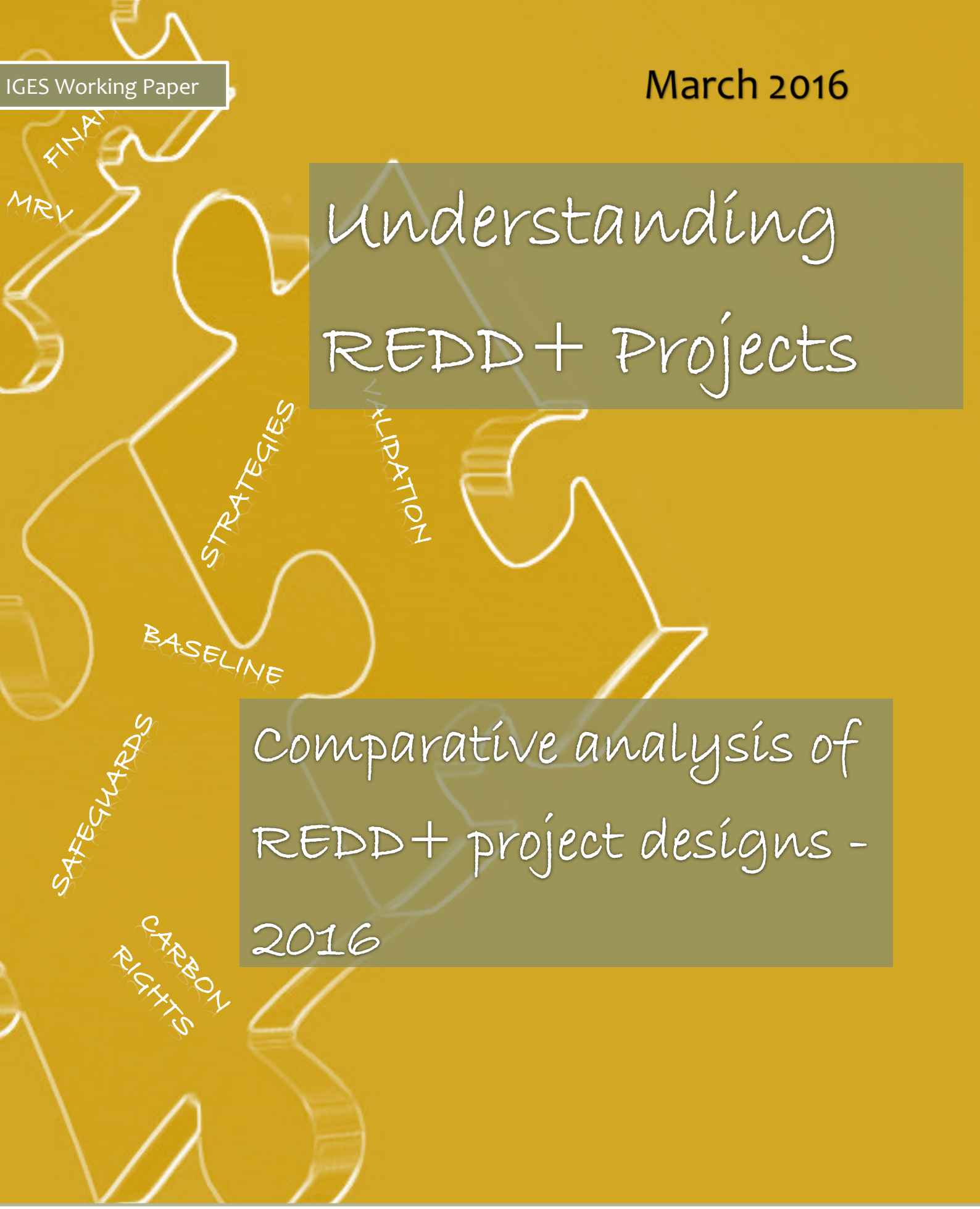
IGES Working Paper

March 2016

Understanding REDD+ Projects

Comparative analysis of REDD+ project designs - 2016



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NOTE:

The following corrections were made to an earlier version of this report published Online:

p. 3, Table 2.1:

Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve, ✓ for VCS, * for CCBA

Paraguay Forest Conservation Project, La Amistad Community, San Rafael, * for VCS, ✓ for CCBA

p. 17, para. 2, line 6: "Ten of the 12 international carbon project developers only develop REDD+ projects and they are. . ." changed to "Nine of the 12 international carbon project developers only develop REDD+ projects (and some also AR projects) and they are . . ."

p.19, Table 3.4.1.2: Lower Zambezi REDD+ Project inserted

p. 17, para. 3, line 3: "None of the projects . . ." changed to "Only one of the projects . . ."

p. 32, para. 2, line 13: "This means that in 15 of 24 projects . . ." changed to "This means that in 14 of 27 projects . . ."

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Institute for Global Environmental Strategies (IGES)
Forest Conservation Team
2108-11 Kamiyamaguchi, Hayama, Kanagawa 240-0115 Japan
Phone: +81-46-855-3830 • Facsimile: +81-46-855-3809
E-mail: fc-info@iges.or.jp

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.

Authors: Henry Scheyvens, Jintana Kawasaki, Masayuki Kawai, Taiji Fujisaki, Chisa Umemiya, Hiromitsu Samejima, Meena Suyal Chhetri

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Foreword

At the 21st Conference of the Parties (COP) in Paris in 2015, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) set out an ambitious plan – the Paris Agreement – for global action on climate change mitigation and adaption. The Paris Agreement promotes the implementation of REDD+ as part of the global effort to mitigate climate change.

REDD+ projects can be found in countries in Africa, Latin America 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 subnational and national REDD+ strategies and architecture and the climate change negotiations.

REDD+ projects are invariably complex. The IGES publication *Understanding REDD+ Projects: Comparative analysis of REDD+ project designs, 2016* aims to help in "making sense" of these highly diverse projects by providing a comparative analysis of 32 REDD+ projects validated by voluntary carbon schemes.

This work is generally based upon outputs produced through a REDD+-related project funded by the Ministry of Environment of Japan. The authors are solely responsible for any errors or omissions in this report. I would like to thank Dr Hwan Ok Ma (International Tropical Timber Organisation) and Dr Federico Lopez-Casero (IGES) for their insightful comments on a draft of this report. I 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
March 2016

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Executive summary

This report aims to contribute to a better understanding of REDD+ projects, with a view to informing national REDD+ readiness processes as well as REDD+ actions. To assist in understanding REDD+ projects and generating lessons from them, a descriptive template that presents their key elements was developed. This template has been used to create summary profiles of 32 REDD+ projects that have been validated, or are in the process of validation, by voluntary carbon schemes. The 32 projects represent ~ 60% of all REDD+ projects validated under voluntary carbon schemes. This report provides the results of a comparative analysis of these 32 REDD+ projects using their summary profiles.

The main observations of the analysis include:

- Compared to Latin America and Africa, there are relatively few REDD+ projects validated by voluntary carbon schemes in Asia. This appears mainly related to tenure issues and opportunity costs of land use, though regional availability of project development services specific to REDD+ may also be an explanatory factor.
- Thirty percent of the surveyed REDD+ projects target state-owned forest, mostly protected areas or forest reserves, and aim to manage these through monitoring, enforcement and leakage mitigation activities with surrounding communities. Private holdings with the same types of activities make up another 30% of project types. The other project types include projects that convert timber concessions to protected forest and have leakage mitigation activities, improve management of production concessions, and avoid conversion by agricultural estate developers.
- There is a large range in the sizes of project areas. The largest projects are on state-owned land that is managed for conservation by the state itself or for conservation by private entities contracted by the state, or that is managed as production concessions. The smallest projects are community-managed forests or private holdings.
- The land and/or resource tenure arrangements in the areas where REDD+ projects are located are quite varied. Single private ownership of the land accounts for about one third of the surveyed projects. REDD+ projects are also commonly found on land managed or owned by local households or communities. In most of the surveyed projects, the carbon rights were transferred by the tenure holder to the project developer.
- REDD+ projects are tackling a wide variety of underlying drivers and proximate causes of deforestation and/or degradation (DD), with on average projects tackling between 3 and 4 proximate causes. However, 77% of the surveyed projects target areas where local actors are the DD agents, while only one quarter target areas where companies and other large agents from outside the region pose the major threats to forests.
- REDD+ might only succeed on a large scale in stopping planned deforestation by major developers when an instruction for this comes from the government. This may explain the reason why UNFCCC Parties agreed that REDD+ should be supported by national strategies and ultimately organised at a national level.
- A wide variety of organisations can be found amongst REDD+ project proponents. The most common type of REDD+ project proponent is an international carbon project developer who specialises in REDD+ projects and at most is only managing a few projects. Commonly, a REDD+ project has a lead developer that contracts or

elicits the support of other organisations to provide any necessary skills it does not have.

- Governments are the proponents of only a few REDD+ projects and often play no role in REDD+ projects, other than as regulators. For some projects, they appear to be spectators with no direct engagement in the project, and in some cases they may not even be good spectators, with little understanding of project objectives and activities.
- Most projects have invested in having their designs validated by an international standard that incorporates safeguards. Most, but not all, have continued to invest in third party auditing of their compliance with REDD+ safeguards.

Two of the main recommendations drawn from the analysis are:

REDD+ project developers should proactively engage with governments, while governments should view themselves as more than just regulators of REDD+ projects.

Governments can be more proactive by not just regulating REDD+ projects, but by using REDD+ projects as opportunities to build the capacity of their own agencies for REDD+ implementation. Governments should also consider undertaking or supporting the development of REDD+ projects in areas where planned deforestation could take place in the near future as part of major agricultural or other developments. This would be a much greater test of the REDD+ concept than localities in which local farming households without any legal rights to forests are the main DD agents.

"Benefit sharing" should be tied to roles and responsibilities (what one does), not just what one doesn't do.

Viewing REDD as a type of compensation and making cash pay-outs to communities for not disturbing forests may not lead to positive outcomes for community development. This appears to be understood by some REDD+ project developers who avoid cash pay-outs as a form of compensation and instead identify appropriate roles for communities and reward them for these roles. Agreeing on appropriate roles for communities, building their capacities for these roles when necessary, and careful analysis of the implications of different benefit sharing options can be expected to contribute to REDD+ project sustainability and community development.

List of figures and tables

Abbreviations and acronyms

AFOLU	Agriculture, forestry and land use
AIDER	Asociación para la Investigación y Desarrollo Integral
ANR	assisted natural regeneration
BAM	Bosques Amazónicos
BES	biodiversity and ecosystem services
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)
DD	Deforestation and/or degradation
ELC	economic land concession
FSC	Forest Stewardship Council
GHG	greenhouse gas
GIS	geographic information systems
ha	hectares
IFM	Improved Forest Management
IGES	Institute for Global Environmental Strategies
IPCC	Intergovernmental Panel on Climate Change
NGO	non-governmental organisation
PRA	participatory rural appraisal
REDD+	Reducing Emissions from Deforestation and forest Degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks
RS	remote sensing
SABL	special agriculture business lease
SMS	short message service
$MtCO_2e$	million tonnes carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard

1 Introduction

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 Intergovernmental Panel on Climate Change (IPCC) 4th Assessment Report stated that deforestation was responsible for about 17% of emissions from human activities (IPCC, 2007). Without taking action to reduce emissions from deforestation, it may thus be impossible to avoid dangerous levels of climate change (Eliasch, 2008).

At the 21st Conference of the Parties (COP) in Paris in 2015, Parties to the United Nations Framework Convention on Climate Change (UNFCCC) set out an ambitious plan – the Paris Agreement – for global action on climate change mitigation and adaption. To keep temperature rise below 1.5°C, the Paris Agreement promotes the implementation of policy approaches and positive incentives for reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks (or what is commonly referred to as REDD+).

In earlier decisions, UNFCCC Parties agreed that REDD+ must be implemented at a national level, though as an interim measure can begin with subnational architecture and implementation. UNFCCC decisions direct countries wishing to receive performance-based payments for REDD+ to establish REDD+ strategies, reference emissions levels (i.e. a projection of future net GHG emissions from their forests without REDD+ actions), national forest monitoring systems, and safeguards information systems. With international support, about 60 developing countries are now in the process of establishing their national REDD+ strategies and architecture; a process referred to as "REDD+ readiness."

In parallel to REDD+ readiness, REDD+ projects have been developed for the voluntary markets and could provide important lessons for national REDD+ systems in relation to effective and equitable deforestation and degradation countermeasures, credible reference emissions levels (or "baselines"), as well as robust monitoring, reporting and verification. The call for demonstration activities at the 13th COP in Bali led to a rapid proliferation of REDD+ projects, which can now be found across parts of Africa, Asia and Latin America. Their proliferation is reflected in the increasing number of REDD+ projects validated by voluntary carbon schemes and the growing trade of REDD+ carbon offsets in the voluntary markets. In 2014, projects that avoid deforestation accounted for 40% (25 MtCO2e) of the total offset volume of the voluntary markets (Hamrick & Allie, 2015, p. 12). Performance-based financing for REDD+ projects outside the voluntary markets is also expected in the near future. Bilateral agreements for the contracting of avoided deforestation emissions reductions have been reached between Germany and the state of Acre, Brazil, and between Norway and Ecuador and Colombia. In addition, the World Bank is organising performance-based financing for REDD+ with a number of developing countries through its Carbon Fund (Hamrick & Allie, 2015).

This report aims to contribute to a better understanding of REDD+ projects, with a view to informing national REDD+ readiness processes as well as REDD+ actions. It does this by applying a descriptive template to develop summary profiles of the key elements of REDD+ projects. The report first describes the analytical framework and then provides the results of a comparative analysis of 32 REDD+ projects, focusing on key elements required for them to deliver carbon offsets, while adhering to the safeguards that have been agreed for REDD+. A number of observations and recommendations are drawn from the comparative analysis. One of the 32 project profiles that were created for this analysis is provided in the appendix for illustrative purposes.

2 Analytical framework

REDD+ projects that have progressed to the point of being validated and/or verified by voluntary carbon schemes are complex. Their project documents can be several hundred pages, when annexes are included. Project documents can include project design documents, monitoring plans and reports, technical specifications, registration documents, issuance and buffer pool records, annual reports and validation and verification reports and statements. Someone trying to understand and learn lessons from any of these projects can easily get "lost in the details" and find it difficult to grasp their key elements. To assist in understanding and drawing lessons from REDD+ projects, a descriptive template was created as a diagnostic tool to summarise and present their key elements. The template is based largely on the requirements of the Verified Carbon Standard (VCS) and the Climate, Community and Biodiversity (CCB) Standards. The VCS is concerned mostly with providing a rigorous calculation of net emissions reductions (or the quantification of climate benefits). The CCB Standards aim to guide projects towards generating net climate, community and biodiversity impacts, but does not quantify net emissions reductions. By referring to both the VCS and CCB Standards, the template thus covers the key elements of the carbon accounting of REDD+ projects, plus the key elements of the Cancun REDD+ safeguards (Box 2.1) related to biodiversity, ecosystem services and communities and indigenous peoples. The template also covers implementation in-so-far as providing information on validation, verification and the issuance of carbon credits.

Box 2.1 Cancun REDD+ safeguards

At the 16th COP in Cancun in 2010, UNFCCC Parties agreed to the following safeguards for REDD+ activities:

a) Actions complement or are consistent with the objectives of national forest programmes and relevant international conventions and agreements;

b) Transparent and effective national forest governance structures, taking into account national legislation and sovereignty;

c) Respect for the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, and noting that the General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples;

d) Full and effective participation of relevant stakeholders, including, in particular, indigenous peoples and local communities;

e) Actions that are consistent with the conservation of natural forests and biological diversity, ensuring that actions are not used for the conversion of natural forests, but are instead used to incentivize the

protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits;
f) Actions to address the risks of reversals;
g) Actions to reduce displacement of emissions.

Thirty-two project profiles were created using the template (Table 2.1). The 32 projects represent ~ 60% of all REDD+ projects validated under voluntary carbon schemes. The criterion for selecting projects for this analysis was that they have been validated or are in the process of validation by a voluntary scheme. The intention of the analysis was to focus on projects with REDD+ activities that have secured performance-based financing or have made significant progress towards securing performance-based financing by having achieved validation of their designs. This is an important consideration, as many ideas for REDD+ projects do not make it beyond the stages of ideas, feasibility studies or basic plans.

Preference was given to projects that have been both validated and verified, and to projects that have been validated against standards that quantify net emissions reductions and cover safeguard issues. Twenty-five of the surveyed projects have been validated by both VCS and the CCB Alliance (CCBA), two have been validated by one of these schemes and is in the process of validation by the other, one has been validated just by VCS and does not appear to be aiming for CCBA validation, and four have been validated by Plan Vivo (Table 2.1). Table 2.2 describes some of the differences between these three schemes.

Table 2.1 Surveyed projects

			Validation		
Region	**Country**	**Project title**	**VCS**	**CCBA**	**Plan Vivo**
Central and South America	Belize	Boden Creek Ecological Preserve Forest Carbon Project	✓	✓	
	Bolivia	Protection of the Bolivian Amazon Forest	✓	✓	
	Brazil	ADPML Portel-Pará REDD Project	✓	✓	
	Brazil	Florestal Santa Maria Project	✓	✓	
	Brazil	RMDLT Portel- Pará REDD Project	✓	✓	
	Brazil	Purus Project	✓	✓	
	Chile	Avoiding Planned Deforestation and Degradation in the Valdivian Coastal Reserve	✓	*	
	Colombia	Chocó-Darién Conservation Corridor REDD Project	✓	✓	
	Paraguay	Paraguay Forest Conservation Project, La Amistad Community, San Rafael	*	✓	
	Paraguay	Paraguay Forest Conservation Project – Reduction of GHG Emissions from Deforestation and Forest Degradation in the Chaco-Pantanal Ecosystem	✓	✓	
	Peru	REDD Project in Brazil Nut Concessions in Madre De Dios	✓	✓	
	Peru	Cordillera Azul National Park REDD Project	✓	✓	
	Peru	Alto Mayo Conservation Initiative	✓	✓	
	Peru	Biocorridor Martin Sagrado REDD+ Project	✓	✓	
	Peru	Madre de Dios Amazon REDD Project - FSC concessions	✓	✓	
	Peru	Reduction of deforestation and degradation	✓	✓	

		in Tambopata National Reserve and Bahuaja-Sonene National Park			
Africa	Democratic Republic of Congo	Isangi REDD+ Project	✓	✓	
	Democratic Republic of Congo	Mai Ndombe REDD+ Project	✓	✓	
	Kenya	Kasigau Corridor REDD Project Phase I Rukinga Sanctuary	✓	✓	
	Kenya	Kasigau Corridor REDD Project Phase II – The Community Ranches	✓	✓	
	Kenya	Mikoko Pamoja			✓
	Madagascar	Carbon Emissions Reduction Project in the Forest Corridor Ambositra-Vondrozo	✓	✓	
	Malawi	Kulera Landscape REDD+ Program for CoManaged Protected Areas	✓	✓	
	Mozambique	Sofala Community Carbon Project			✓
	Tanzania	Reducing Emissions from Deforestation and Forest Degradation in the Yaeda Valley			✓
	Zambia	Lower Zambezi REDD+ Project	✓	✓	
	Zimbabwe	Kariba REDD+ Project	✓	✓	
Asia and Pacific	China	Jiangxi Province Le'an County Forest Farm Carbon Sink Project	✓		
	Cambodia	REDD in Community Forests - Oddar Meanchey	✓	✓	
	Indonesia	Rimba Raya Biodiversity Reserve REDD Project	✓	✓	
	India	Khasi Hills REDD+ Project			✓
	PNG	April Salumei REDD Project	✓	✓	

*Undergoing validation

Table 2.2 Key features of VCS, CCBA and Plan Vivo

	Verified Carbon Standard (VCS)	Climate, Community & Biodiversity Alliance (CCBA)	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	--Support communities to manage their natural resources more sustainably, with a view to generating climate, livelihood and ecosystem benefits
Standards	-- Focuses on GHG emission reductions and removals	-- Covers climate, 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	--Design of Plan 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	--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	--Payments for carbon credits based on monitoring of project by project coordinator

Figure 2.1 presents the descriptive template, with short explanations of each item in italics. Each project profile first provides the project title followed by a short, mostly qualitative description of "distinctive project features." The distinctive features section enables the reader to quickly grasp the main features of each project. Features that make projects distinct tend to be related to location, proponent/s, including their history in the project area, rights (land, resources and carbon), the drivers of deforestation and/or degradation (DD) that they are tackling, and their proposed countermeasures. The distinctive features section provides a location map and in most cases the project boundary overlaid on a satellite image.[1]

In the profiles, more detailed information is provided below the distinctive project features section. The template was designed to provide a description of key project features, especially those associated with the key issues that all projects need to address in order to deliver "high quality" carbon offsets. Here, high quality refers to carbon offsets that represent a genuine contribution to climate change mitigation (i.e. a real, long-term reduction in emissions), while at the same time respecting REDD+ safeguards. The completed templates enable the reader to understand:

- Location specifics, including the agents, drivers and proximate causes of DD;
- Project spatial boundaries;
- Project proponents, other actors, and their roles;
- Carbon rights acquisition;
- Project objectives and activities to generate net emissions reductions;
- Some aspects of project financing (though available information is usually very limited);
- Method to estimate net emissions reductions;
- The project's claim of additionality;
- Activities to respect safeguards;

[1] The VCS project database provides *kml* files of the project boundaries, which were imported into Google Earth Pro to create the satellite image overlay. Not all VCS projects had downloadable *kml* files and CCBA and Plan Vivo projects do not provide GIS layer files, so not all project profiles include a map of project area boundaries.

- Plans to monitor impacts; and
- Progress (validation, verification and the issuance of carbon credits).

Project title

Distinctive features
Mostly qualitative description of project location, proponent, drivers and countermeasures, and any other distinctive project features.

Heading	Explanation
Locational factors	
Location	*General geographical location of project*
Spatial boundaries	**Project area** *The project accounting area* **Reference area** *The area/s used to calculate the historical rate or location of DD* **Leakage monitoring area** *The area/s used to monitor the displacement of emissions from the project area resulting from "activity shifting"* **Leakage management area** *The area where the project conducts activities to provide alternatives to DD to the deforestation agents (e.g. alternative livelihood development with local farming households)*
Land cover	*Description of the type of land cover*
Agents and drivers of forest cover change	**Agents** *Actors responsible for DD* **Underlying drivers** *Underlying factors that drive DD such as poverty, lack of secure land tenure, market demand for timber and agricultural commodities, etc.* **Proximate causes** *The immediate visible causes of DD, such as conversion for agriculture, unsustainable logging, etc.*
Basic project features	
Objectives	*Project objectives as described in project design documents*
Proponent/s	*Individuals or organisations formally recognised by the carbon scheme/s as the project advocate*
Actors involved in project design and implementation and their roles	*Actors engaged by the proponent or project developer to design and implement the project*
Tenure and Carbon rights holder/s	**Tenure** *May refer to land and / or resource tenure* **Carbon rights** *Refers to the legal rights to forest carbon*
Upfront financing	*REDD+ projects have large up-front costs with future payment streams. They require upfront financing (though only a few project proponents share such information publicly).*
Start date	*Refers to the date that the carbon accounting for the calculation of net emissions reductions starts from*
Crediting period	*Carbon accounting period of the project for which offsets are issued under the carbon scheme*
Baseline emissions	
Methodology	*Methodology used to calculate net emissions reductions. May be an approved existing methodology or own methodology, depending on the carbon*

	scheme.
Reference data (unplanned deforestation/degradation)	**Reference period** *Period used to determine historical DD rates for unplanned DD* **Types of data used** *Satellite and other data used*
Reference data (planned deforestation/degradation)	*Data used to establish DD rate for planned DD*
Stratification of project area	*Delineation of project area into sub-areas with different carbon stock densities to improve statistical efficiency of biomass sampling*
Deforestation rate and location	**Historical** *Historical rate and location of DD* **Projected** *Rate of DD projected for the project period* **Likely baseline scenario** *Description of DD in the without-project scenario* **Modelling procedure** *Procedure to model the baseline*
Carbon pools	**Carbon pools included** *Forest carbon pools included in project accounting, e.g. above-ground living woody biomass* **Estimation method** *Method used to estimate each carbon pool, e.g. sampling, default value from literature, etc.*
Carbon stock changes	*Assumptions about changes in carbon stock in the baseline scenario. E.g. soil carbon lost at linear rate over 10 years.*
GHG emissions	*GHG emissions that are accounted in the baseline*
Net emissions without project	*Annual estimated net GHG emissions in the baseline scenario*
Project GHG emissions reduction strategy	
Scope	*Whether the project accounts for deforestation and/or degradation and/or enhancement of forest carbon stocks*
Activities	*Project activities to protect and/or enhance forest carbon stocks*
Leakage mitigation strategy	*Activities to mitigate the risk of activity shifting leakage. There may be a lot of overlap between Leakage Mitigation Activities and Activities listed above, as in some projects the main activities to protect and/or enhance forest carbon stocks are leakage mitigation activities.*
Non-permanence risk mitigation strategy	*Projects may or may not set out strategies to reduce the risk of non-permanence (reversals), i.e. the risk that the carbon stocks protected are lost due to some future unforeseen event*
Additionality	*The analyses conducted to demonstrate additionality and the results of the analyses*
With-project emissions	
Assumed effectiveness of measures	*Assumption made as to how effective the proposed project activities will be in stopping DD*
Carbon stock changes	*As for the baseline, but for the with-project scenario*
GHG emissions	*As for the baseline, but for the with-project scenario*
Leakage	**Types** *Types of leakage identified and process of analysis* **Deduction** *Ex-ante calculation of project emissions reductions to be deducted to account for leakage*

	Non-permanence risk	**Buffer** *Ex-ante calculation of project emissions reductions (net of leakage) to be placed in buffer as "insurance" for non-permanence risk*
	Ex-ante estimated net greenhouse gas emissions reductions	**Total over crediting period** **Annual average** **Annual average per ha**
	Monitoring of carbon stock changes and emissions	**Parameters** **Methods** **Frequency** *Monitoring of project impacts on carbon stocks and GHG emissions to report net emissions reductions for verification and issuance of credits*
	Stakeholder identification and engagement	
	Stakeholders identified	*Stakeholders in the project area listed in the project design document*
	Identification process	*Process of identifying stakeholders*
	Full and effective participation	
	Access to information and consultation	*Processes, tools, etc. to provide information to stakeholders, especially communities and indigenous peoples, and consultation processes established and/or consultations conducted*
	Participation in design, implementation and monitoring	*Opportunities provided for stakeholders to participate in the project. May include capacity building to enable certain groups to better participate.*
	Feedback and grievance redress procedures	*Processes established for stakeholders to give feedback on the project and to have any grievances addressed*
	Worker relations and safety	*Procedures, principles, methods, etc. to ensure workers' rights are respected by the project, and safety precautions that are taken during project implementation*
	Communities	
	Without-project scenario	*Projected well-being of communities in the without-project scenario*
	With-project scenario	**Expected net benefits** *Benefits anticipated for communities from the project* **Possible negative impacts on other stakeholders and mitigation strategy** *Assessment of whether the project might have negative impacts on other stakeholders, and strategies to mitigate any such impacts*
	Impact monitoring	**Indicators** **Methodologies** **Frequency** *Monitoring of project impacts on community well-being*
	Biodiversity and ecosystem services	
	Without–project scenario	*Projected state of biodiversity and ecosystem services in the without-project scenario*
	With-project scenario	**Expected net benefits** *Benefits anticipated for biodiversity and ecosystems services from the*

		project **Possible negative offsite impacts and mitigation strategy** *Assessment of whether the project might have negative impacts on biodiversity / ecosystem services outside the project area, and strategies to mitigate any such impacts*
	Impact monitoring	**Indicators** **Methodologies** **Frequency** *Monitoring of project impacts on biodiversity and ecosystem services*
Progress		
	Validation	*The date that validation reports are issued by the validator/s*
	Verification	*The monitoring period and the date that verification reports are issued*
	Credits issued	**Number** **As of** *The cumulative number of credits issued by the date given. Does not refer to the number of credits sold or otherwise transacted.*

Figure 2.1 Descriptive template used for project profiles

All 32 profiles can be downloaded from the IGES REDD+ Online database (http://redd-database.iges.or.jp/redd/). They were freshly uploaded to the database on 02 March 2016 and incorporate information available as of this date. One of the 32 project profiles is provided in the appendix for illustrative purposes.

All 32 profiles were created using data and information available through the websites of the relevant voluntary carbon schemes. The main data and information was from project design documents, monitoring plans, monitoring reports or annual reports, validation and verification reports, geographic information systems (GIS) layer files, and records of carbon credit issuances.

There are limitations associated with using publicly available project documents to create summary project profiles for analytical purposes that must be recognised. The information provided in these documents does not allow for a thorough evaluative assessment of the strengths and weaknesses of projects. However, the completed templates enable comparison of project designs and the progress of projects towards validation and verification, from which commonalities across projects as well as distinctive features of each project can be uncovered. Analysis of why these commonalities and distinctive features exist, and what their implications might be, can then be undertaken.

3 Results of the comparative analysis

This section provides the results of the comparative analysis of the surveyed 32 REDD+ projects. It basically follows the major headings/sections of the template. The discussion covers project location and area; agents, underlying drivers and proximate causes of DD;

proponent/s and other actors involved in project design and implementation; tenure and carbon rights; methodologies; baseline establishment; net avoided emissions estimation; project activities to combat DD and/or enhance forest carbon stocks; additionality; commitment to social and biodiversity safeguards; monitoring; and timing of validation and verification and length of monitoring periods.

3.1 Project location

Figure 3.1.1 provides the number of projects by region and Figure 3.1.2 the number of projects per country. Figure 3.1.1 shows that half of the surveyed projects are located in Latin America (14 in South America, 2 in Central America), a third in Africa and a sixth (~15%) in the Asia-Pacific region.

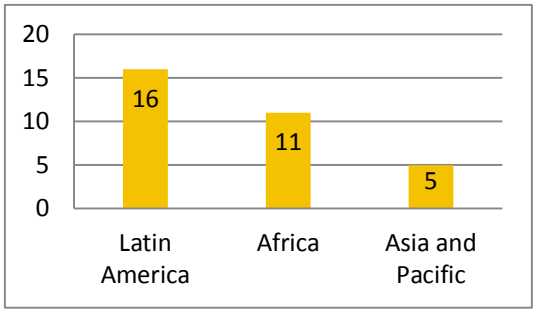


Figure 3.1.1 Projects by region

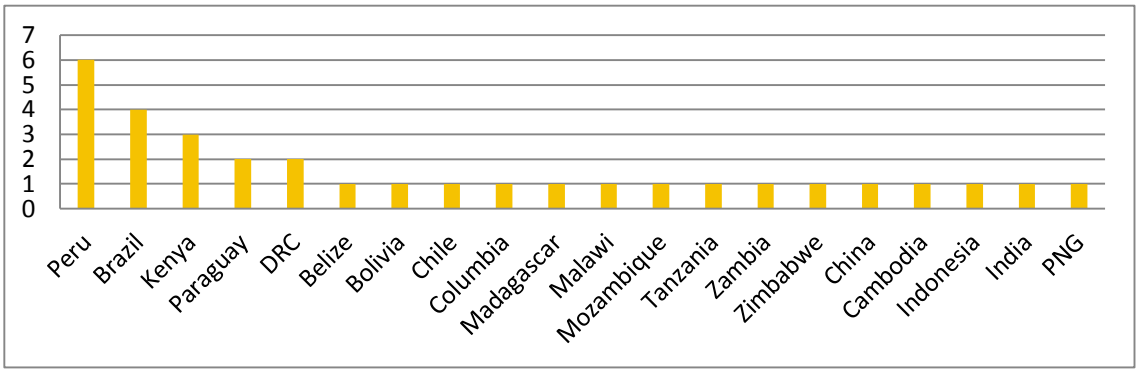


Figure 3.1.2 Projects by country

There may be a number of inter-related reasons for this unequal regional distribution of REDD+ projects and why some countries have attracted more REDD+ projects than others. These include:

Tenure:

Clear and secure tenure could be a key explanatory variable for why Latin America and Africa have a relative large number of REDD+ projects compared to the Asia-Pacific region. In Central and South America and Africa, large private landholdings containing forest exist in some countries, and some large landholders are participating in REDD+ projects to protect these forests from local deforestation agents. In South America, some countries engage private entities to manage protected areas, meaning that private entities can secure the carbon rights for natural forests with high per hectare carbon stocks and sell the carbon to pay for their forest management activities. In contrast, large private landholdings are uncommon in the Asia-Pacific region and privatisation of the management of protected areas has not taken place.

At a country level, as Figure 3.1.2 shows, the largest number of the 32 surveyed REDD+ projects are in Peru, Brazil and Kenya. Peru has attracted a relatively large number of REDD+ projects partly because of its policy of privatising the management of protected areas. Three of the 5 REDD+ projects in Peru that were surveyed (Cordillera Azul National Park REDD Project; Reduction of Deforestation and Degradation in Tambopata National Reserve and Bahuaja-Sonene National Park; Alto Mayo Conservation Initiative) are all for protected areas managed by private entities under government contracts. In Brazil, private ownership of large forest tracts exists. The forest areas of all 4 projects in Brazil that were surveyed are under private ownership (ADPML Portel-Pará REDD Project; RMDLT Portel- Pará REDD Project; Florestal Santa Maria Project; Purus Project). In Kenya, one of the 3 projects surveyed consists of state land that is under private leasehold (Kasigau Corridor REDD Project Phase I Rukinga Sanctuary). Another project (Kasigau Corridor REDD Project Phase II – The Community Ranches) was effectively a later extension of this first project over 13 blocks of land owned by Indigenous Community Ownership Groups. The Lower Zambezi REDD+ Project in Zambia is another example a project area under private holding.

Opportunity costs

Regional differences in REDD+ opportunity costs for land use appears to be another key explanatory variable for why more REDD+ projects are found in Latin America and Africa than the Asia-Pacific region. One of the main deforestation drivers tackled by REDD+ projects in Latin America is ranching. Cattle ranching is a relative low-productive land use with relatively low opportunity costs (compare ranching in Brazil with palm oil in Indonesia in Table 3.1.1). Opportunity costs of land use are even lower in Africa (Boucher, 2008).

On average, REDD+ opportunity costs of land use appear to be highest in the Asia-Pacific region. This may be associated with high rural population densities, rapid economic growth, lucrative markets for timber that the region's tropical forests can supply, and forest land that can be converted to estate crops with high per hectare yields and values, such as oil palm and rubber. This may make it more difficult for REDD+ projects in the region to compete with alternative land uses than elsewhere.

Table 3.1.1 REDD+ opportunity costs for main land uses – Brazil and Indonesia

	Land use	**Opportunity cost estimate $/ton CO2e**	
Brazil		High	Low
	Ranching	2.6	0
	Soybean	3.4	2.5
	Subsistence agriculture	1.1	0
	Timber+ranching+soy bean	6.1	3.9
Indonesia – high carbon scenario	Palm oil	4.29	0.18
	Subsistence agriculture	0.47	0
	Logging	3.44	1.65
Indonesia – low carbon scenario	Palm oil	19.6	0.5
	Subsistence agriculture	1.53	0
	Logging	7.96	3.82

Source: Boucher (2008)

Snowball effect:

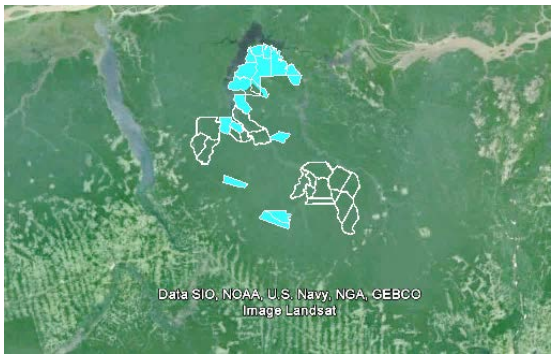
Once a REDD+ project has been developed and is being implemented, it may be easier for the project proponent or another project developer to establish another REDD+ project in the same region. A snowball effect may be generated through the accumulation of expertise to develop and apply carbon accounting methodologies; generation of data and models that can be reused; building of skills and trust relationships to work with stakeholders; growth in familiarity and confidence of local stakeholders with REDD+; development of regional baselines and monitoring systems; building of expertise on a range of project matters, including financing, legal matters and commercialisation; and emergence of policies to support REDD+.

The clearest example of the snowball effect may be where a project proponent has used the expertise and capacities it has accumulated from an earlier project to develop a new project in the same locality, using the same methodology, reference area and leakage belt, some of the same data, and employing the same types of activities. This can be seen in projects implemented by Wildlife Works and Ecosystem Services LLC.

Wildlife Works, an organisation based in the US with its roots in conservation initiatives in Africa, saw REDD+ as a way to finance its conservation interests. It developed a methodology for avoided mosaic deforestation of tropical forests, which was approved by the VCS as VM0009. It then applied the methodology to its first REDD+ project, Kasigau I, then to its second project, Kasigau II, which is adjacent to the first, and then to a third project in the Democratic Republic of Congo, the Mai Ndombe REDD+ Project.

Ecosystem Services LLC, which specialises in the generation and international marketing of environmental services from forestry, renewable energy, and natural resources, developed the ADPML and RMDLT projects in the State of Para in Brazil. Like the Kasigau projects in Kenya, ADPML and RMDLT are adjacent to each other (Fig. 3.1.3), share the same methodology and much of the same data. Most of the RMDLT VCS project description document is in fact just cut and paste from the earlier validated ADPML project.

Kasigau 1, shaded; Kasigau II, not shaded



ADPML 1, shaded; RMDLT, not shaded

Figure 3.1.3 Snowball effect reflected in successive project development by same proponent/s

The snowball effect can perhaps also be detected in the Madre de Dios region of Peru, where 3 REDD+ projects close to each other are being implemented (Fig. 3.1.4) and more are under development. The 3 REDD+ projects have 3 different proponents and their land tenure arrangements are all different, but they share in common the fact that they were developed using REDD+ project expertise available within the country. Bosques Amazónicos (BAM), a Peruvian company established in 2004 that develops forest carbon projects, is involved in 2 of the validated REDD+ projects in Madre de Dios and is in the process of developing a 3rd project. Asociación para la Investigación y Desarrollo Integral (AIDER), a Peruvian non-governmental organisation (NGO) that works on REDD+ and Clean Development Mechanism (CDM) projects, is another example of local REDD+ project development expertise. AIDER is the proponent of 1 REDD+ project in Madre de Dios (REDD in Tambopata National Reserve and Bahuaja-Sonene National Park), while providing analytical services for another of the region's REDD+ projects (Madre de Dios Amazon REDD Project – Forest Stewardship Council (FSC) concessions).

Figure 3.1.4 REDD+ projects in Madre de Dios, Peru

Earlier/existing projects:

Another explanatory variable for the location of REDD+ projects appears to be prior or existing development and conservation initiatives. Previous development interventions may have built local institutions and capacities that REDD+ projects can further build on. Organised farmer and indigenous people's groups exist in some places because of earlier projects and some REDD+ projects have engaged with such groups to develop and implement their activities (e.g. Biocorridor Martin Sagrado REDD+ Project works with an agricultural co-operative established in 1997 as part of a United Nations programme to substitute coca plantations with cocoa and other alternative crops).

3.2 Project area

As Figure 3.2.1 shows, there is a large range in the size of project areas. The largest of the 32 projects surveyed is the Cordillera Azul National Park REDD Project in Peru, which covers 1,351,964 ha of protected forest, while the smallest is the 37 ha "initial instances" of the Paraguay Forest Conservation Project – La Amistad Community, San Rafael. Of the 6 smallest projects, all of which are less than 5,000 ha, 2 are under community management and 4 are forests on privately owned land. That private landowners with small forest holdings have targeted REDD+ to finance the protection of their forests is surprising. The motivation behind

these projects and whether they are financially viable without subsidisation deserves further research.

Tenure types are more diverse for the largest 6 projects. Three are concessions (2 for timber and 1 for Brazil nuts), 2 are private contracts to manage state forest, and 1 is public land managed by local governments.

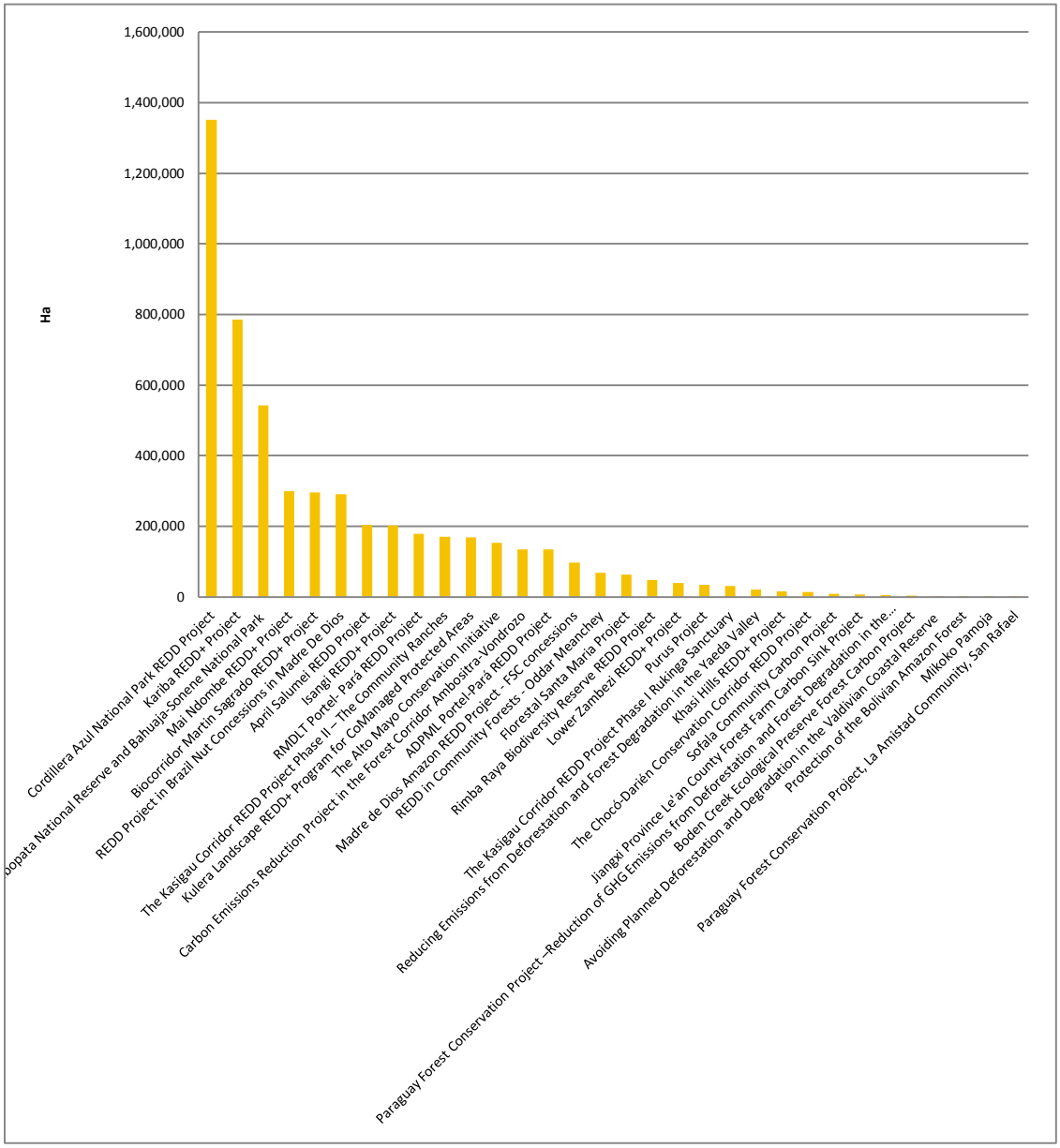


Figure 3.2.1 Size of project areas (ha)

Table 3.2.1 provides the mean, minimum, maximum and total area of the 32 surveyed REDD+ projects. The table reveals that REDD+ projects are on average smaller in the Asia-Pacific region than in other regions. This appears mostly associated with tenure; as explained above, large private landholdings are uncommon and privatisation of protected forest management has not taken place in the region. Small REDD+ projects can be found in all regions. While smaller projects will on average, all else being equal, have lower financial margins than larger projects, "smallness" has not been a deterrent to REDD+ project developers.

Table 3.2.1 Size of project area per regions (ha)

	All	Latin America	Africa	Asia-Pacific
Count	32	16	11	5
Minimum	37	37	117	7,747
Maximum	1,351,946	1,351,946	784,987	204,343
Mean	167,821	197,926	155,734	68,479
Total	5,378,016	3,166,817	1,868,802	342,397

3.3 Agents, underlying drivers and proximate causes of deforestation/degradation

Carbon schemes require project proponents to describe and analyse the causes of DD that they expect in the baseline scenario. The causes can be broken down into agents (the actors responsible for DD), underlying drivers (e.g. poverty, population growth and other factors that encourage the agents to clear or degrade forests), and proximate causes (e.g. overharvesting of timber, conversion for agriculture and other visible actions responsible for DD).

There are limitations to using project documents to assess the agents, underlying drivers and proximate causes of DD as this basic diagnostic framework is not used in most project design documents. Also, there is no commonly agreed approach for categorising and analysing these variables. Nevertheless, there is generally enough information in project documents to understand who the main agents and what the proximate causes are, and to have some sense of what the underlying drivers may be.

Figure 3.3.1 presents the percentages of projects that target various types of DD agents. REDD+ projects being developed by private landholders were excluded from the analysis, as they are not in a position to choose the location, hence the DD drivers that they target.

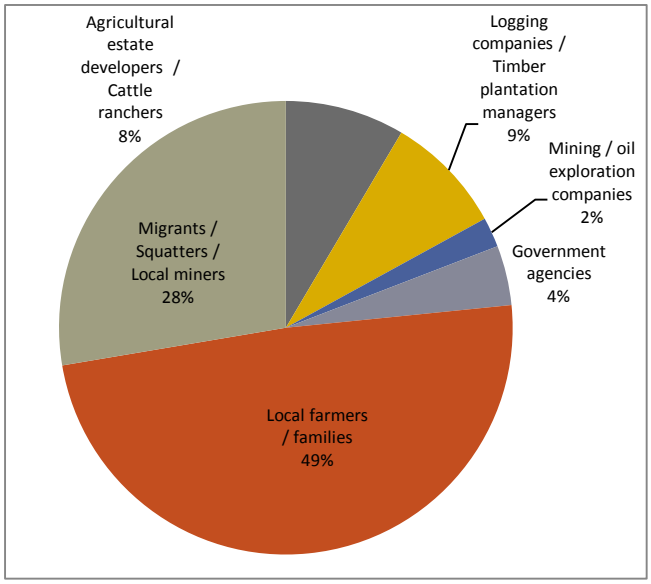


Figure 3.3.1 Percentages of main DD agents identified in surveyed REDD+ project designs (excluding projects with private landholders as proponents)

Seventy-seven percent of projects target areas where local actors are the DD agents, while only 25% of projects target areas where companies and other large agents from outside the region are the major forest threats. Some overlap between these categories occurs as a few projects are in areas where both small local and large outside DD agents are identified. The local agents mostly referred to are existing farming households, recent migrants, and small bands or groups that have entered the area to exploit the resources (e.g.

through timber harvesting and small-scale mining). The large outside agents are mostly logging companies and agricultural estate developers.

Table 3.3.1 lists the underlying drivers identified in the project designs. The drivers described can be categorised as demographic drivers, policy and governance drivers, and economic drivers. Table 3.3.2 presents information on the number of projects identifying specific proximate causes of DD. The identified causes can be grouped as those associated with big business interests and those associated with small local interests. There are two main observations from this analysis. First, REDD+ projects are tackling a wide variety of underlying drivers and proximate causes of DD, with on average projects tackling between 3 and 4 proximate causes. Second, most projects are tackling proximate causes associated with local DD agents. Project documents generally provide a fairly clear explanation of proximate causes, but there is lack of consistency and depth in their discussion of underlying drivers, making further analysis difficult.

Table 3.3.1 Underlying drivers of DD identified in the project designs

Driver category	Driver type	Number of projects with driver type	Total projects in driver category
Demographic drivers	Population growth / in-migration	11	**11**
Policy and governance drivers	Weak law enforcement	7	**16**
	Uncontrolled land use	1	
	Break down of traditional forest management rules	1	
	Government policies / plans	4	
	Transportation links and road development	7	
	Unclear or insecure tenure	3	
Economic drivers	Demand for forest and agricultural products - household, local and international	11	**14**
	Poverty / Food insecurity / Lack of alternative livelihoods	6	

Table 3.3.2 Proximate causes of DD identified in the project designs

Cause category	Cause type	Number of projects with cause type	Total projects in cause category
Big business interests	Large scale commercial agriculture	6	**13**
	Large-scale logging / timber harvesting	4	
	Large-scale mining	2	
	Land clearance for sale	3	
	Large-scale ranching	4	
Small local interests	Poor agricultural practices by recent settlers	3	**23**
	Small-scale logging	10	
	Small-scale mining	1	
	Subsistence agriculture	9	

Small-scale cash cropping	15
Small-scale grazing / ranching	10
Charcoal production	3
Land clearance for local settlements	6
Forest fires	4

Note: Overlap in cause categories occurs as some projects are tackling causes associated with both big and small interests.

3.4 Proponent/s and other actors involved in project design and implementation

3.4.1 Proponents

Project proponents are the organisations that are officially recognised by the carbon schemes as responsible for projects. Analysis of project proponents can help in understanding the types and variety of organisations behind REDD+ projects and, to some extent, their motives. However, there are some limitations to analysing motives for REDD+ projects based on who the proponents are, as in some cases the projects have been developed and driven by international organisations, but the registered proponents are government agencies or other local actors. There are also limitations associated with the information used for the analysis. Information has been extracted from project documents and this has been supplemented with information from proponents' websites, but in some cases further study is required to clarify motives. For example, some proponents have been criticised for motives associated with "greenwashing" by using REDD+ to provide a positive public image of an organisation that has a bad reputation, and such information can only be found through a wider literature review. [2]

The results of the analysis are presented in Figure 3.4.1.1. It is common for REDD+ projects to have only 1 proponent (29 of 32 projects), but some have more than one proponent and proponent type. The most common type of project proponent is an international carbon project developer. Eleven projects have 12 international carbon project developers listed amongst their proponents. Eight projects have an international carbon project developer as their only proponent. Nine of the 12 international carbon project developers only develop REDD+ projects (and some also AR projects) and they are involved in one or a few projects at most (Table 3.4.1.1). They generally all explain their motive for involvement in REDD+ as wanting to promote environmental sustainability, support corporate social responsibility, etc. Two of the proponents are based in Guernsey (Table 3.4.1.1), which is a tax haven, suggesting that at least some proponents may be motivated by a desire for profit.

Nine of the projects have proponents that are regional or national carbon project developers (Table 3.4.1.2). All of these proponents specialise in REDD+ and in some cases also afforestation/reforestation projects. Only one of the projects in the Asia-Pacific region has a regional or national carbon project developer as a proponent.

[2] For example, see http://www.redd-monitor.org/2012/07/11/envirotrades-carbon-trading-project-in-mozambique-the-nhambita-experiment-has-failed/ (accessed 18-03-2016)

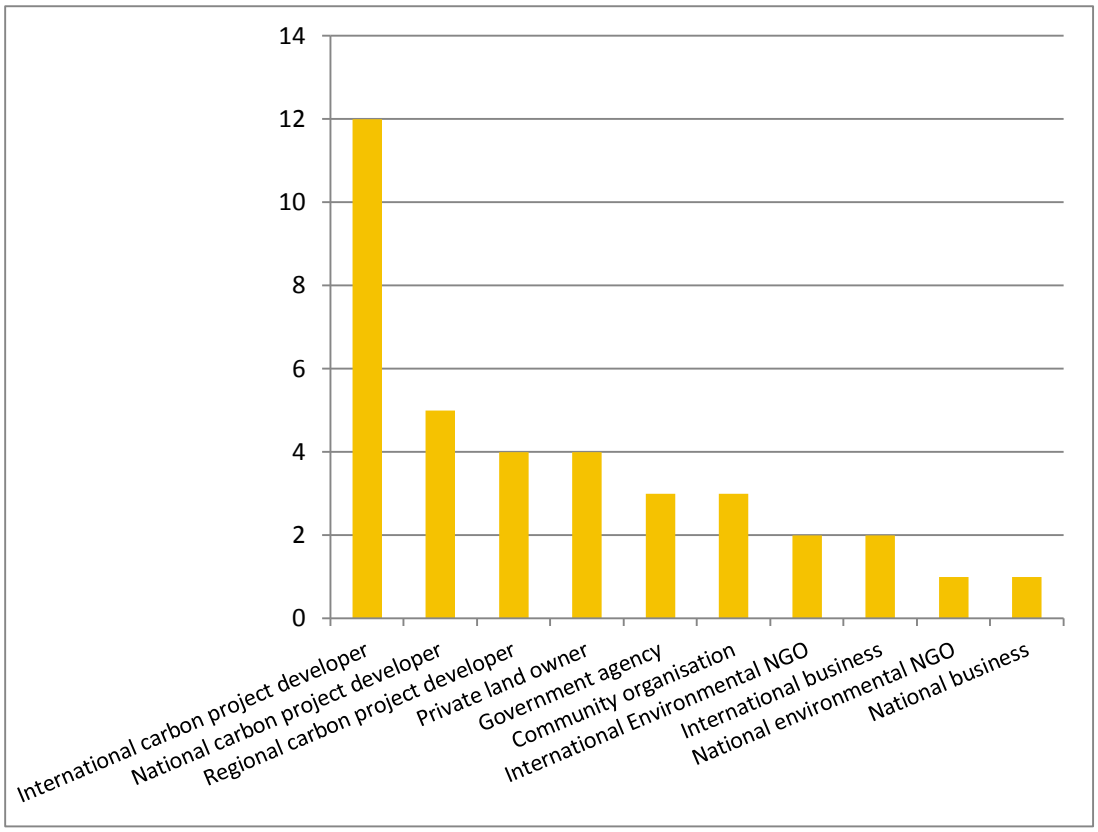


Figure 3.4.1.1 Number of project proponents by types

Table 3.4.1.1 Projects with international carbon project developers as a proponent

Project name	Proponent	Only REDD+/AR projects	Located in tax haven
ADPML Portel-Pará REDD Project	Avoided Deforestation Project (Manaus) Limited	✓	✓
April Salumei REDD Project	Rainforest Project Management Limited (RPML)	✓	
Biocorridor Martin Sagrado REDD+ Project	Pur Projet	✓	
Isangi REDD+ Project	Jadora, LLC	✓	
Kariba REDD+ Project	Carbon Green Investments	✓	✓
Kulera Landscape REDD+ Program for CoManaged Protected Areas	Terra Global	✓	
Madre de Dios Amazon REDD Project - FSC concessions	GREENOXX NGO		
Purus Project	CarbonCo, LLC	✓	
Rimba Raya Biodiversity Reserve REDD Project	Infinite-EARTH Ltd	✓	
RMDLT Portel- Pará REDD Project	RMDLT Property Group Ltd		
	ALLCOT Group AG		
Sofala Community Carbon Project	Envirotrade Carbon Limited	✓	

Within this category is a sub-category of proponents consisting of organisations set up by individuals with a strong interest in conservation or community development. Three examples are Wildlife Works, Carbon Tanzania and Anthrotect. Wildlife Works was set up by Mike Korchinsky, a Canadian citizen, who has used REDD+ to support his strategy of protecting nature in Africa, which is to create jobs for local communities so they no longer need to harm nature for their survival.[3] Carbon Tanzania was established by Marc Baker and

[3] http://www.wildlifeworks.com/company/about-founder.php

Jo Anderson, 2 conservationists who were working in Tanzania.[4] Anthrotect was founded in 2007 by an anthropologist, Brodie Ferguson, and aims to use REDD+ to make conservation a sustainable alternative livelihood for forest-dependent communities.[5]

Table 3.4.1.2 Projects with regional and national carbon project developers as a proponent

Project name	Proponent	Only REDD+/AR projects	Regional	National
Jiangxi Province Le'an County Forest Farm Carbon Sink Project	Beijing Shengdahuitong Carbon Management Co., Ltd.	✓		✓ (China)
Lower Zambezi REDD+ Project	BioCarbon Partners	✓	✓(Africa)	
Kasigau I & II; Mai Ndombe REDD+ Project	Wildlife Works	✓	✓ (Africa; but aiming to be international)	
REDD Project in Brazil Nut Concessions in Madre De Dios	Bosques Amazónicos (BAM)	✓		✓ (Peru)
Reducing Emissions from Deforestation and Forest Degradation in the Yaeda Valley	Carbon Tanzania	✓		✓ (Tanzania)
Reduction of Deforestation and Degradation in Tambopata National Reserve and Bahuaja-Sonene National Park	AIDER	✓	✓ (South America)	
The Chocó-Darién Conservation Corridor REDD Project	Anthrotect	✓		✓ (Colombia)

While governments have the property rights for most forests in most developing countries, they do not feature as REDD+ project proponents. Only 3 of the projects have government agencies as proponents. This is most likely a combination of factors, including lack of resources to initiate REDD+ projects, policies of transferring forest management responsibilities to non-government entities (e.g. through timber concessions and contracts for forest protection), administrative weaknesses, and lack of technical expertise. In all 3 projects with governments as proponents, international NGOs/consultancies with expertise in forest carbon projects are leading or responsible for the technical carbon accounting aspects of the project (Table 3.4.1.3).

Other proponents of the 32 surveyed REDD+ projects are private land owners, community organisations, international and national companies, and international and national environmental NGOs. The community organisations are associated with projects that promote community-based natural resource management as a REDD+ activity. Two international environmental NGOs (The Nature Conservancy and Conservation International) and one national environmental NGO (CIMA, which was set up specifically to manage the

[4] http://www.carbontanzania.com/
[5] https://www.anthrotect.com/

management contract for Cordillera Azul National Park in Peru) are proponents. Their motivations are likely connected with their conservation missions. One international company, Swire Pacific Offshore Operations (Pte) Ltd., which is a service provider to the offshore oil and gas industry, is the proponent for 2 REDD+ projects. It is investing in REDD+ under its corporate social responsibility policy. The project with national companies as proponents is the Madre de Dios Amazon REDD Project in Peru, which consists of the 2 VCS validated timber concessions.

Table 3.4.1.3 Projects with government agencies as proponents

Project name	Proponent	Carbon expertise provider
Carbon Emissions Reduction Project in the Forest Corridor Ambositra-Vondrozo	Government of Madagascar-Ministry of Environment and Forests (MEF)	Conservation International
Kulera Landscape REDD+ Program for CoManaged Protected Areas	Department of National Parks and Wildlife - Malawi	Terra Global Capital
REDD in Community Forests - Oddar Meanchey	Forestry Administration of the Royal Government of Cambodia	Terra Global Capital

3.4.2 Actors

The descriptions provided in project documents are used to analyse the number of actors involved in each project and the roles they play. Some project documents do not describe all actors, i.e. the exclude relatively minor ones, so the total number of actors calculated for each project may in some cases be an underestimate. Actors may be recruited to play very specific roles or to generally assist with project management and implementation. The analysis classifies actors according to specific roles where this is possible, and where it is not, the actors are placed under the heading of *other project implementation support*. This is a very broad category that includes project management expertise as well as expertise on specific project activities, such as reforestation, conservation agreements with local communities, etc.

Commonly, a REDD+ project has a lead developer (may or may not be the proponent/s) that contracts or elicits the support of other organisations to provide any necessary skills it does not have. Consultancies, NGOs and other organisations usually have skills relevant to REDD+ projects in one specific area. For example, a national NGO may have skills in working with local communities or a consultancy may specialise in the carbon accounting aspects of REDD+ projects. It is common for the lead developer to contract several such organisations to develop and/or implement the project (Fig. 3.4.2.1). For the carbon accounting project component, some project developers recruit an organisation with expertise in remote sensing and GIS, and another organisation with expertise in forestry inventory. The average number of actors per project for the 32 projects surveyed is between 4 and 5 (4.5).

The large number of actors in REDD+ projects can be explained by the inherent complexity of projects that aim to tackle several drivers of DD, estimate the net carbon benefits of these activities and at the same time adhere to social, environmental and governance safeguards. REDD+ projects require a wide range of expertise for development, implementation, monitoring and reporting, related to general project development and management, carbon

accounting, biodiversity and ecosystem services, community and stakeholder engagement, activities to reduce net emissions, legal matters, and financing and commercialisation, amongst others. No single organisation is likely to hold all this expertise. Of the 32 reviewed projects, there is only one project in which the proponent has taken on all the roles required to design and implement the project: Fermin Aldabe is the sole actor in the Protection of the Bolivian Amazon Forest, which covers 235 ha of privately owned forest in Bolivia.

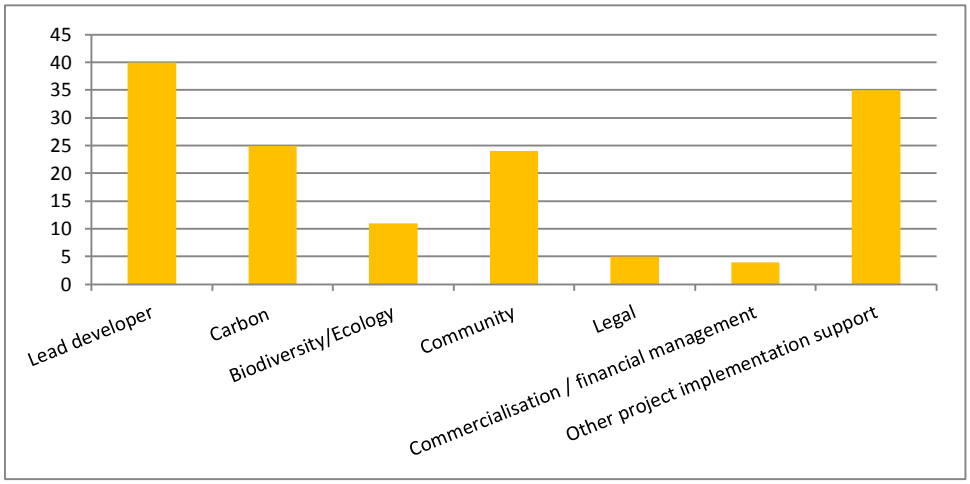


Figure 3.4.2.1 Number of actors by type of expertise in 32 REDD+ projects[6]

3.5 Tenure and carbon rights

3.5.1 Tenure

Tenure arrangements are important for REDD+ projects as they affect who has the rights to the carbon and the types of activities that can be implemented in the project or surrounding area. Figure 3.5.1.1 shows that the land and/or resource tenure arrangements in the areas where REDD+ projects are located are quite varied. These arrangements for the 32 projects surveyed have been categorised into 8 types. Single private ownership of the land in the project area exists for 11 of the projects surveyed, with an average area of 60,072 ha. Private ownership in this category refers to project areas that are owned by a single landholder. The next most popular tenure category is project areas where the land is either owned by households or community groups or where the forest management rights have been transferred to communities.[7] As could be expected, the average size of project area is lowest for this category at 18,127 ha. Logging concessions, private administration of state forest and

[6] The number of organisations recruited to provide specialisation on working with local communities is lower than suggested by Figure 3.4.2.1, as this Figure includes the communities themselves when they are identified by the lead developer as project actors.

[7] April Salumei REDD Project has been categorised as "production concession – stop harvest", as, even though the project area is owned by local clans, prior to the project they had transferred the rights to the state for a selective logging project, which the REDD project now aims to stop.

government administration of state forest or public lands are among the other tenure arrangements found in REDD+ projects. On average, these have relatively large project areas.

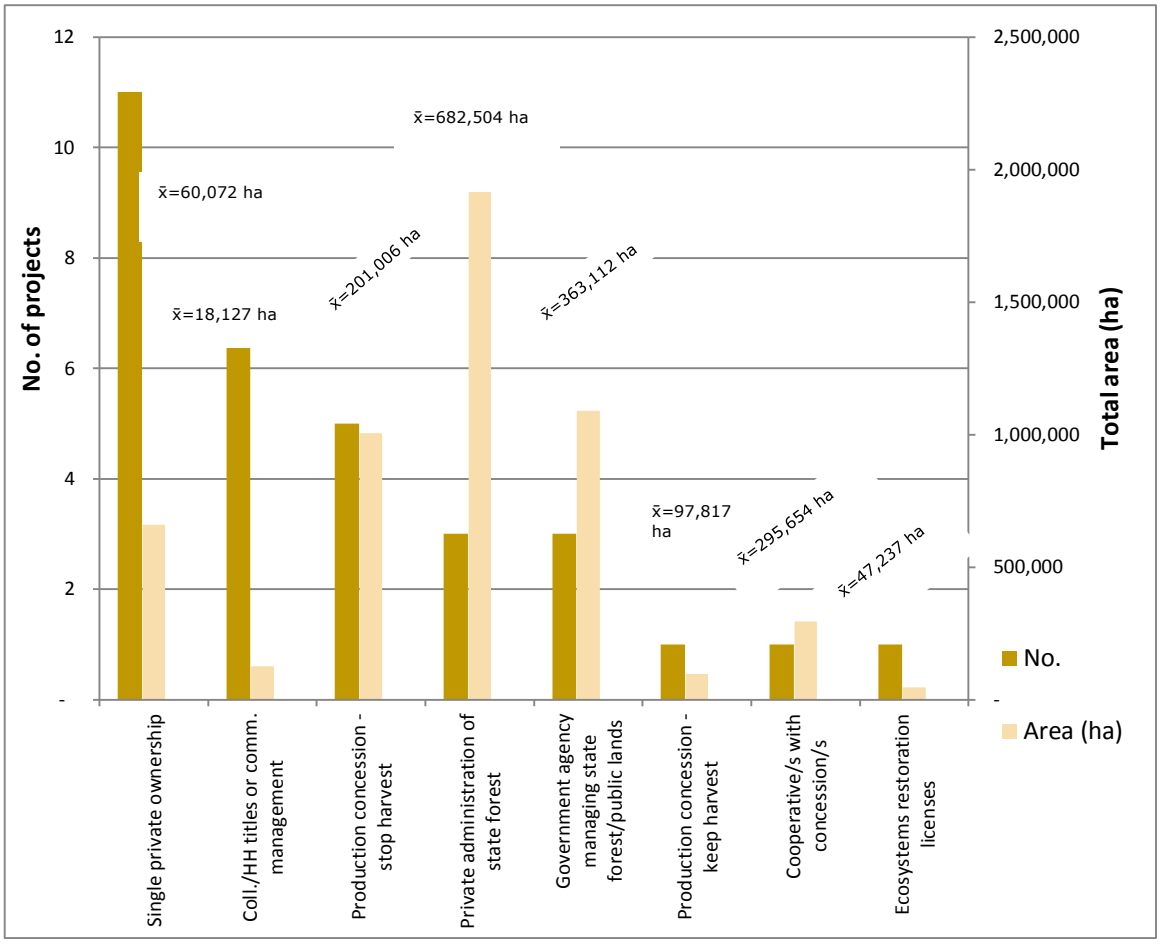


Figure 3.5.1.1 Land and/or resource tenure of surveyed REDD+ projects
Note: Coll.//HH = collective/household; comm. = communities

3.5.2 Carbon rights

A REDD+ project cannot be developed successfully without clarity and security over carbon rights ownership. It is common in REDD+ projects for the rights to be transferred by the land or resource tenure holder to the developer or another agency responsible for commercialisation. In 17 projects, the carbon rights were transferred by the tenure holder to the project developer or another entity, while in 13 projects they are retained by the tenure holder (Fig. 3.5.2.1). Four examples are provided in Table 3.5.2.1 to illustrate how carbon rights transfer has been organised.

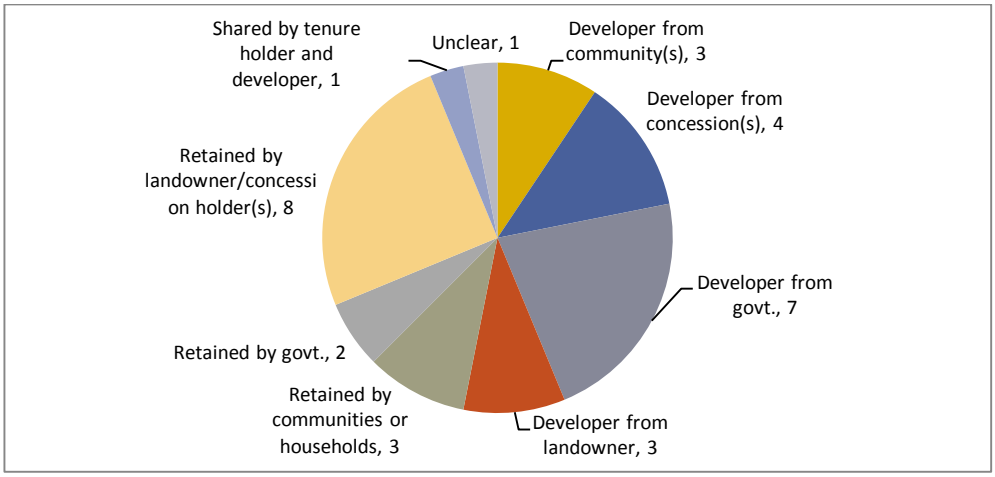


Figure 3.5.2.1 Carbon rights holders in 32 REDD+ projects

Table 3.5.2.1 Summary of tenure and carbon rights in selected REDD+ projects

Project	Tenure	Carbon rights
Madre de Dios Amazon REDD Project – FSC concessions	2 timber concessions have legal rights to the whole concession area to manage the native flora and fauna resources, as well as tourism and environmental services including forest carbon	70% of credits held by concession holders; 30% by developer
Kulera Landscape REDD+ Program	Government of Malawi	4 project proponents signed an agreement for the carbon development, carbon rights and benefits sharing, vesting the right of use in an independent entity participated by all 4 project proponents which will manage the revenues coming from the commercialisation of carbon credits
Purus Project	Private ownership	Carbon rights transferred by concession holders to Carbon Securities through tri-party agreement
Chocó-Darién Conservation Corridor REDD Project	Collective Title No. 1502 held by Cocomasur (The Council of Black Afro-Colombian Communities of the Tolo River Basin and Southern Coastal Zone)	Cocomasur and Anthrotect (developer) signed an Emissions Reduction Purchase Agreement on 29 October 2010

3.6 Methodologies

The carbon credits that a project is expected to generate are estimated ex-ante using approved methodologies. For Plan Vivo, the methodologies are developed and applied by project developers and included in their project designs. They are essentially approved as part of the validation process. This is an uncommon approach, but explained by the fact that

in promoting community management of land and natural resources, Plan Vivo prefers simple carbon accounting methodologies to facilitate the participation of communities in measuring and monitoring carbon stock changes.

The VCS approves methodologies for use in REDD+ projects under Sectoral Scope 14 Agriculture, Forestry and Other Land Use (AFOLU). The relevant methodologies are those on REDD and those on improved forest management (IFM).

Figure 3.6.1 shows how many of the 32 surveyed REDD+ projects have used specific methodologies. Four of the projects are Plan Vivo projects, so these have all used their own methodologies. For VCS validated REDD+ projects, the most popular methodology is VM0007 REDD+ Methodology Framework (REDD-MF), which is used by 12 projects. VM0007 has wide applicability as it can be used for planned and unplanned deforestation and degradation, and applied to both mosaic and frontier landscape configurations. The methodology is constructed using the VCS modular approach (VCS Standard, Section 4.1.3) in which a series of modules are arranged in combinations to accommodate a range of REDD project types. Each module is self-contained to produce specific accounting elements, which can be combined to form complete methodologies.

VM0009 Methodology for Avoided Ecosystem Conversion is the next most popular methodology. The methodology is for unplanned deforestation and forest degradation in a mosaic configuration. It was developed for the Kasigau I project in Kenya and has been applied to 4 other projects in Africa and 1 in Colombia. VM0009 may be popular because mosaic configurations are found in many areas and/or because of methodological issues, e.g. wall-to-wall historical land cover change analysis is not required.

VM00015 Methodology for Avoided Unplanned Deforestation has been used by 5 projects. Its popularity may stem from the fact that it is applicable to a wide range of unplanned deforestation configurations, both mosaic and frontier, and its flexibility regarding baseline modelling (discussed below).

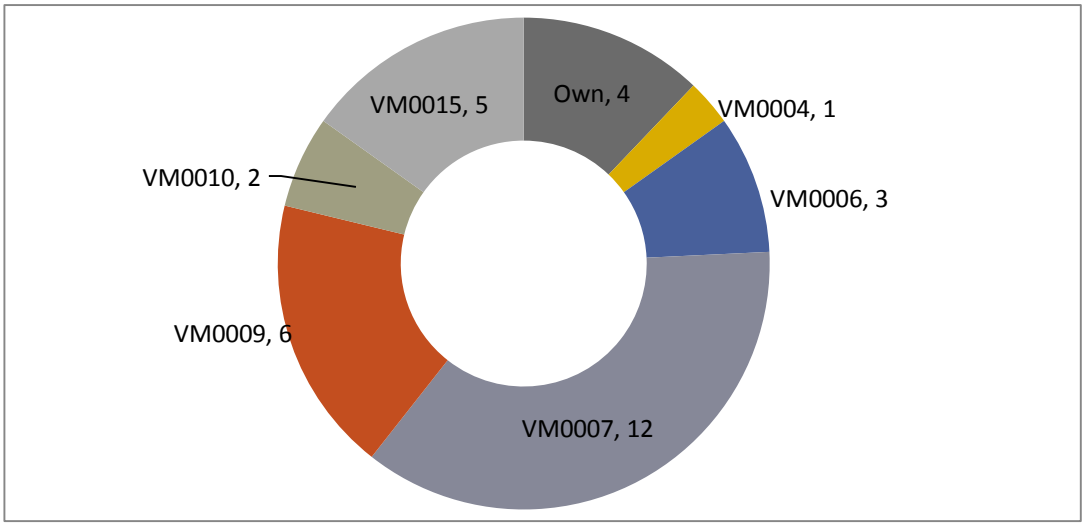


Figure 3.6.1 Methodologies used by the surveyed VCS validated REDD+ projects

VM0006 Methodology for Carbon Accounting for Mosaic and Landscape-scale REDD Projects, like VM0009, is for projects that reduce emissions by avoiding unplanned deforestation and forest degradation in a mosaic configuration. While developed for the Oddar Meanchey REDD project in Cambodia, it has also been applied to 2 projects in Africa.

VM0010 Methodology for Improved Forest Management: Conversion from Logged to Protected Forest, as its title indicates, is for projects that stop commercial timber harvest in the project area. It has been applied by 2 projects.

The least used methodology is VM0004 Methodology for Conservation Projects that Avoid Planned Land Use Conversion in Peat Swamp Forests. This methodology is for projects that prevent planned land-use change of tropical peat forests and is applicable only to undrained tropical peat forest in Southeast Asia.

Of the 32 projects reviewed, 23 address unplanned deforestation and/or degradation and 9 address planned deforestation and/or degradation. None of the projects account for both planned and unplanned deforestation. Under the VCS system, each would require a separate baseline and would have to be accounted separately. One Plan Vivo project, Khasi Hills, accounts for activities to reduce emissions from unplanned deforestation as well as sequestration through assisted natural regeneration.

Under the VCS it is possible to use more than one approved methodology for a project. Of the surveyed projects, only the April Salumei REDD Project in PNG does this. It uses VM0007 to account for avoided deforestation that takes place during the construction of roads in a logging concession and VM0010 to account for avoided degradation from commercial logging in the concession.

3.7 Baseline establishment

Arguably the most important and complex part of any carbon methodology is the set of procedures to establish the baseline, i.e. the projected net emissions from the project area if the project is not implemented. The construction of the baseline is fundamentally different for planned and unplanned DD. For planned DD, ideally direct evidence such as verifiable plans that clearly reflect the intention to clear forests or reduce biomass without causing deforestation is used to model the baseline. For unplanned DD or where direct evidence is not available for planned DD, modelling of the baseline depends on indirect evidence, for example, on the basis of inference from historical trends.

For unplanned DD, there are two key steps in modelling the baseline. The first is modelling the *rate of deforestation*. Three basic approaches exist: (i) projection of the baseline as the average of historical emissions during the reference period, (ii) modelling based on historic trends using a fitted regression equation, and (iii) use of covariates to model the rate of deforestation from the drivers of deforestation. The second is modelling or making assumptions about the *location of deforestation*.

Figure 3.7.1 presents the number of projects that have used approaches 1, 2 and 3 to model the rate of baseline deforestation and/or degradation. The figures are only for projects that

tackle unplanned deforestation and/or degradation. Ten projects have modelled the baseline using the historic average during the reference period, 9 have used regression models, and only 3 have used covariates to model the rate of deforestation from the drivers of deforestation. The most used approach for the VCS validated projects is the regression approach, whereas all 4 Plan Vivo projects have used the historic average approach.

Project developers have not necessarily selected the historic average approach because it is the simplest. Some projects have assessed other statistical models and have selected the historic average approach either because it is the most conservative (e.g. Biocorridor Martin Sagrado REDD+ Project) or because attempts to build other statistical models that correlate drivers with deforestation were not successful (e.g. Sofala Community Carbon Project).

Most VCS projects were required by the methodologies they used to spatially model the baseline location of deforestation and/or degradation. Thus, even projects that selected the historic average approach employed sophisticated spatial modelling. Software used by the projects for their spatial modelling included DINAMICA EGO and IDRISI Selva.

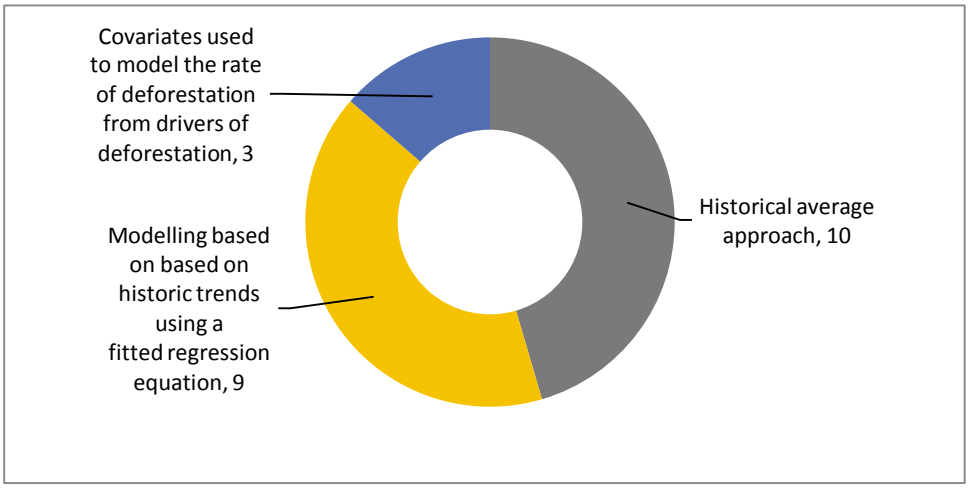


Figure 3.7.1 Baseline modelling approaches used by surveyed projects for unplanned deforestation and/or degradation

3.8 Net avoided emissions

Net avoided emissions are estimated ex-ante and verified ex-post for the issuance of carbon credits. Once the baseline has been established, the estimation of net avoided emissions basically involves several steps. First, the impact of project activities on carbon pools and GHG emissions are estimated. Assumptions are made about the level of effectiveness of project activities. The level of effectiveness may be elaborated spatially, as effectiveness may be different in areas with different carbon stocks, differentiated between project activities, and differentiated over time. Second, in some projects additional calculations for carbon stocks are made for the with-project scenario when required by the methodology and considered significant. An example could be when the project proponent intends to clear forest to establish fire breaks (loss of carbon stocks).

Third, the risk of leakage, i.e. the displacement of emissions from the project area resulting from the project, is then estimated and deducted from the estimated project emissions. The types of leakage that methodologies may require projects to account for include activity shifting leakage (i.e. when because of the project the agents of deforestation clear or degrade forests in other areas) and market leakage (i.e. when reduction of supply of forest products to the market because of the project leads to an increase in harvesting in other areas). For 24 of the reviewed projects, the average percentage of ex-ante estimated project carbon credits deducted for leakage was 6.3%. Ten of these projects did not make leakage deductions, while the greatest deduction was 23%.

Fourth, the risk of non-permanence, i.e. the risk that the carbon pools protected by the project may be lost in the future, is estimated as a percentage of the net avoided emissions and this percentage is placed in a buffer account. Data on the results of ex-ante non-permanence analysis was available for 31 of the 32 surveyed projects. The average ex-ante calculation of non-permanence risk was 15.4%, with the lowest being 1.7% and the highest being 25%. For the VCS projects, the average was 15.3% and for Plan Vivo projects, 16.25%. The non-permanence risk calculated by Rimba Raya Biodiversity Reserve REDD Project, the only project on peat land, was 20%.

For 23 projects, the average "deduction" from the ex-ante estimated amount of avoided emissions of leakage and non-permanence combined is 23.3%. The highest deduction is 43% (REDD in Community Forests - Oddar Meanchey).

3.9 Project activities to combat DD and/or enhance forest carbon stocks

REDD+ activities implemented by projects are basically of two or three types. The first type is activities that directly stop DD agents from entering the forest area. Patrolling the borders of a forest to stop agricultural encroachment or illegal removal of wood and obtaining a conservation concession are examples of these types of activities. The second type is activities that stop the agents of deforestation/degradation moving to another location to clear the forest or cut timber, etc., once the first type of activity is in place. This second type can be described as "leakage mitigation activities." Investments in alternative livelihoods and fuel efficient stoves for communities near the project area are examples of leakage mitigation activities. The third type of activities is activities to reduce the risk of non-permanence. An example would be creating fire breaks in the forest to reduce the risk of fire. Collectively, these three types of activities comprise a project's REDD+ activities, though not all projects have leakage mitigation activities and activities to reduce the risk of non-permanence.

The 32 reviewed REDD+ projects mostly propose or are already undertaking a wide range of activities to combat DD and/or enhance forest carbon stocks. These activities are not always well-described and some are conditional on how the project progresses. There is also no standard approach to categorising these activities, so while two projects may propose a similar set of activities, the way they describe these can be very different. Because of these issues, classifying activities and counting how many projects describe each activity in their

documents can provide an overall understanding of how REDD+ projects aim to combat DD and/or enhance carbon stocks, but the calculated percentage of projects implementing a particular activity in some cases is at best a very rough guide.

An attempt has been made to first characterise each project in terms of its overall activities (Fig. 3.9.1). Nine projects can be characterised as projects that target state-owned forest, mostly protected areas or forest reserves, and aim to manage these through monitoring, enforcement and leakage mitigation activities with surrounding communities. Private holdings with the same types of activities make up the next most common project type (8 projects). REDD+ projects where communities hold tenure and will be undertaking forest management activities are also fairly common (6 projects). Four projects can be described as converting timber concessions to protected forest with leakage mitigation activities. The other types of projects include projects that improve the management of production concessions (timber and Brazil nuts) and projects that avoid conversion by agricultural estate developers, both which include leakage mitigation activities with local communities. A number of the 32 reviewed projects could potentially describe themselves as supporting co-management of forests, but in fact only one (Paraguay Forest Conservation Project) uses this term.

Table 3.9.1 shows that the most common activities in the surveyed 32 REDD+ projects are associated with the creation of alternative livelihoods (25 projects). This emphasises the point made earlier that most projects are targeting locations where communities rather than companies are the main agents of DD. Most of the alternative livelihood activities are land-based activities, reflecting the fact that projects are mostly working with farming households.

Forest management activities, including monitoring of carbon and biodiversity, as well as patrols to monitor and stop illegal extraction of forest products, are found in most projects. Though generally not discussed in project documents, communities involved in patrolling could find themselves in conflict with other local people who are illegally harvesting timber and non-timber forest products from the forest.

Half of the surveyed projects include activities to reduce pressure on forests by reducing demand for fuelwood and/or providing alternatives to fuelwood. Environmental education and training on forest management, and tree planting occur or are planned in one third of the projects. For some projects the tree planting is to provide a sustainable supply of fuelwood, and in other cases to increase biomass through assisted natural regeneration (ANR) and enrichment planting, or to rehabilitate degraded areas.

Conservation agreements with local communities in which benefits to communities may be conditional on their performance are also quite common. These are an essential part of Plan Vivo projects, but 8 VCS validated projects also include such agreements. In conservation agreements, households or communities commit to protecting the forest and in some cases other conservation actions. In return, they receive various "benefits" which may include infrastructure development, services such as health, education and capacity building for sustainable agricultural activities. Performance-based cash payments to communities takes place under all Plan Vivo projects as part of the Plan Vivo system; however, of 28 VCS validated projects reviewed, it appears that only 3 make such cash pay-outs. Community

funds are provided (or planned) by some projects for community projects or for small local business activities, etc.

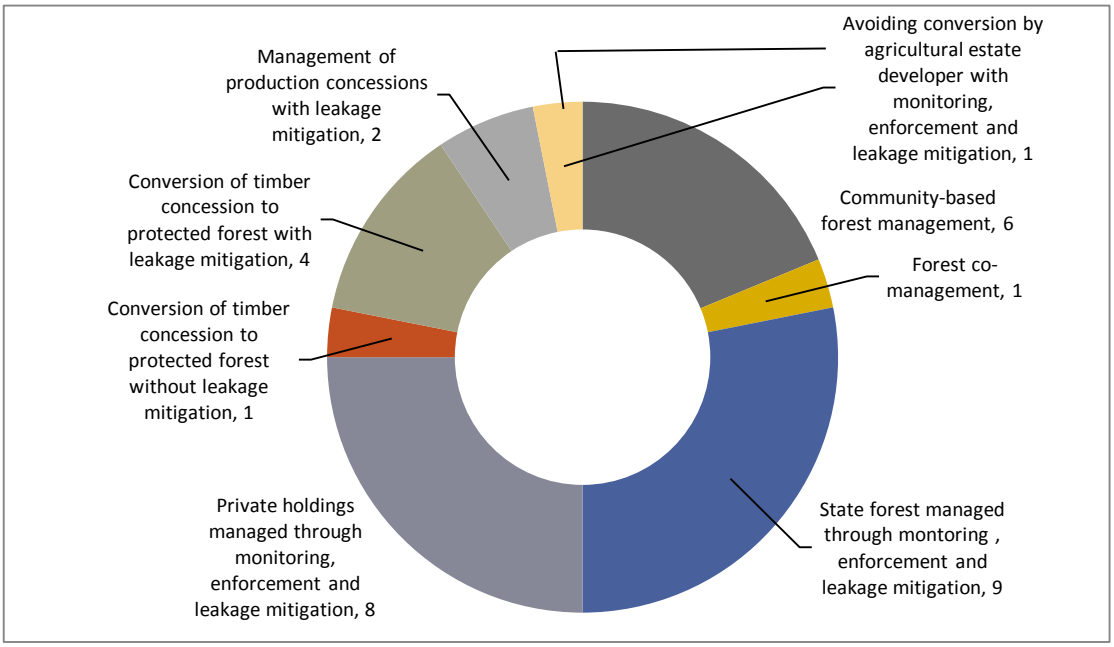


Figure 3.9.1 Basic characterisation of the 32 REDD+ projects

The provision of infrastructure and services for communities and support for building/strengthening community institutions, community-based land use and resource planning, and for households and communities to acquire land or resource tenure are fairly common activities in REDD+ projects promoting community-based forest management.[8] These activities can also be found as part of the leakage mitigation strategies of some projects aiming to protect state-owned forest.

Amongst the other project activities, only 5 projects explicitly mention support to government and other actors (other than local communities) as one of their activities. It is likely that the actual number of projects that provide support to government agencies is higher than this, but engagement with government agencies is not discussed in detail by most projects. This suggests that many REDD+ projects targeting the voluntary market are not well integrated into national REDD+ programmes or other national programmes on forest management. It also suggests that in some cases REDD+ project proponents could be doing more to engage government in their activities.

[8] The number of projects that support community institution building is likely higher than that shown in the table, as some projects working with communities appear to be contributing to institutional development but don't describe their activities in these terms.

Table 3.9.1 Types of project activities proposed or implemented by 32 REDD+ projects

		Number of projects proposing / implementing activity	
Activity		Subtotal	Total
Alternative livelihoods	Agroforestry, silvopasture and plantations (e.g. coffee, citrus)	12	**25**
	Aquaculture	4	
	Non-timber forest products	6	
	Ecotourism	5	
	Sustainable/intensified agriculture	14	
	Sustainable mining	2	
	Not specified alternative livelihoods	1	
Forest management, including monitoring and patrolling	With community	14	**20**
	Without community	6	
Fuel efficient cook stoves / eco-charcoal / renewable energy / fuelwood plantations			**16**
Environmental education and training on forest management			**13**
Tree planting	With community	9	**12**
	Without community	3	
Conservation agreements with communities/HHs			**12**
Projects providing community infrastructure/services	Community housing, vehicles, communications and other infrastructure	1	**12**
	Health clinics	4	
	Water supply	4	
	Schools/scholarships/teaching	7	
	Resource / community centres	3	
	Training centre	3	
Community institution building			**9**
Land use and resource planning	With community	6	**8**
	Without community	2	
Fire prevention and suppression	With community	5	**8**
	Without community	3	
Land use reclassification / restrictive covenant / land purchase			**8**
Direct cash payment to communities			**7**
Land / forest rights support			**6**
Small local business support			**6**
Support to government and other actors			**5**
Forest management / protection plan(s)			**5**
Community or other fund / microfinance			**4**

Local businesses run by project (processing facilities, etc.)	**4**
Removal of actor from protected area	**1**

3.10 Additionality

Carbon schemes aim to provide carbon credits which GHG emitters can then use to achieve their emission reductions targets. For offsetting of this sort to work, the activities implemented to generate the offsets must be activities that would not have taken place without the offset payments, i.e. they must be "additional." Voluntary carbon schemes require that project proponents show how their proposed activities will be additional. For example, the VCS VT0001_Tool for Demonstration and Assessment of Additionality in AFOLU Project Activities sets out a 3 step process to "test" additionality. Step 1 is identification of alternative land use scenarios to the proposed REDD+ project. Step 2 is performing an investment analysis or barrier analysis. The investment analysis must demonstrate that without carbon financing the project would be less financially attractive than other land use scenarios. The barrier analysis identifies barriers that the project would face and how the carbon financing assists in overcoming these barriers. Step 3 is common practice analysis, which requires the proponent to demonstrate that the activities proposed by project are in one way or another not common practice in the project region.

In design documents of the 32 surveyed projects, the information commonly used in the additionality test are drawn from the proponents' knowledge of the project region and literature (for alternative land-use scenarios, investment and barrier analysis, and common practice analysis) and project and market data, etc. (for investment analysis). Table 3.10.1 summarises the results of the additionality tests conducted for 5 VCS validated projects. The amount of attention given to additionality varies between project documents. One of the 5 projects uses 15 pages of the project design document to describe the results of the additionality test, while 2 projects only use 2 pages.

Table 3.10.1 Explanation of additionality in 5 project designs

	April Salumei REDD Project	Kariba REDD+ Project	Kasigau I	ADPML Portel-Pará REDD Project	Rimba Raya
Pages	10	2	2	15	8
No. alternative scenarios	3	3	3	3	6
Investment analysis		Simple cost analysis finds no revenue to cover cost of project activities	Simple cost analysis finds no significant income to offset project costs	Simple cost analysis finds a lot of capital needed to set up project.	

Barrier analysis	Access to funding; Poor enforcement of policies & laws on sustainable land management; Need for sustainable revenue generation				Investment barriers, institutional barriers, prevailing practice barriers, and technological barriers
Common practice analysis	Not common practice for landholder companies, to protect forest areas for financial return in PNG	Not common practice for private companies that are not donor funded, to protect forested wilderness in Africa for financial return in the absence of AFOLU revenues	Not common practice for private companies that are not donor funded, to protect forested wilderness in Africa for financial return in the absence of AFOLU revenues	3 REDD Projects in the State of Para exist but none have independent validation	Conservation activities such as Rimba Raya are not common in the region.

3.11 Commitment to social and biodiversity safeguards

In general, a large difference is observed in the attention to non-climate impacts in project design documents for projects that were validated by CCBA and Plan Vivo and projects that were only validated by VCS. Of the non-Plan Vivo projects surveyed, all but 2 have or are aiming for "dual validation" with the VCS and CCBA. The 2 projects that were not validated for the CCBA provide little or no information on critical safeguard issues associated with communities, stakeholder consultation and handling grievances.

For the "dual validated" projects, indicators that could be used to assess the interest of proponents in demonstrating respect of REDD+ safeguards are the number of their verifications for VCS versus the number of verifications for CCBA, and the dates of the last verifications for the 2 schemes. Employing the first indicator reveals that 10 projects with emissions reductions verified for the VCS have not been verified for compliance with the CCBA standard. In other words, after the validation against both the VCS and CCB standards, 10 projects have made efforts to be verified for emissions reductions but not for verification against community and biodiversity principles (safeguards). This is a concern, as without verification projects could deviate from the activities set out in their designs to respect safeguards. Of the other projects, 11 have been verified the same amount of times for both VCS and CCBA, 1 is already in process for CCBA verification but is yet to be validated for VCS, and 2 have been verified less times for CCBA than VCS, but their latest verifications for both schemes occurred at similar times. This means that in 14 of 27 projects with or aiming for "dual validation," the proponents have continued to invest in third party auditing of their compliance with safeguards.

3.12 Monitoring

Projects must monitor and report on carbon stock changes and emissions prior to verification for the issuance of carbon credits. Projects verified against standards with non-climate principles, e.g. community and biodiversity, must also monitor and report their performance against these principles.

Table 3.12.1 summarises some of the features of monitoring in 5 VCS validated projects. The 5 projects apply a total of 4 different VCS approved methodologies, each with different monitoring requirements. Table 3.12.1 shows that a wide range of methodologies are applied to monitoring. All 5 projects apply remote sensing (RS) and GIS to monitor changes in land cover and all conduct forest surveys to assess changes in carbon stocks. Use of social surveys and participatory rural appraisal (PRA) techniques is also common to generate data for monitoring of project climate impacts, e.g. volume of household fuelwood use. For monitoring impacts on communities and biodiversity and ecosystem services (BES), 1 of the 5 projects was still to develop a full monitoring plan. Of the other 4, all engage communities in the monitoring activities and 3 also use more conventional survey methods. For BES impacts, the 4 projects that described their monitoring plans all employ conventional methods for biodiversity assessment, 3 engage communities in the monitoring and 1 intends using the text messaging service of mobile phones (short message service – SMS).

An attempt was made to count the number of data and parameters monitored for climate, community and BES impacts in each project, but this proved difficult as the full monitoring plans could not be accessed. For those that had specified their monitoring data and parameters in their design documents for climate, community and BES, the largest number of data and parameters for each category was identified. Amongst the 5 projects, the maximum number of climate data and parameters monitored is 7, for community, 15 and for BES, 33.

Table 3.12.1 also reports on the organisations involved in the monitoring of climate impacts across the 5 projects. All projects recruited specialist expertise for specific elements of their monitoring.

Table 3.12.1 Features of monitoring plans of 5 surveyed REDD+ projects

	Methodologies used	**No. projects**
Climate	RS/GIS	5
	Forest survey (sample plots, transects, etc.)	5
	Project and other documents	4
	Social surveys and PRA techniques	3
Community	Participatory methods	4
	Community, household and other directed surveys	3
	Review of secondary data	1
BES	Conventional methods (e.g. RS, sample plots, sightings, camera traps, etc.)	4
	Participatory methods	3
	SMS	1
	Maximum no. of data and parameters monitored	
Climate	7	
Community	15	
BES	33	
Participants in climate impact monitoring	**No.**	

Proponent / developer	5
Recruited specialists	5
Local communities	4
Government agencies	2

3.13 How active are REDD+ projects? Timing of validation and verification and length of monitoring periods

Examining the timing of validation and verification and the length of monitoring periods provides an indication of how proponents hope to link the payments from the sale of carbon credits with project development and implementation. While such analysis cannot provide a complete understanding of this relationship, as proponents may organise advance sale of credits or may be unable to sell issued credits, it may provide a rough idea of when the proponent is hoping to generate income to sustain the project. It might also provide some indication of whether projects are still active or not. Plan Vivo projects are excluded from the analysis, as they must report performance annually, as are projects that had not undergone verification, leaving 25 out of the 32 surveyed projects for the analysis.

The first observation is that all of the 25 projects were implementing their activities prior to validation. On average, the first monitoring period of project activities began between 3 or 4 years before validation. Proponents are thus not waiting until their project designs are validated before they begin project activities.

Proponents appear to be interested in generating income from the sale of carbon offsets soon after validation. Eleven of the 25 projects were validated and verified for net avoided emissions at the same time. First verification for the remaining projects was on average within 10 months of validation, with the longest gap being 22 months.

For 10 projects that had verified emissions reductions a second time, the length of their second monitoring period was on average 19 months. On average the length of the second monitoring period was about half that of the first monitoring period for these projects. This suggests that once a project is underway and has been validated and emissions reductions verified for the first monitoring period, the duration of monitoring may shorten to increase the frequency of income flows from offset sales.

The dates of verification may also provide an indication of whether projects are actively being implemented or not. Of the 10 projects that have been verified twice or more for emissions reductions, for 7 the latest verification was in 2015, for 2 in 2014 and for 1 in 2013. Reviewing their timing of verifications, all appear clearly active except for the one with its third and latest verification in 2013.

If it is assumed that in active projects the second monitoring period will not be longer than the first monitoring period, then it is possible to gain a sense of whether the remaining 15 projects that have only had emissions reductions verified once (i.e. have only monitored once) are active or not. For these projects, the length of their first monitoring period can be compared with the length of time between their verification and the present date. If the latter is longer, it may suggest they are no longer active, though it is also possible that they

are intentionally having a longer second monitoring period. For five of the 15 projects, if there is a second monitoring period, it will clearly be longer than the first. For 4 of these projects, the second monitoring period would at a minimum be more than 20 to 25 months longer than the first monitoring period. This casts some doubt about whether these 4 projects are still active.

4 Observations and recommendations

In this section, the main observations of the above analysis are summarised and a number of recommendations for the development of REDD+ are provided.

4.1 Observations

The main observations of the analysis include the following:

TYPES, LOCATIONS, SIZES

Wide variety of REDD+ project types

In terms of their basic characteristics, 8 types of REDD+ projects were identified. Thirty percent are projects that target state-owned forest, mostly protected areas or forest reserves, and aim to manage these through monitoring, enforcement and leakage mitigation activities with surrounding communities. Private holdings with the same types of activities make up another 30% of project types. The other project types include projects that convert timber concessions to protected forest and have leakage mitigation activities, improve management of production concessions, and avoid conversion by agricultural estate developers.

Uneven regional distribution of REDD+ projects, with several possible explanatory factors

Compared to Latin America and Africa, there are relatively few REDD+ projects validated by voluntary carbon schemes in Asia. The explanatory factors for this could be the existence of extensive private forest holdings and policies on privatising the management of protected forests that exist in other regions/countries, the relatively high opportunity costs of land use in rapidly growing Asian countries, and the "snowball" effect created when project developers gain competency in preparing REDD+ projects and when local expertise is available.

Large range of sizes of project areas, including many small projects

There is a large range in the sizes of project areas. The largest projects are on state-owned land that is managed for conservation by the state itself or for conservation by private entities contracted by the state, or that is managed as production concessions. Small projects (less than 5,000 ha) exist in all regions. "Smallness" has not been a deterrent to REDD+ project developers. The smallest projects are community-managed forests or private holdings.

Large variety of tenure types found in REDD+ projects, including state-owned land, privately-owned land, and community-owned or managed land

The land and/or resource tenure arrangements in the areas where REDD+ projects are located are quite varied. Single private ownership of the land accounts for about one third of the surveyed projects. REDD+ projects are also commonly found on land managed or owned by local households or communities. Over half the surveyed projects are in state-owned forests managed under a variety of arrangements and for a variety of purposes, including conservation and production.

DD AGENTS, DRIVERS AND CAUSES, AND COUNTERMEASURES

High diversity of DD agents, drivers and causes, but focus is on local agents of DD

REDD+ projects are tackling a wide variety of underlying drivers and proximate causes of DD, with on average projects tackling between 3 and 4 proximate causes. However, 77% of the surveyed projects target areas where local actors are the DD agents, while only one quarter target areas where companies and other large agents from outside the region pose the major threats to forests. In terms of the relative significance of drivers/causes, this is clearly unbalanced. Planned deforestation for large-scale agricultural estates continues to be a major cause of deforestation in a number of countries in the Asia-Pacific region, and in some countries, such as Cambodia and Papua New Guinea, has become the major threat to forests.[9]

There may be a number of interrelated reasons for why local rural households are the DD agents who are targeted by most REDD+ projects. When rural households are the DD agents, they are usually converting or reducing the biomass of forests that they do not have legal rights to. Therefore, they have no legal basis for opposing activities, including REDD+, that restrict their access to forests. Conversely, in the case of authorised large-scale forest conversion for agriculture or other developments, the company involved has the authorisation to convert, so is unlikely to show any interest in REDD+, unless REDD+ offers a better per hectare financial return. This presents a major problem for REDD+, as the financial returns from land for large-scale, chemical intensive agribusiness are generally estimated to be higher than what the voluntary markets can deliver from the sale of REDD+ offsets.[10]

Another related difficulty for REDD+ is the way in which land and natural resource development is usually organised in a country. National governments set production targets or production-related goals for land and resource-based sectors and the responsible departments are then tasked with achieving these targets/goals. The departments set out their plans and then go ahead and implement them. The agricultural department has its policies and targets, the mining department has its policies and targets, and so forth. When deforestation is planned in order to achieve these targets, and when REDD+ is suggested as an alternative way of generating income from the forests, it not only threatens the likelihood

[9] In Cambodia, deforestation was previously associated with smallholder agricultural encroachment, but by 2013 nearly all forest conversion was associated with economic land concessions (ELCs) (Forest Trends, 2015, p. iii). In Papua New Guinea, by 2012 special agriculture business leases (SABLs) had been issued for over 5.2 million ha of land, opening up the possibility of clearing any standing forest on this land (Winn, 2012).

[10] Studies suggest that a carbon price of 18 – 46 USD/tCO2 would be needed to match the opportunity cost of oil palm (Lian, Koh, & Butler, 2008), yet REDD+ offsets have been selling on the voluntary market for only about 4 to 5 USD/tCO2 (Hamrick & Allie, 2015).

of these departments achieving their targets, it in fact could be seen as a threat to their planning processes.

These observations suggest that the potential for REDD+ through voluntary markets to stop large scale planned deforestation is limited. It seems that REDD+ will only succeed on a large scale in stopping planned deforestation by major developers when an instruction for this comes from the government. Here, then, may be a structural weakness of voluntary markets and the reason why UNFCCC Parties agreed that REDD+ should be supported by national strategies and ultimately organised at a national level.

Highest number of project activities involve local communities

Most projects are targeting locations where communities rather than companies are the main agents of DD. These projects usually aim to build alternative local livelihoods through various activities. Forest management activities, including monitoring of carbon and biodiversity, as well as patrols to monitor and stop illegal extraction of forest products, are also found in most projects. Other common activities include activities to reduce pressure on forests by reducing demand for fuelwood and/or providing alternatives to fuelwood, conservation agreement with local communities, and various activities to strengthen local communities and compensate them for reduced access to forest land or resources. Few projects describe support to government agencies as a specific activity.

PROPONENTS, DEVELOPERS AND ACTORS

Wide variety of project proponents, with international carbon project developers common proponents, and government agencies uncommon proponents

A wide variety of organisations can be found amongst REDD+ project proponents, including project developers at global, regional and national levels who specialise in REDD+ or forest carbon projects, private landowners, government agencies, community organisations, international and national environmental NGOs, and businesses. The most common type of REDD+ project proponent is an international carbon project developer who specialises in REDD+ projects and at most is only managing a few projects. While governments have the property rights for most forests in most developing countries, they only feature as proponents in a few projects.

REDD+ projects developed/implemented by groups of actors

The average number of actors per project for the 32 projects surveyed is between 4 and 5. Commonly, a REDD+ project has a lead developer that contracts or elicits the support of other organisations to provide any necessary skills it does not have. The skills it contracts may be for project development, implementation, monitoring and reporting, carbon accounting, biodiversity management and monitoring, community and stakeholder engagement, legal matters, commercialisation, etc.

Carbon rights are mostly transferred to the project developer

In most of the surveyed projects, the carbon rights were transferred by the tenure holder to the project developer. In some cases rights are shared by the tenure holder and developer, but in most cases all rights are transferred to the developer.

SAFEGUARDS

Most projects have invested in third party auditing of their compliance with safeguards

Most projects have invested in having their designs validated by an international standard that incorporates safeguards. Of those projects validated against one standard for the quantification of project net emissions (i.e. VCS) and another that is more relevant to community and biodiversity safeguards (i.e. CCB Standards), about 60% have followed up with verification against the safeguards-related standard. In other words, most, but not all projects with this type of "dual validation" have continued to invest in third party auditing of their compliance with REDD+ safeguards.

CALCULATING NET AVOIDED EMISSIONS

Complex methods to model the baseline are employed in most projects

All of the 3 main approaches to baseline development – (i) average of historical emissions, (ii) fitted regression equation, (iii) use of covariates to model the rate of deforestation from the drivers of deforestation – have been used in REDD+ projects. Projects have mostly used either of the first 2 approaches. While approach (i) is the simplest, some of the projects using this approach have conducted spatially explicit modelling of the future location of deforestation under the baseline scenario. Overall, the approaches used to model the baseline in REDD+ projects are complex and require a high level of expertise.

Significant "deductions" for leakage and non-permanence risks

In calculating their net avoided emissions, most projects have made leakage deductions and all have had some of their net emissions reductions placed in buffer accounts to mitigate the risk of non-permanence. The average "deduction" from the ex-ante estimated amount of avoided emissions for leakage and non-permanence combined is about 20%.

MONITORING

Monitoring is a major investment for REDD+ projects and requires a broad skill set

A wide range of methodologies are applied to monitoring in REDD+ projects, including RS and GIS, social surveys, PRA and review of project documents and secondary materials for monitoring project impacts on climate, communities/stakeholders, and biodiversity and ecosystem services. Project developers often engage both specialist organisations and local communities in monitoring tasks. Each has specific skills they bring to monitoring. The specialist organisations provide skills associated with RS, GIS, biodiversity and social surveys, etc., while local communities have indigenous and local knowledge that can be called upon.

4.2 Recommendations

The following recommendations for moving REDD+ forward in terms of the development of projects, voluntary carbon schemes and REDD+ strategies and architecture at subnational and national levels are drawn from the analysis and the above observations:

Ensure information availability

To promote transparency and gain public support for any voluntary carbon programme, project documents and materials should be made easily accessible through the Internet. Information access should also be considered a critical issue for the national REDD+ systems that are now under development. The reviewed carbon schemes provide a great deal of information on projects through their websites, but some documents that could enhance understanding of REDD+ projects are not available. For example, the VCS does not make project design document appendices available on its project database, which is unfortunate as the appendices can include key methodological and monitoring elements, etc. The VCS does make GIS layer files available, which are very useful for understanding project locations and boundaries.

Invest in the development of national and regional support services for REDD+ activities

REDD+ projects require a wide range of expertise for development, implementation, monitoring and reporting. The creation of services in the Asia Pacific region to provide these skills could accelerate REDD+ project development in the region, as it appears to have done in South America. Priority areas for expertise building include baseline methodologies, local stakeholder engagement, land-based alternative livelihoods, community institution building, local level land use planning, and monitoring of climate, community and biodiversity impacts.

REDD+ project developers should proactively engage governments and governments should view themselves as more than just regulators of REDD+ projects

Governments are the proponents of only a few REDD+ projects and often play no role in REDD+ projects, other than as regulators. For some projects, they appear to be spectators with no direct engagement in the project, and in some cases they may not even be good spectators, with little understanding of project objectives and activities. In such cases, REDD+ projects are not fulfilling the role envisioned for them under COP decisions, which is to act as demonstrations.

Because of the expertise they bring with them and the experiences they accumulate, REDD+ projects could contribute significantly to the development of REDD+ national strategies and architecture, and the building of expertise within government agencies at local and national levels for REDD+. It is in the interests of project proponents/developers to be proactive in engaging with government agencies to ensure project sustainability.

Governments, on the other hand, can be more proactive by not just regulating REDD+ projects, but by using REDD+ projects as opportunities to build the capacity of their own agencies for REDD+ implementation. Governments can also direct REDD+ project development to particular areas and contexts to maximise opportunities for learning. Governments should consider undertaking or supporting the development of REDD+ projects in areas where planned deforestation could take place in the near future as part of major agricultural or other developments. This would be a much greater test of the REDD+ concept than localities in which local farming households without any legal rights to forests are the main DD agents.

Standards of voluntary schemes should incorporate both climate impacts and safeguards

Many project proponents have voluntarily shown strong interest in REDD+ safeguards and paid for third party validation and verification against safeguard principles. However, the current system that many projects are using of "dual validation" against the VCS and CCBA standards may not always be effective, as some projects have continued on to VCS verification but not CCBA verification. A more effective approach would be to have the quantification of emissions reductions and community and biodiversity safeguards incorporated into a single standard.

Participatory approaches should be advocated

Many projects involve local communities in various aspects of project design, implementation and monitoring. Within REDD+ projects, communities are involved in biomass assessments, natural resource and land use planning, the protection of forests, tree planting, biodiversity surveys, monitoring of impacts, etc. Many of these projects have been verified for emissions reductions, suggesting that the communities are doing a good job. Engaging communities fully in REDD+ projects from the design phase onwards can potentially contribute to stronger local ownership and understanding of the interventions, and hence sustainability, and may reduce expenses associated with monitoring, etc.

"Benefit sharing" should be tied to what one does, not what one doesn't do

An underlying assumption of much of the thinking behind REDD+ is that developing countries should be compensated for not converting their forests to land uses with higher economic values. When this is brought down to the project level, the assumption is that communities should be compensated if they lose access to forest land or resources because of REDD+. However, viewing REDD as a type of compensation and making cash pay-outs to communities for not disturbing forests may not always lead to positive outcomes for community development.[11] This appears to be understood by some REDD+ project developers who avoid cash pay-outs as a form of compensation and instead identify appropriate roles for communities and reward them for these roles. Agreeing on appropriate roles for communities, building their capacities for these roles when necessary, and careful analysis of the implications of different benefit sharing options can be expected to contribute to REDD+ project sustainability as well as community development.

[11] Papua New Guinea's experiences of paying timber royalties to customary forest owners provides important lessons on how large cash payments handed over to community leaders do not always lead to sustainable benefits for the community (LaFranchi, 2004).

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Appendix – Example of 1 of 32 REDD+ Project Profiles

ADPLM Portel-Para 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
	Spatial boundaries	Project area: 135,105.6 ha Reference area: 2,380,731.7 ha (reference region for deforestation includes project area, leakage belt and leakage mitigation area) Leakage monitoring area: leakage belt includes entire reference region for deforestation, i.e. 2,380,731.7 ha Leakage management area: size not given
	Land cover	Dense Ombrophilous Forest
	Agents and drivers of forest cover change	Agents: i. Selective loggers and squatters ii. Cattle ranchers Underlying drivers: i. Unclear tenure and weak enforcement ii. Ranching is a cheap and effective way of preventing regrowth of forest Proximate causes: i. Land clearance for sale (cleared land is worth 5 to 10 times that of forested area) ii. Ranching
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/s	Avoided Deforestation Project (Manaus) Limited ("ADPML") – project proposer and initial funder
	Actors involved in project design and implementation and their roles	▪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

Tenure and Carbon rights holder/s	Tenure: ▪Project zone is under private ownership Carbon rights: ▪Project proponent as owner of the land is the holder of the carbon rights
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	VCS VM0015 REDD Methodology: Methodology for Unplanned Deforestation V2.0
Reference data (unplanned deforestation/ degradation)	Reference period: 1996-2008 Types of data used: Landsat 5 TM images for three time points in time in 1996, 2004 and 2008; 7 Alos Palsar scenes 2011; SPOT 5 and RapidEye 2011 from Google Earth
Reference data (planned deforestation/ degradation)	Not applicable
Stratification of project area	Only one forest type and stratum..
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 non-forest areas.
Carbon pools	**Carbon pools included** ▪Aboveground tree biomass ✓ ▪Belowground tree biomass ✓ ▪Non-tree woody 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.
GHG emissions	Non-CO_2 emissions from fires are accounted because fire is the main technology used to clear the forest
Net emissions without project	▪ 22,273,993 tCO_2e by the end of project lifetime. ▪ The first fixed baseline period is 7,690,722 tCO_2e
Project GHG emissions reduction strategy	
Scope	Avoid unplanned deforestation
Activities	▪ 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
Leakage mitigation 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.
Additionality	▪Alternative land use scenarios: 3 possible scenarios identified. ▪Investment analysis: Simple cost analysis applied. Concluded that a lot of capital needed to set up project

	▪Barrier analysis: Considered not applicable ▪Common practice analysis: 3 REDD Projects in the State of Para identified but none have independent validation
With-project emissions	
Effectiveness of measures	Project assumed to prevent 95% of the deforestation in the project area.
Carbon stock changes	The Project does not include planned deforestation, logging or fuel wood collection and charcoal production activities The Project assumes an Effectiveness Index (EI) 0.95
GHG emissions	▪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	The Project's activities will not generate GHG emissions thus there will not be GHG emissions from leakage prevention activities. **Types** Activity shifting: A mobility analysis was used to calculate the extent of the leakage belt of the Project **Deduction** None
Non-permanence risk	**Buffer** 15.3%
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
Monitoring of carbon stock changes and emissions	**Parameters** *For carbon stock change* ▪ i. land use / land cover change from forest land to non-forest land *For baseline revaluation, variables to be used* ▪ ii. Socio-economic information retrieved from the Project's monitoring activities ▪ iii. Distance to new roads ▪ iv. Average distance to selective logging activities from pioneer roads ▪ v. Distance to non-forest ▪ vi. Planned infrastructure in the region **Methods** ▪ i. LANDSAT 8 imagery and/or radar imagery to generate annual deforestation data throughout the reference region ▪ ii. – vi. Not explained **Frequency** ▪ i. annually ▪ ii. second 10-year period of the project
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
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 and safety	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	*Assessed using PRA as very little secondary data on villages in the project zone existed* ▪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 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 on other stakeholders and mitigation strategy** None
Impact monitoring	**Indicators** *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 and ecosystem services	
Without–project scenario	*All the species inventoried were gathered from current literature about Caxiuanã National Forest and Eastern Amazon fauna and flora.* ▪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.
With-project scenario	**Expected net benefits** ▪ Avoid ecosystem fragmentation and loss due to deforestation. ▪ Assistance with the conservation of an extreme priority site for biodiversity. **Possible negative offsite impacts and mitigation strategy** Only positive offsite impacts expected.
Impact monitoring	**Indicators** 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 report issue date: 15 February 2013 CCBA validation report issue date: 15 April 2013 (Gold Level)
Verification	VCS verification period and report issue date: 1 January 2009 – 1 January 2012; 10 Nov. 2014 CCBA verification period and report issue date: Not validated as of 18 February 2016

Credits issued	Number: 2,000 As of: 21 January 2015

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

Documents reviewed

VCS website: PD, Validation and verification reports

CCBA website: PDD, validation report

IGES OFFICES

HEADQUARTERS
2108-11 Kamiyamaguchi, Hayama, Kanagawa, 240-0115, Japan
Tel +81-46-855-3700 | Fax +81-46-855-3709

TOKYO OFFICE
Nippon Press Center Bldg. 6F, 2-2-1 Uchisaiwai-cho, Chiyoda-ku, Tokyo 100-0011, Japan
Tel +81-3-3595-1081 | Fax +81-3-3595-1084

KANSAI RESE ARCH CENTRE
East Building 5th Floor, Disaster Reduction and Human Renovation Institution,
1-5-2, Kaigan-dori, Waki-no-hama, Chuo-ku, Kobe, Hyogo,
651-0073 Japan
Tel: 81-78-262-6634 | Fax 81-78-262-6635

KITAKYUSHU URBAN CENTRE
International Village Center 2F, 1-1-1, Hirano, Yahata-Higashi-Ku,
Kitakyushu City, Japan 805-0062
Tel +81-93-681-1563 | Fax +81-93-681-1564

IGES REGIONAL CENTRE
604 SG Tower 6F, 161/1 Soi Mahadlek Luang 3. Rajdamri Road,
Patumwan, Bangkok, 10330, Thailand
TEL +66-2-651-8794, 8795, 8797 | FAX +66-2-651-8798

BEIJING OFFICE
IGES Sino-Japan Cooperation Project Office
Sino-Japan Friendship Center for
Environmental Protection 5F,
Room No. 508
No. 1 Yuhuinanlu, Chao Yang District,
Beijing, 100029
People's Republic of ChinaTel
+86-10-8463-6314 | Fax +86-10-8463-6314

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Ministry of the Environment