5.4 Industry-level frameworks to improve access to REDD+ financing

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Context

Deforestation and forest degradation are estimated to contribute to at least 15–20% to global greenhouse gas emissions (Van der Werf et al. 2009). Tropical forest conservation is an important component of the global effort to reduce emissions and store greenhouse gases. Between 2000 and 2005 gross carbon emissions from tropical forests were estimated to be 0.81 petagrams (810,000,000 metric tonnes) of carbon per year (Harris et al. 2012). Sathaye et al. (2001) estimated the potential for carbon storage from a combination of natural forest management and forest plantations to be 1.3 petagrams per year.

At an estimated cost of US$9 per metric tonne of carbon equivalent (in 2006 dollars; Naidoo and Ricketts 2006), a significant contribution to reductions in atmospheric CO₂ appears to be possible. Actions to conserve tropical forests would help mitigate climate change and support biodiversity and socio-economic benefits, known collectively as Reduced Emissions from Deforestation and Degradation (REDD+). The effective and efficient use of forests as a tool for climate mitigation will require investment levels of between US$12–23 billion annually, as estimated by the United Kingdom government (Eliasch 2008).

The prospect of forest conservation through official development assistance (ODA) is increasingly dim, however, due to the stagnation and even decline in ODA budgets (OECD 2012). Tropical forest conservation will benefit from — and may increasingly depend on — capital market investment to fund climate change mitigation activities.

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Standardizing feasibility studies and internal rate of return

The criteria to secure public and/or private capital markets\(^1\) funding for a REDD+ project differ from those of international donors because of the requirement for an internal rate of return (IRR) from the capital invested. In its simplest form, IRR is the sum of the money gained on an investment minus the cost of the investment divided by the cost of the investment. This allows for comparisons between various estimated scenarios for a project and for comparisons between projects. The IRR calculation is flexible and easily modified to each project scenario.

To obtain funding, project proponents must demonstrate to capital market partners that a project is financially feasibility throughout its life. This feasibility study, from the capital markets’ perspective, has the following basic criterion for gauging whether to invest in a REDD+ project or programme: the project’s projected IRR, based on conservative financial projections for all project revenue and expenses throughout the project’s tenure must align with all implementing partners’ capacities.

In the REDD+ market, institutions carry out tropical conservation management services for money to fund activities that conserve tropical forests with biodiversity and socio-economic benefits. The units of measurement for these transactions are metric tonnes of carbon dioxide equivalent (mtCO\(_2\)e). All benefits are bundled into a single ecosystem service, and need not be quantified in financial terms or stacked\(^2\). Environmental and socio-economic benefits are key criteria for a transaction to qualify as REDD+. This creates the conditions that permit benefits and relevant safeguard procedures (e.g., Free, Prior and Informed Consent) to be formally incorporated in REDD+ transactions.

All transactions are based on a standardized legal contract called an Emissions Reduction Purchase Agreement (ERPA); its terms and conditions, rights and responsibilities and pathways for recourse are set in advance by all the parties. An ERPA includes criteria such as schedules where profit-sharing changes as mtCO\(_2\)e sales prices increase. The most essential criterion is the legal definition of the parties to the contract. This legal definition describes the firm and how each party will meet the terms of the contract. This allows for tropical forest conservation funding using mtCO\(_2\)e in exchange for financing.

As described above, understanding how an ERPA works will help to structure feasibility studies. If feasibility studies that include IRR become the industry norm, it will greatly improve access to capital market financing for the overall REDD+ industry and in turn for all REDD+ participating institutions. This is because the use of standard operating procedures to determine the inputs for feasibility studies will accurately show that REDD+ is attractive to capital markets.
As shown in Table 1, this will positively affect capital markets access through outcomes that promote transparency, increase liquidity, provide risk mitigation, and support a trustworthy exchange of units of carbon for funding. It is possible to put tropical forest conservation in a framework that more easily secures financing from capital markets to fund tropical conservation activities.

### Table 1. Components of industry frameworks to improve access to REDD+ financing

<table>
<thead>
<tr>
<th>Financial process</th>
<th>Requirements activities</th>
<th>Outputs activities</th>
<th>Outcomes activities</th>
<th>Impacts activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory and accounting</td>
<td>Standardize accounting and tax frameworks</td>
<td>Determine frameworks</td>
<td>Accurately accrue revenues and taxes</td>
<td>Create a trustworthy marketplace</td>
</tr>
<tr>
<td>Risk management</td>
<td>Apply insurance and regulatory best practices</td>
<td>Describe risk mitigation parameters</td>
<td>Assign and price risks properly</td>
<td>Make risk mitigation available</td>
</tr>
<tr>
<td>Valuation</td>
<td>Develop parameters for enhancing returns</td>
<td>Establish financial analysis frameworks</td>
<td>Develop valuation capacity</td>
<td>Increase liquidity</td>
</tr>
<tr>
<td>Performance analysis</td>
<td>Integrate scientific and financial information</td>
<td>Implement data integration tools</td>
<td>Perform independent audit</td>
<td>Increase transparency</td>
</tr>
</tbody>
</table>

Source: Thoumi, Prell and Kent 2010

### Risk and return

Public and private-sector capital market investors frame decisions in terms of risk and return. This risk-and-return framework applies to both individual projects and a portfolio of projects and is based on mitigating risk while enhancing and/or maintaining returns. As project risks increase, the IRR needed to secure financing puts a greater burden on the project proponent. He or she must demonstrate in the feasibility study that the IRR of the project will be high enough to compensate for the risks. The riskier the REDD+ project is, the greater the IRR required to secure financing. The less risky the REDD+ project is, the lower the IRR required to successful complete the project. This would be assessed in the feasibility study, making it easier to finance the project (Thoumi et al. 2012).
The feasibility study is an important tool for tropical forest conservation project managers who wish to secure capital market financing (Thoumi et al. 2012). Project proponents first must estimate realistic returns for their REDD+ investments. Next, they quantify and qualify their project’s risks. Finally, they list their project’s constraints: time horizon, taxes, liquidity, legal issues, and individual circumstances such as biodiversity and socio-economic benefits (Table 2). This process results in improved communication with public-and private-sector capital markets and results in greater access to capital market financing.

Other financial best practices to consider include errors and omissions insurance and directors and officers insurance for firms performing technical work, such as monitoring, reporting, and verification under REDD+. Furthermore, best practices dictate that project proponents have annually audited financial statements that demonstrate solvency. Project proponents may also want to obtain political risk insurance, such as that provided to U.S. investors through the U.S. government’s Overseas Private Investment Corporation (OPIC).³

Practical examples
The following examples from Belize, Ecuador and Peru describe how these investment frameworks have been applied. These examples demonstrate that REDD+ can borrow from investment frameworks in other sectors and that these frameworks can increase the commercial attractiveness of REDD+ projects and programmes to capital market investors.

Belize
The Bull Run Overseas Forest Carbon Project is located in Belize within a neotropical mixed broadleaf forest. The 666-hectare (ha) project is privately owned by a family who has lived on the property for close to 60 years. The project has been validated to the Climate Community & Biodiversity Standards (Second Edition) and validated and verified to the Verified carbon standard. It is under immediate threat of being converted to coffee growing.

Independent title analysis has been conducted on the property. Carbon financing funds systematic patrols and monitoring of vegetation, biodiversity and communities. The project protects documented populations of IUCN-listed flora and fauna, such as jaguar, ocelot, tapir, peccary, ocellated turkey and big-leaf mahogany. The property was the largest employer in the region when it operated as a timber concession. With carbon financing focused on ecosystem restoration, the jobs created include data collection, road maintenance, fire prevention and patrolling. The project also provides an educational scholarship fund for local youth.
### Table 2. Factors to incorporate in a feasibility study for a REDD+ project

<table>
<thead>
<tr>
<th>Category</th>
<th>Metric</th>
<th>Example</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>return</td>
<td>percentage</td>
<td>Internal rate of return</td>
<td>describe required IRR</td>
</tr>
<tr>
<td>risk</td>
<td>percentage</td>
<td>1. Likelihood of a default (lender, borrower, proponent, community, or purchaser)</td>
<td>effective risk management lowers cost of capital for project</td>
</tr>
<tr>
<td></td>
<td>(can be based on standard deviation)</td>
<td>2. Change in policy or law</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Environmental factors</td>
<td></td>
</tr>
<tr>
<td>time horizon</td>
<td>years</td>
<td>1. Duration of project</td>
<td>financing needs to be managed to all time horizon criteria</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Tenure of offset</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Time between validation and verification</td>
<td></td>
</tr>
<tr>
<td>taxes</td>
<td>percentage</td>
<td>1. Tax assets and liabilities (for all counterparties)</td>
<td>tax assets and liabilities impacts must be calculated</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Include income, social security, health care, value-added, property, deeds and carbon licensing, etc.</td>
<td></td>
</tr>
<tr>
<td>liquidity</td>
<td>currency</td>
<td>1. Regular operating costs (e.g., MRV, salaries and profit-sharing)</td>
<td>project viability includes sufficient income streams to cover liquidity constraints</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Contingency</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>3. One-time expenses (e.g., feasibility studies, baseline inventory, land titling review)</td>
<td></td>
</tr>
<tr>
<td>legal</td>
<td>contract</td>
<td>1. Emissions Reduction Purchase Agreement (ERPA), Agency agreement</td>
<td>includes clarity on rights and responsibilities, economic distribution models, schedules, and profit-sharing ladders, pathways for recourse, and description of process for settlement and clearing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Free Prior and Informed Consent (FPIC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Local service and management contracts</td>
<td></td>
</tr>
<tr>
<td>other</td>
<td>no universal metric</td>
<td>1. Community co-benefits</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Biodiversity factors</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Carbon buffer pool determination</td>
<td></td>
</tr>
</tbody>
</table>
The project has conducted thorough legal due diligence of timber, land, mineral and water rights, based on Belizean and British common law. It is legally organized as a limited liability company (LLC) that owns the timber concession on and title to the property. Because the LLC owns the timber concession, the LLC can be paid in exchange for mtCO2e to sequester carbon on its property. This allows the project to easily execute an ERPA through a three-party account involving a bank, Bull Run Overseas Forest Carbon Project LLC and the buyer of the mtCO2e.

An appropriate portion of each mtCO2e sale is put into a trust or similar account. This money will provide the required liquidity for the project’s future monitoring, reporting and verification (MRV) costs throughout its time horizon. By applying the framework in Table 2 and by legally organizing the firm, it is easy for the project to forecast IRR for investors over the project’s time horizon. This gives it access to capital markets, as demonstrated through support from the Code REDD Corporate Champions.

The project also demonstrates other financial best practices. Its employees are paid regularly net of income tax, health care taxes and social security tax, with salaries wired to their bank accounts. If an employee of the forest carbon project does not have a bank account, project managers will help him or her obtain one. Employees receive paid vacation and significant health and safety training, including training in sexually transmitted diseases. Scholarships are available for the children of employees. Because the project has an annual financial audit of its carbon business available to investors as a component of its feasibility study, it has lowered its project risk.

Ecuador

In Ecuador, the *Programma Socio Bosque* is a national payment for ecosystem services scheme for forest conservation by private landowners. It generates more than US$3 million per year and protects nearly 900,000 ha. The programme provides an opportunity for more than 90,000 local individuals to participate and protect properties at risk. It benefits from the support of the Ministry of Environment.

For the programme to have access to capital markets, land tenure needs to be clarified: project proponents must have the right to and responsibility for trading mtCO2e. The structure of *Programma Socio Bosque* would benefit from consistent annual financial audits according to international best practices. This would give investors a better understanding of the legal basis and financial soundness of the programme.

Incorporating the factors in Table 1 would in turn facilitate investment through an appropriate Government of Ecuador mechanism. In return, *Programma Socio Bosque* could provide and/or guarantee production of independent third-party-audited mtCO2e that meets international criteria. In this example, the legal recourse for non-performance needed to be clarified at the beginning. Political risk insurance could be secured through The World Bank’s Multilateral Investment Guarantee Agency and OPIC.
Investors could require the programme to demonstrate that transparent financial distribution mechanisms were in place, with appropriate local oversight through an institution such as Servicio de Rentas Internas del Ecuador. This would guarantee that funds promised at the local level — after paying for MRV through an independent third-party institution — would be distributed to the rights holders: the individuals and communities who live on or near the REDD+ properties. It meant that pay-for-performance financing could be secured with the guarantee of independent third-party-audited REDD+ activities measured in units of mtCO2e, but not transacted as REDD+ offsets.

Peru

Peru’s national REDD+ development programme is a combination of REDD+ project types. Approximately 30 projects are being implemented by public-private partnerships, government, private entities or NGOs. Peru is developing a system where REDD+ activities will include local initiatives.

Technical and financial capacities must first be developed at the regional level (Chagas et al. 2011). The following examples illustrate the way that voluntary certification schemes have clarified risk management techniques and tools, and measures that the government and project proponents could take to advance conservation through improvements in financial governance.

In 2010, ScotiaBank Peru voluntarily offset its 11,000 tonnes of domestic CO₂ emissions by 140%. It did this by purchasing 16,000 mtCO2e of domestic forest carbon offsets, bought at roughly US$ 7 each. These offsets were purchased from the Maderacre sustainable forest management project (pers. comm., Javier Campodónico, ScotiaBank Peru; Hajek et al. 2011). This set of investments and transactions demonstrates that Peru’s financial services sector is willing and able to lead in funding tropical forest conservation activities by offsetting their emissions. The transaction would have benefited if the Government of Peru issued carbon business licences to counterparties engaged in private REDD+ transactions. Applying a regulatory and accounting framework increases transparency and ease of financial due diligence (Table 1).

In 2010 Grupo Wong purchased 90% of the Maderacre forest carbon project and timber concession from the Cardoso family for an estimated US$ 2.8 million, approximately US$ 65 per ha, including the property’s audited carbon offset project. Grupo Wong applied IRR models to forecast possible returns in its investment in the project. The commercial rationale was to secure carbon offsets to develop long-term revenue; this would decrease the variability associated with the FSC-certified forestry concession on the same property. By managing liquidity constraints, the company hoped to lower the risk (Table 2).
Maderacre S.A.C. pays part-timer labourers and full-time employees net of taxes and social security on a monthly basis in a consistent, timely and convenient manner via wire transfers to the local bank in Iñaparí, Madre de Dios. This demonstrates that financial distribution mechanisms are in place, which will allow a financial audit of forest carbon project activities (pers. comm. and Hajek et al. 2011). This in return will result in increased transparency and liquidity (Table 1).

The Comunidad Nativa Bélgica REDD+ project focuses on the territory of the Bélgica Yine Indigenous Community, on the border between Brazil and Peru. It covers 53,394 ha. The estimated 18 families in the community hold rights to the forest through a timber concession title and a cesion en uso (assignment for use) contract. The community members have raised some seed capital from at least four private individuals and institutions to fund the project. The timber-concession operator, Maderijya S.A.C., manages an FSC-certified timber-extraction programme on the same property. The project has received many offers for ex-ante sales of their REDD+ offsets and for further financial assistance from the private and public sector (pers. comm. and Hajek et al. 2011).

The parties would benefit from systematic due diligence questions and processes. Typical due diligence questions address references, proof of bank account, proof of business in good standing, and demonstrable proof of following all local, national, and international laws. These questions would allow project proponents, including community members, to forecast the project’s IRR and develop a feasibility study. Then they would know which financial questions to ask of parties who approach them and empower themselves by choosing which if any parties to work with.

**Lessons**

These examples show the correlation between sound governance and an enabling environment for investment. Foreign direct investment, whether directly or indirectly from the public sector and/or private-sector capital markets, is sometimes perceived as a tool to enhance economic growth at the expense of environmental protection, producing a “race to the bottom” (Gray 2002). However, calculating risks and returns (Table 2) within a broad financial framework (Table 1) can inform the parties to a REDD+ financial transaction by clarifying standards and operating procedures (Thoumi et al. 2012).

To date, inadequate attention has been paid to the financial conditions required — regulatory, voluntary or other — to support REDD+ activities. Without these conditions, the potential for payments for ecosystem services, including conserving tropical forests to mitigate climate change, could be seriously constrained.

The laws that protect investors must also protect other stakeholders, including forest-dependent rural communities with insecure tenure. Additional effort should be made to
analyze how international best practices in financing can help deliver social and environmental benefits in REDD+ initiatives. The same financial analysis techniques commonly used by investors to determine the viability of an investment should also be used by parties — including NGOs and communities — to determine whether a REDD+ project will work in their best interests and to identify weaknesses in a proposal. However, technical assistance for parties and forest-dependent communities, including so-called safeguard measures, rarely includes the financial analytical capacities required to analyze risk and return and to communicate these results effectively to the public sector and to private-sector capital markets.

Endnotes

1. In this article, the phrase “capital markets” refers to how public-sector and private-sector institutions can secure financing, either directly or indirectly, to fund REDD activities.

2. Stacking refers to payments for multiple ecosystem services generated on a single unit of land; stacked credits are sold separately, unlike the bundled credits employed for REDD+ (Cooley and Olander 2011).

3. This insurance package (designed for any REDD+ project or programme under project-based or jurisdictional-based accounting), provides tools that mitigate risks associated with policy changes by the host country, expropriation by the host country, and currency convertibility between host country currency and the foreign currency used by the investor.

References