Partnership for the Tropical Forest Margins

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IISD REPORT

The Private Sector in the REDD+ Supply Chain: Trends, challenges and opportunities

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About ASB Partnership for the Tropical Forest Margins

Founded in 1994 as a program on Alternatives to Slash and Burn (ASB), the ASB Partnership for the Tropical Forest Margins has evolved into a global partnership that brings together local knowledge, policy perspectives and science to understand the tradeoffs associated with different land uses and the roles of markets, regulation, property rights and rewards. While ASB is coordinated by the World Agroforestry Centre (ICRAF), it is a global partnership of international and national-level research institutes, non-governmental organizations, universities, community organizations, farmers' groups and other local, national and international organizations. Our goal is to raise productivity and income of rural households in the humid tropics without increasing deforestation or undermining essential environmental services.

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Preface

The International Institute for Sustainable Development partnered with the ASB Partnership for the Tropical Forest Margins at the World Agroforestry Centre to deliver a three-year project with the goal of building the policy capacity of the United Nations Framework Convention on Climate Change (UNFCCC) negotiators and stakeholders that are developing REDD+ programs in countries in Africa and Asia. REDD+ is a highly technical and rapidly evolving subject with significant promise to produce multiple mitigation and sustainable development benefits. But there are uncertainties as to how REDD+ will evolve under the international climate regime, and a need to build the capacity of negotiators (including foresters, agricultural experts, the private sector and civil society) to engage in the development and implementation of REDD+ strategies.

The project helped to fill this capacity gap through information sharing and research to encourage innovative thinking and the continuous improvement of REDD+ processes and strategies. The project also contributed to the growing REDD+ knowledge base through the development of timely policy reports and analysis, and dissemination of key messages to negotiators and policymakers.

The three-year project engaged over 300 developing country experts who identified the policy research topics and inputted to the policy research process. The final year of the project focused on two critical determinants of REDD+ success, building on the information and insights provided by developing country experts at regional workshops and expert meetings held from 2009 to 2012. The two areas of policy research were:

- Developing and implementing REDD+ safeguard information systems
- Fostering effective private sector engagement in the REDD+ supply chain

Developing country experts determined that these areas required policy research, could benefit from an exploration of lessons learned, and research results could inform UNFCCC negotiations and national REDD+ planning processes. Research and analysis on these two themes included the development of policy reports, policy briefs, key messages and webinar products.

Further information on all project activities, including earlier research papers, meeting reports, presentations and background documents can be accessed at: www.iisd.org/climate/land_use/redd.

The REDD+ capacity building initiative was delivered with the generous support of the Norwegian Agency for Development Cooperation (Norad) as part of its Climate and Forest Initiative civil society support program.

Acknowledgments

We are very grateful for insightful interviews with dozens of experts who shared valuable information about their views on private sector involvement in REDD+, and to the 30 participants who attended an expert meeting held in Nairobi, Kenya (April 2–3, 2012) to review and provide critical input to the research and outputs. We are also grateful for useful comments on earlier drafts by Stephen M. King'uyu (Ministry of Environment & Mineral Resources, Kenya), Sophy Greenhalgh (International Emissions Trading Association), Toby Janson-Smith (Conservation International), Julie Greenwalt (UNEP), Bryan Adkins (Wildlife Works) and Christian Dannecker (South Pole Carbon Asset Management Ltd.).

Executive Summary

A key determinant of REDD+ success will be ensuring effective private sector engagement. Funding is a major concern in the implementation of REDD+ activities and involving the private sector will be absolutely critical to scale up investment in REDD+. The private sector can also make vital contributions to REDD+ initiatives through the range of its expertise and be part of the solution to mitigating climate change by addressing key drivers of deforestation under attractive conditions. Nevertheless, little has been done to identify who the key private sector players are, the roles they play and the sector's diversity in terms of scale, expertise, motivations and forms of involvement.

At the 17th Conference of the Parties, the willingness to diversify funding approaches for REDD+—including "public and private, bilateral and multilateral, and alternative sources" as well as the recognition of the possibility of developing "appropriate market-based approaches for REDD+"—were significant moves forward to help facilitate the mobilization of private finance for REDD+[1].

The ASB Partnership for the Tropical Forest Margins and the International Institute for Sustainable Development (IISD) explored the role of the private sector in REDD+ under a three-year REDD+ capacity-building initiative supported by the Norwegian Agency for Development Cooperation. Using the REDD+ supply chain as an analytical framework and drawing on information gathered through expert meetings and interviews with over 40 developing-country REDD+ decision-makers and implementers, the research examined:

- In the REDD+ supply chain, who are the private sector players and what are their motivations and types of interventions?
- What are the current challenges for private sector engagement in REDD+?
- How can private sector engagement in REDD+ be enhanced?

The intended outcome of the research is to increase the scope and scale of effective private sector involvement in REDD+. The complete analysis is available in the policy paper, *The Private Sector in the REDD+ Supply Chain: Trends, Challenges and Opportunities.*[2]

The REDD+ Supply Chain

A supply chain is a system of organizations, people, technologies, activities, information and resources through which an initial set of inputs are transformed into the final product, to be purchased by customers or buyers on the demand side. If we consider the REDD+ supply chain, which revolves around the production and consumption of carbon sequestration as its key ecosystem service, the major business functions required for national and project-level REDD+ initiatives consist of: project investment, project development and implementation, technical expertise and capacity building, validation and certification, carbon credit trading and retailing, and carbon credit purchasing.

[1] United Nations Framework Convention on Climate Change. (2011). *Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention*. Advance Unedited Version. Bonn, Germany: UN. See section II.C of the decision on REDD+ (UNFCCC/AWGLCA/2011/L.4).

[2] See www.iisd.org/climate/land_use/redd for information on all project activities and the full policy paper on the *Private Sector in the REDD+ Supply Chain*

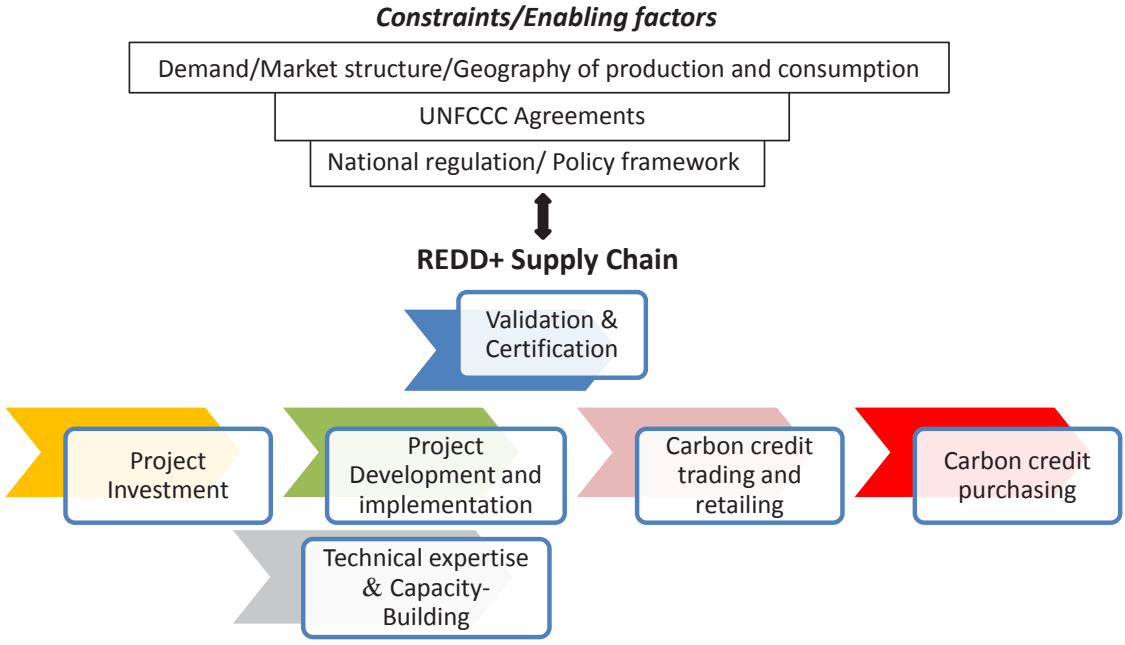

FIGURE ES1: THE REDD+ SUPPLY CHAIN CONCEPTUAL FRAMEWORK

External, macro-level factors such as the international economic context, rules embedded in international climate change negotiations, and the overall national regulatory, institutional and policy environment all exhibit a formative influence on the REDD+ supply chain at the micro-level. As such, they can either enable or inhibit private sector involvement in REDD+ initiatives.

Private Sector Key Players, Trends and Motivations for REDD+

Based on a comprehensive desk review of the literature on private sector engagement in REDD+, a review of selected projects dealing with REDD+ in Asia and Africa, as well as semi-structured interviews with key informants, the research identified several trends in the types of motivations, form and extent of private sector involvement along the REDD+ supply chain. As described below, the private sector can play a number of roles across the REDD+ supply chain, though business functions are not mutually exclusive and a private sector actor can wear several "hats" simultaneously.

Investors through project investment

Key players in the REDD+ investment arena include several pioneering investment banks seeking future investment opportunities. In 2011 a number of new, multimillion dollar private REDD+ investment funds were established, including: Althelia (US$275 million target capitalization), Macquarie-International Finance Corporation (US$25 million) and Terra Global Capital (US$50 million) (Janson-Smith & Marsh, 2012). These funds and major private sector firms are strategically orienting themselves to take advantage of the growth in REDD+ credits on voluntary carbon markets, and are attempting to capture an early share of credits in anticipated REDD+ compliance markets. Other examples include BNP Paribas and Nedbank Group, which have taken stakes in REDD+ projects in order to explore and gain experience in

developing REDD+ projects, and to sell the credits for a profit within voluntary, pre-compliance or compliance markets. Some of these deals take the form of direct investments, others of major carbon credit purchase agreements—although they often occur as a combination of the two (Diaz Hamilton & Johnson, 2011).

Significant investment also comes from emissions-intensive industries searching for large volumes of offset credits in order to become "carbon neutral." Several large multinational firms are also engaged in REDD+, investing through project grants. Many directly link these project activities to their corporate social responsibility (CSR) initiatives. These multinational firms often pursue projects that bring a triple benefit of climate change mitigation, community development and biodiversity conservation.

Producers through project development and implementation

Some medium- to large-sized private firms are leading the development of REDD+ projects, and serve as both investors and implementers. This is the case of Wildlife Works—a leading private developer of REDD+ projects—with the Kasigau Corridor REDD+ project in Kenya. Currently, it is the world's leading REDD+ project development and management company, investing in projects in Kenya, the Congo Basin and Latin America. Other examples of leading private developers of REDD+ include Terra Global Capital and Infinite Earth.

A number of carbon offset firms are also involved directly at the project implementation and oversight levels. The core business and expertise of most of these firms is in creating innovative, climate friendly-solutions to deforestation and other environmental problems. Directly involving themselves in REDD+ projects can therefore be a good niche for these firms, many of whom are involved in selling the credits for a profit. One such example is South Pole Carbon Asset Management Ltd, which is co-financing select elements of the Kariba REDD+ project's workplan in Zimbabwe and is also responsible for its implementation.

Some large multinational firms also leverage their existing technical expertise and technological capacity in addition to their investments, as part of their CSR policy. This is almost exclusively performed in partnership with non-governmental organizations. Many of these large multinational firms are not dependent on forests in any way for their business, but rather see this as a means of "greening" their image. This can be seen in the case of the Toyota Motor Corporation, which is co-implementing activities in partnership with Conservation International by assisting in monitoring, reporting and verification (MRV) for the Penablañca reforestation project in the Philippines.

Brokers through carbon credit trading and retailing

Currently, most REDD+ credits are purchased directly from project implementers. But there are increasing numbers of buyers who purchase credits as intermediaries, with the intent to re-sell them for higher prices in the future (Diaz et al., 2011). This creates a secondary market. Examples of companies trading/retailing REDD+ credits include the Carbon Neutral Group, ClimateCare and Camco.

Some financial firms that were initially providing direct investment in REDD+ projects are now securing purchase agreements that include upfront or immediate payments (such as Pre-Pay) for carbon credits with project developers, in order to re-sell them at a higher price. This allows project developers to deliver emission reductions without having to take on the risk of finding an end-buyer themselves. The emergence of secondary forest carbon markets is becoming a very important motivating factor in the marketplace, as California moves ever closer to its cap-and-trade scheme and the United Nations Framework Convention for Climate Change (UNFCCC) parties indicate further interest in using REDD+ in a post-Kyoto compliance scheme (Diaz et al., 2011).

Advisors through technical expertise and capacity building

There is a strong niche for private consulting firms to support capacity building and offer technical services to national, subnational authorities and third parties. For example, there is often limited expertise and capacity for developing REDD+ Project Design Documents, establishing the Reference Levels and Reference Emission Levels or conducting MRV. The private sector has made some noteworthy scientific and technical capacity-building contributions at the national level. Examples include providing Geographic Information System (GIS), satellite imaging technology and innovative MRV technologies to participating REDD+ countries and research institutions. A number of private companies have also begun to offer financial support for capacity building and other readiness activities. However, larger resource input by private sector actors for capacity building is still rare.

Auditors through validation and certification

Another strategic niche for the private sector is the validation and certification of emissions reductions from REDD+ projects. Validation is necessary for eligibility to generate carbon credits and for formal acceptance and registration under any given standard. Among other certification standards, Verified Carbon Standards (VCS) and Climate, Community and Biodiversity Standards (CCBS) are increasingly requested prior to the issuance of carbon credits for a REDD+ project. An example of a private auditor is Det Norske Veritas, which is a global independent provider of risk management services.

End buyers through carbon credit purchasing

In the primary market, carbon credit end-buyers can be classified into three groups (Diaz et al., 2011, p. 57): (i) **Pure voluntary**—buyers purchase credits to offset their own greenhouse gas emissions on a voluntary basis; (ii) **Pre-compliance**—buyers purchase credits expecting to use them in a future compliance scheme; (iii) **Compliance**—buyers purchase credits for surrender under a regulatory emissions trading scheme. A large proportion of end-buyers voluntarily purchase offsets for CSR or public relations and branding purposes. These buyers are often in less emissions-intensive industries. Other corporate buyers' motivations included anticipation of direct regulation and a desire to "green" their supply chain. Compliance end-use remains a relatively small driver in the global marketplace, as most companies still have limited need or interest for forest carbon credits among current compliance schemes.

Challenges Surrounding Private Sector Involvement

Though a number of points of entry for the private sector can be identified in current trends, there are also a set of key challenges that can be identified through lessons learned and ongoing experiences. These challenges must be addressed if private sector engagement is to increase in scope and scale moving forward.

A lack of policy certainty limits private sector participation and impacts the long-term demand for REDD+ credits

Policy clarity and certainty are critical determinants of private sector involvement in REDD+, both internationally and nationally. There is a need to create enabling conditions to support robust private sector involvement. Governments should clarify their intention to create and engage the private sector in future REDD+ compliance markets, and develop national legislation on REDD+ as well as national emission targets. REDD+ should also be integrated in sectoral planning. Private investors need to have a reasonable expectation for a risk-adjusted return on investment. Given that

the REDD+ market is a policy-driven market, the UNFCCC should also play a central role in ensuring that the level of demand will attract private investment at scale (International Emissions Trading Association, 2012).

Land tenure and carbon ownership remain key challenges to broader private sector engagement in REDD+ activities

Clarification of land tenure and carbon ownership is a fundamental condition for involving the private sector and mobilizing private investment in REDD+ activities. Private investors and project developers will not invest in REDD+ activities unless clear land and carbon ownership systems are in place. This requires clear understanding and consultation process with the communities regarding how this type of investment would impact their access to forest resources, and the development of clear benefit sharing mechanisms clarifying who has rights to benefits that flow from carbon and to what extent.

Engaging the private sector in national-level REDD+ policy formulation processes is critical to shape an overall policy and legal framework that is win-win for all parties

Stakeholder participation is crucial to ensuring effective and appropriate private sector involvement in REDD+. Further consultations between private sector, governments and other affected stakeholders are needed to establish the legal framework for private sector investment and reduce regulatory risk and exposure by promoting the inclusion of flexible and cost-effective abatement options. This encompasses due diligence in the investment process, effective risk sharing and risk-mitigation mechanisms that create a more supportive investment environment for the private sector, appropriate dispute settlement arrangements, and clear and fair benefit-sharing mechanisms. Closer engagement is also needed in order to establish clear and consistent environmental and social safeguards for steering private sector involvement in REDD+. The private sector itself is most keen on implementing environmental and social safeguards because their adoption can help them avoid reputational and operational risk, and ensure that REDD+ projects will deliver emissions reductions with high social and environmental standards, which in turn increases the value of REDD+ carbon credits.

Potential Strategies to Stimulate Private Sector Involvement in REDD+

Several potential strategies and policies for addressing some of the above challenges and for attracting private sector participation and investment in REDD+ are promising.

Enhancing investment through compliance carbon markets

Compliance-driven demand for REDD+ credits from developed countries is needed to incentivize large-scale private investment in REDD+, as demand and price levels in the voluntary market are not sufficient to drive private sector investment at scale and achieve a critical mass of emissions reductions from REDD+. Some new and emerging compliance markets could be looked at with interest, such as California and South Korea's cap-and-trade systems, Australia's new climate legislation and Japan's Bilateral Offset Credit Mechanism.

An important trend lies in the REDD+ market's delivering greater quantities of carbon credits using VCS certified under CCBS. These standards demonstrate how REDD+ projects can achieve internationally recognized social and environmental integrity, and increases the potential that these certified credits can be used as offsets in some compliance-based regimes.

Enhancing investment through country-driven nested frameworks

Allowing private stakeholders to receive direct performance-based payments while maintaining the environmental integrity of a national accounting framework through a nested crediting approach will greatly facilitate private sector involvement and investment. The direct issuance of performance-based payments to the private sector secures their investment and makes the protection of forests financially competitive with conventional land-use options that lead to deforestation and forest degradation. With integrated jurisdiction-wide accounting frameworks, a nested framework reduces risk of intra-country leakage, which gives comfort to buyers in carbon markets.

Involve the private sector in discussions and policies to address the drivers of deforestation

The private sector players driving deforestation and those helping to conserve forests both need to be a part of REDD+ dialogues. For instance, export-oriented agribusiness and extractive industries are important drivers of deforestation, but aside from CSR initiatives from select firms, they have largely lied outside the REDD+ supply chain. Engagement should move beyond CSR by better incorporating the extractive industry into the REDD+ supply chain. At a minimum, the extractive industries should be engaged in some sort of policy and regulatory process for addressing drivers of deforestation, in order to fully mitigate the negative impacts from their activities. Other private sector players already engaged in sustainable land-use activities also need to be engaged in the discussions.

Stimulate demand in new sectors by developing targeted marketing strategies

Whether the "currency" of REDD+ project outputs is tradable carbon credits or reputational returns, the private sector needs to see some sort of net benefit from its investment that can be measured and evaluated. While marketing the REDD+ approach, it is therefore relevant to communicate the importance of both kinds of returns, in order to simultaneously attract compliance-driven and CSR-driven companies, as there are numerous aspects of REDD+ that make it attractive to both.

Large banks should be made aware of opportunities to provide long-term financing for REDD+ projects or offset their emissions and those of their clients. Involving insurance companies willing to take on the risks associated with REDD+ may also prove to be a promising area of exploration. REDD+ opportunities could also be brought to the attention of large companies with a CSR orientation, as well as customer sales, event management companies, hotels and individuals, among others interested in offsetting their carbon emissions.

Disseminate lessons learned and best practices

Promoting greater public-private collaboration could result in the identification of innovative and effective solutions for advancing sustainable REDD+ activities. The various private sector actors should be involved as key partners of NGOs, inter-governmental organizations and governments in scaling up financing and innovation. Dialogue can be supported by groups not linked to the formal negotiating process, such as the series of REDD+ expert meetings held by IISD and the ASB Partnership for the Tropical Forest Margins with support from the Government of Norway. Country representatives, stakeholders and the private sector are often able to speak more frankly in less formal, non-negotiation sessions.

Conclusion

Exploring the REDD+ supply chain provides helpful indications of the various types of private sector players and the trends of their current involvement in REDD+ initiatives. This is crucial for better targeting the private sector and increasing the scope of their participation in moving forward. The private sector encompasses a diverse set of players, including local REDD+ project developers, multinational companies, carbon regulated companies, local or specialist international investment banks, GIS service and technology providers, extractive industries, consulting firms, and many others, all of whom vary in terms of scale, geographic location, expertise, motivations, and degree of influence exercised on other links within the REDD+ supply chain.

Several strategies for enhancing private sector participation and investment in REDD+ are promising—in particular, increasing the demand for REDD+ credits in compliance markets, allowing private stakeholders to receive direct performance-based payments under a nested framework, and promoting greater collaboration between the public and private sectors—provided that an enabling policy and regulatory framework is put in place. Finding effective ways to incorporate extractive industries into the REDD+ supply chain is also critical.

Public multilateral and bilateral finance will still have a very important and complementary role to play, in order to ensure that developing countries with more challenging investment needs and environments are not left behind.

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Abbreviations and Acronyms

AWF	African Wildlife Foundation
BSM	benefit-sharing mechanism
CCBS	climate, community and biodiversity standards
CDM	Clean Development Mechanism
CSR	corporate social responsibility
COP	Conference of the Parties (to the UNFCCC)
CO_2e	carbon dioxide equivalent
DRC	Democratic Republic of the Congo
EU ETS	European Union Emission Trading System
FPIC	free, prior, informed consent
GCF	Green Climate Fund
GIS	geographic information system
IETA	International Emissions Trading Association
IGO	intergovernmental organization
KFS	Kenya Forestry Service
MRV	measurement, reporting and verification
NGO	non-governmental organization
PDD	project design document
REDD+	reducing emissions from deforestation and forest degradation in developing countries
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VER	Verified Emissions Reductions
VCS	Verified Carbon Standard

1.0 Introduction

1.1 Background

According to the Climate Policy Initiative, current overall climate finance is largely from the private sector, providing an average US$55 billion out of an estimated US$97 billion in global climate funding (Buchner, Falcone, Hervé-Mignucci, Trabacchi & Brinkman, 2011). This emphasizes the crucial role of the private sector in mitigation and adaptation activities. It is therefore critical for REDD+ to engage the private sector in order to benefit from this immense potential. There is a growing recognition that multilateral financing alone will not provide sufficient support to meet the challenge of forest-based climate change mitigation, and that increasingly large shares of private sector finance are required to this end (United Nations Environment Programme [UNEP] Financing Initiative, 2011; World Economic Forum, 2011; Carbon Markets & Investors Association, 2009; Carbon Markets & Investors Association, 2011). As such, strategies for attracting private sector investment at a commensurate scale have become a recurring theme, with compliance markets frequently cited as the most promising candidate (World Economic Forum, 2011; Carbon Markets & Investors Association, 2009).

Another emerging consensus among major intergovernmental organizations (IGOs), consulting firms and private sector players concerns the strengths of a nested framework[3] in preserving the environmental integrity of REDD+, as well as reducing regulatory uncertainty and risk to the private sector (UNEP Financing Initiative, 2011; Streck, Lehmann, Rau & Coren, 2011; World Economic Forum, 2011; International Emissions Trading Association, 2011; Carbon Markets & Investors Association, 2009). Moreover, a range of assurances, guarantees and risk mitigation measures are necessary to stimulate private sector interest in REDD+ carbon credits or Verified Emissions Reductions (VERs)[4] (O'Sullivan, Streck, Pearson, Brown & Gilbert, 2010; International Emissions Trading Association, 2011; World Economic Forum, 2011). The private sector's involvement to date has been largely limited to front-end investment in non-governmental organization-driven projects and the back-end purchasing of carbon credits within the voluntary carbon markets (World Economic Forum, 2011; Carbon Markets & Investors Association, 2009).

In terms of knowledge gaps, to date, there is a paucity of data for tracking global and regional flows of private sector finance for REDD+ initiatives.[5] As the Climate Policy Initiative has noted for climate finance more generally, the desire for confidentiality in private sector investment flows, alongside the decentralized nature of private financial flows for REDD+ initiatives, and a lack of knowledge regarding the financial instruments used (e.g., grants, direct investment, concessionary loans, etc.), makes it extremely difficult to arrive at a comprehensive and consistent picture of private sector financial flows for climate change mitigation and adaptation initiatives, including REDD+ (Buchner et al., 2011). While the concept of the REDD+ supply chain[6] was discussed in the World Economic Forum in 2011, the concept and its ramifications are in need of further elaboration and exploration. Moreover, more research is required to establish a disaggregated sectoral profile of private sector involvement along the different REDD+ supply chain activities; for example, showing what kinds of firms—small, medium, or large; local, regional or multinational—and which specific industries are involved in the different kinds of REDD+ supply chain activities. More work is also needed to identify the challenges and opportunities for further private sector involvement in REDD+, both from government and private sector perspectives.

[3] The nested framework is: "a mechanism which allows countries to start REDD+ efforts through subnational activities and gradually move to a national approach, or for the coexistence of the two approaches in a system where REDD credits are generated by projects and governments, thus maximizing the potential of both approaches" (Angelsen, Streck, Peskett, Brown & Luttrell, 2008).
[4] VERs are carbon credits created by a project that has been verified outside of the Kyoto Protocol. One VER corresponds to one tonne of carbon dioxide equivalent (CO_2e) emission reductions. VERs are usually certified through a voluntary certification process.
[5] With some noteworthy exceptions; see, for example, Chokkalingam & Vanniarachchy, 2011.
[6] See the definition of the REDD+ supply chain concept in the Section 2.1: Conceptual Framework

1.2 Goals, Research Questions and Outcomes

The overarching goal of this research is to improve REDD+ outcomes by fostering successful private sector engagement.

The paper addresses the following research questions:

1. In the REDD+ supply chain, who are the private sector players and what are their motivations and types of interventions?
2. What are the current challenges and enabling conditions for private sector engagement in REDD+?
3. How can private sector engagement be enhanced in REDD+?

The outcomes are: (1) identifying current key areas and trends of effective private sector engagement across the REDD+ supply chain; (2) gaining an enhanced understanding of challenges and opportunities for potential future contributions of the private sector to REDD+ initiatives; and (3) generating lessons for leveraging private sector finance and expertise to achieve effective REDD+ outcomes that generate multiple benefits.

1.3 Defining the "Private Sector"

For the purposes of this paper, the term "private sector" refers to firms whose assets are owned by private individuals rather than the government (Shleifer, 1998), and which are primarily financed through markets for credit, typically competing with other firms to offer goods and services to the public, and primarily oriented towards maximizing profits. Thus, in this paper, the definition of the private sector encompasses all of the paradigm cases of private firms, including sole proprietorships, partnerships (general, limited or limited liability), corporations (privately owned or publicly traded), cooperatives and franchises. Their operations may range from purely national, to regional and international in scope. This includes multinational corporations as well as local businesses, financial institutions and financial intermediaries or consultancies and project management firms.

Not-for-profit organizations are sometimes treated as part of the private sector due to the proprietors' ownership of the organization's assets (Shleifer, 1998). However, given their relatively limited financial capacity and their existing involvement in REDD+ initiatives, non-governmental organizations (NGOs) and charitable foundations will be treated as a "third sector" in this paper. Moreover, the definition of the private sector in this paper also excludes private individuals and households.

1.4 Outline of the Research Paper

Following this introductory section, Section 2 presents the conceptual framework used to explore the role of the private sector in the REDD+ supply chain and the research methodology. Section 3 explains why it is critical to involve the private sector in REDD+, as well as the implications of 2011 climate change negotiations in Durban, South Africa (COP 17) for private sector engagement in REDD+. Section 4 explores how and which types of private sector actors can play a key role in the REDD+ supply chain, what are the prevailing trends for private sector involvement in REDD+ initiatives and at what governance levels—whether local, subnational, national or global. Section 5 focuses on the enabling and inhibiting factors for private sector involvement in REDD+ initiatives. Section 6 emphasizes strategies that could be further enhanced or developed to attract private sector involvement in terms of financing as well as expertise. Finally, Section 7 capitalizes on the lessons to be learned for furthering involvement from the private sector in the development and implementation of REDD+.

2.0 Methods

2.1 Conceptual Framework

Experts agree on the critical role of the private sector in the REDD+ supply chain, but the range of roles the sector can play is still little understood (World Economic Forum, 2011). In order to review the various private sector stakeholders involved in REDD+ in a systematic way, this paper considers a simplified REDD+ supply chain that revolves around the production and consumption of carbon sequestration as a key ecosystem service. A supply chain is a system of organizations, people, technology, activities, information and resources through which an initial set of inputs are transformed into the final product, to be purchased by customers or buyers on the demand-side. The standard business functions of a supply chain are: (a) the initial supplier, (b) a supplier, (c) a manufacturer (production), (d) a customer and (e) the final customer. A supply chain is actually a complex and dynamic supply-and-demand network (Wieland & Wallenburg, 2011).

The REDD+ supply chain identifies the main activities and business functions needed for national and project-level REDD+ initiatives. The main activities within the REDD+ supply chain consist of project investment, project development and implementation, technical expertise and capacity building, validation and certification, carbon trading and retailing, and carbon purchasing. Actors that carry out those business functions are investors, producers, advisors, auditors, brokers and end-buyers respectively. The private sector consists of a diverse array of firm sizes and structures, and this diversity is reflected in its involvement in REDD+.

This paper proposes to adopt an analytical approach to identify and increase understanding of how and which types of specific stakeholders within the private sector can play a key role in each of these activities along the chain, as shown in the REDD+ supply chain conceptual framework (Figure 1).

External, macro-level factors such as the international economic context, rules embedded in international climate change negotiations, and the overall national regulatory institutional policy environment all exhibit a formative influence on supply chains at the micro-level. As such, they can either enable or inhibit private sector involvement in REDD+ initiatives and will be specifically examined while assessing challenges and opportunities for private sector engagement. In addition, this influence between macro-level policy and institutional factors, and micro-level firm behaviour is reciprocal, as the private sector can also influence the REDD+ policy framework and its development at the national and global levels.

Finally, it should be noted that individual actors or components within the supply chain are not restricted to influencing adjacent "links," but can also have a systematic impact across the entire chain. Financial institutions that lend to actors across the supply chain are a prime example of this (World Economic Forum, 2011).

The research was conducted as a comprehensive desk review of the literature on private sector engagement in REDD+ (see Section 1.3) and was complemented by a review of selected projects considered to have the most pertinent lessons for Asia and Africa, semi-structured interviews with key informants and an expert meeting with 30 participants addressing private sector engagement in REDD+.

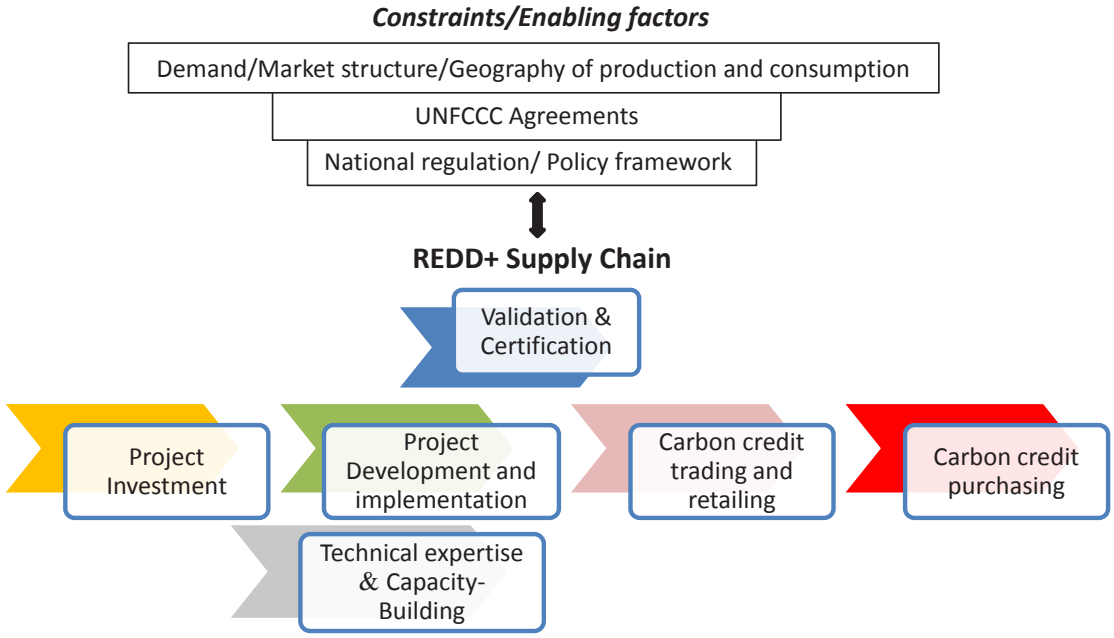

FIGURE 1: THE REDD+ SUPPLY CHAIN CONCEPTUAL FRAMEWORK

2.2 Research Methodology

2.2.1 Review and Analysis of Relevant Projects

For the review of REDD+ projects, sources consulted included the REDD+ Desk country and project database, Centre For International Forestry Research's Global Database of REDD+ and other Forest Carbon Projects, the Forest Carbon Portal Database and forest carbon standards websites (Verified Carbon Standard; Climate, Community and Biodiversity Alliance's Project database; Carbonfix and Plan Vivo). Due to this paper's focus on the private sector, only projects implemented by private sector entities or projects that received a significant share of "front-end" or continuous financing from the private sector were considered. Projects were excluded if the only source of private sector funding or support was through the "back-end" purchasing of carbon credits. Moreover, given that the scope of REDD+ has expanded in recent years to include forest restoration (United Nations Framework Convention on Climate Change [UNFCCC] Conference of the Parties [COP] 15, 2009), reforestation projects were included in the survey in order to extract lessons from private sector involvement in these types of projects. Conservation projects were also considered as part of the ''+'' of REDD activities, that is to say, conservation, sustainable management of forests and enhancement of forest carbon stocks. However, since the focus is specifically on private sector involvement in REDD+, projects pursued exclusively via Clean Development Mechanism (CDM) reforestation/afforestation channels were not considered. As a result, the paper encompasses a review of (i) eight REDD+ projects, with two in Tanzania, and the remaining six in Kenya, Cameroon, Democratic Republic of the Congo (DRC), Madagascar, Zimbabwe and Vietnam, respectively; (ii) three reforestation projects—two in the Philippines and one in Kenya; as well as (iii) a Conservation project in Madagascar. The review of the projects was based on available website information as well as project design documents (PDDs). The 12 selected projects are described in Appendix 1, while Table 1 gives an overview of the projects and the type of private sector involvement in the various activities of the projects.

TABLE 1: OVERVIEW OF REVIEWED PROJECTS WITH PRIVATE SECTOR INVOLVEMENT

	Kasigau Corridor	REDD Pilot Project Cameroon	Building REDD Readiness in the Masito Ugalla Ecosystem Pilot Area in Western Tanzania	ARKfor	Carbon Credit Project for Tanya and Kisimba-Ikobo Community Nature Reserves	Makira Forest Protected Are Project	Kariba REDD+ project	gREDD Vietnam	Peñablanca	Forest Carbon Project, Quirino Province, Philippines	Kalamega Forest Again	Holistic Conservation Program for Forests (HCPF) in Madagascar (Air France)
Jurisdiction	Kenya	Cameroon	Tanzania	Tanzania	DRC	Madagascar	Zimbabwe	Vietnam	Philippines	Philippines	Kenya	Madagascar
Primary implementer	Wildlife Works	GAF AG	Jane Goodall Institute	AWF	Conservation International	Wildlife Conseservation Society	South Pole Carbon	GFA	Conservation International	Conservation International	Eco2librium Kenya	WWF Madagascar
Private sector co-implementers			Google, ESRI, DigitalGlobe	CAMCO	Walt Disney Corporation	Wildlife Conservation Society, Imperial Tobacco	Carbon Green Investments Ltd.	Google	Toyota Motor Corporation	MoreTrees Inc. Foundation, Mitsubishi Research Institute		Air France
Financer(s)	Wildlife Works Carbon Ltd.,	German Development Bank (KfW), German Technical Corporation (GTZ)	Royal Norwegian Embassy	Norwegian Ministry of Foreign Affairs					Toyota Motor Corporation			
Project Type	REDD+	REDD+	REDD+	REDD+	REDD+	REDD+	REDD+	REDD+	Reforestation	Reforestation	Reforestation	Conservation
Project size (ha)	30 166	N/A	70 000	18 000	300 000	372 470	858 863	N/A	2 500	177	473	515 000
Cumulative additional CO2e sequestered	8 000 000				5 000 000	35 000 000	56 119 093		362 920	42 915	390 000	61-68 000 000 (uncertain)
Project start date	2 006	2007	2010	2010	2 010	2 005	2011	2009	2007	2007	2010	2 008
Project end date	2 025	2010	2013	2012	2 029	2 034	2041	?	2026	2026	2049	2 012
Active	Yes	No	Yes	Yes	Yes	Yes	Yes	?	Yes	Yes	Yes	No
Project lifespan (yrs)	20	3	3	3	20	30	30	?	20	20	40	4
Project funds		890 000	2 700 000			470 000						
Private sector involvement in project activities												
Startup financing	x		x		x		x	x	x			x
Continuous financing	x		x				x	x		x (partial)		
Project scoping and feasibility studies	x (*)	x	x			x (partial)	x	x	x			x
Information dissemination and stakeholder consultation	x						x					
Socioeconomic and REL/RL baseline setting	x (*)			x			x (*)					
Project activity capacity-building (diffusing alternative agricultural and livelihood practices, as well as necessary materials and inputs to local community)	x						x				x	
MRV	x		x	x			x		x			
MRV capacity-building (enhanced scientific, technical and technological capacity amongst local community)	x		x	x			x					
Project management, coordination and administrative oversight	x						x		x		x	
Project and carbon credit marketing	x			x			x					

* Contracted out to another private firm

2.2.2 Semi-Structured Interviews

Interview protocols were developed and interviews conducted with private sector players investing, implementing and co-implementing REDD+ or other forest carbon projects, as well as with NGOs leading projects financed by the private sector. These interviews solicited their opinions and insights regarding their project's experience and discussed their view of the future of private sector involvement in REDD+ projects, and the factors (enabling or inhibiting) that affect private sector engagement. In addition, semi-structured interviews were conducted with key informants at the country levels to analyze the private sector involvement within national REDD+ approaches. Appendix 2 provides the list of stakeholders who were interviewed.

2.2.3 Expert Meeting

An expert meeting was held in Nairobi, Kenya (April 2–3, 2012) to review and provide critical input to the preliminary research and outputs on private sector engagement in REDD+. Participants from Asian and African countries included members of the private sector, government, IGOs, NGOs and international organizations (see Appendix 3). The meeting included expert presentations and discussions on strategies for attracting private sector participation and investment in REDD+ initiatives, from the government and private sector perspectives.[7]

[7] Key Messages from the meeting can be accessed at: http://www.iisd.org/publications/pub.aspx?pno=1599

3.0 *Private Sector: A Logical and Central Ally for REDD+*

3.1 Implications of the REDD+ Outcomes of the 2011 Climate Change Negotiations for the Private Sector

At COP 17, decisions on financing results-based actions[8] for REDD+ were adopted. Most notably, in section II.C of the decision on REDD+ (UNFCCC, 2011), the COP agreed that "results-based finance provided to developing country parties that is new, additional and predictable may come from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources"; and considers that "in the light of the experience gained from current and future demonstration activities, appropriate market-based approaches could be developed by the COP to support results-based actions by developing countries." This willingness to diversify funding approaches for REDD+ is a significant move forward, and will help facilitate the mobilization of private finance for REDD+. More importantly, the recognition of the possibility of developing "appropriate market-based approaches for REDD+ "represents a very strong signal that a "compliance carbon market" could potentially be developed under the UNFCCC, outside of the CDM and the voluntary carbon market (La Viña, Lawrence, Alaya De & Roxas, 2012). Another important element of the COP 17 decisions was the establishment of a Green Climate Fund (GCF), aiming to contribute to the mobilization of US$100 billion annually by 2020, from both public and private sources, to address the needs of developing countries. This goal is likely to continue to be a major reference point for the climate change negotiations and discussions including REDD+ (La Viña et al., 2012). In particular, the GCF has a "private sector facility" intended to enable private sector finance for mitigation and adaptation activities. These key elements pave the way for facilitating better involvement of the private sector in the future climate change regime.

3.2 Why Involve the Private Sector in REDD+?

Involving the private sector will be absolutely critical to reach the required climate change mitigation finance goals. Aside from the scale and speed at which investment needs to flow, involving the private sector is also an important way of fostering innovation in REDD+ activities by providing a range of expertise and addressing some of the major drivers of deforestation.

3.2.1 Potential Financing for REDD+

Upfront investment of approximately US$17–40 billion per year is needed to realize the climate change mitigation potential of forests (Eliasch, 2008; UNEP Financing Initiative, 2011), whereas cumulatively available public REDD+ funds from donor countries pledged since 2008 stand at approximately US$7.2 billion (the annualized figures are much lower) (Simula Ardo, 2010). Of course, there is a wide variation in estimates of the costs of and investment needs for REDD+, but this shows that, in any case, the financial gap remains high, and therefore other sources of funding will be critical to making progress towards closing this gap. Efforts are increasingly turning to the role of the private sector. The potential of the private sector to scale-up investment in REDD+ is high, and is becoming increasingly critical as countries transition from Phases I (readiness) and II (demonstration) to Phase III (results-based actions) in implementing REDD+, where payments and other forms of compensation are offered for verifiable emissions reductions.

[8] The Cancun Agreements established a phased approach to REDD+ in developing countries: Phase 1 (Readiness activities) entails public planning, organization and initial capacity building; Phase 2 (policy and measures) entails implementation of national REDD+ strategies by governments; and Phase 3 (Implementation) entails "results-based" or "performance-based" REDD+ actions that are to be fully measured, reported and verified (UNEP Financing Initiative, 2011)

3.2.2 Potential Technical Contributions for REDD+

The private sector has an enormous role to play in providing the investment and technological innovation that will encourage and facilitate REDD+. The private sector is extremely diversified and its interest in climate change has increased beyond the confines of carbon trading. In many instances, the private sector has taken on a more active role by providing technical expertise, innovation and management skills and being fully or partly involved in project implementation.

3.2.3 The Private Sector is an Actor that Can Both Drive Deforestation and Help Conserve Forests

While the image of state- and smallholder-driven deforestation may have been true in the past, recent studies suggest that state-driven deforestation has given way to enterprise- (or private sector) driven deforestation (Rudel, 2007). Urbanization, export-oriented agriculture[9] (Defries, Rudel, Uriarte & Hansen, 2010) and logging have been highlighted as critical drivers of deforestation in the past two decades. Commercial logging remains an important driver of deforestation in certain regions of the world, including Southeast Asia (Wertz-Kanounniko, 2008). Although logging constitutes a notable exception, much deforestation in recent decades has been less motivated by the value of the forests per se than the value of alternative uses of the land where forests are found (Rudel, Defries, Asner & Laurance, 2009).

To date, export-oriented agribusiness and extractive industries such as logging, mining, oil and gas have been important drivers of deforestation that largely lie outside of the REDD+ supply chain. Their contribution is both direct and indirect. For instance, the mining industry in Africa directly drives: deforestation of hardwood to support mining excavation projects at multiple scales; charcoal, wood and bamboo for smelters; and wood poles for constructing electricity transmission lines for the mining sites (Sinkala, 2009). Moreover, mining activities can serve as indirect drivers of deforestation by increasing urbanization in mining areas, which in turn can augment demand for wood fuel and charcoal (Sinkala, 2009). Although the respective importance of these industries in driving deforestation has varied both spatially and temporally, any attempt to tackle the drivers of deforestation needs to face their contributions head-on.

However, it is important to realize that there are many firms within the private sector whose activities are not dependent on forests, and who are eager to offer solutions to deforestation; examples include major banks, commodity brokers, geographic information system (GIS) firms, and large corporations, such as Google. Even within the extractive industries there are a number of companies that recognize the problems and are willing to become part of the solution. Numerous companies have been promulgating best practices for forest and land management or have expressed interest in land-use carbon sequestration and biodiversity conservation.[10] Thus, the critical issues will be to move beyond corporate leadership and to incorporate increasingly large segments of the extractive industry into the REDD+ supply chain, as project investors, REDD+ carbon credits producers or end-buyers. At a minimum, they should be involved in order to fully mitigate the negative impacts of their activities. Thus, although several segments of the private sector are part of the problem as drivers of deforestation, there are methods to incorporate them as part of the solution, and many other firms that are interested in halting deforestation.

[9] It should be noted that Defries et al. (2010) were unable to determine whether the deforestation was directly or only indirectly caused by such activities. See p. 180.

[10] See, for example, East Asia Minerals Corporation's (2011) interest in developing "a 'green' mining project which will use carbon and biodiversity offsets and the latest in environmentally friendly mining practices."

4.0 Private Sector Key Players, Trends and Motivations for Engagement in REDD+

This section explores the current involvement of the private sector players in the various business functions of the REDD+ supply chain presented in the conceptual framework (see section 2.1). Given the difficulty of quantifying the precise extent and scope of private sector involvement along the REDD+ supply chain, this discussion uses interviews with select REDD+ experts and practitioners and a literature review of available documentation in order to draw out trends.

4.1 Investors through Project Investment

The key players in REDD+ investment at present are several pioneering investment funds and banks seeking future investment opportunities. In 2011 a number of new, multimillion-dollar private REDD+ investment funds were established, including Althelia (US$275 million target capitalization), Macquarie-International Finance Corporation (US$25 million), Terra Global Capital (US$50 million) (Janson-Smith & Marsh, 2012). Other examples include BNP Paribas and Nedbank Group, which have taken stakes in REDD+ projects. These funds and major private sector firms are strategically orienting themselves to take advantage of the growth in REDD+ credits on voluntary carbon markets, and are attempting to capture an early share of credits in anticipated REDD+ compliance markets (Janson-Smith & Marsh, 2012). The increasing involvement of financial institutions indicates a growing confidence in the future of forest carbon investments (Diaz, Hamilton & Johnson, 2011). These financing institutions want to explore and gain experience in developing REDD+ projects, and invest in REDD+ to sell the credits for a profit within voluntary pre-compliance or compliance markets. Some of these deals take the form of direct investments with project developers seeking carbon financing for most project types, others take the form of major purchase agreements, or often they are some combination of the two (Diaz, Hamilton & Johnson, 2011).

Significant investment also comes from emissions-intensive industries searching for large volumes of offset credits in order to reach "carbon neutrality." Large multinational firms are also engaged in REDD+, investing in the form of grants. These firms are often directly engaged in project activities as part of their corporate social responsibility (CSR) initiatives. Examples include Toyota Motor Corporation's involvement in Conservation International's Penablañca reforestation project in the Philippines, Imperial Tobacco's REDD+ project in Madagascar and the Mitsubishi Research Institute reforestation project in Quirino, Philippines. These multinational firms often consider projects that bring a triple benefit of climate change, community benefits and biodiversity conservation.

4.2 Producers through Project Development and Implementation

Some medium- to large-sized private firms are leading the development of REDD+ projects, wearing multiple hats as both investors and implementers, by leveraging their technical expertise, and also by selling carbon credits. This is the case of Wildlife Works,[11] a major leading private developer of REDD+, with the Kasigau Corridor REDD+ project in Kenya. Given that Wildlife Works administers the project on their own, they are intimately involved along nearly all points of the REDD+ supply chain—from project design and implementation, to capacity building and technical development, to carbon credit retailing. In collaboration with Colin Wiel Investments LLC, Wildlife Works formed

[11] Wildlife Works is a high-end, eco-clothing company who use the proceeds of their sales to promote wildlife conservation initiatives on the land it operates, including Kasigau.

a subsidiary company known as Wildlife Works Carbon Ltd, which is a limited liability company. It is currently the world's leading REDD+ project development and management company, investing in projects in Kenya, the Congo Basin and Latin America. Some other examples of leading private developers of REDD+ include Terra Global Capital and Infinite Earth.

In terms of direct oversight and implementation of project activities, a number of carbon offset firms are getting directly involved at the project level. The example of the Kariba REDD+ project in Zimbabwe shows the multiple types of private firms that can be involved. This project is managed by South Pole Carbon Asset Management Ltd, a carbon offset firm that is co-financing select stages of the work and is in charge of all carbon certification for the project. Black Crystal Consulting is also helping with on-the-ground measurement, reporting and verification (MRV), guided by South Pole Carbon Asset Management Ltd. Part of the on-the-ground negotiation and on-site implementation of the activities is done by Carbon Green Africa, a subsidiary of Carbon Green Investments.

The core business and expertise of most of these medium- to large-sized private firms developing and implementing projects is in creating innovative, climate-friendly solutions. Therefore, directly implicating themselves in REDD+ projects can be a good niche for those private firms that are also often involved in selling the credits for a profit.

Some large multinational firms also leverage their existing technical expertise and technological capacity in addition to their investments, as part of their CSR policy. This is almost exclusively performed through partnerships with NGOs. Many of these large multinational firms are not dependent on forests in any way for their business, but see this as a means of "greening" their image. This can be seen in the case of the Toyota Motor Corporation, which is co-implementing activities in partnership with Conservation International by assisting in MRV for the Penablañca reforestation project in the Philippines. As part of their CSR policy, Toyota Motor Corporation has a Forest Conservation Group fully involved in Penablañca reforestation project's implementation.

4.3 Brokers through Carbon Credit Trading and Retailing

Currently, most REDD+ credits are purchased directly from project implementers. Nevertheless, there are increasing numbers of buyers who purchase credits as intermediaries, with the intent to resell them for higher prices in the future (Diaz et al., 2011). This creates a secondary market. Examples of companies trading/retailing REDD+ credits include the Carbon Neutral Group, ClimateCare and Camco.

Some other financial firms that were initially providing direct investment in REDD+ projects are also securing purchase agreements that include upfront or immediate payments (such as Pre-Pay) for carbon credits with project developers, in order to resell them at a higher price. This allows project developers to deliver a high volume of emission reductions without having to take on the risk of finding an end-user themselves (Diaz et al., 2011). For instance, Nedbank has pre-bought carbon credits (before certification) at a fixed price of US$4.50/tonne from the Kasigau Corridor REDD+ project.

The emergence of secondary forest carbon markets is becoming a very important motivating force in the marketplace as California moves ever closer to its cap-and-trade scheme, and the UNFCCC parties indicate further interest in using REDD+ in a potential post-Kyoto compliance scheme (Diaz et al., 2011).

4.4 Advisors through Technical Expertise and Capacity Building

There is a strong niche for private consulting firms to support capacity building and offer technical services to national authorities, subnational authorities and third parties, since the latter generally have limited expertise and capacity for developing REDD+ PDDs, establishing the reference levels, or MRV. For instance, Camco, a global developer of clean energy projects and solutions to reduce greenhouse gas emissions, has contributed to MRV capacity building in the African Wildlife Foundation's (AWF) ARKfor project in Tanzania and will be involved in all the technical work required for project registration. Camco also conducts, scoping and feasibility studies, which assess the financial viability of potential carbon projects for various organizations.

The private sector has also made some noteworthy scientific and technical capacity-building contributions at the national level. Examples include providing GIS, satellite imaging technology and innovative MRV technologies to REDD+ countries and research institutions. An example of national-level technological expertise and capacity includes GAF AG, a leading European firm for GIS that is providing institutional arrangements and stakeholder analysis; deforestation and degradation mapping via remote sensing analysis; mapping of degradation hotspots; and capacity-building services for a REDD+ pilot project in Cameroon.

BOX 1: CONTRIBUTION OF GOOGLE TO SCIENTIFIC AND TECHNICAL CAPACITY BUILDING AT THE NATIONAL LEVEL

Google.org, the not-for-profit division of Google, has developed a new application for its Google Earth technology that would assist developing countries in tracking changes to their forest cover. Google plans to offer services to developing countries and research institutions on a not-for-profit basis (Teobaldelli, 2009), and has explicitly identified REDD+ as one of its key areas of potential application (Moore, 2009). Google Earth has also been involved with REDD+, with the UN-REDD Programme using the technology in Tanzania (Teobaldelli, 2009). The technology will provide a "one-stop shop," making advanced software for analyzing forest cover and vast quantities of satellite data available to governments and NGOs. Using this platform in conjunction with remote sensing technologies and on-ground measurements would enable mapping of biomass density, which could serve an integral function for MRV in an international REDD+ mechanism (Teobaldelli, 2009).

A number of private companies have also begun to offer financing to support capacity building and other readiness activities. Prominent examples include JP Morgan Chase Foundation's financing of various skills-based capacity-building sessions for REDD+, and its funding of various project feasibility studies in different regions (Janson-Smith & Marsh, 2012). However, larger resource inputs from private firms for capacity building are still rare given the profit-driven model generally followed by these firms.

4.5 Auditors through Certification and Validation

Another strategic niche is the validation and certification of emissions reductions within REDD+ projects. Validation is necessary to be eligible to generate carbon credits, and for formal acceptance and registration under any given standard (Olander & Ebeling, 2011). Among other certification standards, Verified Carbon Standard (VCS) and Climate,

Community and Biodiversity Standards (CCBS) are increasingly requested prior to the issuance of carbon credits for a REDD+ project. Examples of private auditors include Det Norske Veritas, which is a global independent provider of services for managing risk. In particular, Det Norske Veritas has validated and verified the world's first REDD+ VCS credits for the Wildlife Works Kasigau Corridor REDD+ project. Another example is SGS, an independent forestry and wood product services company that provides, among other services, certification applied to the management of a specific, defined forest area against recognized external standards, including those of the Forest Stewardship Council and the Sustainable Forestry Initiative.

4.6 End Buyers through Carbon Credit Purchasing

In the primary market, carbon credit end buyers can be categorized as following (Diaz et al., 2011, p. 57):

- "Pure voluntary (end-use)—Buyers purchase credits to offset their own GHG emissions on a voluntary basis
- Pre-compliance (end-use)—Buyers purchase credits expecting to use them in a future compliance scheme
- Compliance (end-use)—Buyers purchase credits for surrender under a regulatory emissions trading scheme"

Currently, a large proportion of these buyers voluntarily purchase offsets for CSR or for public relations and branding purposes. Those buyers are often in less emissions-intensive industries. Other companies have opted to provide their clients with the option to offset the greenhouse gas emissions generated in using their companies' products by purchasing carbon credits (Janson-Smith & Marsh, 2012). This is true of airline companies, as well as hotel franchises, parcel shipping companies, car rental services and computer companies. Other corporate buyers' motivations included anticipation of direct regulation and "greening" their supply chain. Compliance end-use remains a relatively small driver in the global marketplace, as most companies still have limited need for or interest in forest carbon credits among current compliance schemes.

Table 2 classifies the different types of private sector players according to the type of function they belong to in the REDD+ supply chain and their level of operation. This table is not meant to be exhaustive and only uses the private sector players based on the project examples that were reviewed and described in the above sections. Not surprisingly, most investors and producers are operating at the local level, whereas most end buyers and brokers operate at the national or global level due to the type of commodity—carbon—which is produced locally but traded internationally.

The functions are not mutually exclusive and a private sector actor can wear several "hats" simultaneously. Nevertheless, a private sector actor cannot audit the project where he is involved himself for any other function.

TABLE 2: SUMMARY OF TYPES OF PRIVATE SECTOR PLAYERS BASED ON THE REVIEW OF SELECT PROJECTS

	Investor	Producer	Advisor	Auditor	Broker	End-buyer
Local level	• Althelia Climate Fund • Nedbank • Carbon Green Investments Ltd. • Wildlife Works Ltd. • Eco2librium • Toyota Motor Corporation • Imperial Tobacco • Mitsubishi Research Institute • Walt Disney Corporation • Google	• Wildlife Works • South Pole Carbon Asset Management Ltd • Terra Global • Capital Infinite Earth • Eco2librium	• Camco • Black Cristal	• DNV • SGS		
National level	• JP Morgan Chase foundation		• Google • GAF AG • Camco	• DNV • SGS		
Global level	• JP Morgan Chase foundation				• Althelia Climate Fund • Macquarie – IFC • Terra Global Capital • Climate Neutral • Nedbank • Camco	• BNP Paribas • Nedbank • Alianz Climate solution Arch • Maredith • TUI • Pinault-Printemps • Redoute

5.0 Challenges to and Enabling Conditions for Private Sector Involvement

5.1 Demand for REDD+ Credits

One of the greatest challenges is to create long-term and robust demand for REDD+ credits in order to attract private sector investors. Those investors need to have a reasonable expectation for a risk-adjusted return on investment (International Emissions Trading Association [IETA], 2012). In 2011, REDD+ projects contracted 7.3 million tonnes of carbon dioxide equivalent (CO_2e), representing 59 per cent less volume than in 2010 (Peters-Stanley & Hamilton, 2012). Nevertheless, the above-average price of REDD+ credits yielded the highest value of any project type (Peters-Stanley & Hamilton, 2012). There are several reasons behind these decreased transactions. The first reason is the recent global financial crises, as fewer resources are available (particularly in Europe and North America) to buy emissions reduction credits or provide upfront capital investment for projects. The drop in transaction volumes can also be attributed to technical challenges under the UNFCCC with slow progress regarding proper safeguards, reference levels, and REDD+ finance.

According to IETA, given that the REDD+ market is a policy-driven market, the UNFCCC should play a central role in ensuring that the level of demand will attract private investment at scale. Individual parties and subnational governments also have a role to play by supplementing such demand through domestic action (IETA, 2012). The UNFCCC could help ensure the level of demand for tradable REDD+ credits by agreeing on more ambitious mitigation targets while recognizing REDD+ as one of the instruments for achieving it. A second suggestion is to create a separate minimum quota for REDD+ instruments that certain parties must acquire as part of their commitments that could be used to count towards or in addition to emission reduction commitments or objectives (IETA, 2012). Ensuring fungiblity of these carbon credits with other emissions reduction credits is critical for a well-functioning market (IETA, 2012), although certain preventive measures and controls may be necessary to avoid downward pressure on prices and destabilization on the market, and to prevent Annex 1 countries from relying too heavily on REDD+ credits rather than domestic decarbonization measures (UNEP Financing Initiative, 2011).

5.2 Need for a Strong Policy Signal

There is a pressing need to establish an adequate regulatory and policy framework and an amenable investment climate if REDD+ is to move forward. Policy clarity is an essential determinant of the scale and scope of further engagement of the private sector. Many governments have taken first steps and developed REDD+-readiness plans, joint participatory forest management documents, and are engaged in the UNFCCC and UN-REDD processes. In order for REDD+ to continue to progress, there is need to move beyond and to ensure the development and implementation of national REDD+ strategies and the creation of clearly defined roles and divisions of labour. Box 2 outlines examples of the regulatory and policy framework in Kenya and stresses the advances, the challenges, opportunities and recommendations from the Ministry of Finance in that country.

BOX 2: REGULATORY AND POLICY FRAMEWORK IN KENYA: STATE OF PLAY, CHALLENGES AND OPPORTUNITIES IN RELATION TO PRIVATE SECTOR INVOLVEMENT

Kenya requires more specific REDD+ legislation

Kenya has a broad range of relevant sectoral policies and regulations—for example, environmental conservation, forestry, energy, manufacturing, natural resources or foreign direct investment. Kenya has started the REDD+ policy planning and readiness process and has developed a REDD Readiness Preparation Proposal, submitted to the Forest Carbon Partnership Facility in 2010.

Coordination and governance for REDD+ remain spread across five main government ministries: the Office of the Prime Minister, the Ministry of Environment and Mineral Resources, the Ministry of Forest and Wildlife, the Ministry of Finance, and the Ministry of Planning, National Development and Vision 2030.

The main challenges for Kenya are:

- Insufficient funding.
- Limited engagement between the private and the public sectors on REDD+.
- Poor coordination and duplication of efforts.
- Lack of data on private sector involvement, policy formulation and openness.
- Political uncertainties in the country and uncertainty over carbon markets.

Kenya's main opportunities are:

- Public and private sector participation provide an opportunity for involvement, ownership and partnerships in environmental management and conservation.
- Room for open and constructive dialogue between the public and private sectors to determine the rules of engagement.
- Relatively clear land tenure arrangements.
- Leveraging private sector investments in REDD+ is possible.

Kenya is working in order to:

- Establish a coherent regulatory and policy framework to provide a better environment for private sector to participate in REDD+.
- Unlock and scale-up private sector investment. An attractive "investment climate" for REDD+ initiatives is required to remove the key barriers to the deployment of private capital.
- Conduct broad institutional and fiscal reform and increase financial commitments through a joint government-private sector efforts.

Source: Wahome, 2012

Project developers have noted that the lack of a clear regulatory and policy framework force them to deal with considerable regulatory uncertainty. For instance, in Kenya, although Wildlife Works has liaised with Kenya Forestry Service (KFS) at every step of the way in the Kasigau Corridor project's development, no formal agreement on legal and regulatory issues was signed between KFS and the project prior to its inception. This raises concern as to how it will fit at the national level, especially the national REDD+ accounting framework, once REDD+ is more advanced at the government level.

5.3 Clarification of Land Tenure and Carbon Rights

According to the UNEP Financing Initiative (2011), which consulted a number of leading firms in the financial sector on the optimal policy architecture for attracting private sector investment and implementation of REDD+ initiatives, "clear and undisputed land tenure and ownership rights are ... a key condition for the involvement of the broader private sector and the mobilization of private finance and investment in REDD+ activities" (UNEP Financing Initiative, 2011). Clarifying land tenure and carbon rights in a manner that respects the rights of indigenous and forest-dependent communities, while also remaining attractive from the government and private sector's perspective remains a challenge.

Land tenure is a legal or customary relationship of an individual or group with respect to land and other natural resources. Tenure rules determine who can use what resources, for how long and under what conditions. For REDD+, security of land tenure alone is insufficient in realizing emissions reductions. There is a need to clarify and incorporate forest, tree and carbon tenure. These tenure arrangements can generate different types of combinations and vary according to national circumstances. A main concern is that, in the absence of robust land tenure arrangements, developing country governments searching for additional sources of revenue could unilaterally cede rights to private companies who could acquire land, forest and carbon rights, which could in turn lead to rights dispossession and loss of livelihoods for local communities. In such instances, there is a crucial need for a clear understanding and consultation process with the communities regarding how this type of private sector investment would impact their access to forest resources. To avoid the pitfalls of land grabbing and appropriation by the private sector, a government policy should ensure clear and unequivocal land tenure for indigenous and forest-adjacent peoples.

However, the private sector players are not necessarily interested in acquiring the rights to the land in the project area itself, but rather in acquiring rights to the carbon sequestered by the project they are implementing because they need to see fungible, tradable commodities as outputs. Nevertheless, acquiring carbon rights in a given area implies that the community can no longer use this land for activities that are incompatible with REDD+ (e.g., intensive grazing or forest clearing), even if their customary rights are conserved. Therefore, this still requires free, prior and informed consent (FPIC) for the use of the customary lands of local communities. Regardless of who owns the land, there should be a clear agreement on who has rights to carbon (including by extension the benefits that flow from carbon sequestration) and who has the rights to the carbon credit itself or the title to the carbon emission reductions.

5.4 Establishing the Legal Basis for Private Investment

In order to maintain effective REDD+ activities at scale, further consultation between governments, private sector and other stakeholders such as local communities is needed to establish a legal basis for private investment in REDD+. For the private sector, the key concerns revolve around issues of appropriate assurances and policies for mitigating project-level and political risk. The public sector, on the other hand, is principally concerned with issues of due diligence,

transparency, and the fair sharing of risks and distribution of benefits from REDD+ activities. The pressing difficulty will be in identifying due diligence, risk-sharing, dispute resolution and benefits-sharing mechanisms that are agreeable to all parties.

5.4.1 Due Diligence

Due diligence in the investment process in identifying "carbon cowboys" who have engaged in fraudulent, misleading or unethical dealings with local communities, as well as other questionable investors, is needed for the government and for the private sector, whose credibility is at stake. Due diligence requires that all project developers and investors take responsibility for their actions. Government oversight of this process enables a level playing field whereby private sector actors and civil society stakeholders all know the relevant information (including information about the private sector firms' previous business dealings), as well as the pertinent rules that apply to everyone equally. For instance, the DRC National REDD+ Registry and National Forest Monitoring System tracks investments in REDD+ actions along with their social and environmental impacts. Such a system could serve as an information clearinghouse on potential implementers of new REDD+ projects, thereby reducing information asymmetries for local communities and creating a level playing field. A register similar to the DRC's could be a valuable tool to expand in all countries in this regard. Similar discussions are taking place regarding a system for reporting on how safeguards are addressed and respected for REDD+ under the UNFCCC, and may lead to the further uptake of such national tracking systems and/or databases (see further discussion in Section 5.5 below).

5.4.2 Level of Insurance and Risk-Sharing Mechanisms

Effective risk-sharing and risk-mitigation mechanisms are essential to create a more hospitable investment environment for the private sector, but a balance needs to be struck between the interests of governments and the interests of the private sector in devising these mechanisms. Potential risks facing private sector participants in project-level initiatives can be partitioned along three distinct but occasionally overlapping dimensions: **(a) supply-side risk**, **(b) demand-side risk** and **(c) political risk**. Each of these risks and potential methods for mitigating them are described in more detail below.

(a) Supply-side risk

Risks on the supply side refer to those incurred through the private sector's attempts to protect and restore forests' carbon stocks for purposes of generating REDD+ credits. Much of the responsibility for supply-side risk management should be assumed by the private sector; for instance, it is the private sector's responsibility to ensure effective monitoring of forest carbon stocks and to assess the impact of its forest management techniques. However, even when the private sector has exercised all of its relevant responsibilities, there may still be a risk of catastrophic losses, such as in the event of fire or disease outbreak.

One option to reduce supply-side risk would be to enable involvement of insurance companies, who would offer coverage against such catastrophic losses. For instance, ForestRe, a London-based company, specializes in the design of insurance and reinsurance products for forestry and tree crops worldwide, including natural forests. However, there are a number of limitations to this solution. First, it is likely that insurance companies would only be willing to offer these services in countries where they have experience with similar types of project risk, and which already have a

number of REDD+ or other forest carbon projects underway (O'Sullivan et al., 2010). Second, the actuarial modelling of the kinds of risks incurred by REDD+ projects is likely to be difficult (O'Sullivan et al., 2010). Finally, this would cost additional money by including further intermediaries in the transaction, thus reducing the overall share of the benefits for forest-dependent peoples at the bottom. Another approach could be to have the government to act as insurer against such risks.

(b) Demand-side risk

Uncertainty over the volume of future demand for REDD+ credits and the pricing thereof can also serve as significant impediments to private sector participation. One option for reducing such risks could be the government purchasing a fixed share of the credits, perhaps at a fixed price. This would help dampen the effects of various kinds of risk, but governments would need greater assurances of projects' financial viability in order to avoid conferring significant benefits to financially marginal or poorly managed projects.

(c) Political Risk

While the previously mentioned strategies may cover various kinds of project-level risks, they do not effectively mitigate against political risk, which is the risk of a change in national circumstances affecting the willingness or ability of the government to fulfil the obligations of its extant agreements (O'Sullivan et al., 2010). For instance, in light of changing national priorities, governments may no longer be willing to issue performance-based payments for REDD+ activities at the subnational level. In such cases, it may be possible for multilateral organizations such as the World Bank or regional development banks to offer partial risk guarantees such that a share of the agreed-upon payment would be honoured, thereby acting as the guarantor of last resort. Alternatively, governments could enter into indemnity agreements with such multilateral organizations, in which the latter acts as guarantor of payments to private sector projects. Consequently, the host country for the REDD+ project is indemnified to the multilateral organization. This strategy would simultaneously signal the government's dedication to honour its commitment to the private sector entity, and serve as a "self-binding" mechanism for the government, since they will incur significant obligations to the multilateral donor organization (O'Sullivan et al., 2010). However, it should be noted that the overall scope of guarantees offered by the government and multilateral organizations are likely to be limited (O'Sullivan et al., 2010).

5.4.3 Appropriate Dispute Settlement Arrangements

In a nested framework, designing an effective arbitration procedure for resolving disputes (when the private sector, government entity or communities are accused of failing to deliver on a contract or when the private sector does not deliver on agreed-upon payments to communities) will also prove to be a crucial hurdle for attracting broader private sector participation. The private sector would strongly benefit from clear arbitration procedures. However, international arbitration procedures could take too long by the private sectors standards, and thus there is a need to establish in-country bodies that can carry out the arbitration in a transparent and impartial way. There also needs to be explicit agreement as to where the arbitration will be conducted. The private sector will be more concerned with the laws of the country where their project is being operationalized, as opposed to the arbitration being carried out in the buying country (which is currently the case under the CDM). The desired level of legal certainty for the private sector is at the national level rather than the international level.

5.4.4 Clear and Fair Benefit-Sharing Mechanisms

Devising clear rules for benefit-sharing mechanisms (BSM) and for commitments from the national level to the private sector and vice versa also remains a pressing challenge. Communities in particular have to benefit as much or more than they do from conventional land use and/or be offered alternative livelihood opportunities in order for REDD+ to be successful. A clear BSM is crucial if it is the private investors who own the carbon rights. One difficulty in designing effective BSMs is that if the initial revenue stream is slow, there is a risk that benefits for local communities will not be realized or meet their expectations.

5.5 Design of Appropriate Social and Environmental Safeguards

Involvement of the private sector in the REDD+ mechanism raises some concerns for governments and civil society, especially because the private sector is focused on profit maximization. Consequently, the challenge lies in circumscribing private sector involvement through adequate social and environmental safeguards. As described below, the main concerns of the public sector and civil society in private sector involvement deal with: (a) the consultation practices for obtaining the FPIC of affected peoples, (b) transparency, (c) asymmetrical bargaining power and (d) biodiversity considerations.

Nevertheless, the many private sector actors are keen to support the establishment of clear and consistent environmental and social safeguards. Consequently, better trust and closer engagement between civil society, NGOs and private sector actors is needed to build bridges and develop a framework for strong and binding safeguards for all projects without discouraging private sector investment through onerously high transaction costs.

5.5.1 Free, Prior and Informed Consent (FPIC)

The process of consulting indigenous and forest-dependent peoples by the private sector will be reduced to a mere formality if it is done without robust processes for obtaining FPIC. For instance, many of the legal provisions for FPIC in Mozambique are left open to interpretation. Stakeholders often do not have the power to accept or reject the implementation of projects on their traditional or customary lands and there are often malpractices, especially if investors want a "quick fix" to consultations, or a way of reducing transaction costs (Nhantumo, 2011). The Forest Investment Program states that "the World Bank provides project financing only where free, prior, and informed consultation results in broad community support to the project by the affected Indigenous Peoples" (World Bank, 2005, cited in Climate Investment Funds, 2009). Critics nonetheless object to the fact that indigenous groups do not have a formal right to withhold consent for projects, and to the World Bank's adherence to the principle of "broad community support" rather than the stricter principle of FPIC (Forest People's Program, 2009). In this regard, the UN-REDD Programme Guidelines on FPIC outline a normative, policy and operational framework for UN-REDD Programme partner countries to seek FPIC, as and when appropriate, as determined by the program partner country in consultation with relevant rights-holders. The guidelines also provide clear definitions of the underlying elements of FPIC, information on grievance and accountability, and useful annexes elaborating important concepts and presenting useful tools and resources (UN-REDD Programme Blog, 2011).

5.5.2 Transparency

There are also concerns that private sector involvement in REDD+ national and project-level initiatives can lead to a lack of transparency, thereby undermining the integrity of the REDD+ process. Motivated by concerns for profits, the private sector may be less willing to adhere to norms for transparency and publicity in their projects and planning than their public or third-sector counterparts. For example, in the case of Mozambique's REDD+ initiatives, a number of private sector firms refused to present or discuss their investment plans with the national REDD+ Working Group (Nhantumo, 2011).

5.5.3 Asymmetrical Bargaining Power

Another recurring concern is the asymmetrical bargaining power between private sector multinationals on the one hand and participating countries' governments and local peoples on the other, rooted in the latter's lack of pertinent information and institutional capacity. Project scoping, feasibility studies, measuring carbon stocks, baseline setting and MRV all require significant investments in technical, scientific and technological capacity. In the absence of sufficient technical knowledge, investment and capacity building at the national level, this can lead to the contracting out of key implementation activities to private sector firms and consultancies, with the potential to create an informational asymmetry, undermine the bargaining power of governments and potentially allow the private sector to capture a greater share of the benefits (Nhantumbo, 2011). However, in both UN-REDD and FCFP countries, the government leads on readiness activities and it should be also noted that a number of private sector capacity-building initiatives are currently underway, as stated in Section 4.4.

5.5.4 Biodiversity Considerations

Concerns have been raised that an emphasis on increasing carbon stocks, exacerbated by the profit-driven orientation of the private sector, will override other equally important considerations, such as biodiversity protection. For instance, in relation to enhancement of carbon stocks (e.g., regeneration areas, restoration of watersheds, agroforestry, well-managed commercial plantations on degraded lands, flood control plantings), there could be planting of non-native or genetically modified species, or even monoculture plantations for purposes of maximizing carbon stocks (Green Belt Movement, 2011).

These concerns are pressing and legitimate, but such negative outcomes are far from inevitable. This once more points to the importance of safeguards in ensuring successful REDD+ outcomes, regardless of whichever entity is implementing REDD+ activities. In addition, timely, transparent and accessible reporting on safeguards as well as effective and transparent governance structures will be more generally integral to successful private sector participation in REDD+.

5.5.5 Some Private Sector Players Support Development of Strong Social and Environmental Safeguards

Much of the private sector is keen on establishing clear and consistent environmental and social safeguards. The private sector rates reputational risk as a significant barrier to REDD+ engagement and can be fully involved and innovative in the design and implementation of safeguards. This also provides assurances for the private sector that REDD+ projects will deliver emissions reductions with high social and environmental standards. Some private sector actors like BNP Paribas have actually long supported strong safeguards for REDD+. This is an example of good practice that should be encouraged.

BOX 3: RISK MANAGEMENT AND DUTY OF CARE AS A MOTIVATOR FOR THE PRIVATE SECTOR TO DEVELOP STRONG SAFEGUARDS

According to BNP Paribas, a prime motivator for the private sector to support safeguard development and implementation with regard to REDD+ projects is risk management and duty of care. Strong environmental, social and governance performance equates to strong risk avoidance, risk management and improved project impact.

Achieving explicit and enduring support from local stakeholders like governments, communities and NGOs through active participation and benefit sharing will translate directly into improved project performance and reduce the risk of project activities being improperly designed, failing, or facing social or political opposition. In addition, the explicit environmental, social and governance focus on biodiversity and ecosystem services will increase ecosystem integrity, resilience and function, further enhancing carbon storage and sequestration ability of project areas and reduce emissions from the communities involved.

Developing and delivering carbon credits from projects with the highest standard of environment, social and governance safeguards should hence enable leveraging of investment to simultaneously catalyze several positive impacts, including:

- Reduced greenhouse gasses emissions
- Rigorous MRV
- Scaled-up investments nested into subnational or national jurisdictional frameworks
- Sustained (or enhanced) biodiversity and ecosystem function and resilience
- No industrial conversion of natural ecosystems, conservation of threatened or locally important species
- Focus on International Union for Conservation of Nature Red List species
- Biodiversity enhanced against a pre-established baseline
- Positively transformed communities
- Participatory, transparent engagement / FPIC
- Equitable sharing of benefits and social performance audits

Source: del Valle, 2011.

Another example includes Eneco, a Dutch energy company that has created "best practices" for private sector engagement in REDD+ with a Code of Conduct that will be valid for both voluntary and potential future compliance markets, and may be made publicly available for other investors, sponsors and partners.

In spite of these good practices championed by select private sector players, it is unlikely that all private sector actors would be compelled to behave transparently and ethically of their own accord, as the threat of reputational risk may be too low to motivate some firms. As such, a framework for strong and binding safeguards for all projects needs to be put in place. Care will have to be exercised in elaborating the relevant safeguards and a system for monitoring them, however, in order to balance the need to prevent negative social and environmental impacts without imposing too great a burden on national programs, or discouraging private sector investment through onerously high transaction costs.

6.0 Potential Strategies to Stimulate Private Sector Engagement in REDD+

This section discusses potential strategies and policies to attract private sector participation and investment in the REDD+ credits market. Those strategies for can occur at multiple geographic, administrative and temporal scales. Figure 2 categorizes the strategies according to short-term, medium-term and long-term scales and also highlights the most promising ones in bolded text.

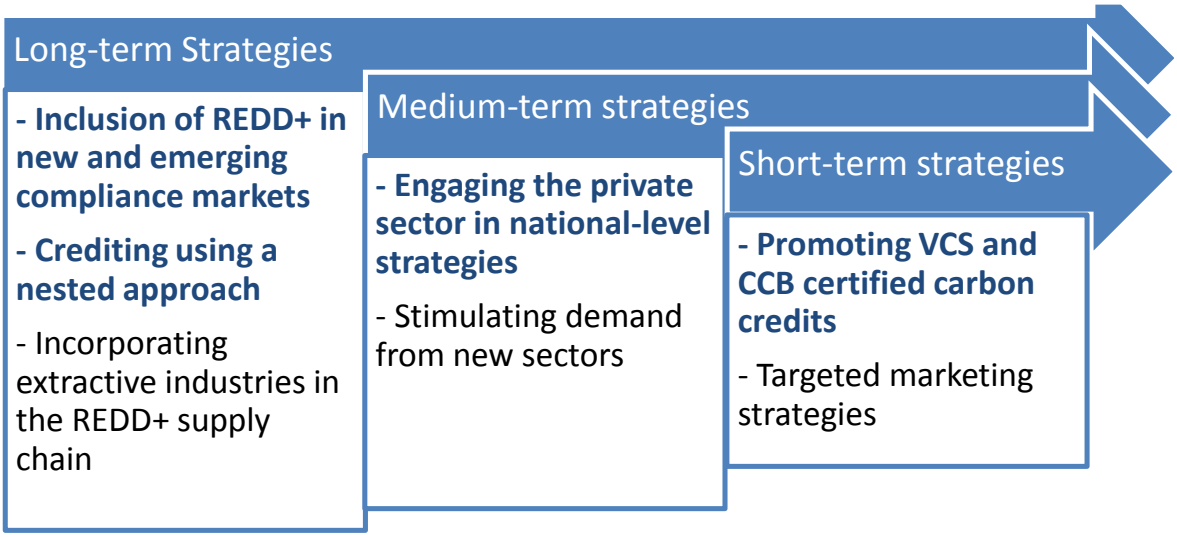

FIGURE 2: POTENTIAL STRATEGIES FOR ATTRACTING PRIVATE SECTOR PARTICIPATION AND INVESTMENT IN REDD+

6.1 Inclusion of REDD+ in New and Emerging Compliance Markets

6.1.1 Opportunities and Challenges for REDD+ to be Included in Compliance Markets

The voluntary market for REDD+ has played a critical role in fostering interest in REDD+ and reducing institutional learning costs. Nonetheless, the voluntary market will not be able to secure financing for REDD+ initiatives and the emissions reductions they entail at the scale necessary for achieving a critical mass of emissions reductions. As mentioned earlier, the recognition of the possibility of developing "appropriate market-based approaches for REDD+" represents a very strong signal that a "compliance carbon market" could potentially be developed under the UNFCCC (La Viña et al., 2012). Therefore, in order to increase demand for REDD+ credits, a growing number of stakeholders advocate that REDD+ be included in compliance markets. But there is uncertainty on the timing and modalities of REDD+'s integration into a compliance market.

For instance, the European Union Emission Trading System (EU ETS), which was launched in 2005 and is the first large emissions trading scheme in the world to combat climate change, has excluded from its beginning the CO_2 credits obtained from sinks (e.g., reducing CO_2 by planting trees). The inclusion is currently opposed by the EU commission because of their focus on the energy sector, and on the fungibility challenges associated with CO_2 credits obtained from sinks and scientific uncertainties over the permanence of these credits (Macey, 2006). A number of governments and industry representatives have been lobbying for their inclusion, and some observers believe the EU could be open to including REDD+ in the ETS if tighter caps are adopted (Janson-Smith & Marsh, 2012).

6.1.2 Examples of New and Emerging Compliance Markets

Some new and emerging compliance markets could be looked at with interest, such as California and South Korea's cap-and-trade systems, Australia's new climate legislation and Japan's Bilateral Offset Credit Mechanism.

California's emerging cap-and-trade system is likely to become the very first compliance-based market for REDD+ credits. The program imposes an absolute limit or "cap" on greenhouse gas emissions from all major firms in California, totalling 85 per cent of state-wide emissions. Firms are then provided with emissions allowances, which can be traded among each other in order to meet their targets, as they must have one allowance for each tonne of greenhouse gas produced. In order to provide additional flexibility, 8 per cent of a facility's emissions reduction obligations may be met via a system of "offsets," which are carbon credits issued from other projects and activities not covered under the cap (California Environmental Protection Agency, 2011a). REDD+ projects are the sole permissible international offset option identified to date, alongside domestic options such as U.S. Forest and Urban Forest projects, livestock projects and ozone depleting substances projects (Youngman & Diamant, 2011; California Environmental Protection Agency, 2011b). The program was initialized on January 1, 2012, and emitters will be forced to meet enforceable compliance obligations by the beginning of 2013 (California Environmental Protection Agency, 2011a).

South Korea has also recently adopted a cap-and-trade scheme, which was passed into law in May 2012 and will enter into force in 2015. Firms emitting 125,000 tons of CO_2e per year or more will be forced to purchase tradable emissions permits from the government, as will factories, buildings and livestock farms responsible for 25,000 tonnes CO_2e per year or more. As an incentive, major firms may be given up to 95 per cent of their permits for free in the first 3–6 years (Han, 2012). Internationally, REDD+ has been mentioned as a potential source of credits for firms wishing to meet some of their compliance obligations through offsets (Janson-Smith & Marsh, 2012).

REDD+ could also fit within the international crediting provisions of Australia's new climate legislation. The Clean Energy Bill 2011 is a cap-and-trade law introduced in 2011, which will be effective July 1, 2012. Different industries are allocated absolute emissions thresholds on an annual basis, and each year, any firms in a given industry whose emissions exceed the threshold will have to purchase an emissions permit from the government (House of Representatives, 2011). The permits will initially be sold at a fixed price, but they will be auctioned from July 1, 2014 onwards (House of Representatives, 2011). As with California's system, there will be opportunities to purchase offsets as a fraction of one's total emissions in order to help contain costs. REDD+ could be one source of potential offsets in the future, as the legislation is flexible enough to permit the incorporation of novel sources of offset credits (Janson-Smith & Marsh, 2012).

Japan has proposed a new market mechanism, namely the bilateral offset credit mechanism to contribute to the reduction and removal of global greenhouse gases, including REDD+ projects. The bilateral offset credit mechanism aims to promote dissemination of advanced low-carbon technologies and products at the global level by properly evaluating emissions reduction and removal in developing countries. Japan has undertaken feasibility studies in 28 countries, including six REDD+ studies (Janson-Smith & Marsh, 2012).

These compliance markets could provide a very good opportunity to increase the demand for REDD+ credits in the near future. REDD+ would be attractive because it would be a more affordable source of offset credits than other options. Moreover, companies want to reduce compliance risk by presently investing in sources of credits several years in the future, to match their internal emissions reductions targets. In that regard, REDD+ would be a "good bet."

6.1.3 Promoting VCS and CCBS Certified Carbon Credits

Forestry carbon standards such as VCS, founded in 2005 to bring standardization to the voluntary offset market, combined with CCBS, a set of project-design criteria for evaluating the social and environmental aspects of land-based carbon mitigation projects and their community and biodiversity co-benefits, demonstrate how projects can achieve internationally recognized social and environmental integrity. An important trend lies in the REDD+ market's delivering greater quantities of carbon credits using VCS tagged with CCBS, with increasing potential that these certified credits could be used as offsets in some compliance-based regimes.

6.2 Crediting Using a Nested Framework

The nested framework is "a mechanism which allows countries to start REDD+ efforts through subnational activities and gradually move to a national approach, or for the coexistence of the two approaches in a system where REDD+ credits are generated by projects and governments, thus maximizing the potential of both approaches" (Angelsen et al., 2008). The nested framework seems to be the most promising policy option for private sector involvement in REDD+ (Angelsen et al., 2008; Pedroni, 2007; O'Sullivan et al., 2010).

First, the nested framework has harmonized crediting and accounting (MRV and baseline setting) between project/subnational activities and national activities. The functioning and integrity of such a system requires a registry of all reference emission levels, approved initiatives, monitoring reports and carbon transactions to ensure transparent carbon accounting and avoid double counting of subnational and national emissions reductions (Pedroni, Dutschke, Streck & Estrada Porrúa, 2009). Integrated, jurisdiction-wide accounting frameworks within a country will reduce risk of intra-country leakage (the displacement of emission-causing activities to areas outside the project boundary), which gives comfort to buyers in carbon markets, increases prices for REDD+ credits and thus makes REDD+ investments more attractive.

Second, the nested framework allows the direct issuance of performance-based payments to the private sector, which secures their investment and makes the protection of forests financially competitive with conventional land-use options that lead to deforestation and forest degradation. Pedroni et al. (2009) suggests that at the national level, governments are recipients of credits for emission reductions below a negotiated target and may redistribute the revenues from the sale of credits to local actors; at the subnational level, subnational entities, duly authorized by the host country to implement REDD+ project activities, are direct recipients of credits, regardless of national performance. This enables a direct opportunity for the private sector to invest. This also enables crediting of subnational projects independently from the overall national performance, which reduces risk for private investment at the subnational level as well as in the event that REDD+ is no longer a priority for the national government (UNEP Financing Initiative, 2011).

Finally, a nested framework requires specific agreements with the private sector to be made with the administrative level that is best able to administer and enforce the contractual agreement. Therefore, each jurisdictional level in a nested framework should add some value to the overall process. This, in turn, implies that capacity and empowerment need to be considered at each of these levels.

To support the development of a nested framework, the VCS launched its Jurisdictional and Nested REDD+ Initiative to develop and test new accounting frameworks for crediting REDD+ projects, policies and programs across states, provinces and nations. By establishing clear pathways for nested project crediting, the Jurisdictional and Nested REDD+ Initiative will help assure project developers and investors that their early actions to reduce emissions will be appropriately rewarded (VCS, n.d.).

6.3 Engaging the Private Sector in National-Level Strategies

There are also a number of national-level initiatives underway to attract private sector finance, technological capacity and scientific and/or technical expertise. The examples below emphasize the importance of strengthening the dialogue among government, the private sector and other stakeholders. A broader consultation process and meaningful engagement with the private sector in the policy arena is needed in formulating national strategies, and this requires involving sector actors as both private drivers of deforestation (e.g., timber, mining), as well as potential investors. Engaging the private sector in national-level REDD+ policy formulation processes can reduce its regulatory risk and exposure by promoting the inclusion of flexible and cost-effective abatement options, effective social and environmental safeguards to increase stakeholder buy-in, and to help shape an overall policy framework that is win-win-win for all parties (the private sector, government and the affected stakeholders).

BOX 4: SUBTECHNICAL WORKING GROUP ON PRIVATE SECTOR ENGAGEMENT IN REDD+ IN VIETNAM

Vietnam has recently established a subtechnical working group on private sector engagement within the national REDD+ planning process. The group's objectives are to encourage private sector involvement in implementation processes, and to engage in information and experience sharing, capacity building and policy dialogue activities. The subtechnical working group in Vietnam has organized two workshops on private sector participation in REDD+ in September and December 2011, focusing on the themes of introducing the overall rationale and objectives of the working group and carbon rights, respectively. The working group is currently led by the Department of Forestry Institutions and Policy in collaboration with Forest Trends.

Source: Quoc Hung, 2012

BOX 5: THE FOREST INVESTMENT PROGRAM IN DRC

The Forest Investment Program is a component of Climate Investment Funds' multilaterally financed Strategic Climate Fund. The program's mandate is to assist developing countries in reducing emissions from deforestation and forest degradation by way of "bridge" financing for national-level readiness activities. The DRC has explicitly used the Forest Investment Program in their efforts to attract private investment and participation in REDD+ and sustainable forest management projects. The DRC's Forest Investment Program investment plan features a World Bank-funded project titled Engaging Private Sector in REDD+ in DRC. The program's strategic plan includes a proposal to create a new management entity whose mandate is to liaise with the private sector and offer concessional loans and other measures to increase private sector participation, and to promote special models for collaboration between local communities and the private sector.

Source: Climate Investments Funds, 2011

BOX 6: THE PHILIPPINES' NATIONAL REDD+ STRATEGY AND PRIVATE SECTOR ENGAGEMENT

Another interesting example is the Philippines, which has developed a national REDD+ strategy devised with close collaboration among the government, civil society and the private sector. The government plans to issue a national policy or legislation on REDD+ to further codify strategy. In addition, the private sector is to be a member of the National Multi-Stakeholder REDD+ council, a national and subnational coordinating agency for REDD+ initiatives. The U.S. Agency for International Development is trying to focus on private sector engagement with its new 5-year program in the Philippines.

Source: Quintos-Natividad, 2012

6.4 Incorporating Extractive Industries in the REDD+ Supply Chain

Extractive industries have been important drivers of deforestation and manage huge areas of lands for their operations. In the case of commercial logging, interest is clearly in the forests themselves, though in many other instances the extractive industries are more interested in the value of the land than in the forests per se. For example, in most countries, oil and gas companies own the right to manage land as part of a broader concession, though they are more interested in what lies beneath the ground than in above-ground management.

Nonetheless, there are some promising trends and initiatives where the extractive industry is interested in voluntary measures to manage land more sustainably. Noteworthy trends and cases include the moratorium on land conversion for increased soy production in Brazil and sustainable commodity roundtables such as the Roundtable on Sustainable Palm Oil (World Economic Forum, 2011). Another example is that of the mining, oil and gas industries that are beginning to consider different ways to manage their concessions so as to reduce their environmental impact. These include concessions that are part of an agreement with the government where the country keeps ownership of the land.

Revenue-sharing agreements between national governments and industry have been established in a number of cases. These industries with long-term concessions might add REDD+ as part of their activities. REDD+ could also drive efforts in mine rehabilitation and restoration. Select companies in the extractive industries have also expressed interest in voluntary carbon offsets, and measures to protect biodiversity, as can be seen in the case of East Asia Minerals (2011). In general, CSR activities are increasingly recognized as means of reducing transaction costs, by creating a "social license to operate" through increased stakeholder buy-in (World Economic Forum, 2011). As such, one can reasonably expect the increasing trend of CSR in the extractive industries to continue.

However, it is important not to overstate the present and potential future impacts of CSR initiatives. The failure to fully incorporate important ecosystem services into the price of the land and the commodities produced from extractive activities, for example, are unlikely to be completely mitigated by CSR activities. Moreover, price, regulatory and future demand uncertainty hinder the scalability of the voluntary market initiatives for REDD+. As such, a critical mass of compliance markets will likely be necessary to fully incorporate extractive industries within the REDD+ supply chain, with clear signals of their emergence serving as a further catalyst to early action (World Economic Forum, 2011). While there may be potential for the extractive industry to generate REDD+ credits on land where they are implementing their projects in order to offset some of their emissions, great care will have to be taken to avoid perverse incentives in cases where firms are operating in jurisdictions with less robust compliance obligations.

6.5 Targeted Marketing Strategies

The private sector desires returns on investment in the form of a fungible, tradable commodity—namely, carbon credits. However, monetary benefits can often be small, particularly in the early stages of a project, or if returns are divided among individuals or households. Therefore, the private sector is not only looking for tradable carbon credits, but is also interested in co-benefits produced by REDD+ activities beyond carbon payments as well as collaborating with large NGOs on REDD+ projects, principally for reputational returns. Either way, whether the "currency" of REDD+ project outputs is tradable carbon credits or reputational returns, the private sector needs to see some sort of net benefit from its investment that can be measured and evaluated.

While marketing the REDD+ approach, it is relevant to market both of these approaches to simultaneously attract compliance-driven companies and CSR-driven companies. There are numerous aspects of REDD+ that make it attractive to both compliance and CSR-driven companies, respectively.

BOX 7: REDD+ FEATURES THAT ATTRACT PRIVATE COMPANIES

Companies with a CSR orientation will find REDD+ more amenable to their goals than other kinds of offsets, such as substituting energy sources. For instance, REDD+:

- Is typically one of the lower-cost mitigation options.
- Helps prevent deforestation, a crucial and highly visible driver of climate change.
- Has the potential to satisfy several CSR goals simultaneously, such as poverty alleviation, sustainable development, biodiversity protection, and water conservation.
- Conveys a concrete narrative to potential clients, conveying a sense of the companies' rootedness in a particular project within a very specific place.
- Provides potential clients with an ongoing narrative about community development and species protection.
- Helps build trust among the firm, local stakeholders and governments, and helps develop the firm's reputation as both socially responsible and responsive to these stakeholders. This can help reduce transaction costs in those countries where the firm's operations are located.

REDD+ also has much to offer companies with compliance-based motivations, such as:

- Greater protection against regulatory risks (e.g., by purchasing carbon credits several years in advance).
- Potential for lower compliance costs than other abatement options (e.g., a tax or emissions permit).
- Assistance in long-term business planning by mitigating price uncertainty.
- An effective way of diversifying investment in mitigation and compliance options, as well as a scalable source of low-cost offsets.

Source: Janson-Smith & Marsh, 2012

6.6 Stimulating Demand in New Sectors

It is important to consider marketing REDD+ to stakeholders who have not been significantly involved to date. For instance, REDD+ opportunities should be brought to the attention of a greater number of banks and insurance companies. Although banks and insurance companies are key investors in REDD+, the majority of this investment is coming from a handful of large banks (e.g., Nedbank, BNP Paribas). Consequently, there may be potential for further scaling-up investment on this front. Banks can also come in to provide long-term financing and offset their emissions and those of their clients. On the other hand, however, banks are risk-averse and there is need to target larger banks that can absorb risks or banks that are already insured. Involving insurance companies willing to take on the risks associated with REDD+ may also prove to be a promising area of exploration.

REDD+ opportunities could also be of interest to large companies with a CSR orientation, customer sales, event management companies, hotels, and individuals, among others, interested in offsetting their carbon emissions. For instance, the company CO_2OL has developed a methodology enabling their clients to determine greenhouse gas emissions caused by their activities via the CO_2OL CO_2-calculator. By registering online, hotels, event organizers, convention centres and other facilities are able to gain free access to this analytical tool. Once the carbon footprint has been calculated and emissions have been reduced as far as possible, CO_2OL will compensate the remaining greenhouse gas emissions via certified CO_2OL reforestation projects. Small offsetting of carbon footprints can be a component of CSR initiatives.

7.0 Lessons Learned

To better engage the private sector in the REDD+ supply chain, there is a need to understand motivations and the range of roles for the private sector across the REDD+ supply chain.

Involvement of the private sector in the REDD+ supply chain is driven by several types of motivations, such as CSR, reputational returns, pre-compliance purposes or potential monetary returns.

Private sector involvement is imperative both for financing and implementation of REDD+ activities at scale and speed. The private sector can help bridge the financing gap between public sector financing and developing country needs, make vital contributions to REDD+ initiatives through the range of its expertise and be part of the solution to mitigating climate change by helping to address the fundamental drivers of deforestation under attractive conditions.

Private sector actors can play a role in various business activities of the REDD+ supply chain. Those activities are: investment, project development and implementation, carbon credit retailing, technical expertise and capacity building, certification and validation, and carbon credit purchasing. These business activities are not mutually exclusive and a private sector actor can wear several "hats" simultaneously.

Though a number of points of entry for the private sector can be identified in current trends, there are also a set of key challenges that can be identified through lessons learned and ongoing experiences. These challenges must be addressed if private sector engagement is to increase in scope and scale moving forward.

Create enabling conditions for effective private sector participation by providing policy certainty and create long-term and robust demand for REDD+ credits

Policy clarity and certainty are critical determinants of private sector involvement in REDD+, both internationally and nationally. Governments should clarify their intention to create and engage the private sector in future REDD+ compliance markets, and develop national legislation on REDD+ as well as national emission targets. REDD+ should also be integrated in sectoral planning. Private investors need to have a reasonable expectation for a risk-adjusted return on investment. Given that the REDD+ market is a policy-driven market, the UNFCCC should also play a central role in ensuring that the level of demand will attract private investment at scale (IETA, 2012).

Land tenure and carbon ownership remain key challenges to broader private sector engagement in REDD+ activities

Clarification of land tenure and carbon ownership is a fundamental condition for involving the private sector and mobilizing private investment in REDD+ activities. Private investors and project developers will not invest in REDD+ activities unless clear land and carbon ownership systems are in place. This requires clear understanding and a consultation process with the communities regarding how this type of investment would impact their access to forest resources, and the development of clear BSMs clarifying who has rights to benefits that flow from carbon and to what extent.

Engaging the private sector in national-level REDD+ policy formulation processes is critical to shaping an overall policy and legal framework that is win-win for all parties

Stakeholder participation is crucial to ensuring effective and appropriate private sector involvement in REDD+. Further consultations between the private sector, governments and other affected stakeholders are needed to establish the legal framework for private sector investment and reduce regulatory risk and exposure by promoting the inclusion of flexible and cost-effective abatement options. This encompasses due diligence in the investment process, effective risk-sharing and risk-mitigation mechanisms that create a more supportive investment environment for the private sector, appropriate dispute settlement arrangements and clear and fair BSMs. Closer engagement is also needed in order to establish clear and consistent environmental and social safeguards for steering private sector involvement in REDD+. The private sector itself is most keen on implementing environmental and social safeguards because their adoption can help them avoid reputational and operational risk, and ensure that REDD+ projects will deliver emissions reductions with high social and environmental standards, which in turn increases the value of REDD+ carbon credits.

Several potential strategies and policies for addressing some of the above challenges and for attracting private sector participation and investment in REDD+ are promising.

Enhance investment through compliance carbon markets

Compliance-driven demand for REDD+ credits from developed countries is needed to incentivize large-scale private investment in REDD+, as demand and price levels in the voluntary market are not sufficient to drive private sector investment at scale and achieve a critical mass of emissions reductions from REDD+. An important trend lies in the REDD+ market's delivering greater quantities of carbon credits using VCSs certified under CCBS. These standards demonstrate how REDD+ projects can achieve internationally recognized social and environmental integrity, and increases the potential that these certified credits can be used as offsets in some compliance-based regimes.

Enhance investment through country-driven nested frameworks

Allowing private stakeholders to receive direct performance-based payments while maintaining the environmental integrity of a national accounting framework through a nested crediting approach will greatly facilitate private sector involvement and investment. The direct issuance of performance-based payments to the private sector secures their investment and makes the protection of forests financially competitive with conventional land-use options that lead to deforestation and forest degradation. With integrated jurisdiction-wide accounting frameworks, a nested framework reduces risk of intra-country leakage, which gives comfort to buyers in carbon markets.

The private sector needs to be involved in discussions and policies to address the drivers of deforestation

The private sector players driving deforestation and those helping to conserve forests both need to be a part of REDD+ dialogues. For instance, export-oriented agribusiness and extractive industries are important drivers of deforestation, but aside from CSR initiatives from select firms, they have largely remained outside the REDD+ supply chain. Engagement should move beyond CSR by better incorporating the extractive industry into the REDD+ supply chain. At a minimum, the extractive industries should be engaged in some sort of policy and regulatory process for addressing drivers of deforestation, in order to fully mitigate the negative impacts from their activities. Other private sector players already engaged in sustainable land-use activities also need to be engaged in the discussions.

Stimulating demand in new sectors and developing targeted marketing strategies could significantly increase REDD+ demand and attract a larger spectrum of companies with various types of motivations

Whether the "currency" of REDD+ project outputs are tradable carbon credits or reputational returns, the private sector needs to see some sort of net benefit from its investment that can be measured and evaluated. When marketing the REDD+ approach, it is therefore relevant to communicate the importance of both kinds of returns, in order to simultaneously attract compliance-driven and CSR-driven companies, as there are numerous aspects of REDD+ that make it attractive to both.

REDD+ opportunities should be better brought to the attention of large banks, which can come in to provide long-term financing or offset their emissions and those of their clients. Involving insurance companies willing to take on the risks associated with REDD+ may also prove to be a promising area of exploration. REDD+ opportunities could also be brought to the attention of large companies with a CSR orientation, as well as customer sales, event management companies, hotels, and individuals, among others interested in offsetting their carbon emissions.

Disseminate lessons learned and best practices

Promoting greater public-private collaboration could result in the identification of innovative and effective solutions for advancing sustainable REDD+ activities. The various private sector actors should be involved as key partners of NGOs, IGOs and governments in scaling-up financing and innovation. Dialogue can be supported by groups not linked to the formal negotiating process, such as the series of REDD+ expert meetings held by IISD and the ASB Partnership for the Tropical Forest Margins with support from the Government of Norway, as country representatives and stakeholders often are able to speak more frankly in less formal, non-negotiation sessions.

8.0 Conclusion

There is a growing recognition that public financing alone will not be sufficient to support the effective implementation of results-based REDD+, and that increasingly large shares of private sector finance are required. This paper has helped contribute to the understanding that the private sector has a key role to play in various aspects of REDD+ beyond the purchasing of credits.

Exploration of the REDD+ supply chain enhances our understanding of the various types of business functions that the private sector performs. This analysis has provided a clear picture of the challenges and opportunities faced by the sector as investors, producers, advisors, auditors, brokers and end-buyers across the REDD+ supply chain. This is crucial to understand not only the current state of private sector involvement, but the strategies and options for better targeting the private sector and increasing the scope of their participation in moving forward. This analysis shows that the "private sector" encompasses a diverse set of players, including local REDD+ project developers, multinational companies, carbon-regulated companies, local or specialist international investment banks, GIS and technology providers, extractive industries, consulting firms, and many others, all who vary in terms of scale, geographic location, expertise, motivations, and degree of influence exercised on other links and actors within the REDD+ supply chain.

Several strategies to enhance private sector participation and investment in REDD+ are promising, in particular: increasing the demand for REDD+ credits on compliance markets, allowing private stakeholders to receive direct performance-based payments under a nested framework, and promoting greater collaboration between the public and private sectors—provided that an enabling policy and regulatory framework is put in place. Public multilateral and bilateral finance will still have a very important and complementary role to play in order to ensure that developing countries with more challenging investment needs and environments are not left behind.

Some knowledge gaps remain and will require further research. In particular, uniform information on global and regional private sector financial flows for REDD+ is needed, for example:

- Comprehensive, regional-level studies identifying the magnitude of private sector finance for REDD+, and the composition of private sector investment within individual countries in these regions, would provide helpful indications for which economic, political and biophysical factors are most conducive to private sector REDD+ investment.
- Further exploration of the current share and future potential for private sector participation across each of the links of the REDD+ supply chain is also necessary—for instance, identifying the provision of on-ground MRV technology and technical capacity as a growth area, due to shortfalls in supply. Such an analysis would enable an improved understanding of the sectors with the greatest growth potential under REDD+, and would allow project implementers and investors to have a better idea of which sectors to target in their marketing initiatives.
- More research is required on the most effective ways to incorporate extractive industries into the REDD+ supply chain. The extractive industries have an important role to play in meeting global demand for timber, oil, gas and important metals. The key objective in moving forward will be to build on the leadership of extractive firms that are interested in REDD+ or more sustainable land management methods, and to work with the extractive industries as a whole in devising effective strategies to bring market prices in line with the social costs of extractive activities.
- Finally, while there is a trend toward consensus that a nested framework would be beneficial to REDD+ and that REDD+ would benefit from being included in compliance markets, only very modest steps have been taken toward implementing such approaches and several important decisions need to be made.

Reference List

Angelsen, A., Streck, C., Peskett, L., Brown, J. & Luttrell, C. (2008). *What is the right scale for REDD? The implications of national, sub-national and nested approaches*. Bogor, Indonesia: Center for International Forestry Research.

Buchner, B., Falcone, A., Hervé-Mignucci, M., Trabacchi, C. & Brinkman, M. (2011). *The landscape of climate finance: A CPI report*. Climate Policy Initiative. Retrieved from http://unfccc.int/files/cancun_agreements/green_climate_fund/application/pdf/submission_by_cpi_on_climate_finance_landscape_excerpt.pdf

California Environmental Protection Agency (2011a). *Overview of ARB Emissions Trading Program*. Air Resources Board. Retrieved from www.arb.ca.gov/newsrel/2011/cap_trade_overview.pdf

California Environmental Protection Agency (2011b). Compliance Offsets Program. Air Resources Board. Retrieved from www.arb.ca.gov/cc/capandtrade/offsets/offsets.htm

Carbon Markets & Investors Association. (2009). *Reducing emissions from deforestation in developing countries: Approaches to stimulate action*. Letter to Subsidiary Body for Scientific and Technical Advice. Retrieved from http://www.cmia.net/Portals/0/Repository/20090215_CMIA.c34b6316-793e-477d-a788-317ca7bbf9b0.pdf

Carbon Markets & Investors Association. (2011). Catalysing private sector investment for REDD+. Retrieved from http://www.cmia.net/Portals/0/Repository/ps%20REDD+.efdbe676-d6e4-4589-9243-553ce857b207.pdf

Chokkalingam, U. & Anuradha Vanniarachchy, S. (2011). *Beyond carbon cowboys: Private sector engagement & experience in REDD+ in Asia*. The Philippines: Forest Carbon Asia. Retrieved from www.forestcarbonasia.org/articles/beyond-carbon-cowboys-private-sector-engagement-experience-in-redd-in-asia/

Climate Investment Funds. (2009). *Design document for the Forest Investment Program, a targeted program under the SCF Trust Fund*. Retrieved from http://siteresources.worldbank.org/INTCC/Resources/Final_Design_Document_July_7.pdf

Climate Investment Funds. (2011, June 7). Investment Plan: Democratic Republic of Congo. FIP/SC.6/4. Retrieved from www.climateinvestmentfunds.org/cif/sites/climateinvestmentfunds.org/files/FIP%204%20DCR%20IP_0.pdf

Defries, R., Rudel, T., Uriarte, M. & Hansen, M. (2010). Deforestation driven by urban population growth and agricultural trade in the twenty-first century. *Nature Geoscience, 3*(3), 178–181. Retrieved from www.nature.com/ngeo/journal/v3/n3/abs/ngeo756.html

del Valle, C. (2011, June 23-24). *REDD+ environmental, social and governance safeguards: Private sector contributions and perspectives*. Presentation on behalf of BNP Paribas to the Oslo REDD Exchange, Oslo, Norway. Retrieved from http://gyroconference.event123.no/oslo/reddexchange/pop.cfm?FuseAction=Doc&pAction=View&pDocumentId=31025

Diaz, D., Hamilton, K. & Johnson, E. (2011). *State of the Forest Carbon Markets 2011: From canopy to currency*. Ecosystem Marketplace. Retrieved from http://www.forest-trends.org/documents/files/doc_2963.pdf

East Asia Mineral Corporation. (2011, May 3). East Asia Minerals announces acquisition of 50% of Carbon Conservation Pty Ltd. Press release. Retrieved from www.eaminerals.com/s/NewsReleases.asp?ReportID=454841&_Type=News-Releases&_Title=East-Asia-Minerals-Announces-Acquisition-of-50-of-Carbon-Conservation-Pty-L...

Eliasch, J. (2008). *Climate change: Financing global forests*. Eliasch Review. www.official-documents.gov.uk/document/other/9780108507632/9780108507632.pdf

Forest Peoples' Program. (2009). The World Bank's Forest Investment Program (FIP): Core elements and critical issues. FPP Rights, Fosts and Climate Briefing Series. Retrieved from www.forestpeoples.org/sites/fpp/files/publication/2010/08/fipbriefingoct09eng_0.pdf

Green Belt Movement. (2011). Community Forest Climate Initiatives. Nairobi: The Green Belt Movement. Retrieved from www.greenbeltmovement.org/node/7

Han, S. (2012, May 3). South Korean Parliament approves carbon trading system. *Bloomberg.* Retrieved from http://www.bloomberg.com/news/2012-05-03/south-korean-parliament-approves-carbon-trading-system.html

International Emissions Trading Association. (2011). *The Nested Approach. IETA Information Note on Design Issues for a REDD+ Mechanism No. 2*. Retrieved from http://www.ieta.org/assets/LU-WG/ieta%20redd%20information%20note%203-%20nested%20approach.pdf

International Emissions Trading Association. (2012). IETA REDD+ UNFCCC Submission on modalities of REDD+ results-based activities. Retrieved from http://www.theredddesk.org/resources/reports/ieta_redd_unfccc_submission_on_modalities_of_redd_based_activities

Janson-Smith, T. & Marsh, H. (2012). *A corporate primer on reducing emissions from deforestation and forest degradation (REDD): The context, key technical and policy issues, and private sector involvement*. Arlington, VA: Conservation International.

La Viña, A., Lawrence, G., Alaya De, L. & Roxas, M. (2012). *The UNFCCC after Durban: Recognizing limitations and calling for a multi-track approach to climate multilateralism and action*. FIELD Working Paper. Retrieved from www.field.org.uk/files/unfccc_after_durban_lavina_may_2012.pdf

Macey, K. (2006, March). No sinks in the EU ETS. Breifing Paper.Climate Action Network Europe. Retrieved from www.climnet.org/resources/archive/doc_view/966-mar-2006-can-europe-briefing-paperno-sinks-in-the-eu-ets

Moore, R. (2009). Seeing the forest through the cloud. Official Google.org blog. Retrieved from http://blog.google.org/2009/12/seeing-forest-through-cloud.html

Nhantumbo, I. (2011). *The global land rush. REDD+: Ready to engage private investors?* IIED Briefing. Retrieved from http://pubs.iied.org/17112IIED.html

O'Sullivan, R., Streck, C., Pearson, T., Brown, S. & Gilbert, A. (2010). *Engaging the private sector in the potential generation of REDD+ carbon credits: An analysis of issues*. Climate Focus report to the UK Department for International Development (DFID). Retrieved from www.climatefocus.com/documents/files/engaging_the_private_sector.pdf

Olander, J. & Ebeling, J. (2011). Building forest carbon projects: Step-by-step overview and guide. In J. Ebeling & J. Olander (Eds.), *Building forest carbon projects*. Washington, D.C.: Forest Trends.

House of Representatives. (2011). *Clean Energy Bill 2011*. Parliament of the Commonwealth of Australia. Retrieved from www.comlaw.gov.au/Details/C2011B00166/Html/Text#_Toc303326876

Pedroni, L. (2007, October 24–25). *The "Nested Approach": A flexible mechanism to reduce emissions from deforestation*. Presented at the International Roundtable on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries, Brussels, Belgium. Retirved from www.climatefocus.com/downloads/4.TheNestedApproach.pdf

Pedroni, L., Dutschke, M., Streck, C. & Estrada Porrúa, M. (2009). Creating incentives for avoiding further deforestation: The Nested Approach. *Climate Policy 9*(2), 207–220.

Peters-Stanley, M. & Hamilton. K. (2012). *Developing dimension: State of the Voluntary Carbon Markets*. A report by Ecosystem Marketplace & Bloomberg New Energy Finance. Retrieved from http://www.forest-trends.org/documents/files/doc_3164.pdf

Quintos-Natividad, M. (2012, April 2). *Safeguard information systems for REDD+: Lessons from participatory forest management*. Presentation to Building REDD+ Policy Capacity for Developing Country Negotiators and Land Managers Phase III: Lessons Learned Expert Meeting, Nairobi, Kenya. Retrieved from www.iisd.org/climate/land_use/redd/nairobi_kenya_expert_meeting_2012.aspx

Quoc Hung, P. (2012, April 2). *Safeguard information systems for REDD+: Lessons from participatory forest management*. Presentation to Building REDD+ Policy Capacity for Developing Country Negotiators and Land Managers Phase III: Lessons Learned Expert Meeting, Nairobi, Kenya. Retrieved from www.iisd.org/climate/land_use/redd/nairobi_kenya_expert_meeting_2012.aspx

Rudel, T. (2007). Changing agents of deforestation: From state-initiated to enterprise driven processes, 1970–2000. *Land Use Policy, 24*, 35-41.

Rudel, T., Defries, R., Asner, G. & Laurance, W. (2009). Changing drivers of deforestation and new opportunities for conservation. *Conservation Biology 23*(6), 1396–1405.

Shleifer, A. (1998). State versus private ownership. *Journal of Economic Perspectives 12*(4), 133–150.

Simula Ardo, M. (2010). *Analysis of REDD+ financing gaps and overlaps*. REDD+ Partnership Report. Retrieved from http://reddpluspartnership.org/25159-09eb378a8444ec149e8ab32e2f5671b11.pdf

Sinkala, T. (2009). *Mining and environment in Africa: A comprehensive review report*. United Nations Environment Programme. Retrieved from www.eaz.org.zm/downloads/file/200912040057570.TSinkala_M_&_E_24June2009_Final_Sent_to_UNEP_Permitted%5B1%5D.doc

Streck, C., Lehmann, A., Rau, A. & Coren, M. (2011). *The challenge of urgency: Incentivizing private sector early action in REDD+*. Climate Focus. Retrieved from www.climatefocus.com/documents/files/the_challenge_of_urgency_incentivizing_private_sector_early_action_in_redd.pdf

Teobaldelli, M. (2009, December). Google Earth and forest monitoring. UN-REDD Programme Newsletter #5. UN REDD Programme. Retrieved from http://www.un-redd.org/Admin/Newsletter5_Google_Earth_Forest_Monitoring/tabid/2899/language/en-US/Default.aspx

Thau, D. (2011, June 21–24). *Google Earth Engine: A tool for REDD+*. Presentation on behalf of Google to the Methods for Biomass Estimation and Forest-Cover Mapping in the Tropics: From Carbon Policy to Technical Training Workshop, Ruhengeri, Rwanda. Retrieved from www.whrc.org/education/rwanda/pdf/Wamunyima_ILUA.pdf

United Nations Environment Programme Financing Initiative. (2011). *REDDY, set, grow. Part II: Private sector suggestions for international climate change negotiators*. UNEP Finance Initiative Biodiversity and Ecosystems Workstream (BEWS) and Climate Change Working Group (CCWG). Retrieved from www.unepfi.org/fileadmin/documents/reddysetgrowII.pdf

United Nations Framework Convention on Climate Change COP 15. (2009). *Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention: Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.* Article 3(e). Retrieved from http://unfccc.int/resource/docs/2009/awglca8/eng/l07a06.pdf

United Nations Framework Convention on Climate Change. (2011). *Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention*. Advance Unedited Version. Bonn, Germany: United Nations Framework Convention on Climate Change. Retrieved from http://unfccc.int/files/meetings/durban_nov_2011/decisions/application/pdf/cop17_lcaoutcome.pdf.

Verified Carbon Standard. (n.d.). *Fact sheet: Jurisdictional and nested REDD+*. Retrieved from http://v-c-s.org/sites/v-c-s.org/files/JRNI%20FactSheet%20FINAL.pdf

Wahome, E. (2012, April 2). *Safeguard information systems for REDD+: Lessons from participatory forest management*. Presentation to Building REDD+ Policy Capacity for Developing Country Negotiators and Land Managers Phase III: Lessons Learned Expert Meeting, Nairobi, Kenya. Retrieved from www.iisd.org/climate/land_use/redd/nairobi_kenya_expert_meeting_2012.aspx

Wertz-Kanounniko, S. & MettaKongphan-Apirak, M. (2008). *Reducing forest emissions from southeast asia. A review of drivers of land-use change and how payments for environmental services (PES) schemes can affect them*. Center for International Forest Research. Retrieved from www.cifor.org/publications/pdf_files/WPapers/WP41Wertz-Kanounnikoff.pdf

Wieland, A. & Wallenburg, C. (2011). Supply-Chain-Management in stürmischen Zeiten. Berlin: Universitatsverlag der TU.

World Bank. (2005). *Operational Policy 4.10: Indigenous Peoples*. Retrieved from http://web.worldbank.org/WBSITE/EXTERNAL/PROJECTS/EXTPOLICIES/EXTOPMANUAL/0,,contentMDK:20553653~menuPK:4564185~pagePK:64709096~piPK:64709108~theSitePK:502184,00.html

World Economic Forum. (2011). *Working Report of the Financing Sustainable Land Use project.*

Youngman, R. & Diamant, A. (2011, April). *Overview of the California Greenhouse Gas Offsets Program*. Background Paper for the EPRI Greenhouse Gas Emissions Offset Policy Dialogue Workshop #10. Palo Alto, CA: Electric Power Research Institute (EPRI).

Appendix 1: Description of the Reviewed Projects

Kenya: Kasigau Corridor Project

Project start date: 2006

Project end date: 2035

Implemented by: Wildlife Works Inc. (Private)

Funded by: Wildlife Works Carbon LLC.

Project synopsis: The Kasigau Corridor REDD+ is the world's first Verified Carbon Standard (VCS) and Climate, Community and Biodiversity Standard (CCBS) validated REDD+ project. The project aims to curb deforestation and forest degradation in the Rukinga Sanctuary and the adjacent community lands, a corridor of forest sandwiched between Tsavo East and Tsavo West National parks, and the surrounding areas. Wildlife Works oversees the project's implementation and all of the funding (excluding carbon credits) is provided by Wildlife Works Carbon LLC, a joint venture between Wildlife Works Inc. and Colin Weil Enterprises. The Kasigau Corridor REDD+ Project seeks to promote wildlife conservation by relieving pressure on forests and wildlife in the sanctuary in a manner that is compatible with sustainable community development and the generation of multiple co-benefits. The project is divided into two phases. Phase I is the Rukinga Ranch proper, encompassing 30,166 hectares of land. It is estimated to sequester over 200,000, tonnes of carbon dioxide equivalent (CO_2e) annually by creating new sources of employment and income generation, as well as tree nurseries, in order to reduce pressure on nearby forests. Phase II attempts to quell the drivers of deforestation in the adjacent community ranches. It is estimated to sequester an additional 1,000,000 tonnes of CO_2e annually. Carbon credit revenues are also being used for community development initiatives in both project areas. The project has a lifetime of 30 years. Both phases of the project are validated under both the VCS and CCB gold-level standards and the project was validated by Det Norske Veritas.

Further information:

General information: http://www.forestcarbonportal.com/project/kasigau-corridor-redd-project

Phase I, Rukinga Sanctuary Project Design Document: http://www.climate-standards.org/projects/files/taita_taveta_kenya/Rukinga_CCB_PDD_Ver_2_0.pdf

Phase II, the Community Ranches Project Design Document: https://s3.amazonaws.com/CCBA/Projects/The_Kasigau_Corridor_REDD_Project_Phase_II-The_Community_Ranches/The+Kasigau+Corridor+REDD+Project_PIR_Phase+II_FINAL_v4.pdf

Cameroon: REDD+ Pilot Project

Project start date: 2007

Project end date: 2010

Implemented by: GAF AG

Funded by: German Development Bank (KfW), German Technical Corporation

Project synopsis: The project helped established pre-operational systems for a national-level REDD+ accounting framework. It was intended as a means of experimenting with cost-effective methods for monitoring and tracking changes in forest cover for REDD+. Satellite images were compared for the years of 1990, 2000 and 2005. In collaboration with the Ministry of Environment and Nature Protection (MINEP) and the Ministry of Forestry and Wildlife (MINFOF), the project also compared certified and uncertified variants of the most predominant forest management systems in order to determine their respective impacts on forest carbon stocks. Finally, capacity was built within MINEP and MINFOF in both satellite forest cover change mapping and carbon accounting for REDD+. These methods were complemented by field missions for on-ground carbon stocks, in order to provide training on biomass carbon stock estimates and to demonstrate methods for validating satellite imaging results.

Further information:

General information: http://www.redd-services.info/content/redd-pilot-project-cameroon

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Tanzania: Building REDD Readiness in the Masito Ugalla Ecosystem Pilot Area in Western Tanzania

Project start date: 2010

Project end date: 2013

Implemented by: Jane Goodall Foundation, Google, ESRi, DigitalGlobe

Funded by: Royal Norwegian Embassy

Project synopsis: This three-year, US$2.7 million REDD+ project was financed by the Royal Norwegian Embassy, with capacity-building and technological support from Google, ESRi and Digital Globe. The project conserves approximately 70,000 hectares of the Masito-Ugalla Ecosystem, and REDD+ payments will be used to support community development and to finance future forest management efforts. Supplementary incomes are also generated through sustainable use of non-timber forest resources. The system estimates total forest carbon stocks via an adroit combination of mobile Android/Open Data Kit and web-based management systems, in conjunction with advanced geographic information systems and satellite imaging technology. Training is provided to local communities in the use of the Android and Open data Kit technologies for on-ground monitoring of carbon stocks.

Further information:

General information: http://reddtz.org/index.php?option=com_content&view=article&id=70&Itemid=114#

Conference presentation: http://www.whrc.org/education/rwanda/pdf/Njahani_JGI_REDD.pdf

Tanzania: Advancing REDD in the Kolo Hills Forests (ARKFor) in Central Tanzania

Project start date: 2010

Project end date: 2012

Implemented by: African Wildlife Foundation in partnership with Camco (Private), Selian Agricultural Research Institute, University of Dar Es Salaam Institute of Resource Assessment, Tanzania Ministry of Natural Resources and Tourism (Forestry and Beekeeping division), Vice President's Office (Division of Environment), and 15 rural Tanzanian communities.

Funded by: Norwegian Ministry of Foreign Affairs

Project synopsis: The project aims to improve the management of 18,000 hectares of government andcommunity-owned forests in the Kolo Hills District, in the Kondoa District of North-central Tanzania. The 15 rural Tanzanian communities adjacent to these forests together make up some 40,000 people. The project seeks to enhance the understanding of the economic and ecological value of the forests, build local capacity and help prepare stakeholders to enter the carbon market, address the drivers of deforestation and cease deforestation through Sustainable Forest Management practices, provide opportunities for environmentally sustainable alternative livelihoods, and foster networking and knowledge sharing between local and national-level REDD+ stakeholders. The African Wildlife Foundation has been given full consent and approval for the overall project oversight and harmonization by the Kenya Forestry Service. Kondoa District Council is tasked with guiding forest and land-use planning activities, whereas Kondoalrangi (Kolo) communities are the primary implementers of forest management and land-use planning activities. Claude Mung'ong'o of the Institute of Resource Assessment will conduct socioeconomic monitoring and baseline evaluation, and is the project liaison for other national and international bodies. Camco is tasked with marketing the project, measuring carbon stocks and overall capacity building on REDD+. Selian Agricultural SARI is involved in alternative livelihood projects, with an emphasis on sustainable farming practices. The Department of Environment will provide information and offer advice on national policies and regulations. The project is financed through a grant from the Government of Norway. The brochure notes that "lack of sufficient REDD related knowledge during proposal development resulted in unrealistic project scope as revealed later by the feasibility study. As a result additional funding is now needed to accommodate the increment in project scope: e.g. the project area has now tripled." Consequently, there is a possibility of additional private sector finance in the future.

Further information:

General information: http://www.planet-action.org/web/85-project-detail.php?projectID=6155

Project brochure from AWF: http://www.theredddesk.org/sites/default/files/redd_pilot_projects_in_tanzania-advancing_redd_in_the_kolo_hills_forests_arkfor_in_central_tanzania_1.pdf

Contract between Norwegian Ministry of Foreign Affairs and AWF: http://www.norway.go.tz/PageFiles/253880/AWF_REDD_contract%20%282%29.pdf

Democratic Republic of Congo (DRC): A Carbon Credit Project for Tanya and Kisimba-Ikobo Community Nature Reserves in Eastern DRC (REDD+)

Project start date: 2010

Project end date: 2029

Implemented by: Conservation International, in collaboration with Dian Fossey Gorilla Fund International (DFGFI) and the Union of Associations for Gorilla Conservation and Development in Eastern DRC (UGADEC).

Funded by: Walt Disney Company (Private)

Project synopsis: The DRC Community Reserves Project is a REDD+ carbon credit project, financed exclusively by the Walt Disney Company, situated in two adjacent communal reserves at an Eastern Afromontane Hotspot site in East DRC. The project site consists of two government-created nature reserves and their transition zones, with a total area of over 300,000 hectares. Over the 20-year lifespan of the project, it is estimated that approximately 5,000,000 tonnes of CO_2e in emissions will be prevented. The project will finance local economic development efforts in order to reduce the economic drivers of deforestation, as well as local capacity building to better monitor and manage the conservation process. The project is certified under the CCBS. The information and documentation consulted did not mention any direct government involvement in the project. Moreover, some concerns have been raised over the stringency of the project's stakeholder consultation process and benefits-sharing safeguards. Thus, it may prove to be a controversial case study (see the link provided below for further information).

Further information:

General information: http://www.forestcarbonportal.com/project/redd-project-tayna-and-kisimba-ikobo-community-reserves-eastern-drc

Conservation international brochure: http://www.conservation.org/sites/celb/Documents/2011.05.23_Disney_Factsheet_web.pdf

Criticism of the project's stakeholder consultation process: http://www.wrm.org.uy/bulletin/169/REDD_DRC.html

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Madagascar: Makira Forest Area Conservation Project

Project start date: 2005

Project end date: 2034

Implemented by: Wildlife Conservation Society (MCS), Madagascar Ministry of Environment, Water and Forest, Makira Carbon Project

Funded by: Wildlife Conservation Society, TanyMeva Foundation, Imperial Tobacco (Private), Conservation International, John D. and Catherine T. MacArthur Foundation.

Project synopsis: As a result of growing pressures on the 2,500-square-mile Makira Forest Area due to slash-and-burn agriculture and illegal timber harvesting, the Government of Madagascar has created and managed a 70,000 hectare ecological buffer zone. As a means of addressing the drivers of deforestation, Conservation International is collaborating with the government to share intensified agricultural methods with local people, and promote crop-switching and other alternative sources of income generation, such as ecotourism. The Ministry of Environment and Forests has officially devolved the management of the project area to the Wildlife Conservation Society and the local community associations, though it will still monitor the effectiveness of the devolved community forest management regime on a three-year basis. Imperial Tobacco has provided US$185,000 for 2006–2009, or 34 per cent of the total funding received by the project in those years. The area hosts a number of plants and animals that are unique to Madagascar, and the project will sequester over 35,000,000 additional tonnes of CO_2e over its lifetime. Approximately 50 per cent of the project's revenues will be delegated to local communities, and another 15 per cent will be delegated to the Madagascar Ministry of Environment to assist in its development of a climate change strategy, and to build capacity for climate change mitigation and national environmental monitoring.

Further information:

General information: http://www.forestcarbonportal.com/project/makira-forests-protected-area

WCS project homepage: http://www.wcs.org/saving-wild-places/africa/madagascar-makira-masoala.aspx

Project design document: https://s3.amazonaws.com/CCBA/Projects/Makira_Forest_Protected_Area_project/WCS_Makira_CCBS_PDD_v_Oct_2011%5B1%5D.pdf

Zimbabwe: Kariba REDD+ Project

Project start date: July 1, 2011

Project end date: 2041

Implemented by: Carbon Green Investments (CGI) Ltd. (Private), with support from South Pole Carbon Asset Management Ltd. and Black Crystal Consulting (Private)

Funded by: Carbon Green Investment Ltd. (Private)

Project synopsis: This project encompasses the southern shorelines of Lake Kariba and the forests and communities adjacent to it. CGI is currently responsible for 858,863 hectares of forested land, and the total project area is 1,077,930 hectares. The total amount of avoided emissions is 56,119,093 tonnes over a period of 30 years. After conducting a Participatory Rural Appraisal, two key drivers of deforestation were identified: (1) clearing forests for subsistence agriculture and (2) converting forests to grasslands, either intentionally for grazing purposes or unintentionally because of unsustainable harvesting for wood products. Specific measures to address these drivers will include information-, resource- and equipment-sharing to boost agricultural productivity, providing alternative livelihood opportunities (beekeeping), educating communities on forest fire management and mitigation, promotion of alternative and sustainable building materials, firewood plantations and the provisioning of highly efficient cookstoves. The project design document does not mention any significant degree of government involvement.

Further information:

CGI project homepage: http://www.carbongreenafrica.net/home/41-our-projects-/46-kariba-redd-project.html

CCB Project design document: https://s3.amazonaws.com/CCBA/Projects/Kariba_REDD%2B_Project/111013_Kariba%2520CCBS%2520PDD_final.pdf

Project marketing summary: https://www.southpolecarbon.com/_marketing/990.pdf

Vietnam: Google REDD Vietnam

Project start date: 2009

Project end date: 2010

Implemented by: Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), Cart ONG, GFA Consulting Group, Planet Action Group (in-kind donation)

Funded by: Google

Project synopsis: This Google-funded initiative tracks carbon dynamics in the Central Highlands of Vietnam through a combination of satellite imagery and corroboration via on-ground measurement methods. It is meant to serve as a capacity-building exercise for the national-level UN REDD Programme. Satellite images from 2004 and 2009 were compared, followed by a forest inventory that was conducted through Participatory Carbon Stock Assessment methods. The project also made use of carbon modelling via a gain-loss approach under two different scenarios (business-as-usual and sustainable forest management), and provided a range of estimates for the costs and benefits of implementing the two scenarios under three price scenarios: US$10, US$25 and US$50.

Further information:

General information: http://g-redd.cartong.org/about.html (general information)

http://www.g-redd.cartong.org/Reports/CartONG_Google_REDD_FinalReport_Aug2010.pdf (CART ONG/GTZ Final Report)

The Philippines: Peñablanca Sustainable Reforestation Project

Project start date: 2007

Project end date: 2026

Implemented by: Conservation International (NGO), Department of Environment and Natural Resources (DENR), Local Government Unit of Peñablanca

Funded by: Toyota Motor Corporation (Private)

Project synopsis: This project consists of two pilot phases (2007–2010 for Phase I, 2010–2013 for Phase II), both financed by grants from the Toyota Motor Corporation. To ensure the long-term sustainability of the project, once Phase II has ended, the proponents have created a reforestation fund. Completion of Phase II activities will also enable project proponents to better leverage additional funding from grants. The Sierra Madre range is one of the major producers of corn and rice in the Philippines. However, the paucity of economic opportunities has led to unsustainable forestry practices such as intensive logging. Conservation International is collaborating with national and local governments to halt this trend, by way of knowledge and materials-sharing to promote agroforestry, reforestation and forest restoration, and the strengthening of local governance and enforcement capacity. Conservation International is principally responsible for environmental monitoring, ensuring the full community participation, and coordining the project. The DENR will delineate the reforestation and agroforestry zones, and are also responsible for forest protection in the area. The local Government Unit of Peñablanca will assist in capacity building and infrastructure provision, as well as alternative livelihood services. The project encompasses 2,943 hectares of degraded lands, of which over 2,500 hectares will benefit from reforestation, enhancement planting or agroforestry. The project is estimated to sequester 362,920 tonnes of CO_2e over its 30-year lifespan. In addition to increasing income and employment opportunities, community benefits include the distribution of rice-hull stoves and the establishment of fuel wood plantations, leading to significant household savings.

Further information:

General information: http://www.forestcarbonportal.com/project/philippine-pe%C3%B1ablanca-sustainable-reforestation-project

Project design document: http://www.climate-standards.org/projects/files/cagayan/ccbs2-pdd-ppsrp_ver_aug30rev.pdf

The Philippines: Forest Carbon Project, Quirino Province

Project start date: 2007

Project end date: 2026

Implemented by: Conservation International, in collaboration with the Department of Environment and Natural Resources (DENR), Divisoria Sur Agroforestry Farmers Association (DSAFA) and Sto. Nino Integrated Social Forestry Association (STISFA), Sangbay Upper Basin Ecological Farmers Organization (SUBEFO), Palacian Economic Development Association

Funded by: MoreTrees, Inc. Foundation; Mitsubishi Research Institute of Japan (Private)

Project synopsis: This 20-year project (expires 2026) aims to reforest select areas of cropland, grassland and brush land. It will reforest 159.3 hectares with indigenous tree species in accordance with local ecosystem requirements. The project will also create 17.7 hectares of agroforestry for supplementing farmers' incomes and increasing agricultural productivity. Conservation International is leading the project management and implementation in collaboration with DENR, which also offers technical support (e.g., for land tenure/conflict settlement, lot boundary identification; forestry technical guidance) and support for stakeholders' engagement (e.g., information dissemination). The project is certified by Rainforest Alliance according to CCB standards, and is estimated to sequester approximately 42,915 tonnes of CO_2e over its lifetime. The project is principally funded by MoreTrees, Inc. The Mitsubishi Research Institute provided financial support in the conduct of feasibility study prior to preparing the PDD. The Palacian Economic Development Association will offer support in the form of micro lending.

Further information:

General information: http://www.forestcarbonportal.com/project/forest-carbon-project-quirino-province-sierra-madre-biodiversity-corridor-luzon-philippines

Validated CCB project design document: http://www.climate-standards.org/projects/files/luzon/Quirino_CCBA_PDD2009_0520.pdf

2005–2007 project completion report: http://www.cepf.net/Documents/Final_CIPhilippines_SierraMadre.pdf

https://s3.amazonaws.com/CCBA/Projects/Forest_Carbon_Project_in_Quirino_Province_Sierra_Madre_Biodiversity_Corridor_Luzon_Philippines/Quirino_CCB_PDD-May2010_final.pdf

Kenya: Forest Again Kakamega Forest

Project start date: 2010

Project end date: 2049

Implemented by: Eco2librium Kenya LLC (Private)

Funded by: Eco2librium Kenya LLC (Private)

Project synopsis: The project involves the reforestation of critical sectors of the Kakamega Forest in order to reintegrate these fragments into the main forest. National Museum of Kenya will collaborate with the Muileshi Community Forest Association (CFA) and Kakamega Environmental Education Programme in managing the production of native seedlings for planting. Eco2librium is responsible for the overall management and implementation of project activities in collaboration with its Project Management Team (consisting of other NGOs). Moi University School of Natural Resource Management, MasindeMuliro University of Science and Technology and BIOTA-East Africa will collaborate and harmonize on research and monitoring for baselines pertaining to carbon, community and biodiversity. The Kenya Forest Service (KFS) and Asia e University will supervise tree planting and the management of project sites, and KFS also will be involved in the training of "Green Rangers" responsible for the survival of seedlings in reforestation sites. PactKenya is engaging in capacity-building activities for the Muileshi CFA in the area of sustainable resource management. The project will occur on land held by the KFS, and is projected to remove an additional 390, 000 tonnes of CO_2e over the project's 40-year lifetime. The project was validated by the Rainforest Alliance as the very first to achieve the Gold Level CCB Certification in accordance with 2nd edition standards, and it will use 85 per cent of its revenues to finance forest management and forest adjacent communities through the Muileshi CFA. Priority is given to employing single parents, those with no reported income and other vulnerable groups.

Further information:

General information: http://www.eco2librium.net/forestagain.html

Brochure from Eco2librium: http://www.eco2librium.net/sitebuildercontent/sitebuilderfiles/Pitchbook.pdf

CCB project design document: http://www.climate-standards.org/projects/files/kenya0409/Forest_Again_PDD_for_CCBA.pdf

Madagascar: Holistic Conservation Program for Forests (HCPF)

Project start date: 2008

Project end date: 2012

Implemented by: WWF Madagascar, with support from the Madagascar Ministry of Environment, Forest and Tourism, regional leaders and regional directors of Rural Development, local authorities, Carnegie Institution for Science (Stanford University), CIRAD, Centre National de la Recherche Scientifique (CNRS)/Muséum National d'Histoire Naturelle (MNHN), University of Agricultural Science of Madagascar, Institute and Observatory of Geophysics of Antananarivo (Madagascar), Institut de Recherche pour le Développement (IRD), ONF International, University of Paris-Est Marne-la-Vallée, and other WWF partners involved in conservation programmes.

Funded by: AirFrance (Private), via the GoodPlanet Foundation (Action Carbonne Programme)

Project synopsis: This four-year (terminating in February 2012), grant-based project (no carbon credits were issued) financed entirely by Air France targets five distinct conservation sites with the aim of curbing the rate of deforestation and, in select instances, the restoration of degraded forests. WWF Madagascar is responsible for oversight and implementation, with support for carbon assessment activities from a number of the implementing partners listed above. The HCPF project area encompasses approximately 515,000 hectares of forest. The project is estimated to have sequestered somewhere between 61 and 68 million tonnes of carbon. More rigorous assessments of CO_2e sequestration are still underway. The MRV methodology incorporates remote sensing, on-the-ground surveys and site-specific studies.

Further information:

General information: http://www.planet-action.org/web/85-project-detail.php?projectID=1232

Progress report (issued December 2010): http://www.planet-action.org/automne_modules_files/polyProjects/public/r8299_93_reddpilot_project_goodplanet_madagascar_17dec10.pdf

Appendix 2: List of Semi-Structured Interviews

- Alfred Gichu, Kenya Forest Service, Kenya
- Andrea Athanas, AWF, Tanzania
- Andreas Schnall, Forest Finance, Germany
- Anton Espira, Eco2libirium, Kenya
- Christian Dannecker, South Pole Carbon Asset Management Ltd, Switzerland
- Emmanuel Ekakoro, Camco Kenya
- Essam Yassin Mohammed, International Institute for Environment and Development, U.K.
- Juan Acay, Jr., Conservation International, Philippines
- Matthieu Tiberghien, Action Carbon, France
- Mayumi Quintos-Natividad, Department of Environment and Natural Resources, Philippines
- Rob Dodson, Wildlife Works, Kenya
- Sophy Greenwalt, IETA, U.K.
- Toby Janson-Smith, Conservation International, U.S.
- To Xuan Phuc, leader of the Sub Technical Working Group on the Private Sector in Vietnam, Vietnam

Appendix 3: Expert Meeting Participants

- Juan Acay, Jr., Conservation International, Philippines
- Girma Amente, Oromia Forest and Wildlife Enterprise, Ethiopia
- Thomas L. Ball, Royal Norwegian Embassy, (Nairobi) Kenya
- Suchitra Changtragoon, Department of National Parks, Wildlife and Plant Conservation, Thailand
- Emmanuel Ekakoro, Camco, Kenya
- Anton Espira, Eco2libirium, Kenya
- Alfred Gichu, Kenya Forest Service, Kenya
- Julie Greenwalt, UN-REDD Programme (UNEP)
- Pham Quoc Hung, Ministry of Agriculture and Rural Development, Vietnam
- Laxman Joshi, ICIMOD, Nepal
- Deuteronomy Kasaro, National REDD+ Coordinator, Zambia
- Alexis Lapiz, Climate Change Commission, Philippines
- Tony LaViña, Anteneo School of Government, Philippines
- Emma Liwenga, University of Dar Es Salaam, Tanzania
- Vu Thanh Nam, Ministry of Agriculture and Rural Development, Vietnam
- Bettie Nanyonjo Luwuge, Forest Conservation Group, Tanzania
- Jean Muneng, Ministry of Environment, Nature Conservation and Tourism, Democratic Republic of Congo
- Rahima Njaidi, MJUMITA, Tanzania
- Mayumi Quintos-Natividad, Department of Environment and Natural Resources, Philippines
- Julia Randimbisoa, HELVETAS Swiss Intercooperation, Madagascar
- Maminiaina Rasamoelina, WWF, Madagascar
- Tom Rukundo, National Foresty Authority, Uganda
- Fred Stolle, World Resources Institute, Washington
- Doddy Sukadri, National Council on Climate Change, Indonesia
- Steve Swan, SNV-Netherlands Development Organization, Vietnam
- Erastus Wahome, Ministry of Finance, Kenya

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