Commonwealth Secretariat
Discussion Paper
Number 1 • August 2008

Forest Carbon Finance: Potential and Challenges for Commonwealth Countries

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Published by the Commonwealth Secretariat
Editor: Joan Ross Frankson
Designer: Rob Norridge

ISBN: 978-0-85092-900-3 (print)
ISBN: 978-1-84859-011-3 (electronic)

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Commonwealth Secretariat
Marlborough House
Pall Mall
London SW1Y 5HX
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Deforestation contributes about one-fifth of all human-made emissions of carbon dioxide (CO_2), the principal greenhouse gas that leads to global warming and climate change. Preventing deforestation could therefore be highly significant in averting climate change. Recently there have been strong moves to include the reduction of CO_2 emissions from deforestation and forest degradation within international frameworks for action on climate change. In general, deforestation and degradation are the result of a combination of market, policy and governance failures, which make it more profitable to fell trees rather than to keep them.

Commonwealth Forests and Climate Change

A large proportion of Commonwealth countries are highly vulnerable to climate change, and forests are very important in many of them. Commonwealth countries have 810 million hectares of forests, over one-fifth of the world total, but the deforestation rate is well above the global average — about 25,000 square kilometres are deforested each year, over one-third of the world total, and the annual deforestation rate of 0.31 per cent is nearly double the global average (0.18%). Some African and South Asian countries record alarmingly high rates — for example Nigeria (3.3%), Uganda (2.2%) and Ghana (2.0%) in Africa, and Pakistan (2.1%) and Sri Lanka (1.5%) in South Asia.

The importance of forests and woodlands to the rural poor is often greatly underestimated. More than 1.5 billion people depend to some extent on forests for their livelihoods and about 350 million rely almost entirely on them, including 60 million indigenous people. In an encouraging trend, especially in India and other Asian countries,

Deforestation contributes one-fifth of all human-made carbon dioxide emissions

a transition is under way from net deforestation to a net increase in forest cover, though with a net loss of biological diversity. This trend is due partly to plantations and partly to forest re-growth over farmland.

Mitigation and Sustainable Forest Management

Reduced Emissions from Deforestation and Forest Degradation (REDD)

Forests contribute to climate change mitigation mainly through carbon storage (or avoided deforestation) and carbon sequestration, yet forestry has been somewhat marginalised in mitigation efforts. The 2006 Stern Review on the Economics of Climate Change, the largest and most discussed report of its kind, made a strong case for the inclusion of avoided deforestation, or Reduced Emissions from Deforestation and forest Degradation (REDD) in the Kyoto Protocol's carbon trading mechanisms. The Conference of the Parties to the UN Framework Convention on Climate Change (UNFCCC), in Bali in December 2007, supported action on REDD. Almost simultaneously, Commonwealth Heads of Government signed the Lake Victoria Commonwealth Climate Change Action Plan, recognising *inter alia* that the cost of inaction on climate change mitigation and adaptation is far greater than the cost of early action, and prioritising 'support for improved land use management, including conservation and sustainable use of forest resources'. However, there is still uncertainty around the various proposals on the table. A major sticking point is between countries with low deforestation rates who want a fund-based system that rewards forest conservation, and countries with high deforestation rates who favour a market-based system in which REDD payments would depend on a country's success in reducing its deforestation rates against a historical baseline.

Commonwealth countries have…double the global deforestation rate

Whether REDD programmes are effective and contribute to sustainable forest management (SFM) depends on whether countries undertake the necessary legal, policy and institutional reforms to tackle the policy and governance failures driving deforestation, thereby lowering the opportunity costs of SFM. Countries should also consider whether and how to pursue pro-poor REDD strategies, since anti-poor strategies may appear economically more attractive. Achieving both carbon objectives (reduced deforestation) and development (poverty reduction) is a delicate balancing act. It should be noted that some Kyoto Protocol Annex 1 Commonwealth countries have made significant commitments to REDD, and at least one (New Zealand) includes forestry in its national Emissions Trading Scheme.

Forest Carbon Finance: Current Market Situation and Potential

Forest carbon is currently marginalised on the regulatory markets — the Clean Development Mechanism (CDM) and the European Union Emissions Trading Scheme — accounting for less than 1 per cent of the value of the global carbon trading market (over US$30 billion in 2006). Only planted trees (for sequestration) are allowed in the CDM and, due to the technical/methodological complexities and transaction costs, only one project (in China) has been approved. Large-scale plantation forestry is the only type of forestry likely in the CDM as it stands. As regards carbon storage or avoided deforestation, the only current option is the voluntary carbon market, but following the green light in Bali for REDD, the focus is on generating pilots or 'Readiness' activities (getting ready for REDD in 2013).

Since plantations can have low biodiversity and livelihood benefits, policy-makers may prefer to target the more flexible voluntary carbon markets. These have lower transaction costs, but also lower prices. The 'Plan Vivo' model in Uganda and Mozambique, involving agro-forestry and community timber woodlots, illustrates the type of forestry possible in the voluntary market. Plan Vivo is also exploring sustainable charcoal production for avoided deforestation credits in several African countries.

The importance of forests and woodlands to the rural poor is often underestimated

Exactly what REDD will look like is still unclear and agreement is proving difficult. Commonwealth countries have made some proposals — for example, Tuvalu has proposed a forest retention incentives scheme for community-based forest management, and India a Compensated Conservation mechanism. There is considerable momentum behind the Compensated Reduction approach in which a country could gain emission reduction credits by reducing deforestation (and forest degradation) against a baseline deforestation rate.

But the baseline is also hotly contested with some preferring a historical baseline and others a predicted baseline, including an 'adjustment factor' to allow for future development. Both approaches are inherently problematic. With historical baselines, for example, deforestation rates tend to rise when low-income countries experience faster economic growth, while they could slow down if most accessible forests were depleted leaving more of those that are remote or inaccessible. As regards predicted baselines, the problem is the complexity of deforestation drivers, some of which are very unpredictable like agricultural commodity prices and inflation/currency depreciation rates.

The main strengths of a compensated reduction REDD mechanism are: it would be market rather than fund-based and so be more financially sustainable; it would have high additionality; and it would probably have most impact on the global cost of reducing emissions. This may be attractive to Commonwealth countries with high deforestation rates, but would be of little benefit to lower deforestation countries where it may even create a perverse incentive for these countries to increase their deforestation rates. Another fear is that it will flood the carbon market and depress the carbon price.

This concern has led to several suggestions for trading of REDD credits in a new and separate market to the CDM — for example, the Tropical Deforestation Emission Reduction Mechanism involving the issue of Tropical Deforestation Emission Reduction credits, as proposed by Greenpeace. A difficulty with a separate market would be how to ensure demand and value; Greenpeace suggests this can be achieved through mandatory obligations on Annex 1 countries to finance tropical conservation. On the other hand those who favour fungible REDD credits (i.e. credits that can be traded along with other emission reduction units) argue that the key to avoiding a price collapse is through much stricter emission caps in a post-Kyoto regime. They also propose bringing the United States into the market, or, less satisfactorily, limiting how much Annex 1 countries can use REDD credits to offset their caps.

An alternative or possibly secondary approach is based on maintaining or improving the 'carbon stock', or standing forest value, as in the Indian proposal. The proponents of this approach gained ground at Bali where the decision on REDD refers to 'enhancing forest carbon stocks due to sustainable management of forests'. While a system based on carbon stock values

would overcome the problem of perverse incentives and be more equitable (it would be easier to compensate community forestry), additionality would be much lower and its market basis weak.

Key Questions for National Carbon Finance Initiatives

How can a country ensure CDM projects are good for sustainable development?

CDM projects are likely to involve trade-offs between carbon, livelihood and biodiversity objectives. Countries should develop a set of widely consulted sustainable development criteria in order to make the initial decision. They should also instigate transparent monitoring of impacts, and seek to mitigate negative livelihood or biodiversity impacts.

How can voluntary market projects be encouraged?

The main means is to reduce the risks and transaction costs for investors or buyers of credits by strengthening the legal and policy framework for carbon projects — for example, improved compliance (if possible with simplified or rationalised regulations) and measures to reduce transaction costs, especially for community level projects. Possibilities for the latter include: establishing or strengthening second order or 'collective action' institutions; legal support; capacity-building in participatory carbon measurement methods; and business and market development services via 'honest brokers'. Buyers will also be assured by the use of a credible standard or certification of project design, such as the Climate, Community and Biodiversity Alliance's (CCBA) CCB Standards.

Is it worth developing a REDD programme?

Despite continuing uncertainty over REDD mechanism(s), only countries embarking on so-called REDD 'Readiness' activities and gaining experience with pilot projects will be in a position to benefit from 2013 when a REDD regime could come into place. Research is needed on the cost of REDD options, especially the opportunity costs of forest conservation. If the main alternative land uses to forest carbon storage are subsistence farming, ranching or cash crops with modest returns, then it will be more affordable than in situations where compensation for high value cash crops is required. Countries will need to find a balance between additionality (likely to be higher when the opportunity costs are higher) and affordability. There is a need to identify situations where a modest REDD payment could ensure marginal land use in favour of SFM, possibly involving community forestry.

How could a national REDD programme be forward financed?

Possibilities include the forward purchase of REDD credits, but at heavily discounted prices unless donor countries underwrite the risks. One possibility is bilateral agreements between Annex 1 and developing countries in which the former could forward finance 'Readiness' activities and underwrite risks in exchange for discounted future carbon credits. Other possibilities include the issue of forest carbon bonds, risk insurance and low interest loans. As regards funding 'Readiness', the World Bank Forest Carbon Partnership Facility has committed US$100 million to 20 countries for a range of 'Readiness' activities, and a further US$200 million for pilot REDD projects in five or six countries; at the Bali UNFCCC meeting, the Government of Norway pledged US$550 million per annum for tackling tropical deforestation; and in June 2008 it was announced that a World Bank managed Forest Investment Fund would also support REDD activities.

How could a pro-poor REDD strategy be promoted?

Much depends on how countries design and implement their REDD strategies. From an equity perspective, priorities are clarification of property

rights over carbon in a range of tenure situations, better governance and measures to reduce transaction costs for community forest managers. There should be some pro-poor 'low hanging fruit' options — for example, where community forest management and conservation are economically marginal and under threat.

The equity impacts will depend mainly on the type of REDD strategies a government decides to adopt — for example, a 'fences and fines' approach may seem cost-effective for the government, but would likely involve the loss of use and tenure rights of indigenous and other forest dependent communities.

To some extent REDD programmes will need to compensate would-be developers who may also be threatening to break weakly implemented laws. Countries need to judge carefully the balance between law enforcement and making REDD payments. A further concern is how to channel REDD incentives to communities and farmers. Corruption would make REDD programmes ineffective, and the wording of contracts will be vital in ensuring communities are not locked into unfavourable long-term agreements. The support of donors and international NGOs will also be critical in helping countries pursue pro-poor REDD options.

Would REDD result in sustainable forest management?

For deforestation to be substantially reduced, market, policy and governance failures need to be effectively tackled. The challenge for high deforestation countries is that many suffer from poor governance and/or conflict situations, so it will require high levels of political will for them to stand up to vested interests. Some may therefore decide to stick with low cost or 'low hanging fruit' options, which do not involve the reforms necessary for SFM. Another problem is that some deforestation causes are outside state control — for example, an upsurge in international agricultural commodity prices, partly driven by bio-fuels, could swamp other efforts and make REDD strategies very expensive.

Following are some other unresolved questions that are more dependent on UNFCCC decisions and less on national policy-makers:

Should forest degradation be included and how?

At Bali there was broad agreement that including forest degradation is important — for example, it helps in distinguishing 'sustainable' shifting cultivation from other forms of clearance, and inclusion of timber-based SFM. There is less clarity on how to include degradation without significantly increasing measurement and transaction costs.

Should the private sector be included and how?

Most observers think the private sector should be included in REDD since it responds more effectively than the state to market incentives. This means implementing REDD projects in a national accounting framework, known as the 'nested approach' in which national REDD strategies have a built-in project crediting system that ensures a successful project will not be penalised by poor national performance.

Should 'early action' REDD projects be credited after 2012?

UNFCCC could provide a boost to voluntary REDD projects and the development of robust methodologies by agreeing to early crediting, but there are risks for project developers and investors since they will need to forward guess the likely rules for accreditation of the emission reductions.

How can international leakage be controlled?

REDD will reduce timber supplies, but the demand on local and international timber markets will remain, raising concerns about increased illegal

logging, degradation and deforestation in non-participating countries that still have the capacity to supply timber.

Adaptation and Sustainable Forest Management

Funding

Unlike mitigation, there is no market basis for financing adaptation, there is less political will to address this internationally and it is low on most countries' development priorities. It is therefore severely under-funded; high-risk countries alone need tens of billions of dollars annually, but up to Bali, the four main adaptation funds had contributed only about US$310 million and bilateral donors only US$110 million. The four main adaptation funds, the first three under the UNFCCC, are:

- The Adaptation Fund based on a 2 per cent levy on CDM projects;
- The Least Developed Countries (LDCs) Fund, which helps LDCs prepare National Adaptation Programmes of Action (NAPAs);
- The Special Climate Change Fund for all developing countries;
- The Global Environment Fund's (GEF) Strategic Priority on Adaptation.

The most important is the Adaptation Fund because it is automatically replenished by the CDM levy, while the others depend on voluntary contributions. A key advance in Bali was agreement on management of the Adaptation Fund under the Kyoto Protocol, paving the way for its operation. There is also increasing pressure for levies on other Kyoto trading mechanisms. Critics view it as inequitable that an adaptation levy should only be applied to the CDM since this is, effectively, a tax on poor countries.

SFM Potential

The potential for SFM from adaptation carbon finance is very high since the type of forestry needed is essentially multiple objective SFM; the aims are to maintain ecosystem services, diversify product/income flows and achieve an equitable distribution of benefits and costs. The system should be as resilient as possible to outside shocks and the ecological impacts of climate change in order to minimise livelihood vulnerabilities.

Forests play a key role in increasing resilience to extreme climate events — as a safety net or coping strategy, providing food and shelter when farming systems collapse, reducing landslide risks, and regulating the hydrological cycle during and after natural disasters. When they act as a buffer, forests make uncompensated contributions across various sectors including energy, tourism, industry and agriculture.

But after each climate change event the forest system's buffering capacity is weakened. Forests are also under gradual long-term pressures from climate change: shifting rainfall and temperature patterns are altering species/variety suitability, raising fire vulnerability, changing disease/pest incidence and reproductive cycles, and eroding biodiversity, which is essential to system sustainability. Other likely consequences of the erosion of forest ecosystems are common pool resource conflicts, environmental migration (an 'adaptation strategy') leading to cross-border conflicts, and reduced capacity to cope with disease.

Much of the adaptation agenda is about reducing the vulnerability of the poor to climate change events by increasing the adaptive capacity of their livelihood systems. Examples of forest/farm adaptation measures include agro-forestry, multiple cropping, more resistant varieties to drought or new diseases, soil and water conservation management practices, fire barriers

and improved pest control. Agro-forestry has a particularly high adaptation value since it can increase the resilience of farming systems, improve food security and diversify income. It also has a well-defined research agenda.

Synergies and Trade-offs between Adaptation and Mitigation Projects

There are obvious but untapped synergies between the adaptation and mitigation agendas, and more broadly with the payments for ecosystem services (PES) agenda, including the fact that ecosystem service providers are often very poor. Carbon payments can help maintain the overall flow of forest ecosystem services, which are vital for adaptation. However the type of forestry encouraged in the CDM can result in trade-offs between carbon gains and social/biodiversity objectives (e.g., large monoculture plantations).

A way of ensuring that forest carbon projects incorporate adaptation needs is through appropriate standards. In the voluntary market, the CCB standards include adaptation criteria, but the CDM standards focus more exclusively on carbon additionality. While the latter is very important, ignoring adaptation in mitigation projects can have harmful social impacts and increase future costs if forest systems prove vulnerable to climate change. Ideally, what is needed is a 'bundled' PES approach — a system of payments for more than one ecosystem service — that encourages more resilient farm/forest landscapes and diversity livelihood options. Promising approaches include 'integrative forest carbon' projects, multiple benefit or 'conservation carbon' projects in the voluntary carbon market and soil conserving agricultural practices. However the problem is how to pay for or finance these more integrated or bundled PES projects since they have a weaker market basis.

> It is vital to confront market, policy and governance failures

Concluding Remarks

To create positive incentives for SFM and reduce deforestation, it is vital to confront market, policy and governance failures. Carbon finance combats market failure, but if policy and governance failures persist, the opportunity costs of SFM will remain high. REDD will only be effective in SFM terms if countries go beyond the 'low hanging fruit' options. Carbon finance is therefore not a panacea or stand-alone measure; it needs to be part of a package of measures for SFM starting with secure property rights for local forest managers and improved governance, which are *per se* more powerful SFM drivers than carbon finance or other payments for ecosystem services. REDD can be perceived as a powerful demand-side incentive for better policies and governance, and therefore potentially represents an integrated approach to SFM with positive equity outcomes — the poor should benefit both from direct payments and improved governance/property rights. At the same time, the equity impacts will be highly dependent both on what is decided on REDD at the UNFCCC meeting in Copenhagen (December 2009) and on how governments prioritise their strategies for reducing deforestation.

Further Reading

Access the complete version of this Discussion Paper, 'Potential and Challenges of Forest Carbon Finance' by Dr Michael Richards, and other presentations to the Commonwealth Consultative Group on Environment, Monaco, 20 February 2008, at: http://www.thecommonwealth.org/doclist/169825/36161/174364/monaco_2008/

Stern Review: The Economics of Climate Change. Norwich: The Stationery Office, 2006, ix + 579 pp., ISBN 978-0-10-204420-4. Available at: http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_Report.cfm

Text of the decision on Reduced Emissions from Deforestation in Developing Countries from the Bali Convention of the Parties to the UNFCCC is available at: http://unfccc.int/files/meetings/cop_13/application/pdf/cp_redd.pdf

Lake Victoria Commonwealth Climate Change Action Plan is available at: http://www.thecommonwealth.org/shared_asp_files/GFSR.asp?NodeID=173015

More information on 'Plan Vivo' is available at: http://www.planvivo.org/

Commonwealth Forests: An Overview of the Commonwealth's Forests. Craven Arms: Commonwealth Forestry Association, 2008, 163 pp. To order at: http://www.cfa-international.org/Commonwealth_Forests.html

Climate Change and Forestry: a REDD Primer by Erin Myers. Available at: http://www.ecosystemmarketplace.com/

Acronyms

CCB	Climate, Community and Biodiversity (Standards)
CDM	Clean Development Mechanism of the Kyoto Protocol
CO_2	Carbon dioxide
LDC	Least Developed Country
NAPA	National Adaptation Programme of Action
NGO	Non-governmental organisation
PES	Payment for ecosystem (or environmental) services
REDD	Reduced Emissions from Deforestation and forest Degradation
SFM	Sustainable forest management
UNFCCC	United Nations Framework Convention on Climate Change