Risky business: an uncertain future for biodiversity conservation finance through REDD+

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Abstract

Reducing Emissions from Deforestation and forest Degradation and through the conservation, sustainable management, and enhancement of carbon stocks (REDD+) offers unprecedented potential funding for forest conservation and associated biodiversity. However, as a growing number of biodiversity conservation projects link with carbon emissions mitigation efforts, they might also be exposed to significant financial risks. REDD+ projects currently face uncertainty over future demand for carbon credits, the potential for inconsistent donor support in the long-term, carbon market volatility, investor preference for low-cost emissions mitigation over cobenefits, and the possibility of a short-lived REDD+ mechanism. The private sector is aware of the associated financial risks, which remain largely unaddressed within the conservation literature. Biodiversity conservationists need to identify a balance between maximizing near-term REDD+ opportunities and insulating themselves from long-term financial risks. We describe some of the prospective financial risks for biodiversity conservation efforts linked with REDD+, and propose initial strategies for financial resilience.

Introduction

Secure financing has long posed a challenge for biodiversity conservation, though it is central to the success of conservation initiatives (e.g., Johnson 2009). In the last decade, market linkages have started to play a growing role in conservation finance, with payment for ecosystem business models at the forefront (Levitt 2005; Bishop *et al.* 2009). Among these, carbon finance could offer unprecedented funding for forest conservation, notably through Reducing Emissions from Deforestation and forest Degradation and through the conservation and enhancement of carbon stocks, and sustainable management of forests (REDD+) (Miles & Kapos 2008). The recent United Nations Framework Convention on Climate Change (UNFCCC) 16th Conference of Parties (COP) in Cancún, Mexico reaffirmed large-scale, international support for REDD+ policies (UNFCCC 2010). REDD+ presents considerable opportunities but also uncertainty and significant financial risks for projects that depend on it for financing. Several recent analyses have highlighted potential unintended consequences of REDD+, including the recentralization of forest governance, the wider socioeconomic opportunity costs of withholding development, and the potential for overlooking biodiversity outcomes within REDD+ planning (Grainger *et al.* 2009; Ghazoul *et al.* 2010; Phelps *et al.* 2010a; Sandker *et al.* 2010; Venter *et al.* 2010). However, the financial risks for biodiversity conservation projects (service providers) that depend on REDD+ investments have not been adequately discussed.

REDD+ expectations

REDD+ planners propose several principal funding approaches: (1) donor-led public finance for participating countries to engage with REDD+ (readiness funding, which has already started);(2) existing, unregulated

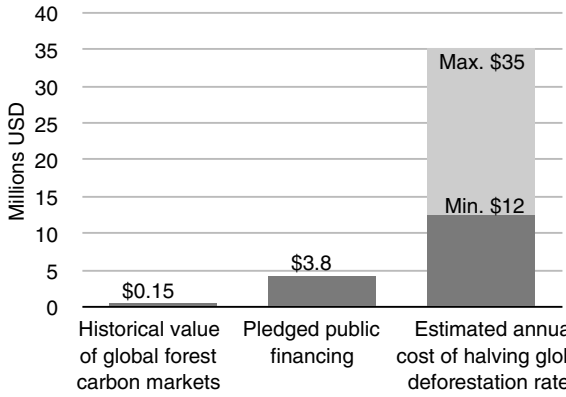

Figure 1 Comparison of the estimated annual cost of reducing global deforestation rates by half (compiled in Conservation International 2010), against the estimated total existing donor pledges specifically for REDD+ (most to be delivered by 2012) (Ballesteros *et al*. 2010), and the total historical value of global forest carbon markets (early 1990's-first half 2009) (Hamilton *et al*. 2010b).

voluntary carbon markets supported by socially responsible individuals, corporations, and cities that fund a range of REDD+-type projects in forested developing countries; (3) future international compliance carbon markets for Annex I countries to offset their emissions by purchasing carbon credits from verifiable REDD+ initiatives/national programs in developing countries, and/or (4) future compliance hybrid fund-based finance where Annex I countries would be required to offset domestic emissions by investing in an international fund that would disburse funds to participating REDD+ countries. These mechanisms promise an influx of funds (Figure 1); donor governments have already pledged roughly U.S. $4 billion in readiness funding to help prepare participating countries to engage with a future REDD+ mechanism, with most funding expected by 2012 and dominated by support from Norway (Ballesteros *et al*. 2010). The establishment of the new United Nations-led Green Climate Fund may promise further resources (UNFCCC 2010). When fully operationalized, revenue sources are expected eventually to reach U.S. $30 billion per year (UN-REDD Programme, www.un-redd.org), which would meet the costs of reducing global deforestation rates by half, estimated at U.S. $12–35 billion per year (compiled in Conservation International 2010).

While future carbon markets will value forests primarily for their potential economic returns (Hamilton *et al.* 2010a), some have suggested ways to maximize cobenefits such as livelihood support, biodiversity conservation, and provision of diverse ecosystem services. Biodiversity cobenefits might be attained by targeting and incentivizing projects in biodiversity hotspots, developing safeguards to ensure positive biodiversity outcomes, and enhancing carbon stocks of degraded forests through activities such as assisted natural regeneration (Venter *et al.* 2009a,b; Edwards *et al*. 2010; Harvey *et al*. 2010; Phelps *et al.* 2010b; Strassburg *et al.* 2010). Thus, a growing number of biodiversity conservation projects are seeking carbon finance. Over the next 10 years forests and biodiversity will face exceptional threats, and it makes sense to capitalize on REDD+ resources to bolster existing initiatives and to expand conservation efforts and coverage.

Dozens of new REDD+-linked conservation projects have already emerged (Wertz-Kanounnikoff & Kongphan-apirak 2009; Forest Carbon Portal 2010), such as the Ulu Massen initiative in Banda Aceh, Indonesia, and the Sankuru Reserve in Democratic Republic of Congo. Among the world's largest REDD projects (>30,000 km^2), the Sankuru Reserve, was gazetted in 2009 to protect the endangered bonobo by capitalizing heavily on future REDD+ funding (Bonobo Conservation Initiative 2009). In other cases, long-established biodiversity conservation projects are integrating REDD+ into their financing strategies. Since 1987 the Maquipucuna Reserve has protected a biodiversity hotspot in southeastern Ecuador, and has recently started preparations to engage with REDD+ (www.maqui.org). The promise of carbon finance has also stimulated some unexpected biodiversity conservation initiatives, including a recent proposal to reduce carbon emissions through whale conservation (Lovett 2010). While it remains to be seen how dependent global conservation efforts become on REDD+ funding, there is a clear trend toward incorporating REDD+ funding into project portfolios and long-term plans.

Risks of relying on REDD+ voluntary public finance

Conservation initiatives generally require long-term, stable sources of funding (Levitt 2005; Drechsler & Wätzold 2007). The recent and massive influx of REDD+ funds (Figure 1) belies its financial risks. Admittedly, financial uncertainty already characterizes many conservation initiatives that depend on public spending, donor governments, and philanthropy—known to fluctuate with changing priorities and market trends (Bárcena *et al.* 2002; Castro 2003; Pergams *et al.* 2004). However, given the scale of REDD+ projects and financing, and the high expectations in some quarters that REDD+ will reform conservation finance and protect imperiled biodiversity (www.forestcarbonpartnershipfacility.org; www.un-redd.org), current and future projects tied to REDD+ financing might be exposed to significant risks.

There is little certainty regarding the long-term consistency or scale of voluntary public finance for either REDD+ readiness or its actual implementation. Initial REDD+ readiness funding is originating from donor governments, but this provides little indication of the magnitude or sustainability of future payments. A future UNFCCC binding international climate treaty could help to ensure that Annex I countries financially support REDD+. Despite progress during the UNFCCC 16th COP negotiations (2010), there are still no such legally binding emissions reductions, and targets for a future international agreement have been recurrently delayed, most recently until at least December 2011 (Cohen & Semaya 2010; Murray 2010). The political spectacle in the United States' Senate during the 2010 cap-and-trade negotiations exemplifies the difficulty of garnering even domestic consensus for meaningfully reducing emissions. The Cancún Agreements emerging from the UNFCCC 16th COP reference safeguards to ensure that REDD+ actions are "supported by adequate and predictable financing" (UNFCCC 2010). However, without mandated international compliance to reduce emissions, the UNFCCC would be challenged to convince governments to reliably commit tens of billions of dollars each year for REDD+ over the coming decades, leaving voluntary country contributions or the private sector (see below) as the most likely sources of funding.

It can be argued that the closest precedent for voluntary country contributions is overseas development aid, which is unlikely to be a viable foundation upon which to fund REDD+ and associated forest conservation initiatives into the long-term. Despite the successes of some country-specific programs including within the environmental sector, such aid is notoriously volatile, with contributions fluctuating unpredictably from year to year (Bulir & Hamann 2008), notably affecting some conservation budgets (Bárcena *et al.* 2002). Many donors have failed to meet their commitments, and as a result recipients have often been unable to develop long-term budgets and project timelines (Bulir & Hamann 2008). Unpredictable funding that relies on the cyclical, internal politics of donor countries could be debilitating for sustained conservation efforts. The global scope and unprecedented scale of funds required for REDD+ implementation aggravates the risks associated with financial uncertainties and instability.

Risks identified by the private sector

If a global compliance emissions trading scheme becomes reality, REDD+ will likely be tied to market-based financing mechanisms (UNFCCC 2010; Conservation International 2010), the prospect of which has stimulated some initial investment among industries preempting requirements with precompliance purchases, and among speculators seeking early investments so as to reap profits when the demand and price for carbon increase (Hamilton *et al*. 2010a). However, private investments in forestry sector emissions credits remain small; forest carbon markets took $150 million between early 1990s and first half of 2009, peaking at $37.1 million in 2008 (Figure 1; Hamilton *et al*. 2010b). Investors are aware of the risks associated with the carbon marketplace. For example, the declines in price and trade volume of carbon resulting from the recent recession (Capoor & Ambrosi 2009; Schiermeier 2009; Hamilton *et al.* 2010a) feature heavily in investor analyses (Fell & Morgenstern 2010). There is little certainty regarding when or whether carbon prices will be reliably set (Williams *et al.* 2009) and whether an international compliance scheme will ensure credit demand (Hamilton *et al*. 2010a), so carbon investments remain "very volatile and risky" (Nicholls 2010). This is especially true for emissions credits generated in the forestry sector; the European Union Emissions Trading Scheme does not recognize forest-based credits, and forestry projects have represented only a fraction of the transactions on the voluntary carbon market (24% of the Over-the-Counter market, Hamilton *et al*. 2010a; Kent & Thoumi 2010), where they have fetched below-average rates (Hamilton *et al.* 2010b). Furthermore, an oversupply of REDD+ and forestry-derived credits into carbon markets could reduce carbon prices (Hare & Macey 2007; Livengood & Dixon 2009). These assorted risks help explain why REDD+ projects are receiving only limited private investment (in Nicholls 2010), and why some forestry sector investors are conceptualizing REDD+ insurance schemes through which to reduce financial exposure (e.g., Kent & Thoumi 2010). The conservation community should take note of investor wariness toward carbon markets, and exercise similar caution.

Risks associated with mismatched time horizons

Another risk associated with REDD+ funding, regardless of origin, is whether the investment horizon in forest carbon parallels the funding timeline for biodiversity conservation. While it is often assumed that reductions in deforestation and forest degradation would ideally be permanent, the UNFCCC Parties have done little to agree on the permanence or long-term nature of reductions. It remains contentious whether REDD+ target countries and individual land holders will be willing to make "permanent" commitments. Most existing early-action REDD+ projects have approximately a 20-year horizon, with proposed duration ranging from 10 to a maximum

of 40 years (Forest Carbon Portal 2010). The Voluntary Carbon Standard, which provides verification of emissions reductions within the existing voluntary carbon offset industry associated with the Kyoto Protocol, accepts projects with a minimum duration of 20 years. While these investments promise resources in the short and medium term, their timelines might represent a mismatch when compared with the lifespan of protected areas and conservation of long-lived organisms. Therefore, REDD+ might represent a short-lived lifeline for cash-strapped conservation.

Furthermore, REDD+ is often proposed as a "bridge" strategy, designed to buy time during which UNFCCC Annex I countries can develop new low-carbon technologies that, for example, reduce emissions at source (carbon capture and sequestration) or facilitate the substitution of fossil fuels with renewable energy (Cabezas & Keohane 2008; Lubowski 2008). The carbon market will thus remain afloat only as long as carbon sequestration remains the most economically efficient form of emissions mitigation. However, carbon markets could be rendered obsolete relatively soon (Ghazoul *et al*. 2010), possibly within the time frame of one or two project implementation periods (potentially 10–15 years). A useful precedent is the 1990 Montreal Protocol Multilateral Fund created to assist developing countries to phase out ozone-depleting chlorofluorocarbons; by 2010, developing countries phased-out the target chlorofluorocarbons (www.multilateralfund.org). The Multilateral Fund remains active to support reductions of other harmful chemicals that were added during later amendments to the Protocol. However, with the rapid reduction in the production of chlorofluorocarbons initially covered by the Protocol, the Fund would have become obsolete. This is an example of how emissions mitigation mechanisms potentially face limited lifetimes. Whereas the possibility of such an end to REDD+ funding would not adversely affect climate change mitigation efforts by virtue of the fact that such a development would be driven by alternative emissions reduction efforts, it could leave many forest protection and biodiversity conservation projects vulnerable. Projects like Ulu Massen in Banda Aceh and Sankuru Reserve in Democratic Republic of Congo and their surrounding communities could potentially lose their core funding.

Improving risk management for biodiversity conservation

Currently, information about carbon finance and its associated risks is highly centralized within the private sector. For example, although carbon finance conferences have become increasingly common (e.g., www.greenpowerconferences.com; www.environmental-finance.com/events), these meetings tend to be largely restricted to participants within the private sector and policy circles. The UN-REDD Programme (www.un-redd.org) and World Bank's Forest Carbon Partnership Facility (www.forestcarbonpartnership.org) offer potentially valuable platforms for improved information sharing, which would allow stakeholders to identify risks and seek strategies to ensure financial resilience.

It makes sense to capitalize on the opportunities created by REDD+ to enhance biodiversity conservation. Even short-term and less-than-ideally structured funding for conservation is better than no funding at all. However, the rapid development of new REDD+ initiatives, many of which are heavily reliant on REDD+ readiness funding from donors, raises questions about whether some projects are overleveraged and overlooking long-term financial resilience. This is potentially problematic because diversified revenue is essential to sustainable conservation finance (Castro 2003). Diversification might include drawing on market, traditional donor, and philanthropic contributions. It might also rely on bundling other ecological services (largely water related) with carbon for payment as ecosystem services, especially to raise resources for high-opportunity cost areas (Phelps *et al.* 2010a). Biodiversity might eventually be similarly monetized (e.g., www.newforests.com.au), though related standards and markets remain underdeveloped. Diversification also relies on the assurance that REDD+ (at least in certain contexts) is compatible with multiple-use forest management to further offset the opportunity costs of conservation and protect rural livelihoods. Multiple-use management might involve nonindustrial sustainable forest management, certification for forest products, and identification of low-emissions livelihood strategies (harvest of nontimber forest products, silviculture and agroforestry) that align with carbon and biodiversity conservation goals.

Financial resilience is also linked to funds management strategies. Internationally, alternative funding approaches that integrate fund-based finance with minimum contributions from Annex I countries would ensure reliable and predictable REDD+ payments (Hare & Macey 2007), and could circumvent market volatility. This could potentially build from the new Green Climate Fund (UNFCCC 2010). Such alternatives might better serve the joint carbon-biodiversity agenda. Nationally, managing REDD+ funds through Conservation Trust Funds (CTF) such as Brazil's Amazon Trust Fund could increase financial stability and predictability (Castro 2003; Spergel & Wells 2009). Whether structured as endowment funds that draw on

interest generated by the fund capital, sinking funds with a set lifetime, revolving funds that receive regular inputs from predictable sources, or hybrids of these systems, CTFs are increasingly popular financing structures (www.worldwildlife.org/what/howwedoit/conservationfinance/conservationtrustfunds.html). While these structures are more conservative and may reduce the initial working capital available to conservation projects, hybrid CTF schemes may be more appropriate for ensuring long-term financial sustainability and emissions reduction permanence. Participating countries and projects could further consider reserving a portion of REDD+ funds in these types of long-term trusts as a form of precautionary savings. Models of optimal allocation of conservation resources faced with uncertainty prefer such early, precautionary saving (Drechsler & Wätzold 2007). Where risks remain, service providers may consider insurance opportunities (Kent & Thoumi 2010), though these have not yet been developed and would require considerable awareness building among prospective participants. In the short-term, despite large and rapid REDD+ investments, financial sustainability could further depend on restraining the project scale to what is achievable and sustainable in the long-term. Ambitious, large-scale projects that require long-term financial inputs from REDD+, such as traditional protected areas that require patrolling or long-term payment schemes to individual landowners, might prove especially financially vulnerable in the long term.

Heightened engagement between Parties of the Convention on Biological Diversity and the UNFCCC promises greater consideration for the biodiversity aspects of emissions mitigation. Similarly, the UNFCCC Cancún Accords introduced binding environmental safeguards to ensure that REDD+ actions "take into account the multiple functions of forests and other ecosystems" and are "consistent with the conservation of natural forests and biological diversity" (UNFCCC 2010). Given prudent safeguards and planning, REDD+ will contribute not only to reducing emissions and ensuring forest conservation, but also to protecting biodiversity. However, there remains little certainty that REDD+ funding will fuel long-term biodiversity conservation. We need to acknowledge the associated risks in order to better prepare conservationists, governments, local land-owners, and forest users to deal with the incoming, but by no means reliable or permanent, investments in forests.

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