumption. **Deduction** *Project design did not included deduction as no leakage expected. However, during monitoring leakage was calculated and deducted from gross emissions.*
	Non-permanence risk	Buffer 20% of offsets withheld (9,689,754 tCO2e)
	Ex-ante estimated	Total over crediting period: 38,759,010 tCO2e

	net greenhouse gas emissions reductions	Annual average: 1,291,967 tCO2e Annual average per ha: 7.6 tCO2e
	GHG emissions impact monitoring	▪Annual resampling of 20% of the total number of permanent plots ▪Leakage monitored in leakage plots placed in leakage belt ▪Satellite imagery to be used to monitor deforestation in reference area and leakage belt
Stakeholder identification and engagement		
	Stakeholders identified	*List of stakeholders not provided in project design. Proposed activities target local communities and community sub-groups (women's group, youth). Roles of other NGOs in area and businesses such as eco tour operators discussed.*
	Identification process	*Not described. History of regular communication with communities explained.*
Full and effective participation		
	Access to information and consultation	▪Numerous meetings with local communities on wide range of topics over past 10 years. ▪Flyers and posters distributed to inform public of opportunity to comment on project design document. ▪Public invited to use proponent's internet service or submit handwritten comments; proponent ensured unbiased translation when needed. ▪All minutes of meetings with communities for Phase II project document. ▪Presentations to raise awareness of community ranch shareholders on achievable carbon benefits. ▪Negotiation resulted in easement agreements signed by 13 community-owned group ranches. Community decision was based on majority vote with proponent absent from the room. ▪Community liaison team established to travel around communities and inform on project goals and activities.
	Participation in design and implementation	▪Project geographical extent determined by community-owned group ranches that agreed to participate in project ▪Various community groups involved in project investments, e.g. Jojoba production and reforestation
	Anti-discrimination	Wildlife Works has a policy of local employment first.
	Feedback and grievance redress procedures	Document on Community Conflict Process published. Requires all grievances and efforts on resolution to be recorded. Mediation by local administrative chief expected. Written responses to be delivered in 30 days.
	Worker relations	Operates within all local and national employment laws. Training relevant to health and safety provided. Employees and their families fully insured for any illness or injury.
Communities		
	Without-project	**Variables**

	scenario	*Described in monitoring reports* Livelihood security and income; Crop, farm animals, soil, land & water management; Food security; Water use; Land access and use; Governance and associations; Climate crises; Education and fees; Infrastructure and services; Income and expenditure; Knowledge on environment and REDD **Assessment methodologies** Independent audit of the community influence conducted in August 2007; Baseline survey in 2012 **Description** Expect little improvement in community well-being as no prospect to increase land productivity
	With-project community and other stakeholder scenario	**Expected net benefits** ▪From conservation of natural resources, both forest and biodiversity ▪Direct employment of ~ 150 local people ▪Income from supported community-based business activities ▪Youth education **Possible negative impacts to be mitigateds** Increase in human-wildlife conflict; Exclusive dependence on Wildlife Works for livelihood; Lack of grazing area; Alternative livelihood for charcoal burners
	Community impact monitoring	**Variables** *Described above in "without-project" scenario* **Methodologies** *Described in monitoring reports* Household-level survey in 150 randomly-selected households across the five Locations in the project area **Frequency** Baseline survey in 2012 to be followed by annual monitoring
Biodiversity		
	Biodiversity without–project scenario	**Variables** Ecosystem, species, high conservation values **Assessment methodologies** Sightings by project rangers and tourism operation; Literature **Description** Expect eventually no wildlife to be left in the project zone
	Biodiversity with-project scenario	▪With investment and proper land and wildlife management expect to see return of historic species ▪Indigenous species used for reforestation ▪Non-indigenous species used such as Jojoba and Neem observed to be non-invasive ▪No negative offsite impacts expected
	Biodiversity impact monitoring	**Variables** High conservation values, species **Methodologies**

		Described in project design Ranger patrols, one specifically to monitor high conservation value species; GIS centre of excellent to be set up near project for recording sightings; **bi**odiversity monitoring by a community based organization *Described in monitoring reports* Waterhole transects; Elephant feeding transect; Elevational bird ringing and plot-based vegetation monitoring; 180 km aerial transect using gyrocopter; Charcoal and firewood monitoring through counts along highway touching project area **Frequency** Ranger patrols are daily; Full time conservation specialist placed at GIS centre; Daily log of species of interest with GPS information recorded as people go about daily business
Progress		
	Validation	VCS validation: 9 May 2011 CCBA validation: 27 April 2011 (Gold Level)
	Verification	VCS: By 11 Dec. 2012 1,571,385 VCUs were issued CCBA verification: 25 May 2011, 05 Dec. 2012, 23 May 2013
Further information		
	▪Wildlife Works Carbon website: http://www.wildlifeworks.com/WWCarbon/WWCarbon/Welcome.html ▪VCS Project Database https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=612&lat=-3%2E944264&lon=38%2E773234&bp=1 ▪CCBA Projects http://www.climate-standards.org/?s=kasigau+II	

Kariba REDD+ Project

Distinctive features

The Kariba REDD+ Project is located in northwestern Zimbabwe, partly along the southern shore of Lake Kariba, the largest artificial lake in the world by volume. The project area of 784,987 hectares consists of woodland and open woodlands that spans four provinces. The main causes of deforestation are socio-economic (subsistence agriculture, the collection of firewood and poaching activities) and settlements. In the absence of active protection that creates sustainable economic alternatives for communities, the proponent expects that the land in the project area will be cleared for non-sustainable land use.

The proponent is Carbon Green Investments (CGI), a Guernsey based company established to facilitate the generation of carbon credits through REDD projects. The project aims to lead to the protection of both unlogged forest and previously logged forest that has the regenerative capacity to reach a mature, 'old growth' state. The project aims to decrease deforestation through activities that significantly improve the livelihoods of locals, such as improved agriculture, beekeeping, investments in health and education, fuel wood plantations and fire management. In addition, a share of the project's carbon income will be channelled through the project's Community and Project Sustainability Fund to benefit whole communities, specifically the poorest members of society. The fund will be used to improve health and education in the project area.

The project activities to stop deforestation and degradation are expected to be financially self-sufficient in the long run. By opening new sources of income, and after initial investments have been made and capacity reaches a certain level, the local population are expected to continue with the project activities as it will be in their self-interest to do so.

	Heading	Explanation
	Locational factors	
	**Location**	Northwestern Zimbabwe, partly along the southern shore of Lake Kariba
	Size	**Project area:** 784,987 ha
	Land cover	Woodland and Open Woodland
	Land use (drivers of forest change)	Subsistence agriculture; use of fuel wood for households and tobacco curing; timber for poles used in construction
	Basic project features	
	**Objectives**	▪Reduce emissions from deforestation and forest degradation in the project area in a way that can be measured, reported and verified. ▪Ensure sustained availability of wood supply for domestic use to the local population while providing alternatives to wood harvested from natural forests. ▪Provide a new source of revenue to local communities from the sale of carbon credits and other income sources. ▪Increase social, educational and health services. ▪Build capacity to improve natural resource management and cope with climate change. ▪Sustain and enhance biodiversity by reducing the pressure on the vegetation. ▪Create a successful example that can be replicated in Zimbabwe and elsewhere. ▪Ensure major benefits are sustained.
	Proponent	Carbon Green Investments Guernsey (CGI)
	Tenure/Carbon rights	**Tenure** Land is communal and administered by the local government. **Carbon rights** Rural District Councils (RDC)s have, jointly with the management of all soil and above-soil natural assets including trees and biomass, the right to environmental goods and services in the area. The project's agreements with each RDC transfer carbon rights to project proponents.
	Actors involved in project design	▪Carbon Green Investments Guernsey (CGI) - responsible for project management, development, implementation and operation ▪South Pole Carbon Asset Management (South Pole) - elaborates and oversees the development of appropriate project design and monitoring techniques ▪Environment Africa (EA) - implements activities that

		protect forested wilderness areas ▪Black Crystal Consulting (Black Crystal) - supports the biodiversity component of the project and is involved in the on-the-ground assessment of carbon stocks.
	Upfront financing	Carbon Green Investments has to date injected more than 750,000 USD in the project and has access to a further 500,000 USD.
	Start date	1 July 2011
	Crediting period	30 years, 1 July 2011 – 30 June 2041
	Baseline emissions	
	**Methodology used**	VM0009 - Methodology for Avoided Mosaic Deforestation of Tropical Forests, v1.1
	Reference area	1,907,410 ha of which 802,192.05 ha was forested in 2011
	Reference period	2003 to 2011
	Stratification of project area	Open Woodland; Woodland
	Deforestation rate and location	**Historical** 0.89% **Projected** *See modelling procedure* **Likely baseline scenario** Scenario for all selected carbon pools is the complete removal from the project area. **Modelling procedure** Population considered possible covariate to estimate the linear predictor but found to be insignificant. Linear function used ($F_{DF}(t) = 0.03188 * t$; where t = time).
	Carbon pools	**Carbon pools included** ▪Aboveground tree biomass ✓ ▪Aboveground non-tree woody biomass ✓ ▪Belowground tree biomass ✓ (including non-tress) ▪Litter × ▪Dead wood ✓ (standing including; lying excluded, as insignificant) ▪Soil ✓ ▪Wood products × **Estimation method** ▪8.9 or 9 m radius circular PSPs located randomly for tree sampling. For thicket woodlands, 6 m x 42 m sampling transects used. Species, DBH and height recorded. ▪Soil sampled at two places in each biomass plot. ▪Allometric equations from peer-reviewed literature derived from similar project locations used. When possible, species-specific equations used from similar

		locations. ▪Carbon stock in standing dead wood measured and calculated using VCS approved methodology.
	Carbon stock changes	▪Loss of carbon in the baseline assumed to be 100% of the starting inventory for deforested area ▪Default mean rate used for soil carbon loss
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	Non-CO_2 GHGs omitted.
	Net emissions without project	196,513,929 tCO_2
Project GHG emissions reduction strategy		
	**Scope and measures**	**Scope** Avoid deforestation and degradation **Measure** ▪Improved Agriculture: (i) teaching agriculture techniques that have the potential to increase the agricultural output of given plots and thus reduce the need for rotational agriculture, (ii) the use of alternative high-value crops such as garlic and chili instead of tobacco will be promoted, (iii) community gardens will be established ▪Beekeeping: beekeeping will increase the value of the standing forest as "cultivated" beehives can generate incomes of 500-1000 USD/year. Honey processing centres will also be set up. ▪Fuel wood Plantations: sustainably-managed fuel wood plantations reduce the pressure on natural forests and makes labour force available that would otherwise be needed to collect fuel wood. The multipurpose tree Moringa (*Moringa oleifera*) will be promoted for nutritional purposes ▪Social Forestry – Indigenous Knowledge Systems: indigenous knowledge in forest conservation and management will be documented and shared across the project areas. ▪Fire Management: fire breaks next to roads will be established and maintained. Controlled burning will be carried out by the project's on-the-ground management teams. ▪Alternative and sustainable building materials: the Hydraform technology will be promoted as an alternative to traditional wood or bricks, which requires less wood

		resources. ▪Community and Project Sustainability Fund: a fund will be created. The board governing the fund will comprise Carbon Green Africa (CGA) Trust members in conjunction with selected members of the community and council from each RDC. Oversight will be given by CGI. ▪Health: targeted clinics will be improved; practitioners quality and number will be assessed with salaries subsidised if necessary; targeted clinics will be stocked with basic dressings and drugs; healthcare officer will be appointed ▪Education: targeted schools will be improved; teacher quality and number will be assessed with salaries subsidised if necessary; targeted schools will have a bursary initiative; environmental topics will be added to the curriculum; education officer will be appointed ▪Newsletter: published on a quarterly basis in English and local languages Shona and Tonga
	Additionality	▪Subsistence and small-scale farming (in the form of conversion of forestland to cropland or grazing land, fuelwood collection for tobacco curing) is by far the most likely baseline land use. ▪The project is not a financially viable without the AFOLU VCS project revenues. ▪The project activities are not common practice.
	Leakage avoidance strategy	No leakage is expected from the project.
	Non-permanence risk mitigation strategy	▪Risk of failure is considered low due to local support. ▪Only risk is government reneging on their written agreement, which is considered low.
With-project emissions		
	**Effectiveness of measures**	**Assumptions** **Modelling** Effectiveness in reducing deforestation increases over time, starting at 10% in year one and levelling off at 70% in year 7.
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	Non-CO_2 GHGs omitted.
	Leakage	**Activity shifting** Assumed unlikely **Market effects**

		As above **Deduction** *As above*
	Non-permanence risk	**Buffer** 16.5%
	Ex-ante estimated net greenhouse gas emissions reductions	**Total over crediting period:** 196,513,929 tCO2e **Annual average:** 6,550,464 tCO2e **Annual average per ha:** 8.3 tCO2e
	GHG emissions impact monitoring	▪The extent of each land use of the project, reference and leakage area will be monitored in a five-year interval via Landsat imagery and the classification scheme applied for historic land use analysis used for establishment of the baseline. ▪Ground monitoring of leakage plots has been implemented following requirements of VM0009 v1.1 in sample size and sampling plan.
Stakeholder identification and engagement		
	**Stakeholders identified**	▪Community members affected by the project ▪Community leaders, including: ▪Representatives of local associations ▪Representatives of RDC administration and RDC councils ▪Traditional leaders (Chiefs) ▪Local NGOs working on related projects
	Identification process	*Not directly stated, but appears self-selecting through attendance at public meetings*
Full and effective participation		
	**Access to information and consultation**	▪Local consultations held at each RDC at early stage in design process. Invitations to public advertised 2 weeks in advance. ▪A quarterly newsletter will be published in English and local languages Shona and Tonga.
	Participation in design and implementation	▪Virtually all project activities aim on improving the local communities' livelihoods and providing attractive alternatives to the unsustainable use of natural resources. ▪20% of net profits go into the Community and Project Sustainability Fund. Fund's use is decided by a board that includes selected members of the Community and Council from each RDC.
	Anti-discrimination	Aim to fill project positions with local people wherever possible
	Feedback and grievance redress	CGI is committed to provide written feedback to grievances within 30 days. All grievances and feedback to

	procedures	it are to be published in the project's newsletter. Grievances (written or oral) can be communicated through the council; on the ground teams; liaison officers.
	Worker relations	Workers will be informed of their rights at beginning of employment and will be encouraged to form workers Committees. Trade Union visits to the site is encouraged.
Communities		
	**Without-project scenario**	**Variables** Education, female headed households, household income sources **Assessment methodologies** Questionnaires and focus group discussions **Description** ▪Most people belong to Tonga or the Shona ethnic groups. The Tonga tribe traditionally cultivates small gardens in fertile areas along the rivers. The Shona traditionally engage in pasture farming and agriculture. ▪Most people have primary education; ~50% went to secondary school; 15% are female headed households; field crops are the most important source of income, but the amount of income is low.
	With-project community and other stakeholder scenario	**Expected net benefits** Health and education; knowledge and skills; infrastructure; tools and technology; investment; employment; water resources; forest and non-timber forest products; biodiversity; wildlife; desertification **Possible negative impacts to be mitigated** *No potential project risks to communities or other stakeholders identified* Note: Sustainable livelihoods approached used to analyse net community benefits
	Community impact monitoring	**Variables** ▪Direct - Improved agriculture; beekeeping; fuel wood plantations; social forestry; brick making; on-the-ground management teams; community fund; newsletter ▪Indirect - annual income, employment ▪Employees and beneficiaries –annual income, education, knowledge on sustainable natural resource management, work dangers and training on these, grievances **Methodologies** ▪Numeric monitoring of the variables (number participants, fund spent, etc.) ▪Sampling of households **Frequency**

		▪Fuel wood plantations; social forestry; brick making; on the ground management teams (total employees); newsletter – 5 yearly monitoring and reporting ▪Improved agriculture; beekeeping; on-the-ground management teams (number of man days spent on patrolling, fire management) ▪Community fund – continuous monitoring, 5 yearly reporting.
Biodiversity		
	**Biodiversity without–project scenario**	**Variables** Ecosystems, endangered species, common species **Assessment methodologies** Published literature **Description** ▪Important wildlife area, showing significant populations of African elephants, lions, impalas, hippos and crocodiles along with a wide variety of birds, including the IUCN red list vulnerable species Southern Ground Hornbill, Lappet-faced Vulture, and White-headed Vulture. ▪Under the baseline scenario, agricultural expansion will continue. Species that can be hunted will suffer from massive additional pressure due to uncontrolled poaching.
	Biodiversity with-project scenario	*Reduction of agricultural expansion and prevention of poaching leading to conservation and increase of wildlife.* Serve as a corridor between existing national parks
	Biodiversity impact monitoring	**Variables** ▪Pressure (number of wire snares, poached games) ▪State (number of big game, endangered species encountered, number of tree species on monitoring plots) ▪Response (number of patrols, man days patrolling, arresting poachers) **Methodologies** *Observations during patrols and information from biomass plots* **Frequency** All variables will be monitored continuously, but reported upon verification (every 5 years)
Progress		
	**Validation**	VCS validation: 19th August 2013 CCBA validation: 8th February 2013 (Gold Level)
	Verification	VCS verification: 19th August 2013; 1,500,000 VCUs released between 4th October 2013 and 15th November

		2013 CCBA verification: no verification conducted as of 15th December 2013

Further information

- Carbon Green Africa:
  http://www.carbongreenafrica.net/

- VCS Database:
  https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=902&lat=-16.8184067184111&lon=28.7615526227228&bp=1

- CCBA Database:
  http://www.climate-standards.org/2011/10/17/kariba-redd-project/

REDD Project in Brazil Nut Concessions in Madre De Dios

Distinctive features

The "REDD Project in Brazil Nut Concessions in Madre de Dios" is located within the political boundaries of the Provinces of Tambopata and Tahuamanu, Department of Madre de Dios. The project proponent is Bosques Amazónicos (BAM), a Peruvian company established in 2004 that develops forest carbon projects in order to recover and sustainably manage forests, thus contributing towards biodiversity conservation and creating benefits for the population and for the company.

The original project area is made up of a total of 291,566 hectares consists of 377 mostly forested Brazil Nut concessions awarded by the Peruvian State through a 40 year renewable contract. Brazil nut harvesting has been a traditional activity in Madre de Dios since the 1940s. Brazil nut sale represents the main source of income for rural families and is a source of employment for around 1/3 of total population.

The project aims to avoid unplanned deforestation associated with increasing accessibility for encroachment into the forests in the concessions from the opening and improvement of the Interoceanic Highway. To prevent this risk, BAM has signed a contract with FEPROCAMD, the regional grassroots organisation that represents Brazil nut concessionaries in order to implement a REDD project that will implement actions to deal with this threat. The proponent aims to counter the unplanned deforestation by providing support to Brazil nut concessionaires to increase their revenues, undertake forest management and protect forests from conversion. The project is aiming for organic certification of Brazil nuts and FSC certification of forest management for those concessionaires that wish to continue extracting timber from the forests. Concessionaires will also be involved in check points and patrols to monitor and control illegal logging activities, agricultural encroachment by migrants and mining activities.

	Heading	Explanation
	Locational factors	
	**Location**	Eastern part of Madre de Dios, which is a Department in southeastern Peru bordering Brazil, Bolivia and the Peruvian Departments of Puno, Cuzco and Ucayali
	Size	**Project area:** 291,566.5 ha
	Land cover	17 types of forest in the project area ▪High Terrace Forests with Brazil Nut Stands (57%) ▪Low Hill Forests (14%) ▪High Terrace Forests with Bamboo (9.6%).
	Land use (drivers of forest change)	▪Conversion of forest to cropland and pastures ▪Mining is also present in some areas
	Basic project features	
	**Objectives**	▪Reduce deforestation while contributing to the development of local people and preservation of biodiversity ***Climate Objectives:*** ▪By the seventh year of the project´s lifetime, deforestation will be minimum or even zero, and in the leakage belt, deforestation will have a decreasing trend ▪Increase carbon stocks in the project area ***Community Objectives:*** ▪By the end of the first year, the concessioners will be legally organised and represented, and will also have their management documents updated ▪By the fifth year, income from concessioners and local people will be significantly increased ***Biodiversity Objectives:*** ▪Guarantee and maintain ecological integrity in Brazil Nut Concessions and contribute to the preservation of biodiversity in the Leakage Belt
	Proponent	Bosques Amazónicos (BAM) Mission: to lead the value maximisation of forests in Latin America by the recovery and sustainable management thus contributing towards biodiversity conservation and creating real benefits for the population
	Tenure/Carbon rights	**Tenure** Concessioners have a concession contract with the State. **Carbon rights** Have been transferred from Brazil Nut Concessionaires that belong to the REDD Project to FEPROCAMD (main organisation representing concessionaires), and then to BAM

	Actors involved in project design	▪FEPROCAMD - the main organisation representing most of the concessionaires of forestry products other than wood (i.e. Brazil nuts) in Madre de Dios ▪Conservación Ambiental y Desarrollo en el Perú (CAMDE PERU) - a Peruvian NGO that seeks to contribute to the conservation of biodiversity in Peru by promoting sustainable management of natural resources and generating profits in the local population ▪Carbon Decisions International (CDI) - independent advisory company specialising in the design of projects, programmes and policies that reduce GHG emissions in the forestry and land-use sector
	Upfront financing	BAM has secured sufficient debt and equity to cover all investment commitments and working capital through the end of 2013.
	Start date	24th September 2009
	Crediting period	31 years, 1 January 2010 – 31 December 2040
	Baseline emissions	
	**Methodology used**	REDD Methodology Modules, v1.1 (VM0007)
	Reference area	Reference Region for Projecting Location of Deforestation (RRL): 1,804,906.5 ha
	Reference period	2000 – 2008
	Stratification of project area	Low Hills forest, Low Hills with Bamboo Forest, High and Mid Terrace with Bamboo Forest, Terraces Forest, Flooded Terraces Forest, Pacal (Bamboos), Swamp Trees, Others (without carbon)
	Deforestation rate and location	**Historical** 1.23% **Projected** 1.23% **Likely baseline scenario** Deforestation due to ranchers and farmers **Modelling procedure** ▪Deforestation risk maps were created using 10 different scenarios at the end of which one was selected. The maps are constructed from modelling incorporating opportunity cost analysis, historical deforestation rates and spatial drivers of deforestation. The software chosen is DINAMICA EGO.
	Carbon pools	**Carbon pools included** ▪Aboveground tree biomass ✓ ▪Aboveground non-tree woody biomass ✓ ▪Belowground tree biomass ✓ ▪Litter ✗

		▪Dead wood × ▪Soil × ▪Wood products × **Estimation method** ▪A carbon inventory was carried out through a stratified sampling of 58 fix area plots inside the project area. ▪Plot dimensions are 10m x 200m, with sub-plots for three diameter classes. Palm trees and pacales were evaluated along the entire plot. ▪The individuals included in the inventory were trees, palms and bamboos. ▪The parameters measured were DBH, total and commercial height and tree health. ▪The conversion from field parameters (DBH in case of trees and total height in case of palms) to biomass was done by the use of allometric equations from published research. In case of bamboos, a fixed biomass per individual was used (taken from studies of bamboos forest in Colombia). A root-to-shoot ratio was used for estimating below ground biomass.
	Carbon stock changes	Land use assumed to change to: ▪Farmland: 3.25% ▪Pasture: 51.79% ▪Farming: 39.01% ▪Infrastructure (urban areas and roads): 2.32% ▪Illegal mining: 3.62% Default carbon stocks for each of the systems was considered according to studies conducted in the Peruvian jungle
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	▪CH4 and N2O from burning of forest biomass and agricultural biomass included ▪Emissions from burning fossil fuels were not estimated, since there is no certainty in the baseline of how many machines or tools would be incorporated as a result of post-deforestation activities.
	Net emissions without project	89,217,396 tCO2 (over 31 year project life)
Project GHG emissions reduction strategy		
	**Scope and measures**	**Scope** Avoided deforestation and degradation **Measure** ***Climate Activities:*** ▪Implementation of a forest monitoring and surveillance system (Concessionaires will organise a ground team of monitoring and surveillance, formed by 12 people divided

	into sub-teams of two people for each of the 6 checkpoints that will also be implemented. All of the checkpoints will be located in strategic places in order to monitor and control illegal logging activities, migratory agriculture and mining activities) ▪Training deforestation agents in alternative and sustainable productive initiatives (includes workshops on agroforestry, management of forestry products, fish farming, etc., and training of miners on how to extract gold without using mercury, etc.) ▪Implementation of a tree nursery to supply 100,000 seedlings to concessionaires for planting in the forest ▪Forest enrichment through plantation of native species by concessionaires ***Community Activities:*** ▪Organisation and legal formalisation of the Federation of Brazil Nut Concessioners of Madre de Dios (FEPROCAMD) ▪Implementation of an early alert system to report environmental crimes ▪Implementation of a conflicts and complaints management system for any concerns over project activities ▪Implementation and start-up of a brazil nut processing plant in the project zone ▪Certification of brazil nuts (to be recognised internationally as organic product) and brazil nuts second class by-product, and forest management certification (FSC certification for the entire forests managed by the project) ▪Training in forestry management, utilisation of reduced impact techniques and alert system to communities in area ▪Cooperation agreements, alliances and training with the government of Madre de Dios and other public and private actors ▪Local campaigns for preservation of forests goods and services ***Biodiversity Activities:*** Improved forestry management in brazil nut concessions
Additionality	▪Regarding previous projects (common practice): there is no experience in REDD in the proposed area; Previous projects analysed only have coverage of a maximum of 50 families and lifetime of no more than 4 years; The projects analysed do not have a proposal to generate their own businesses that can add value to the product. ▪To prevent the risk of deforestation, BAM has signed a contract with FEPROCAMD in order to implement a REDD project. Without BAM support, it is unlikely that concessionaries could finance these actions.
Leakage avoidance	▪Implementation of the forest monitoring and

	strategy	surveillance system. This is not just limited to the project area, but also includes the leakage belt. ▪ Implementation of the early alert and complaints management systems ▪Promotion of sustainable projects among neighbouring residents – agro-forestry, utilisation of other forest resources, fish farming – to encourage the rational use of non-timber resources in the project area. ▪Creation of alliances with local NGOs or Technical Institute to develop pilot projects comprised of alternative development activities ▪Improvement of the organisational capacity of FEPROCAMD
	Non-permanence risk mitigation strategy	*No information given*
	With-project emissions	
	**Effectiveness of measures**	**Assumptions** **Modelling** *Not discussed*
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	Project implementation activities considered for the calculation were: Forest monitoring and surveillance, construction of checkpoints, construction and activity of tree nursery, and activity of Brazil nut processing plant. The GHG emissions from these activities were not included in the calculation since they were less than 5% of the total increases in emissions. ▪CH4 and N2O from burning of forest biomass and agricultural biomass excluded ▪Emissions from burning fossil fuels included ▪N20 from fertilisers excluded because there will be no leakage prevention activities that include the use of fertilisers.
	Leakage	**Activity shifting** *Leakage is calculated both for the numbers of the resident population expected to shift to the leakage belt because of the project and the numbers of potential migrants who would have moved into the project area but have been caused by the project to move elsewhere.* **Market effects** **Deduction** *Leakage calculated and deducted from project REDD benefits*
	Non-permanence risk	**Buffer** 20% (17,832,571 tCO2)
	Ex-ante estimated	**Total over crediting period:** 64,668,764 tCO2e

	net greenhouse gas emissions reductions	**Annual average:** 2,086,089 tCO2e **Annual average per ha:** 7.15 tCO2e
	GHG emissions impact monitoring	▪Regional forest / non-forest cover benchmark map to be periodically constructed using Landsat images. ▪Leakage belt forest cover benchmark map to be periodically constructed using Landsat images ▪Total deforestation area to be periodically constructed using Landsat images ▪Degradation to be surveyed using participatory rural appraisal techniques and field observations. Area under potential degradation process to be mapped.
Stakeholder identification and engagement		
	**Stakeholders identified**	Initial stakeholders are: ▪FEPROCAMD; Community of Varsovia; Community of Mavila; CASAL – Alegria; ASCART; RONAP; PRONATURALEZA; RAINFOREST; SPDA; ACCA; UNAMAD; Special Project GOREMAD Other stakeholder categories are: Madre de Dios Regional Government; Local Municipalities; Decentralized Ministries - Madre de Dios; Cabinet Council Presidency; Autonomous Organizations; Educational Institutions; NGOs; Trade Organisations, Media; Private Institutions; Local Organisations
	Identification process	▪ The constant previous work field allowed identifying the stakeholders comprehensively. On-going workshops and the conduction of interviews and surveys to prepare the Assessment of the Condition of Brazil Nut Concessioners in Madre de Dios has allowed to have a record of the stakeholders and involved parties in the project.
Full and effective participation		
	**Access to information and consultation**	▪ Project began a consultation and project dissemination process, establishing relations with key leaders in each sector ▪ Once the contacts were made, the possibility of implementing a REDD brazil nut concessioners project was explained and publicised through working meetings between BAM and key leaders of the Brazil nut concessioners ▪The project carried out an affiliation campaign, organising talks, workshops and work groups with brazil nut concessioners to disseminate the proposal and distributing previous information in each sector
	Participation in design and implementation	▪ Brazil nut concessioners decide whether or not to participate in project ▪Development of Community Training Plan included

		community poll and workshop with interest groups.
	Anti-discrimination	The project and BAM have established equal employment opportunity criteria
	Feedback and grievance redress procedures	▪Conflicts and Complaints Management System has been created. ▪Submitted complaints will be dealt with within 3 weeks ▪Actions taken to fix the situation will be communicated to the complainant.
	Worker relations	Peruvian legislation exists to support concern about employer responsibilities and executing the project. The Brazil nut processing plant shall meet the standards of health and safety requires by the Peruvian State. All employees will be trained not only on issues related to health and safety in the workplace but also receive incentives for continued compliance with these standards. All employees of the processing plant and administrative staff of the company shall be provided with health insurance to them and their families, health care, medicine and others. All workers shall have accident insurance and life insurance as required by law. Persons who perform services for the project will have all the necessary security protection and welfare at the plant facilities. They will be also trained on issues related to care and precautions to be taken in the facilities.
Communities		
	**Without-project scenario**	**Variables** *Same as for Community Impact Monitoring below* **Assessment methodologies** *Same as for Community Impact Monitoring below* **Description** Deforestation will affect negatively the food safety and the means of subsistence of the communities in the Project Zone, mainly because the quality and quantity of natural stock mainly provided by Brazil nut forests will decrease dramatically. Poverty will increase since deforested areas lead to poverty of the resident given that migratory agriculture or mining activities are not sustainable in the long term. Other sustainable activities such as ecotourism would not be possible.
	With-project community and other stakeholder scenario	**Expected net benefits** ▪Sustainable forest management ▪Concessionaires income increase ▪Variation of traditional subsistence activities to sustainable activities ▪Forest conservation and ecosystem flows for the resident of the area ▪Control of activities causing deforestation

		Possible negative impacts to be mitigated ▪Displacement of activities causing deforestation or leakages leading to conflict with deforestation agents. The project will mitigate these social conflicts through the Dispute and Complain Resolution System.
	Community impact monitoring	This system is organised in the present Community Impact Monitoring Plan of the Brazil Nut REDD project. The Community Impact Monitoring Plan (CIMP) is based on the fact that indicators have already been identified, which will bring the processes and changes planned for the project. The first measurement of these indicators is registered in the previous moment before starting the project; this is referred to as the Community Baseline. **Variables** ▪Improved organisation for sustainable forest activities ▪Increase of economic income of concessionaires ▪Change from traditional subsistence activities to sustainable activities ▪Forest conservation and ecosystem flows for local families ▪Control of activities causing deforestation (miners, farmers, etc.) **Methodologies** Causal Modelling Approach. Data collection methods include: ▪Participatory Impact Assessment ▪Directed Surveys ▪Focus Group Discussions ▪Reviews from secondary sources **Frequency** *Not stated*
Biodiversity		
	**Biodiversity without–project scenario**	**Variables** **Assessment methodologies** The "wildlife Baseline in Brazil nut concessions" was carried out by an external consultant. Data was also collected in relation to the wildlife use by local population and the presence or absence of species taxa - mammals, birds, amphibians and reptiles - focusing the efforts on the conservation and maintenance of the most sensitive populations "Indicator Species" for their tracking and monitoring in the project areas. **Description** The loss of Brazil nut forests and the habitat would cause the isolation of flora and fauna species cutting the connectivity. This would increase the endogamy (reducing the genetic diversity), the infertile or

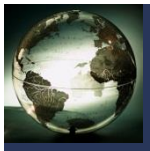
	unfeasible population (reducing the total population), the amount of species under threat and their degree of threat (by uncontrolled hunting or exploitation); and feeding and nesting sites would be damaged. All these impacts would be negative for biodiversity of the project area.
Biodiversity with-project scenario	▪The biodiversity in the Project Area has improved, as well as the water quality. ▪The areas with HCV identified in the Project Zone are recognised by the villager and have been maintained and improved the number endangered species in the Project Zone.
Biodiversity impact monitoring	**Variables** ▪Deforestation rate ▪Presence / absence of threatened species ▪Relative abundance of species ▪Alpha diversity ▪Beta diversity ▪Taxonomic structure ▪Trophic structure **Methodologies** ▪A Rapid Biological Assessment was developed using methodologies raised by the Rapid Assessment Program (RAP) of International Conservation. Such assessments are suggested to collect information about the presence/absence of species in areas of all kind (aquatic and terrestrial) and data of relative abundance. ▪Monitoring is carried out through indirect indicators by monitoring mammals, mainly the population of the Dasyproctidae family and particularly of the Dasyprocta variegata (Añuje) species as it is the main Brazil nut seed disperser. ▪The project through monitoring the Brazil nut areas, will carry out every two years the Participatory Rural Appraisal (PRA), which is a survey regarding the perception of the Brazil nut producer on the current situation in its area, which will allow focusing the efforts on areas potentially affected and implement appropriate measures to safeguard the forests. ▪Rivers and lakes: monitoring of indirect indicators will be carried out by analysing the Herpetofauna, with the presence/absence of species that top the food chain such as the Caiman crocodilus (Lagarto blanco), Paleosuchus trigonatus (Lagarto enano), Eunectes murinus (Anaconda), Boa constrictor (Boa) and Lachesis muta (Shushupe) that are good indicators of the site's health. ▪Jaguar (Panthera onca): The monitoring of this solitary

		and nocturnal species will be carried following its tracks, to determine the presence/absence in the Brazil nut forest. ▪Threatened Big Mammals: The monitoring will be carried out to determine the absence/presence of the species by direct methods (viewed and heard) and indirect methods (smell, traces and footprints). ▪Endangered Birds: Bird species will be monitored by direct methods (viewed and heard and indirect methods (traces). **Frequency** *Not stated*
Progress		
	**Validation**	VCS validation: 13th June 2012 CCBA validation: 15th January 2014 (Gold Level)
	Verification	VCS verification: 14th November 2013, 30,032 VCUs issued 19th November 2013
Further information		

- Bosques Amazonicos
  http://www.bosques-amazonicos.com/en/our-projects/redd-in-concessions-of-brazil-nuts-in-madre-de-dios-peru

- VCS Database
  https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=868&lat=-11.4881489093766&lon=-69.2404201325963&bp=1

- CCBA Database
  http://www.climate-standards.org/?s=REDD+Project+in+Brazil+Nut+Concessions+in+Madre+de+Dios



Mai Ndombe REDD+ Project

Distinctive features

The Mai Ndombe REDD+ Project area is a part of western DRC that had been allocated for a logging concession in natural forest. As a REDD+ project, the project aims to avoid emissions from logging and eventual deforestation by managing the area as a conservation concession. The primary agents of deforestation in the project area are the commercial logging conglomerate, SOFORMA. This company is a legally operating timber outfit that has been operating in the Mayombe Forest since the beginning of the reference period and beyond. The secondary agents of deforestation are local people who use the old logging roads to move into the forests once the logging is completed for subsistence agricultural practices and fuel wood/charcoal use.

The Mai Ndombe Project was jointly operated by Wildlife Works and Ecosystem Restoration Associates (ERA). Wildlife Works is a REDD project development and management company, while ERA is a Canadian-based company involved in forest restoration and conservation-based carbon offset projects. Wildlife Works has bought out ERA's 50% stake becoming sole manager of the project.

In 2008, following a governmental revision of the DRC National Forest Code, 91 of 156 logging contracts were suspended in an effort to address corruption in the sector. Minimum legal and environmental standards were not being met, which resulted in severe environmental damage. Two timber concessions extending along the western shore of Lake Mai Ndombe were among those suspended for review. In February 2010, ERA submitted a formal request to the DRC government to manage these concessions for the purpose of protecting the area from destructive logging practices, legal and illegal, using carbon revenues to promote sustainable development. In March 2011, a Memorandum of Understanding was signed between the Ministry of Environment, Conservation of Nature, and Tourism (MECNT) and ERA, in which any carbon rights resulting from the development of the project would be assigned to ERA.

The project activities are focused on four main themes: Stopping planned legal and reducing unplanned illegal logging; Agricultural improvement activities; Village-centred capacity building through Local Development Committees; Infrastructure and socio-economic development activities. The project activities were selected in consultation with the local communities as well as other stakeholders and officials from all levels of government. In return for the carbon rights, ERA is obligated to: build a minimum of 20 schools; construct health care centres in 5 villages; repair and extend secondary hospitals in 2 villages; assist transportation to off-concession markets for agricultural and other products; provide a network of rural canteens; improve agricultural production techniques; and recruit employees from local communities.

	Heading	Explanation
	Locational factors	
	**Location**	Located in the central part of the Congo River basin of the Democratic Republic of Congo
	Size	**Project area:** 299,640 ha
	Land cover	▪3 types: vegetation associated with semi-deciduous terra firma (upland) forests; vegetation associated with swamp (inundated and seasonally inundated forests); grassland savannahs. ▪Land cover is 93% forest
	Land use (drivers of forest change)	▪Commercial logging companies, primarily SOFORMA ▪Local villagers who convert heavily degraded forest into agriculture
	Basic project features	
	**Objectives**	***Climate objectives:*** ▪Reduce CO_2 emissions from the project area through stopping planned legal, and reducing unplanned illegal logging, charcoal production, and slash and burn agriculture. ***Community Objectives:*** ▪Enhance livelihoods and food security for communities in the project area ▪Increase local administrative and governance capacity through support of existing traditional and contemporary governance structures ▪Enhance the sustainable use of natural resources ▪Improve access to, and quality of, health and education ▪Improved access to, and quantity of, potable water ▪Improve community well-being ***Biodiversity Objectives:*** ▪Retain intact forests and ecosystem integrity at the landscape level ▪Retain and promote recovery of habitat as well as native flora and fauna ▪Retain rare and ecologically valuable species ▪Increase local and outside knowledge of the area's biodiversity values
	Proponent	▪Initially: ERA–WWC Joint Venture, a joint venture between ERA (Ecosystem Restoration Associates Inc) and Wildlife Works Carbon LLC. ▪Currently: Wildlife Works Carbon WWC) LLC has bought out ERA's 50% stake becoming sole manager of the project.
	Tenure/Carbon	**Tenure**

	rights	Democratic Republic of Congo is the sole owner of the project area lands. **Carbon rights** Ecosystem Restoration Associates (ERA) holds exclusive rights to sell carbon credits for carbon generated by the project area. This contract is effect for 25 years (can be renewed) and applies to the 299,640 ha project area.
	Actors involved in project design	▪ Technical components of the Mai Ndombe Project were supported by EcoPartners, who work with project developers, forest owners and verification bodies to build successful forest carbon offset projects.
	Upfront financing	WWC LLC is sufficiently capitalized to ensure completion of the project.
	Start date	14 March 2011
	Crediting period	30 years, 14 March 2011 - March 13, 2041
	Baseline emissions	
	**Methodology used**	VM0009 Methodology for Avoided Deforestation version 2.0
	Reference area	3,388,193 ha of forest, one non-forest land cover type (comprising 2,268 ha)
	Reference period	29 April 1987 to 13 March 2011
	Stratification of project area	*Only one forest stratum*
	Deforestation rate and location	**Historical** *Deforestation data from reference area for the reference period was fitted to a logistical function* **Projected** *Baseline projected from species and their related minimum DBH authorised for commercial logging (i.e. commercial biomass within the project inventory)* **Likely baseline scenario** Continuation of pre-project land-use activity, i.e. commercial logging **Modelling procedure** ▪The removal of merchantable biomass from the project accounting area is assumed to be evenly distributed across 25 years of logging activities in the baseline scenario. ▪Above-ground merchantable trees (AGMT): AGMT is assumed to be removed and converted to long-lived wood products by commercial logging agents. Residual AGMT biomass remaining in the baseline scenario is limited to those merchantable trees which are below the minimum diameters specified in the logging concession, and which are conservatively assumed to remain

		standing after the logging event. ▪Above-ground non-merchantable trees (AGOT): AGOT are assumed to be removed, burned or converted to fuel wood in the baseline scenario. ▪Following completion of commercial activity, below-ground biomass is conservatively assumed to decay over time. ▪Soil organic carbon (SOC): SOC is assumed to deplete to 56.99 tCO2e/ha. ▪All harvest wood is assumed to be used for sawnwood. Using a milling wood waste fraction of 0.24 for developing countries, a long-lived wood fraction of 0.8 and an oxidation fraction of 0.1, the amount of tCO2e sequestered in wood products after 100 years is estimated to be 668,092 tCO2e. ▪The secondary deforestation agent (local people) is assumed to follow the primary deforestation agent (commercial logging) after 5 years.
	Carbon pools	**Carbon pools included** ▪Aboveground tree biomass ✓ ▪Aboveground non-tree woody biomass × ▪Belowground tree biomass ✓ ▪Litter × ▪Dead wood × ▪Soil ✓ ▪Wood products ✓ **Estimation method** Within the accounting area, 463 sample plots were randomly generated for each of the three strata. At each point a nested circular plot of 15-m radius was used for the upper canopy, and a 5-m radius plot was used for understory vegetation.
	Carbon stock changes	*See Modelling Procedure under Deforestation Rate and Location*
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	Methane (CH4) and nitrous oxide (N2O) are conservatively excluded from the project
	Net emissions without project	220,922,762 tCO2e
Project GHG emissions reduction strategy		
	**Scope and measures**	**Scope** Avoid deforestation through development of local area

	Measure ***Management and enforcement*** ▪Manage former timber concession as a conservation concession and halt proposed legal logging extraction ▪Establish plantations to provide fuel wood to communities in project area ▪Local administration of extraction activities and prevention of logging ***Agricultural improvement*** ▪Demonstration of agroforestry techniques for use by communities in the project area (establish nursery and demonstration plots ▪Demonstration garden to promote agriculture diversification ▪Assistance to farmers to commercialise their products ***Community-led capacity building*** ▪Establish local development committees in villages ▪Run education workshops on sustainable management of forest resources and on climate change ***Social service infrastructure*** ▪Construct 20 schools; establish mobile medical unit; skill training, including English language
Additionality	▪The investment analysis demonstrated that the scenario with the greatest financial returns would be the granting of a logging concession to a timber company for commercial harvest. ▪The VCS AFOLU project generates no financial or economic benefits other than VCS-related income. ▪There are no activities similar to the activities proposed by this project that are underway in the geographic area of the project.
Leakage avoidance strategy	▪Because there is no forested area (except for the project area) that is accessible to the secondary agents within the range of their mobility, these agents are unable to shift their deforestation activity to nearby forests, and therefore activity-shifting leakage would not occur. ▪Market effects leakage is also not applicable.
Non-permanence risk mitigation strategy	▪Civil or Political Instability: the project does not depend logistically on government; state presence in the Mai Ndombe region is very limited; strong local support for project. ▪Land Tenure: The proponent plans to maintain a close, collaborative relationship with communities which will minimise any risk of consent to land use being put in jeopardy. ▪Illegal Activities: Any significant logging activity is easily

		monitored and detected. The Mai Ndombe project will work with timber concession holders remaining in the area to minimise the risk that their activities will trespass onto the conservation concession. ▪Fire, Disease, and Other Natural Risk: The Mai Ndombe REDD project's protection of intact forests and landscape-scale ecosystem integrity is the best available means for mitigating the impacts of climate change and reducing the risk of fire.
With-project emissions		
	**Effectiveness of measures**	**Assumptions** **Modelling** *Assumed 100% effective as commercial logging completely avoided by changing status from logging concession to conservation concession*
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	Methane (CH4) and nitrous oxide (N2O) are conservatively excluded from the project
	Leakage	**Activity shifting** Activity-shifting leakage is not applicable to this project. **Market effects** Market effects leakage is not applicable to this project. **Deduction** *Not applicable*
	Non-permanence risk	**Buffer** *Following VCS AFOLU Non-Permanence Risk Tool, version 3.1., the total overall risk rating for non-permanence is 25%*
	Ex-ante estimated net greenhouse gas emissions reductions	**Total over crediting period:** 175,820,011 tCO2e **Annual average:** 5,860,667 tCO2e **Annual average per ha:** 19.6 tCO2e
	GHG emissions impact monitoring	▪The monitoring plan contains a plan for all MRV activities associated with the Mai Ndombe Project, including a full sampling protocol for the Project Accounting Area and Proxy Area, a soil sampling protocol, Identification of Disturbance protocol and a description of data collection, storage and QA/QC procedures. ▪Plots will be re-measured every 5 years, with 20% of the plots visited each year
Stakeholder identification and engagement		
	**Stakeholders**	*Not listed as such, but PDD mentions local communities*

	identified	*and Rural Development Communities. 23 communities signed the TOR (Cahier de charges) for ERA to manage the conservation concession.*
	Identification process	Initial consultations undertaken to become familiar with potential stakeholder communities
Full and effective participation		
	**Access to information and consultation**	Initial consultations with potential stakeholder communities conducted from June – Nov. 2010. Initial visits consisted of introductions to concepts such as carbon cycles and REDD, introductions of project staff, and an initial project proposal. Lengthy question periods followed and were transcribed. Initial visits and question periods typically lasted between 2 and 4 hours. Each visit received at least one follow-up visit on a subsequent day. Over a period of weeks, communities were given opportunities to ask questions and discuss the project internally (while project proponents were not present).
	Participation in design and implementation	Stakeholder engagement has occurred through the following process: ▪Initial Consultations – villages in the project area were approached and the project introduced ▪Negotiation of Terms of Reference – villages negotiated terms for support on infrastructure such as schools ▪Participatory Rural Appraisal Process - capturing extensive socioeconomic information about the villages ▪Land Chief Participatory Mapping Process – chiefs of the villages met to map out and clarify traditional territories ▪Community Workshops Discussing Climate Change and Ecosystems – held in 9 villages ▪LDC Building Process – establishment of local development committees (LDC) in villages ▪Local Development Plan Process – each community will submit a plan for development to the Mai Ndombe project
	Anti-discrimination	The Mai Ndombe REDD Project is committed to hiring based on the principle of equal opportunity and regardless of gender, race or religious belief. When job candidates are equal in qualification, experience and test scores, local candidates will be given preference in filling positions.
	Feedback and grievance redress procedures	Two types of issues are accounted for in the grievance process: ▪Issues or conflict between the Community and ERA Congo ▪Concerns regarding worker rights, work practices, and worker safety raised by ERA employees or contractors

		▪Where complaints cannot be solved immediately and written complaints are received ERA will attempt to resolve all reasonable grievances raised and provide a written response to grievances within 30 days.
	Worker relations	All employee rights and employer regulations and responsibilities in the DRC are covered by the Code du Travaille.
Communities		
	**Without-project scenario**	**Variables** Income, health, education **Assessment methodologies** *Narrative provided* ▪Problem Flow Diagram for Access to Quality Education & Health Care ▪Problem Flow Diagram for Access to Potable Water ▪ Problem Flow Diagram for Food Security and Economic Alternatives **Description** ▪Extreme underdevelopment of the communities within the project area could be expected to continue with the continuation of timber harvesting. While the government is adopting new regulations regarding indigenous and rural land-user rights to forest resources (both timber and non-timber forest products), it currently lacks the capacity to monitor the sustainable exercise of these rights. Even though the former logging company was extracting highly valuable trees in the concession and therefore making substantial profit from this activity, the return for the community was insignificant at best. ▪Without the project, an ongoing chronic lack of resources would keep education and healthcare infrastructure and delivery capacities at the presently very low level. ▪Access to clean drinking water is not expected to increase because there is no well digging equipment present in the Inongo territory or evidence of efforts to improve the current situation. ▪A heavy reliance on one subsistence crop, cassava, which is mainly starch with very low levels of vitamins and protein, and declining fish stocks in the area often result in food shortages and a high level of malnutrition across all ages.
	With-project community and other stakeholder scenario	**Expected net benefits** Over the long term, impact is improved community wellbeing through improved governance, education, health and agriculture. **Possible negative impacts to be mitigated**

		Off-site stakeholder impacts include ▪Change in volume of resources extracted from the project area that may result in reduced employment or access to these resources outside of the project area. This is not considered sustainable anyway. ▪Competition due to increased quality and/or quantity of agricultural products exported from the project area. Project products are expected to be shipped out of the local area and will not compete at local markets.
	Community impact monitoring	**Variables** Workshops; Facilitation; LDCs established; local development plans; schools built; students attending; mobile medical clinic established; new & repaired healthcare centres; establishment of tree nursery; agroforestry demonstration plots; domestic animal enclosures **Methodologies** The theory of change method, also known as the causal model, was chosen to estimate the impacts of project activities on the community. **Frequency** *Not applicable as project examines the outputs completed rather than on-going changes*
Biodiversity		
	**Biodiversity without–project scenario**	**Variables** Canopy gap opening size, regeneration, logging roads, species, plant communities **Assessment methodologies** *Review of literature on impacts of logging in tropical forests and in Congo Basin in particular* **Description** ▪The project area is 93% forested, with dense semi-deciduous terra firma forest (also referred to as upland forest) representing half of the total area. Swamp forests (permanently inundated or seasonally inundated forests) represent 45% of the total forested area, or 41% of the project area. Terra firma (upland) forest is dominated by large deciduous tree species that shed their leaves during the dry season, mixed with evergreen species in the upper canopy layer. Swamp forests are dominated by large, mostly evergreen trees, many of which have extensive stilt root systems. The ecology of the project region is very poorly known. ▪The anticipated sequence is as follows: selective logging; a resultant increase in the unplanned extraction of forest resources (charcoal, fuel wood, local construction materials, non-timber forest products, bushmeat) due to increased access; swidden agriculture

	leading to a permanently deforested state; irreversible degradation of soil productivity due to loss of forest cover and unsustainable agricultural practices. The expected result of this sequence with respect to biodiversity and ecosystem integrity is forest fragmentation (i.e., a loss of landscape connectivity), a decrease in or extinction of species, loss of habitat, loss of soil nutrients, and sedimentation of wetlands.
Biodiversity with-project scenario	Ecological integrity of the area is protected at the landscape scale.
Biodiversity impact monitoring	**Variables** Assignment of forest concession contract and carbon rights; workshops; introduction of alternate livelihood options; locally consulted strategies to reduce hunting pressure; flora and fauna surveys **Methodologies** The theory of change method, also known as the causal model, was chosen to estimate the impacts of project activities on biodiversity **Frequency** *Not information given*

Progress

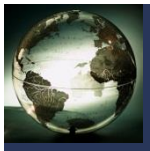
Validation	VCS validation: 6th December 2012 CCBA validation: 6th December 2012 (Gold Level)
Verification	VCS verification: 6th December 2012 for period 14th March 2011 to 31st October 2012, On 11/12/2012 a total of 1,000,000 VCUs were issued for the project. CCBA verification: 6th December 2012 for period 14th March 2011 to 31st October 2012

Further information

- Wildlife Works:
  http://www.wildlifeworks.com/redd/

- VCS Database:
  https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=934&lat=-1.659042&lon=17.893816&bp=1

- CCBA Database:
  http://www.climate-standards.org/2012/09/03/mai-ndombe-redd-project/



Cordillera Azul National Park REDD Project

Distinctive features

Cordillera Azul National Park (PNCAZ) REDD Project aims to protect a large, intact expanse of lower-montane forest remaining in Peru. The project area consists of 1,351,964 hectares within the park that belongs to the national government of Peru. Upon its formation in 2002, the Peruvian non-government organization (NGO) Centro de Conservación, Investigación, y Manejo de Áreas Naturales– Cordillera Azul (CIMA) voluntarily signed an agreement with the Peruvian government to support the management of the park.

The total population in the districts around and including the park in 2008 was 321,000. This population has access to the park for subsistence hunting and fishing. The possibility of non-contacted indigenous people from the Cacataibo group living in the southeast region of the park led to the establishment of a "strict protection zone" (Zona de Protección Estricta in Spanish) in the region that permits zero outside entry. Until these people come out of their own volition and request contact, the region remains closed to all entry or use.

The PNCAZ REDD Project will be implemented and managed by CIMA in collaboration with partners in Peru and the United States. CIMA is the only NGO with a contract with the Peruvian government for full management of the entire national park and buffer zone. The project's primary objective is to prevent all deforestation in PNCAZ. CIMA will achieve this objective by focusing on two categories of activities: park protection activities and buffer zone activities to stabilize and promote sustainable land use and improve the quality of life for the communities.

The greatest driver of deforestation in the project zone is the advancement of the agricultural frontier. As immigrants move to the area from the high Andes, they are not familiar with the local ecosystem, crops or communities. Immigrants tend to clear an area and then farm for a period of time until the land erodes or is unfertile. Once this happens, the family tends to move on to a new parcel of land and repeat the cycle. Park protection activities prevent incursions into the park and raise awareness of the boundaries and permitted uses inside the park. Buffer zone activities are designed to slow or stop advancement of the agricultural frontier. Assisting communities in land use zoning and development of sustainable agricultural practices aims to allow families to use their land in ways that reduce erosion or depletion, permitting them to remain in the same location rather than move on and deforest additional lands every few years. Land tenure also helps stabilise land use: families with clear, uncontested title to their land are much less likely to migrate or deplete their soils.

Other than the anticipated sale of carbon credits, there is no other source of income for the activities that would take place under the project.

	Heading	Explanation
Locational factors		
	**Location**	Cordillera Azul National Park (PNCAZ), central Peru
	Size	**Project area:** 1,351,964 ha
	Land cover	Alluvial forests; hill forests; mountain forests; wetlands
	Land use (drivers of forest change)	▪Subsistence agriculture; ranching; logging
Basic project features		
	**Objectives**	▪Protecting the park ▪Building local capacity for sustainable land use and improving the quality of life in the buffer zone communities ▪Strengthening relationships with local, regional and national government agencies
	Proponent	Centro de Conservación, Investigación y Manejo de Áreas Naturales – Cordillera Azul (CIMA – Cordillera Azul). Responsible for coordinating and overseeing all project activities
	Tenure/Carbon rights	**Tenure** CIMA has 20 year full management contract of the park starting 8 August 2008 **Carbon rights** CIMA has carbon rights for 20 years, starting from 8 August 2008
	Actors involved in project design	▪CIMA ▪Local communities through consultation prior to the next Plan Maestro ▪Organisations that assisted in development of project documentation ▪ The Field Museum ▪ TerraCarbon LLC
	Upfront financing	CIMA via various funders.
	Start date	8 August 2008
	Crediting period	8 August 2008 – 7 August 2028 (20 years)
Baseline emissions		
	**Methodology used**	Methodology VM0007 module BL-UP v3.1. The population driver approach is employed.
	Reference area	3,193,479.36 ha
	Reference period	1989 to 2003
	Stratification of project area	Alluvial forests; hill forests; mountain forests; wetlands

Deforestation rate and location	**Historical** 2.38% in the reference area **Projected** 68,351.85 ha deforested in the project area from 2009 – 2018 (baseline period) **Likely baseline scenario** Continuation of deforestation activities taking place prior to CIMA's work in the region **Modelling procedure** ▪Time series of classified Landsat imagery from 1989 to 2003 was used alongside population estimates for each district for the years 1989 and 2003 interpolated from 1981, 1993 and 2007 Instituto Nacional de Estadística e Informática (INEI) official censuses. ▪Land cover classifications of forest and non-forest were created for each time step. Forest cover change in each district between 1989 and 2003 was assessed from this time series of classified Landsat imagery. ▪For the baseline, the deforestation rate was projected for each municipality in the reference region using the dynamic analysis of the correlation between population and deforestation. ▪Location analysis was conducted since the population driver approach for projecting rate of deforestation was employed. Spatial analysis was conducted with the IDRISI TAIGA software and the Land Change Modeller (LCM) which is an integrated software environment. LCM was used to produce a vulnerability map of the project area and leakage belt. ▪Factors included in the modelling: distance to roads, rivers, towns, forest edge, mining concessions, indigenous areas, elevation, slope, soil, vegetation, geology
Carbon pools	**Carbon pools included** ▪Aboveground tree biomass ✓ ▪Aboveground non-tree woody biomass ✓ ▪Belowground tree biomass ✓ ▪Litter × ▪Dead wood ✓ ▪Soil × ▪Wood products × **Estimation method** ▪Stocks from within the PNCAZ were derived from the 2009 forest inventory of PNCAZ ▪Leakage belt stocks were derived by first delineating three high order forest classes - humedales-vegetacion inundable and vegetacion de tierra firme and

		anthropogenic forest. ▪For each of the three classes, spatially-explicit aboveground biomass data were obtained from which an area-weighted mean live aboveground tree carbon stock was estimated. ▪Belowground biomass was then estimated from aboveground biomass. ▪Stocks of lying and standing dead wood were estimated referencing proportion of total forest carbon represented by these pools of 7%, as calculated from results of the 2009 PNCAZ forest inventory.
	Carbon stock changes	The resulting non-forest land-use practices in the baseline are cultivation (shifting cultivation) and pasture. Preference was given to sourcing locally-derived estimates of biomass carbon stocks for these classes. Where local estimates were unavailable, values were sourced from IPCC 2006GL and global literature.
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	Excluded
	Net emissions without project	28,970,971.6 tCO2e
Project GHG emissions reduction strategy		
	**Scope and measures**	**Scope** Avoided deforestation **Measure** ▪Current signage, park guard stations and control posts will be evaluated and expanded as appropriate. ▪Signs and park guard stations will be maintained. ▪Strategies of protection and control inside the park will be updated and modified as needed. ▪The communal park guard programme will be expanded. ▪Park guard reports will be sent to both CIMA's Tarapoto office and SERNANP (National Service of State National Protected Areas). ▪An illegal cattle rancher will be removed. ▪New Plan Maestro will begin to be drafted. ▪Quarterly reports to SERNANP to summarize CIMA's activities will be created. ▪ Zonificación Ecológica Económica will be implemented in the districts of Shamboyacu, Pólvora, Campanilla y Alto Biavo; including 15 towns (centros poblados) and 1

	indigenous community in the four districts. ▪Comprehensive extension strategy for involvement of buffer-zone communities in park protection will be designed. ▪Data from 2008 community asset mapping methodologies to gather information needed to plan activities and update the Plan Maestro will be analysed. ▪Classroom in Action primary education modules in 3 towns in Shamboyacu will be implemented. ▪Agreements will be renewed with the UGELs (Education Districts) of Tocache, Contamana, and San Martin to continue working formally with the schools. ▪Two formal environmental education guides will be published. ▪Community outreach programme will be implemented. ▪Regional community meetings will be held to identify regional land use and quality of life 20-year visions. ▪Community-wide activities that will achieve the goals of the communities, diminish deforestation in their lands, and avoid deforestation in PNCAZ will be agreed and the best means to scale the pilot projects up to community or region-wide efforts will be defined. ▪Data will continue to be gathered on individual community characteristics, composition, backgrounds, values, and activities to inform, update, and revise activity planning. ▪Relationships with local, regional, and national governments will be maintained and expanded strategically. ▪CIMA will identify ways to support the government agencies in processing information, raising awareness of laws and regulations, and identifying threats to PNCAZ. ▪CIMA will continue to advocate for the park as necessary to mitigate threats from new roads, logging, mining, or oil concessions, and other impending events.
Additionality	Annual management costs associated with Cordillera Azul National Park are roughly $1.7 million USD. With the successful validation and verification of the project, the annual costs are expected to increase 20% to expand the land use and extension activities to a larger number of communities in the buffer zone (roughly 35% of communities have benefited to date and that proportion would increase), undertake the carbon monitoring and verification of carbon credits, expand communication efforts of the project to the secondary stakeholders, undertake outreach and capacity building among other REDD proponents in Peru, and cover inflation on such costs as salaries, transportation, and equipment. No additional sources of revenue exist for the project.

	Leakage avoidance strategy	Leakage due to market effects is not anticipated as wood collection is subsistence-driven.
	Non-permanence risk mitigation strategy	▪Concessions in the buffer zone – The Peruvian government has granted timber, mining, and oil concessions in the buffer zone. CIMA will continue to build relationships and work closely with local, regional, and national government entities to monitor concession activities. ▪Lack of land tenure in the buffer zone – Results in weak ties to a specific location and no motivation to remain as erosion and soil depletion occurs. CIMA will teach sustainable land-use practices; facilitate land-tenure processes; communicate with as many communities as possible, and improve the quality of life in the communities. ▪Illegal activities in the buffer zone creating additional deforestation pressure – CIMA will raise awareness of laws and regulations to enable communities to monitor and report illegal activities. As many illegal activities are driven by a need for additional resources, local communities will be taught sustainable land-use practices. ▪Increased tensions between communities – CIMA cannot work with all communities and must prioritise. Communities not located in critical areas may become jealous. CIMA will work to ensure constant communication with as many communities as possible to identify and address concerns as quickly as possible.
With-project emissions		
	**Effectiveness of measures**	**Assumptions** **Modelling** 90% success rate in preventing illegal deforestation No emissions from degradation from illegal logging
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	Excluded, but in each monitoring period, non-CO2 emissions will be evaluated and if >5% will be included.
	Leakage	**Activity shifting** Leakage emissions accounted for are entirely from displacement of unplanned deforestation. For ex ante purposes, a leakage factor of 20% is applied, i.e. 20% of deforestation caused by local agents is shifted outside of the project area due the project activity. *Leakage was also calculated for potential migrants (agents of deforestation) into the area that the project causes to*

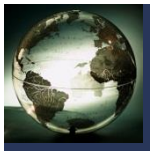
		move to other areas. **Market effects** Leakage due to market effects is equivalent to zero because the project is not anticipated to impact any commercial harvesting activities. **Deduction** Estimated leakage deducted from net REDD benefits with project
	Non-permanence risk	**Buffer** Risk buffer of 10% is used
	Ex-ante estimated net greenhouse gas emissions reductions	**Total over crediting period:** 15,752,683 tCO2e (2008 – 2018) **Annual average:** 1,572,268 tCO2e (2008 – 2018) **Annual average per ha:** 1.16 tCO2e (1572268tCO2e/1351963.85ha)
	GHG emissions impact monitoring	For accounting purposes the project conservatively assumes stable stocks and no biomass monitoring is conducted in areas potentially undergoing carbon stock enhancement. Monitoring of actual emissions in the project area focuses on: ▪Emissions due to deforestation and natural disturbance ▪Emissions due to illegal degradation ▪Emissions due to biomass burning
Stakeholder identification and engagement		
	**Stakeholders identified**	▪Two groups – primary stakeholders with direct involvement in the project area; secondary stakeholders are communities in the buffer zone without residency or rights in the project area. ▪Primary stakeholders – Ministry of the Environment, Peru; SERNANP; PNCAZ; Regional Environmental Authority, San Martin; Conservation, Management and Sustainable Use Programme of Loreto's Biodiversity (PROCREL), Loreto; Moore Foundation; USAID; MacArthur Foundation; Exelon; CIMA Board Members; Representatives of the park guards of PNCAZ; Grupo REDD Peru representative.
	Identification process	*Not directly mentioned, however the project document states CIMA is making efforts to reach all stakeholders particularly those in the buffer zone.*
Full and effective participation		
	**Access to information and consultation**	▪Key project documents will be posted to CIMA's website in both English and Spanish. ▪Monthly visits of CIMA's technical field staff to communities will provide an opportunity to present information and receive comments from the secondary

		stakeholders.
	Participation in design and implementation	▪Minutes of the CG (Comité de Gestión) meetings, park guard reports and technician reports will capture the input received from communities. ▪Emails, meeting minutes and phone logs will capture input from primary stakeholders. ▪The Index of Conservation Compatibility documentation and quarterly project reports will capture how the plan has been revised as a result of stakeholder dialogues. ▪Once the regional community meetings have occurred in 2008 and early 2009, a summary document will be prepared in conjunction with the new Plan Maestro documenting this input process, its results, and how the project has been developed in line with it.
	Anti-discrimination	▪*CIMA follows all applicable laws (listed in the project document).* ▪*Local communities are at the heart of the project and success hinges on their active participation*
	Feedback and grievance redress procedures	▪There is no formal written procedure for the complaints process but it will be applied consistently. ▪To date, all issues have been satisfactorily resolved through this process. ▪Issues addressed immediately in the field will be documented in the park guard's or technician's report without formal written summary provided to the individual. ▪For issues that cannot be immediately resolved and forwarded to CIMA's offices or Headquarters, a written response will be issued to the individual in question within 30 days.
	Worker relations	CIMA abides by and exceeds its obligations to workers based on laws, providing all social and health benefits established by law.
Communities		
	**Without-project scenario**	**Variables** Community identity, migration, visions for the future, local myths and legends, resource consumption, social organization, agriculture, timber and non-timber products, and economic activities **Assessment methodologies** Existing studies: Social Asset Mappings that CIMA and The Field Museum conducted in 2003, 2005, and 2008 with buffer zone communities, using community assemblies and household interviews to conduct structured and semi-structured interviews. Eight focus groups were used in each community along with individual interviews: four focus groups included

	residents of both genders and all age groups, two focus groups included only women, one group was of community leaders, and one included only specialists or experts (e.g., the best hunters). Individual interviews were conducted with health workers, teachers, and directors of the local school if one is present, and other significant individuals like shamans, healers, and community leaders or founders. **Description** ▪Risk without the project to the non-contacted indigenous peoples reported to use the south eastern portion of PNCAZ. ▪Expansion of settlements and subsistence farming activities from the buffer zone into the park and an expected increase in illegal logging. Extraction of park resources and deforestation could generate short-term economic gains for a few people, but these activities would be illegal and thus not without risk for most people doing the work. ▪Expansion of agricultural lands into the park area would occur in the absence of the project, but without opportunity for land title, ownership, or stewardship. ▪No funding for land use planning in the buffer zone and reduced support to local and regional governments to enforce zoning. ▪Increases in land speculation, and uncontrolled population growth with more in-migration, resulting in an increase in already severe erosion and soil loss, and aggravated droughts and reduced river flows.
With-project community and other stakeholder scenario	**Expected net benefits** ▪The project is expected to ensure that there is no contact with the indigenous people in isolation who use the park, as well as to protect the area they use. This is a net positive impact. ▪Significant improvements in land security and quality of life for communities in the buffer zone. **Possible negative impacts to be mitigated** The project is not expected to have any direct impact, positive or negative, on communities outside the project zone.
Community impact monitoring	**Variables** Natural capital, social capital, human capital, physical capital, economic capital **Methodologies** ▪Natural capital – field staff reports ▪Social, Physical and Economic Capital - Community Asset Mapping ▪Human Capital – number of people certified in new skills

		Frequency ▪Natural Capital – annually at time of Index of Conservation Compatibility evaluation and more thoroughly every 3 years with MUF (community asset mapping methodologies) ▪Social, Physical and Economic Capital – every 3 years ▪Human Capital - annually
Biodiversity		
	**Biodiversity without–project scenario**	**Variables** Natural vegetation cover, ecosystems, species, endemism and unique species **Assessment methodologies** Existing inventories, literature **Description** ▪Scientists estimated a total of 4000 – 6000 plant species in the park, with at least 12 likely new to science registered in the inventory. Scientists observed 71 large mammal species including bush dogs, spectacled bears, 10 species of primates, and enormous herds of white-lipped peccaries. Bird diversity is pronounced, with more than 600 species registered for the small portion of the park that has been inventoried. The 2000 inventory registered 58 species of amphibians and 26 of reptiles. Inventories to date have confirmed more than 175 species of fishes. ▪Deforestation would fragment one of the largest protected areas and one of the last remaining, intact altitudinal corridors in the eastern tropical Andes. Notable reductions in population sizes and declines in species numbers are expected.
	Biodiversity with-project scenario	This project will result in the long-term protection of Cordillera Azul National Park. Given the vast size of the park, protection activities inside the park, and land use stabilization efforts in the buffer zone, no change in the abundance and diversity of the rich biota inside the park is expected to occur due to the project, thus maintaining the high conservation values associated with biodiversity.
	Biodiversity impact monitoring	**Variables** Natural vegetation cover, presence of species locally threatened by hunting, abundance of species locally threatened by hunting, rules of use violations or infractions according to the protection status and zoning of the park **Methodologies** Satellite imagery for natural vegetation cover, park-guard reports and data from hunters for other variables

		Frequency ▪Natural vegetation cover – annual ▪Presence of species – monthly ▪Abundance of species – quarterly ▪Rules of use violations – monthly.
Progress		
	**Validation**	VCS validation: 1st February 2013 CCBA validation: 19th February 2013 (Gold Level)
	Verification	VCS verification: 1st February 2013 CCBA verification: May 2013
Further information		
	▪Terra Carbon http://terracarbon.com/projects/summary/pncaz_redd_project/ ▪VCS Database https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=985&lat=-6.487027&lon=-75.347861&bp=1 ▪CCBA Database http://www.climate-standards.org/2012/09/20/cordillera-azul-national-park-redd-project/	



Florestal Santa Maria Project

Distinctive features

The Florestal Santa Maria S/A (FSM) forest estate is a rural property covering 71,714 ha in the Municipality of Colniza, which lies in the North western region of the State of Mato Grosso, Brazil. The FSM is solely dedicated to sustainable management of natural forests. The proposed REDD project aims to combat illegal conversion of parts of the FSM forest by settler groups.

The FSM is a section of a larger colonisation initiative, initiated in 1975, by means of the legally established state effort to develop the northern region of the State of Mato Grosso. There were no inhabitants in this area at this time, and during the 1980s and 1990s this led the National Institute for Colonisation and Agrarian Reform (INCRA) and the Institute of Territories of the State of Mato Grosso (INTERMAT) to choose part of this area to resettle new immigrants from other parts of the country. However the fact that these people are not used to and lack knowledge of how to live with and manage the Amazon forest led to the current rampant deforestation. The current FSM farm is presently subject to risks of invasions by squatters. The farm has undergone increasing invasions mainly facilitated by the distribution of lands promoted by INCRA, which settled hundreds of families in their land spots. Once installed nearby the farm boundaries, neighbouring families led by professional land-grabbers started to occupy and deforest new lands, to exploit timber as an immediate source of earnings.

The project proponent believes that peace and social development will only be possible by creating formal employment and the legal benefits related to them. This is one of the purposes of FSM's forest management plan. The proponent intends to use carbon finance to help combat risks such as illegal encroachment, fund a new technical school to assist high school graduates to become qualified spotters, choppers, and forestry equipment operators, and provide forest management courses to the communities, with the aim that this may lead to qualifications that enable them to work in the project.

	Heading	Explanation
Locational factors		
	**Location**	Municipality of Colniza, North western region of the State of Mato Grosso, Brazilian Legal Amazon
	Size	**Project area:** 62,824.33 ha
	Land cover	Submontane lianas and palm trees, and aluvial, slope, dense and submontane forest
	Land use (drivers of forest change)	Illegal land grabbing, logging, slash-and-burning, cattle ranching
Basic project features		
	**Objectives**	Avoid deforestation through forest conservation
	Proponent	Florestal Santa Maria S.A.
	Tenure/Carbon rights	**Tenure** Florestal Santa Maria (FSM) S.A. is the land owner **Carbon rights** *As land owner, Florestal Santa Maria S.A. appears to own carbon rights*
	Actors involved in project design	▪PLANT Inteligência Ambiental Ltda – a technical advisory ▪Bunge Emissions Group – collaborator and member of the project steering committee. ▪AVIX Geo Ambiental - similarity analysis and deforestation risk analysis ▪Pinheiro Neto Advogados – legal advice ▪VO2 Desenvolvimento Empresarial - project coordination and advice to FSM
	Upfront financing	Project cash flow breakeven point is less than 4 years from the current risk assessment. The project has secured 80% or more of funding needed to cover the total cash out before the project reaches break even.
	Start date	April 13, 2009
	Crediting period	30 years, 13 April 2009 – 13 April 2039
Baseline emissions		
	**Methodology used**	Approved VCS Methodology VM0007 Version 1.1 7 September 2011
	Reference area	322,405.07 ha
	Reference period	1999 – 2010
	Stratification of project area	The forest was divided into four strata: alluvial; slope (encosta); dense sub-montane (densa submontana) and sub-montane lianas and palm trees (submontana cipos e palmeiras)

Deforestation rate and location	**Historical** 2.94% in reference area **Projected** 2.94% **Likely baseline scenario** ▪In absence of REDD project, it is assumed that the project zone would undergo the same deforestation as other neighbouring lands, which exhibit deforested areas far above the limits stipulated by Brazilian Forest Code. ▪Deforestation occurs through clear-cutting of forests for logging followed by pasture installation (~90%) or coffee cultivation (~10%). **Modelling procedure** ▪Location analysis involved the preparation of deforestation risk maps. Algorithms of internationally peer-reviewed modelling tools were selected to prepare deforestation risk maps. ▪The criteria used for adjustment of these algorithms were based on proximity with deforested areas, proximity with roads, proximity and dimension of water bodies, landscape characteristics, and limits of parks and indigenous reserves. ▪For conservative calculation purposes, only the areas under "Very High" and "High" deforestation risk classes were considered to be deforested in the baseline, which corresponds to a total deforestation of 87.6% of the Project Area (62,824 hectares) over 30 years.
Carbon pools	**Carbon pools included** ▪Aboveground tree biomass ✓ ▪Aboveground non-tree woody biomass ✓ ▪Belowground tree biomass ✓ ▪Litter × ▪Dead wood × ▪Soil × ▪Wood products ✓ **Estimation method** ▪Permanent sampling plots were installed in the field considering the minimal sampling for each stratum, in order to obtain a representative sample with maximum of 15% error. The field carbon inventory involved the installation of 18 permanent transects, composed by a total of 128 permanent plots. ▪For application of allometric equations, trees were divided in two DBH classes: DBH ranging from 4.46 cm to 81.99 cm, application of allometric equation from NOGUEIRA et al. (2008); DBH higher than 82.00 cm, application of allometric equation from COLPINI et al.

		(2009) (p. 99). ▪The equation used for estimation of total aboveground biomass in palm species was that presented by SALDARRIAGA et al. (1988). For total aboveground tree biomass calculation, merchantable biomass of trees was multiplied by a BCEF (biomass conversion and expansion factor) for conversion of merchantable volume to total aboveground tree biomass equal to 1.66. A root-shoot ratio of 0.37 was used to calculate below ground tree biomass.
	Carbon stock changes	Forest land replaced with pasture (~90%) and coffee crops (~10%) (to be conservative, no use of nitrogen fertiliser (N20 emissions) is assumed for these crops)
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	CH4 and N2O included for biomass burning
	Net emissions without project	35,240,485.07 tCO2
Project GHG emissions reduction strategy		
	**Scope and measures**	**Scope** Avoided deforestation and degradation **Measure** ▪Fire brigades: fire brigades will be organised from local labour ▪New Technical School: will be established to assist high school graduates to become qualified spotters, choppers, and forestry equipment operators. ▪Forest management: courses will be offered to the local community, potentially leading to the qualification of people who can work in the project. ▪Support to SEMA-MT (state government): will benefit from having an innovative model that can be replicated in other properties and across the region. ▪Potential roll-out to other areas: other areas with the potential to be included in REDD projects have already been identified. ▪Fight against illegal land occupation: the local community will monitor illegal land occupation and potential illegal logging. ▪Feasibility study for a small non-wood product processing plant: will measure the property's potential to produce non-wood products (such as fruit, oils and essences).

Additionality	▪FSM farm will not be able to afford large long-term costs and efforts for vigilance of land property. Deforestation would be unavoidable in the absence of the project.
Leakage avoidance strategy	▪Hold programmes within the region of its influence for education of local communities, seeking to create culture and policies for sustainable development ▪Continuous monitoring and interventions on areas surrounding the Project
Non-permanence risk mitigation strategy	▪Experienced project management team ▪Strategically located bases for monitoring purposes ▪Funding is broadly secured; little risk of financial problems ▪Legally binding commitments to protect carbon stocks and continue current management practices ▪Project has net positive benefits; should gain support from local community ▪Risk of fire contained through the establishment of fire brigades

With-project emissions

Effectiveness of measures	**Assumptions** **Modelling** *Appears to assume 100% effectiveness of measures in stopping illegal deforestation in project area*
Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	▪Emissions related to forest management activities inside project area accounted for. Includes emissions from felling timber, including from incidental damage cause by falling timber, and from construction of infrastructure, e.g. logging tracks and skid trails. ▪Fossil fuel emissions excluded ▪N20 and CH4 excluded from forest management activity accounting
Leakage	**Activity shifting** Immigrants prevented from migrating into and deforesting the project area are conservatively assumed to migrate to an alternative forest area and to cause deforestation in the alternative area. **Market leakage** Occurs as communities denied entry to FSM forests are expected to deforest elsewhere. First step in deforestation is to extract and sell the commercial timber, before clearance for pasture or coffee. **Deduction** *Estimated leakage deducted from estimated annual REDD benefits*
Non-permanence	**Buffer**

	risk	13.5%
	Ex-ante estimated net greenhouse gas emissions reductions	**Total over crediting period:** 29,923,331.0 tCO2e **Annual average:** 997,444.37 **tCO2e (30 years)** **Annual average per ha:** 15.9 tCO2e/ha
	GHG emissions impact monitoring	▪The baseline scenario will be monitored through an assessment of the driver variables and assumptions by LANDSAT 5 to project deforestation expected in the baseline scenario. These parameters will be re-validated after each baseline renewal (10 years), based on the calculation of the verified post facto baseline deforestation (in hectares) of the past 10 year period – in comparison with other location not affected by the project activities. ▪In addition to a regular revision by satellite images of the area covered by the project, there will be a team stationed within the property, which will conduct on-site surveillance of deforestation within and on the borders of the property to ensure the maintenance and preservation of the forest.
Stakeholder identification and engagement		
	**Stakeholders identified**	*List of stakeholders not provided. Affected communities are to be engaged within the project activities.*
	Identification process	*Unclear*
Full and effective participation		
	**Access to information and consultation**	▪Public hearing in August 27, 2002 where Forest Stewardship Plan was shared. ▪Website established with request for feedback given.
	Participation in design and implementation	Less than 20% of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted.
	Anti-discrimination	*No details given*
	Feedback and grievance redress procedures	*No details given*
	Worker relations	*No details given*
Communities		
	**Without-project scenario**	**Variables** *None given* **Assessment methodologies** *Publish literature referred to when providing basic description of situation* **Description**

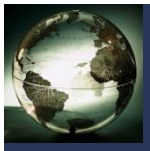
		Without the project, communities would continue their land invasions and deforestation
	With-project community and other stakeholder scenario	**Expected net benefits** The project has the potential to provide its participants with new sources of income, besides stimulating the generation of jobs linked to the forest management, generating a new demand for products originated within the boundaries of the project, and expanding the conditions for improved education and health services to the neighbouring community, with greater access to other development centres thanks to a more adequate transportation structure. **Possible negative impacts to be mitigated** *None given*
	Community impact monitoring	**Variables** *None given* **Methodologies** *None given* (Community impact monitoring will be carried out primarily through the analysis of the outcomes of the project activities) **Frequency** *None given*
Biodiversity		
	**Biodiversity without–project scenario**	**Variables** Families and species of birds and their patterns of endemism; species of amphibians and reptiles including those at risk; species of mammals including those at risk; at-risk species of plants **Assessment methodologies** Literature, including forest management plans **Description** *It is assumed that in the absence of the project, deforestation would continue with negative effects on biodiversity*
	Biodiversity with-project scenario	The project will benefit and enhance biodiversity by avoiding deforestation, as well as by prohibiting any type of hunting inside the project area.
	Biodiversity impact monitoring	**Variables** *None given* **Methodologies** *Interested parties are invited to further examine and record the biodiversity of the project area.* **Frequency** *None given*
Progress		

Validation	VCS validation: 4 May 2012
Verification	VCS verification: 6 December 2012. 322,360 VCUs issued on 24 January 2013

Further information

- Florestal Santa Maria website:
http://www.florestalsantamaria.com.br/site/en/#2

- VCS Database
https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=875&lat=-8.999312&lon=-59.426658&bp=1



ADPML Portel-Pará REDD Project

Distinctive features

Avoided Deforestation Project (Manaus) Limited ("ADPML") is the project proposer and initial funder. ADPML is administered by Oak Trust (Guernsey) Limited who are professional fiduciaries licensed by the Guernsey Financial Services Commission. ADPML's sole activity is that of carrying out a carbon credit generation scheme through REDD+ in the state of Para, Brazil.

The project area comprises 135,105.6 ha in 18 privately-owned forested parcels in the northwest of Brazil, in the State of Para, micro region of Portel, municipality of Portel. The project plans to manage the land in the form of a "private reserve" by developing and implementing a management plan.

There is currently limited deforestation and degradation within the project area, but experiences in the reference region suggests that the project will come under increasing pressure. Cattle ranchers are the main deforestation agent in the area. Cattle ranchers can expand their activities by their own means (in the case of well-capitalised agents) or as part of a process that includes pioneer agents such as selective loggers and squatters (in the case of small and medium size ranchers). For most of the agents the main driver of deforestation in the area is land speculation, followed by generation of economic revenue. Land speculation is generated by widespread unclear land tenure, regulations that do not provide security for landowners and from known corruption and weak enforcement in local-level institutions.

Key activities in the proposed project plan are monitoring of the project boundaries and activities to support local communities, both those living within and outside of the Project boundaries. The project boundaries will be divided into brigades to facilitate monitoring. Brigades will be constituted by a technician specialised in forestry topics who will function as a manager and a group of villagers as a patrol. Brigades will conduct regular visits around the perimeter of the project area to meet people and invite participation in leakage preventive measure activities. Brigades will identify and report any illegal activities (invasions and timber extraction).

The project will also offer land tenure rights for conservation results to villagers living within the project's boundaries but outside the accounting area. The landowner has signed an agreement to provide official land-use rights to villagers with the hope that they will own these lands in 40 years. As a requirement to receive a land title, each villager will have to sign a conservation agreement that will mainly state that granted lands cannot be sold, productive activities cannot expand into the project area and that the land use cannot change to mining or pasture.

To those living outside the project boundary in neighbouring villages, the project will provide knowledge to legally claim and secure land titles on unused public land. Additionally, the project will provide support to enhance community organisational capabilities for better management of local resources. The Project will also provide capacity building on agroforestry systems with native species and on implementation of energy efficient cook stoves for cassava production to villagers within and near the project boundary. Capacity building activities will be offered to ranchers (the main deforestation agents) to show them the benefits of pasture management and intensified cattle ranching.

	Heading	Explanation
Locational factors		
	**Location**	Northwest Brazil
	Size	**Project area:** 135,105.6 ha
	Land cover	Dense Ombrophilous Forest
	Land use (drivers of forest change)	*In project zone* ▪Selective loggers and squatters – cleared land is worth 5 to 10 times that of forested area. Unclear tenure and weak enforcement leads to motivation for clearance ▪Cattle ranchers – purchasers of cleared land. Ranching is a cheap and effective way of preventing regrowth of forest *In project area* Currently little to no human activity
Basic project features		
	**Objectives**	▪Avoiding net emissions of 22,273,993 tCO2e ▪Allow forest regeneration over the medium term ▪Provide land tenure security to villagers in the project boundary ▪Provide workshops to villagers outside the project boundary to assist them in legally claiming land use rights ▪Conserve biodiversity through conservation of local ecosystems.
	Proponent	▪Avoided Deforestation Project (Manaus) Limited ("ADPML") – project proposer and initial funder
	Tenure/Carbon rights	**Tenure** Project zone is under private ownership **Carbon rights** Project proponent as owner of the land is the holder of the carbon rights
	Actors involved in project design	▪Ecosystem Services LLC – responsible for project management ▪SETA Ambiental – technical partner providing logistic support ▪Community organisations from the 'Vilas' – communities' representatives involved in management and planning ▪Farmers – coordination and participation in agroforestry projects ▪ "Fariñeros" – community relationship and support
	Upfront financing	ADPML – until the end of 2013. After 2013, project should generate own funds through carbon credit sales

	Start date	1 January 2009
	Crediting period	40 years
	Baseline emissions	
	**Methodology used**	VCS VM0015 REDD Methodology: Methodology for Unplanned Deforestation V2.0
	Reference area	2,380,731.7 ha
	Reference period	Between 1996 and 2008
	Stratification of project area	The reference region for deforestation is not stratified because there is only one forest type and strata.
	Deforestation rate and location	**Historical** 1.77% during reference period **Projected** 1.77% **Likely baseline scenario** Deforestation initially caused by illegal logging and squatters, followed by cattle ranching preventing recovery of the forest **Modelling procedure** ▪ The Project calculated the historical deforestation rate of 1.7% and used this as the historical average to predict future deforestation rates. The projected future location of deforestation was mapped using IDRISI Selva, a peer reviewed software to estimate land cover change. ▪*Factors for the modelling include distance from roads, navigable rivers and to non-forest areas.*
	Carbon pools	**Carbon pools included** ▪Aboveground tree biomass ✓ ▪Aboveground non-tree woody biomass × ▪Belowground tree biomass ✓ ▪Litter ✓ ▪Dead wood × ▪Soil × ▪Wood products × **Estimation method** ▪Carbon content per 1 ha of forest in the reference region for deforestation, Project Area and Leakage Belt was calculated using a weighted average based on the results from the forest carbon inventory. ▪Above-ground biomass for a DBH ≥ 10cm was calculated using Overman's equation (Overman, Witte et al. 1994) corrected for biomass moisture content (Araujo, Higuchi et al. 1999). ▪For carbon stock in grassland, IPCC's Good Practice Guidance for Land Use was used.

	Carbon stock changes	Grassland assumed to be the only post-deforestation land use implemented in the reference region for deforestation because it can be developed anywhere in the region, it is the land use with most historical participation in deforestation, and the one with the highest average carbon stock per hectare.
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	Non-CO2 emissions from fires are accounted because fire is the main technology used to clear the forest
	Net emissions without project	▪ 22,273,993 tCO2e by the end of project lifetime. ▪ The first fixed baseline period is 7,690,722 tCO2e. ▪ The average amount of GHG emissions reductions per year is 1,020,294 tCO2e.
Project GHG emissions reduction strategy		
	**Scope and measures**	**Scope** Avoid unplanned deforestation **Measure** ▪ Provide training to communities on forest and biodiversity monitoring and management as well as opportunities to work as monitoring/enforcement staff ▪ Enhance community's organisational capabilities ▪ Provide legal land-ownership rights against results for conservation ▪ Provide capacity building on steps to gain land use rights over Government-owned forests ▪ Provide capacity building in agroforestry techniques and implement agroforestry pilots ▪ Provide capacity building on improved efficiency cook stoves and implement cook stove pilots ▪ Provide capacity building to develop small sustainable business ▪ Provide capacity building to cattle ranchers that get to the Project Boundary
	Additionality	▪ No sources of income from land to offset protection costs ▪ Without project funding and income from carbon credits deforestation would continue and project activities could not be implemented
	Leakage avoidance strategy	▪ Because of the presence of a neighbour REDD Project, parties from both projects agreed on signing a Leakage Agreement that will enter in force once both projects are validated.

		▪ The Project will not generate leakage as activities are designed to provide all the deforestation agents with the opportunity to participate.
	Non-permanence risk mitigation strategy	▪ Renewable land use rights to be provided against results for conservation to families living within the Project Boundary. Families will be trained to monitor the area and to protect the forest. ▪ Although small-scale agriculture is not a significant driver of deforestation in the area, capacity building on agroforestry techniques will be provided. ▪ Risk of leakage, illegal logging and fire will be mitigated by building strong partnerships with villagers. ▪ Regular patrolling and land demarcation will be undertaken to ensure the protection of land rights over the long term.
With-project emissions		
	**Effectiveness of measures**	**Assumptions** **Modelling** Project assumed to prevent 95% of the deforestation in the project area.
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	▪The Project activities will not generate non-CO_2 emissions because the Project's activities will not require fuel combustion, biomass burning or the use of synthetic fertilizers. ▪The Project's activities won't generate GHG emissions thus there won't be GHG emissions from leakage prevention activities.
	Leakage	**Activity shifting** The Project's activities will not generate GHG emissions thus there will not be GHG emissions from leakage prevention activities. **Market effects** None **Deduction** None
	Non-permanence risk	**Buffer** *Buffer applied following VCS AFOLU Non-Permanence Risk Tool Version 3.1*
	Ex-ante estimated net greenhouse gas emissions reductions	**Total over crediting period:** 22,273,993 tCO_2e **Annual average:** 1,020,294 tCO_2e. **Annual average per ha:** 7.55 tCO_2e
	GHG emissions impact monitoring	***Monitoring changes in carbon stocks*** To assess land use / land cover change from forest land to non-forest land, the Project will use LANDSAT 8 imagery and/or radar imagery to generate annual

		deforestation data throughout the reference region. Local groups will be established for the implementation of the surveillance system that will allow continuous monitoring of the Project area to prevent the entry of squatters and illegal loggers. ***Revisiting the projected baseline at fixed periods*** The variables used to project future deforestation from the reference region will be reviewed at 10-year fixed periods. Information regarding the biophysical variables, agents, vectors, and the underlying causes of deforestation will be updated. Key variables that will be used to recalculate the baseline in the second 10-year period of the project are: • Socio-economic information retrieved from the Project's monitoring activities • Distance to new roads • Average distance to selective logging activities from pioneer roads • Distance to non-forest • Planned infrastructure in the region
Stakeholder identification and engagement		
	**Stakeholders identified**	*Stakeholders in the region identified and divided into four groups: Local Municipalities; State and Federal Programmes; Social Organisations and Institutions; Local Actors and Organisations*
	Identification process	Participatory Rural Appraisal
Full and effective participation		
	**Access to information and consultation**	▪ Participatory Rural Appraisal (PRA) designed and implemented by a team of experienced anthropologists with the villages located in the project areas and within a 15 Km buffer from the project areas. ▪ PRA was developed through a series of field visits, observations, surveys, workshops and interviews to local leaders and experts whom were informed about the project idea, its activities, the potential benefits to the communities and their participation in the project. ▪ A series of workshops were held involving people from across 11 villages with a total of 138 workshop participants.
	Participation in design and implementation	▪ The information gathered in the field work, especially the needs and problems pointed out by the leaders and local villagers, has been the basis upon which the proposal for the activities of the project has been developed. ▪ Project activities were conceived right after the social evaluation and not the other way around.

		▪ A Stakeholders' Committee will also be established at the beginning of the FPIC (Free Prior Informed Consent) process
	Anti-discrimination	The Project expects to provide employment (rotational or fixed term employment depending on the number of villagers on each Leakage Management Area) to all stakeholders in the Leakage Management Area.
	Feedback and grievance redress procedures	Comprehensive complaints procedure centrally managed at an office in Portel. Complainant will be kept informed throughout and mediation with local leaders is expected. Resolution is aimed for within 45 days of receipt of complaint. Complaints will be tracked to ensure that agreed action is undertaken.
	Worker relations	The Project will comply with the principles stated in the ILO Declaration on Fundamental Principles and Rights at Work adopted in 1998 and reviewed in 2010.
Communities		
	**Without-project scenario**	**Variables** *Not applicable. Based on community perceptions gathered through PRA.* **Assessment methodologies** PRA (*very little secondary data on villages in the project zone existed*) **Description** • Moderate increase in population settled in the project area. • Increase in agricultural areas use to grow mainly cassava. Thereby, it is projected substantial increase in the forest areas affected by slash and burn. • Incursion of illegal loggers and illegal activities (invasions) seeking areas to extract timber. • Increase in timber extraction in the core sections of the project areas, with a related diminishment of timber resources nearby the villages. • Decline of fish stocks in rivers and water bodies due to over-fishing by large companies coming from Portel and Breves.
	With-project community and other stakeholder scenario	**Expected net benefits** ▪ Secured land tenure. ▪ Diversification of food through agroforestry practices thus an improvement in local nutrition. ▪ More efficient technologies to produce farinha therefore less time is consumed in this activity. ▪ Generation of income from monitoring activities. ▪ Better understanding of the importance of protecting the forest and how forest conservation will benefit their

		livelihoods. ▪ Opportunity to develop local businesses through an external fund. **Possible negative impacts to be mitigated** None
	Community impact monitoring	**Variables** *Indicators not yet finalised – indicators to assess number of people participating in the activities listed above* **Methodologies** Participatory Rural Appraisal; Participatory Rural Census; Follow Up Activities **Frequency** Activities every 3 to 6 months; comprehensive annual assessment
Biodiversity		
	**Biodiversity without–project scenario**	**Variables** Vegetation cover, habitat, species populations **Assessment methodologies** Literature review: All the species inventoried were gathered in current literature about Caxiuanã National Forest and Eastern Amazon fauna and flora. **Description** ▪Phanerogams in the area are responsible for approximately 62% of the region's representativeness. The second most predominant forest is the permanently flooded forest (igapó). ▪Numerous species of animals, including mammals, birds, reptiles, amphibians and fish. ▪The baseline scenario presents deforestation happening simultaneously in two fronts: a consolidated frontier that moves northwards to the Project Area; in the northern part, squatters (invaders) clear-cut patches of forest through slash and burn to prove land ownership and attempt a future land resale.
	Biodiversity with-project scenario	▪ Avoid ecosystem fragmentation and loss due to deforestation. ▪ Assistance with the conservation of an extreme priority site for biodiversity.
	Biodiversity impact monitoring	**Variables** Species abundance, vegetation structural analysis **Methodologies** The monitoring of the project zone will follow scientific inventories, monitoring species richness, presence and absence of flora and fauna, and the correspondent interactions.

		Frequency Area-limited species – every month; Resource-limited species – every month; Process-limited species – every two months; Invertebrates – every two months; Special interest species – every month; Bryophytes – every two months; Forest fragmentation – every week.

Progress

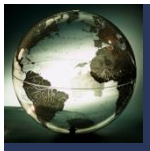
	**Validation**	VCS validation: 15th February 2013 CCBA validation: 15th April 2013 (Gold Level)
	Verification	None as yet

Further information

- Ecosystems LLC Website:
www.ecosystemllc.com

- VCS Project Database:
https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=981&lat=-2.4053&lon=-51.2641&bp=1

- CCBA Projects
http://www.climate-standards.org/?s=adpml



RMDLT Portel- Pará REDD Project

Distinctive features

The RMDLT Portel-Para REDD Project shares great similarity with the ADPML project as they are located close to each other in the northwest of Brazil, in the State of Para, micro region of Portel, municipality of Portel, and they have been designed by the same project developer – Ecosystem Services LLC. RMDLT Property Group Ltd. is an international business corporation formed in 2010 in the country of Belize, Central America. The purpose of RMDLT Property Group is to form a funding and operations company to engage in the development of international lands, either privately or governmental held for the monetisation of carbon credits under REDD using various industry accepted standards. The other project proponent is the ALLCOT Group, a carbon asset management company that develops, manages and trades in all sectors related with climate mitigation.

The project's main objective is to avoid and prevent unplanned deforestation in native forests thus avoiding the emission of 44,662,429 tCO2e. This objective will be achieved by managing the land in the form of a "private conservation reserve" by developing and implementing a management plan.

Cattle ranchers are the main deforestation agent in the area. Cattle ranchers can expand their activities by their own means (in the case of well-capitalised agents) or as part of a process that includes pioneer agents such as selective loggers and squatters (in the case of small and medium size ranchers). For most of the agents the main driver of deforestation in the area is land speculation, followed by generation of economic revenue. Land speculation is generated by widespread unclear land tenure, regulations that do not provide security for landowners and from known corruption and weak enforcement in local-level institutions.

Key activities in the proposed project plan are monitoring of the project boundaries and activities to support local communities, both those living within and outside of the Project boundaries. The project boundaries will be divided into brigades to facilitate monitoring. Brigades will be constituted by a technician specialised in forestry topics who will function as a manager and a group of villagers as a patrol. Brigades will conduct regular visits around the perimeter of the project area to meet people and invite participation in leakage preventive measure activities. Brigades will identify and report any illegal activities (invasions and timber extraction).

The project will also offer land tenure rights for conservation results to villagers living within the project's boundaries but outside the accounting area. The landowner has signed an agreement to provide official land-use rights to villagers with the hope that they will own these lands in 40 years. As a requirement to receive a land title, each villager will have to sign a conservation agreement that will mainly state that granted lands cannot be sold,

productive activities cannot expand into the project area and that the land use cannot change to mining or pasture.

To those living outside the project boundary in neighbouring villages, the project will provide knowledge to legally claim and secure land titles on unused public land. Additionally, the project will provide support to enhance community organisational capabilities for better management of local resources. The Project will also provide capacity building on agroforestry systems with native species and on implementation of energy efficient cook stoves for cassava production to villagers within and near the project boundary. Capacity building activities will be offered to ranchers (the main deforestation agents) to show them the benefits of pasture management and intensified cattle ranching.

	Heading	Explanation
	Locational factors	
	**Location**	Three locations in the Portel micro region, in Para region, northern Brazil
	Size	**Project area:** 177,899.5 ha
	Land cover	Ombrophilous Forest, Flooded Forest, Natural Savannas.
	Land use (drivers of forest change)	Deforestation by cattle ranchers to establish pastures
	Basic project features	
	**Objectives**	*Climate Objectives:* ▪Avoid and prevent unplanned deforestation in native forests *Community Objectives:* ▪Land tenure security to villagers in the project boundary, capacity building workshop for those outside ▪Confirmation of private land ownership ▪Improvement of community resource management ▪Capacity building on agroforestry systems and on implementation of energy efficient cook stoves
	Proponent	▪RMDLT: A funding and operations company engaged in the development of international lands for the monetisation of carbon credits under REDD ▪ALLCOT Group AG: A vertically integrated carbon asset management company that develops, manages and trades in all sectors related with climate mitigation
	Tenure/Carbon rights	**Tenure** Project area privately owned by the proponent **Carbon rights** Project area privately owned by the proponent
	Actors involved in project design	Ecosystem Services LLC - Project Developer, implementing and managing entity
	Upfront financing	Funding for Project's activities is secured by funds committed by the Project Proponent until the end of 2013.
	Start date	1 January 2008
	Crediting period	40 years, 1 January 2008 – 31 December 2037
	Baseline emissions	
	**Methodology used**	VCS VM0015 REDD Methodology: Methodology for Unplanned Deforestation V2.0
	Reference area	2,396,206 ha
	Reference period	1996 – 2008

Stratification of project area	None as there is only one forest type and strata - Ombrophilous Forest
Deforestation rate and location	**Historical** 1.7% **Projected** 1.7% **Likely baseline scenario** Deforestation continues on both the pioneer frontier (the remoter areas near the river) and consolidated frontier (areas near the Transamazonica federal highway) **Modelling procedure** ▪ The Project calculated the historical deforestation rate of 1.7% and used this as the historical average to predict future deforestation rates. The projected future location of deforestation was mapped using IDRISI Selva, a peer reviewed software to estimate land-cover change. ▪*Factors for the modelling include distance from roads, navigable rivers and to non-forest.*
Carbon pools	**Carbon pools included** ▪Aboveground tree biomass ✓ ▪Aboveground non-tree woody biomass × ▪Belowground tree biomass ✓ ▪Litter ✓ ▪Dead wood × ▪Soil × ▪Wood products × **Estimation method** ▪Carbon content per 1 ha of forest in the reference region for deforestation, Project Area and Leakage Belt was calculated using a weighted average based on the results from the forest carbon inventory. ▪Above-ground biomass for a DBH ≥ 10cm was calculated using Overman's equation (Overman, Witte et al. 1994) corrected for biomass moisture content (Araujo, Higuchi et al. 1999). ▪For carbon stock in grassland, IPCC's Good Practice Guidance for Land Use was used.
Carbon stock changes	Grassland assumed to be the only post-deforestation land use implemented in the reference region for deforestation because it can be developed anywhere in the region, it is the land-use with most historical participation in deforestation, and the one with the highest average carbon stock per hectare.
Other emissions: Biomass burning,	Non-CO_2 emissions from fires are accounted because fire is the main technology used to clear the forest

	fossil fuel combustion, N2O emissions from nitrogen application, etc.	
	Net emissions without project	Net emissions per ha from land use / land cover change in the Project Area is 794.91 tCO2e/ha
Project GHG emissions reduction strategy		
	**Scope and measures**	**Scope** Avoid unplanned deforestation **Measure** ▪Providing training on forest and biodiversity monitoring and management and opportunities to work as a monitoring/enforcement staff ▪Training for monitoring staff ▪Enhancing community's organisational capabilities ▪Provide legal land-ownership rights versus results for conservation ▪Providing capacity building on steps to gain land use rights over Government-owned forests ▪Providing capacity building in agroforestry techniques and implement agroforestry pilots ▪Providing capacity building on improved efficiency cook stoves and implement cook stove pilots ▪Providing capacity building to develop small sustainable business ▪Providing capacity building to cattle ranchers that move inside the Project Boundary
	Additionality	▪The Project is a conservation Project with no other sources of income besides carbon revenues. ▪The Project requires substantial amount of initial capital for the set-up of the Project. ▪There are no similar projects in the region
	Leakage avoidance strategy	Project will not generate displacement leakage as the Project's activities are designed to provide all the deforestation agents that arrive to the Project's Boundary with the opportunity to participate.
	Non-permanence risk mitigation strategy	▪Communities' lack of effectiveness to control the Conservation Forest area: Renewable land use rights will be provided against results for conservation to those families living within the Project Boundary. Families will be trained to monitor the area and to protect the forest. ▪Population growth forces agricultural expansion in project area: Although population is growing in the area, small-scale agriculture is not a significant driver of deforestation in the area. Capacity building on

		agroforestry techniques will be implemented. ▪Loss of carbon stocks through fire, illegal felling, and land clearing: Leakage, illegal logging and fire avoided by building strong partnerships with villagers to assist in prevention activities.
With-project emissions		
	**Effectiveness of measures**	**Assumptions** **Modelling** Project assumed to prevent 95% of the deforestation in the project area.
	Other emissions: Biomass burning, fossil fuel combustion, N2O emissions from nitrogen application, etc.	The Project activities will not generate non-CO2 emissions because the Project's activities will not require fuel combustion, biomass burning or the use of synthetic fertilizers.
	Leakage	**Activity shifting** The Project will not generate displacement leakage as the Project's activities are designed to provide all the deforestation agents that arrive to the Project's Boundary with the opportunity to participate. **Market effects** **Deduction**
	Non-permanence risk	**Buffer** Calculated according to VCS AFOLU Non-Permanence Risk Tool Version 3.1
	Ex-ante estimated net greenhouse gas emissions reductions	**Total over crediting period:** 44,662,429 tCO2e **Annual average:** 1,116,561 tCO2e **Annual average per ha:** 6.3 tCO2e
	GHG emissions impact monitoring	▪ Forest monitoring patrols will generate weekly activities reports; Brigade leaders will perform monthly random site visits ▪ To assess land use / land cover change from forest land to non-forest land, the Project will use LANDSAT 8 imagery and/or radar imagery to generate annual deforestation data throughout the Reference Region ▪ LANDSAT 8 (and ALOS PALSAR when required) imagery will be used to monitor leakage belt annually in first baseline period
Stakeholder identification and engagement		
	**Stakeholders identified**	Stakeholders include: ▪Portel Municipality, Municipal Secretariat (SETRAS, SES, SEDE, SEMED and SEMAP) ▪State and Federal Programmes (Estate secretariat:

		SEMA, SESPA, SEDUC, SAGRI, SECTI, SETER, SEDIP, SEAS; INCRA Regional superintendence; Paraense Emilio Goeldi Museum; Saberes da tierra; IBAMA) ▪Social Organisations and Institutions (Riparian settlers association; Catholic Church; Evangelical Church; Rural Cooperative) ▪Private Institutions (Land holders in the Project area; Ecosystem Services; Fishermen; Timber extractors; 'Regatones') ▪Local Actors and Organisations (Community organisations from the 'Vilas'; Fishermen association; Farmers; School teachers; Health post technicians; 'Fariñeros')
	Identification process	Participatory Rural Appraisal (PRA)
Full and effective participation		
	**Access to information and consultation**	A Participatory Rural Appraisal was developed through a series of field visits, observations, surveys, workshops and interviews to local leaders and experts.
	Participation in design and implementation	▪The Project's activities were conceived right after the social assessment was carried out and not the other way around. Therefore, local villagers not only were involved in the Project design, they actually provided the inputs for the ESLLC's team to design the Project. ▪In addition to the participation of community people in the community forest committees, and in decision making regarding the development and implementation of the project management plan, several other programmes will be implemented that require community participation, including paid monitoring jobs, Biodiversity and Natural Resource Use Monitoring Programme, and Forest Management.
	Anti-discrimination	The Project will design employment opportunities to make sure underrepresented groups of local villages have equal opportunities of finding employment in within the Project management and demonstrative activities.
	Feedback and grievance redress procedures	Grievance procedure will be implemented ▪Claims can be to multiple channels (Community liaison, project operator, community organisation) and through multiple means (Letter, use of official form, orally (face-to-face, telephone or radio) and confidential (suggestion box) ▪Claims will be assessed and if eligible, then the complainant will be contacted to explain the resolution method ▪It is hoped many complaints can be easily solved locally,

		if not then a formal response will be issued ▪Responses need to take into account an appropriate method of communication, who should communicate the message ▪Solution must be discussed with the complainant to ensure satisfaction ▪Complaints must be tracked to ensure resolution as agreed
	Worker relations	The Project will comply with the principles stated in the ILO Declaration on Fundamental Principles and Rights at Work adopted in 1998 and reviewed in 2010.
Communities		
	**Without-project scenario**	**Variables** *Not applicable. Based on community perceptions gathered through PRA.* **Assessment methodologies** PRA (*very little secondary data on villages in the project zone existed*) **Description** • Moderate increase in population settled in the project area. • Increase in agricultural areas used to grow mainly cassava. Thereby, substantial increase in the forest areas affected by slash and burn projected. • Incursion of illegal loggers and illegal activities (invasions) seeking areas to extract timber. • Increase in timber extraction in the core sections of the project areas, with a related diminishment of timber resources nearby the villages. • Decline of fish stocks in rivers and water bodies due to over-fishing by large companies coming from Portel and Breves.
	With-project community and other stakeholder scenario	**Expected net benefits** ▪Secured land tenure ▪Diversification of food through agroforestry practices thus an improvement in local nutrition ▪More efficient technologies to produce farinha therefore less time consumed in this activity ▪Generation of income from monitoring activities ▪Better understanding of the importance of protecting the forest ▪Opportunity to develop local businesses through an external fund. **Possible negative impacts to be mitigated**

	Community impact monitoring	**Variables** ▪Monitoring plan not yet created ▪Possible activities to be monitored - Capacity building related to the monitoring and management of the forest and biodiversity; Improving organisational capacities of each community; Providing land ownership legal rights versus conservation results; Providing assistance to obtain land use rights over the forest owned by the government; Providing assistance and training in agroforestry techniques and implementing pilot cases; Capacity building related to efficient and improved cooking stoves and implementation of pilot demonstrative cases; Providing assistance and training on sustainable small scale timber extraction in the Leakage Management Area; Capacity building on the development of small community enterprises **Methodologies** Social Monitoring will be undertaken by social monitoring squads who will generate monthly activity reports. Each squad will be in charge of specific villages and will use approved questionnaires to gather socio-economic data about the impacts of the activities of the Project. **Frequency** Monthly
Biodiversity		
	**Biodiversity without–project scenario**	**Variables** Vegetation cover, habitat, species populations **Assessment methodologies** Literature review: All the species inventoried were gathered in current literature about Caxiuanã National Forest and Eastern Amazon fauna and flora. **Description** ▪Phanerogams in the area are responsible for approximately 62% of the region's representativeness. The second most predominant forest is the permanently flooded forest (igapó). ▪Numerous species of animals, including mammals, birds, reptiles, amphibians and fish. ▪The baseline scenario presents deforestation happening simultaneously in two fronts: a consolidated frontier that moves northwards to the Project Area; in the northern part, squatters (invaders) clear-cut patches of forest through slash and burn to prove land ownership and attempt a future land resale.
	Biodiversity with-project scenario	▪The Project will avoid ecosystems fragmentation and loss due to deforestation. ▪Currently, the monitoring in the Amazon forest is still

	incipient and fragmented. The Project will add another area of monitoring to the Amazon as a whole.
Biodiversity impact monitoring	**Variables** Area-limited species; resource-limited species; process-limited species; invertebrates groups; "special interest" species; bryophytes; land use and changes in vegetation cover **Methodologies** Biodiversity monitoring squads making reports every two weeks. Reports will provide geo-referenced information about biodiversity spotting and data as determined by the protocols. ▪Observations - Area-limited species, process-limited species, "special interest" species, land use and changes in vegetation cover ▪Collection - Resource-limited species, bryophytes – collection; ▪Observation and Collection - invertebrates groups **Frequency** ▪Monitoring every month, reporting every month – area-limited species, resource-limited species, "special interest species" ▪Monitoring every two months, reporting every two months – process limited species, invertebrates groups, bryophytes, ▪Monitoring every week, reporting every month – land use and changes in vegetation cover

Progress

Validation	VCS validation: 16 April 2013 CCBA validation: 28 March 2013
Verification	*No verification activities as yet*

Further information

▪Ecosystems Services LLC:
http://ecosystemllc.com/

▪VCS Database:
https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=977&lat=-2.350707&lon=-51.357692&bp=1

▪CCBA Database:
http://www.climate-standards.org/2012/07/02/rmdlt-portel-para-redd-project/

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