

Avoided Deforestation as a GHG mitigation compliance activity

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One of the most heated topics negotiated during the 1997 UNFCCC Conference of Parties in Kyoto was whether avoided deforestation (AD) projects should be eligible for participation in the CDM. At the time, the advocates of AD believed in the promise that markets could channel unprecedented financial flows to the forestry sector, harnessing entrepreneurial initiative and investor appetite while generating other highly desirable social and biodiversity benefits.

The opportunity was missed – AD was excluded from the CDM based on a series of technical arguments and vested interests. Amongst them, that forestry credits would swamp the market, reducing carbon prices and removing the incentive for the development of renewable energies.

In retrospect, this strategy had a perverse outcome. The CDM did not have a significant impact on the deployment of renewable energies, which contributes less than 15% of all CDM credits issued to date (UNEP Risoë 2009). The market, instead, looked for the lowest abatement opportunity and invested heavily in the reduction of emissions of industrial gases (in particular HFCs, which represent ca 80% of credits issued to date - *ibid*). At the same time, the world lost far more than 100 million ha of forests in the last 10 years (FAO 2006).

While it is encouraging that AD is back on the negotiation table, there is again much discussion around issues that could prevent the full inclusion of this activity in a future compliance regime. Some of these arguments are discussed below in further detail.

National initiatives vs project-based, public vs private sector funding

A fundamental issue that is currently under discussion refers to whether AD carbon finance should be channelled exclusively through bilateral transactions involving governmental funds and national level projects, as opposed to project based activities funded through market mechanisms. There are two reasons why the former on its own would be inappropriate:

Firstly, the idea that large financial contributions could be harnessed from developed countries' government funds is unfounded. Overseas Development Assistance (ODA) flows to the forestry sector are historically very low. Recent estimates suggest that all bilateral and multilateral official funding to forestry worldwide in the last decade amounted to less than 2 billion dollars per year (Tomaselli 2006, Simula 2008), and only part of this funding has been spent to reduce deforestation. In contrast, it is

estimated that the global forestry sector needs ca. 17-30 billion dollars per year to halve emissions from deforestation by 2030 (Eliasch Review 2008).

Second, the absorptive capacity of government agencies in many tropical countries is often not high enough to deal with the level of resources and activities required to curb deforestation. Initiatives such as the G7's Pilot Programme for the Protection of Brazilian Rainforests have invested less than 10% of the original budgets 15 years after its inception. It is clearly preferable that such a demanding task be conducted by a wider range of actors and players within a framework created by the host country.

Excluding sub-national or project-based approaches would risk to significantly delaying the implementation of AD projects because it may take years to build the necessary capacity to implement effective national-level approaches. AD projects, embedded in a national strategy, would also offer a much better framework for engaging the private sector and mobilise investment. This is because entering into agreements with host country governments alone would pose considerable investment risks and carbon credit delivery risks, given an often poor track record of managing natural resources and finances. A hybrid crediting approach is also needed to mobilise the significant capabilities and experiences of non-governmental actors (including NGOs, project developers and responsible forest management firms) to manage and conserve forests.

At the same time, it is widely accepted that the most appropriate role of government agencies could be in creating a positive environment to attract investment in AD projects and to channel these to the country's priority areas. Government capacity must be strengthened to deal with this new activity, through 'readiness' activities. Focus should be given to mapping of sustainable land-use priorities, identification of actors and their rights, establishment of baselines, monitoring of deforestation and leakage, and the development of a system of guarantees against possible reversals (re-emissions) through strategic carbon reserves kept by the national agencies. Crucially, good governance is a fundamental pre-condition to effectively tackling deforestation, considering that corruption indicators correlate strongly with deforestation rates in many countries (Ebeling & Yasue 2008). Furthermore, a central planning function would be essential to coordinate these activities in integration with other land use pressures, agriculture intensification efforts, fiscal treatments of different land uses, and enforcement of regulations. In exchange, government agencies should be compensated for such services through, for instance, royalty payments, in the same way as practised by forestry departments in many countries.

This combination of public- and private-sector engagement is somewhat similar to the 'nested' approach promoted by Catie and some Latin American countries, and actually implemented by Costa Rica in the mid-90s (see Appendix 1).

Supply, demand and market flooding

One of the arguments raised against AD in 1997 was that the large amounts of credits derived from this activity would flood the market and reduce prices and this is still debated in the context of the inclusion of AD in the carbon markets. Indeed, in the Brazilian Amazon alone, deforestation leads to the emissions of ca. 750 million tCO₂ per year, approximately 5.5 % of the yearly emissions of all OECD countries. So, the halting of deforestation in the Amazon would provide for all emission reductions required by the current phase of the Kyoto Protocol. And, given the low opportunity cost of land in the Amazon (a recent study calculated that 94% of the land there has an opportunity cost of less than 5 dollars per ha - Woodshole Institute, 2007), such AD credits would cost less than US\$0.10/tCO₂.

It appears counter-intuitive, however, that in order to maintain robust carbon prices a low cost abatement option needs to be rejected. Imposing more ambitious emission reduction targets, for instance, would have a much more positive effect - lower overall emissions levels and the vast additional benefits for biodiversity and sustainable development associated with forest conservation. Indeed, as developed nations negotiate reduction targets of 20 to 40% during Phase 2 of Kyoto, there is the need to find abatement options able to supply these larger volumes at acceptable costs.

Another option to address remaining concerns of market flooding at the political level would be the creation of (temporary) market quotas for REDD credits, or the creation of dual-markets as proposed by the Center for Clean Air Policy (2007), with levels reflecting the contribution of deforestation emissions to climate change.

Should the voluntary sector pave the way for compliance ?

The history of the carbon markets is populated with 'pilot phases' and voluntary schemes that contributed little to the development of the market as it is today. In the early 90s, American and European companies invested in early "Joint Implementation" (JI) projects with a hope that the emission reductions generated might be used for compliance purposes sometime in the future. With the start of the more formal Activities Implemented Jointly (AIJ) pilot phase in 1995, the UNFCCC officially rejected the concept of using credits from such projects against any UN compliance regime. Projects were supposed to be conducted for experience only, and consequently investment in new projects came to a halt.

In 1997, the AIJ phase was superseded by the CDM (and a new definition of JI), which finally embraced the concept of project-based crediting against compliance targets. But in none of these transitions were the projects from previous schemes accepted into the new ones and such disregard for early action is likely to discourage any significant investments before there is better policy definition. Furthermore,

given the lack of incentives for participation in these earlier schemes, their outputs were totally unrepresentative of the way that the compliance market would finally operate, as illustrated by the differences in capital flows observed during the AIJ and the CDM phases.

Conclusions

Avoided deforestation is not a new concept. It is forest conservation in practice, and championed by many forest conservation groups and some progressive governments worldwide. Furthermore, a bulk of expertise exists from the series of AD projects that were developed by American and European companies worldwide during the 90s, as part of the AIJ pilot phase (Appendix 2, from Moura Costa & Stuart, 1998) and the now extinct USJI, as well as today's rapidly evolving voluntary carbon markets.

Bringing AD into the carbon markets, enabling private sector participation in both investing and implementing projects, is the most promising option to address this environmental challenge at the scale that it requires. But, for carbon markets to mobilise capital at the required levels, it is essential that AD is included in a future compliance regime. An opportunity was missed in 1997 and it shouldn't be allowed to be missed again.

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Appendix 1: The Costa Rican system of direct payment for environmental services

In 1997, in anticipation of the UNFCCC Kyoto meeting and prior to the creation of the CDM, Costa Rica launched two complementary national level carbon sequestration programmes based on sustainable forest management and forest conservation, respectively. In spite of the efforts of Costa Rica and the support of other forested countries, the forestry activities included in these programmes were denied eligibility for participation in the CDM. As discussions on the role of forestry and forest conservation gains momentum again, it is appropriate that the very pioneering and sophisticated aspects of the Costa Rican initiatives are analysed in the context of proposals for any future REDD regime.

The Costa Rican national programme involved two complementary sub-programmes based on forest conservation and sustainable forest management, respectively. The Protected Areas Programme (PAP) had the objective of reducing deforestation rates by consolidation of the national parks network through the purchase of privately-owned land inside the parks. The programme aimed at consolidating 570,000 ha within 28 national parks, and claiming the carbon savings derived from avoided deforestation, which historically averaged 3% per year. Costa Rica expected to avoid the release of about 18 million tonnes of carbon (66 m t CO₂) through the implementation of the PAP. These savings were initially independently verified by the international certification company SGS Forestry, and carbon credits issued accordingly.

Commercialisation of CO₂ reduction credits would be done through the system of Certified Tradable Offsets (CTOs) issued by the Costa Rican Office on Joint Implementation (OCIC - Executive Decree N. 25066 Minae, 1996). These CTOs were carbon credits based on the amount of CO₂ fixed in forests similar to the CERs that were subsequently created by the CDM, and were to be sold with the assistance of international carbon brokers. The first batch of CTOs (200,000 tons of carbon) was sold to a Norwegian consortium at US\$ 10/tonne C (US\$ 2.70/t CO₂), for a total of US\$ 2,000,000. At a projected price of US\$ 10 per tonne of carbon, Costa Rica expected to raise US\$ 180 million through the Protected Areas Programme.

In order to complement the PAP, Costa Rica also worked on a second national level land use project, the Private Forestry Programme (PFP). The PFP encouraged land owners to opt for forestry-related land uses by providing direct payment for environmental services. Environmental services included CO₂ fixation, water quality, biodiversity, and landscape beauty [Forestry Law N. 7575, April 1996; La Gaceta (1996)]¹. These monetary incentives aimed at increasing the attractiveness of forestry compared to higher-impact forms of land use. Incentives were to be paid to land owners over a period of 5 years following the signing of a contract to keep their land under a specified type of utilisation for a minimum period of 20 years. Farmers who received these incentives assigned the rights of to the environmental services of the

¹ La Gaceta (1996), Ley Forestal 7575, April 16 1996. Alcance n. 21 a La Gaceta, Diario Oficial, N. 72. 8 pp.

government, who bundled them for potential sale. The resources for initiating the PFP programme were raised by a domestic 15 % tax on fossil fuels, which was expected to raise US\$ 21 million per year (Franz Tattenbach, pers. comm). It was hoped that future payments to farmers would be based on the sales of resultant CTOs.

The value of PFP incentives varied. There were three main areas of interest: conservation of existing forests, selective harvesting for sustainable wood production, and reforestation or natural regeneration of degraded pasture or agricultural land. In the case of private forest conservation, farmers would receive a total of US\$ 280/ha, through a series of annual payments. They were also waived payment of land tax. Those opting for natural forest management would receive US\$ 47/ha/year, to a total of US\$ 235/ha, in addition to the revenue derived from timber harvesting. In order to enforce compliance with low impact logging guidelines, the law required that any harvesting operation must be supervised by a trained forester. Farmers who chose to reforest part of their agricultural land would receive a series of payments related to the costs of plantation establishment, to a total of US\$ 558/ha. An additional benefit of the PFP is that it served as a leakage mitigation measure for the PAP. By providing an alternative set of incentives for those landowners that were displaced by the PAP, the PFP would prevent a significant increase in un-sustainable land use from the other programme.

The institution co-ordinating the administration of the incentives was called Fonafifo (Fondo Nacional de Financiamiento Forestal - Forestry Financing Fund), an office created by the MINAE (Ministerio del Ambiente y Energia - Ministry of Energy and Environment). Fonafifo had the role of receiving and analysing applications, conducting field verifications, carrying out the payments, and monitoring field implementation of forestry projects.

Beyond CTOs, Costa Rica also worked on ways to charge the economic sectors which most benefit from these services. One example is the creation of a system to charge hydroelectric plants for the conservation of their water catchments, at a rate of US\$10/ha/year. A similar mechanism was being created for remunerating farmers in eco-tourism regions. In the case of biodiversity, genetic prospecting contracts were firmed between INBio (the Costa Rica institute of genetic resources) and international chemical companies. The first of such contracts was signed with Merck, the large Swiss company, and stipulated that Merck pay to Costa Rica 10 % of the profits from any product derived from their forests.

In addition to these national programmes, Costa Rica also hosted independent private sector carbon forestry projects given the country's positive environment for investment in this type of activity. Furthermore, the combination of national level monitoring and the role that the PFP had in reducing potential leakage enhanced the effectiveness of the independent land use carbon projects.

The Costa Rican system of payment for environmental services provides a useful case study of how developing countries can engage in REDD in a well-planned and controlled manner. Many of the issues addressed by the project are currently back in the agenda with relation to REDD systems, such as national versus sub-national projects, integration of public and private-sector participants, leakage control, approaches for engagement of small holders, and mechanisms for the disbursement of financial resources. Furthermore, this programme also demonstrates how carbon finance can be channelled by developing countries into their national priorities. The programmes were entirely conceived by the Costa Rican government and, consequently, totally conformed to their sustainable development objectives. As international interest in REDD grows, this is a model that can be adapted to the circumstances of other developing countries.

Appendix 2: Early JI and AIJ forestry projects initiated during 1990s

Project name	Date proposed/ Initiated	Carbon offset (1000 t C)	Area (ha)	Host Country	Investor country	Project description
AES – Care	1990	10,500	186,000	Guatemala	USA	Agroforestry
Face Malaysia	1992	4,250	25,000	Malaysia	Netherlands	Enrichment planting
Face-Kroknose	1992	3,080	16,000	Czeck R.	Netherlands	Park rehabilitation
Face Netherlands	1992	885	5,000	Netherlands	Netherlands	Urban forestry
ICSB-NEP 1	1992	56	1,400	Malaysia	USA	Reduced Impact Logging
AES – Oxfam – Coica	1992	15,000	1,500,000	S. America	USA	Forest protection
AES – Nature Conservancy	1992	15,380	58,000	Paraguay	USA	Forest protection
Face-Profafor	1993	9,660	75,000	Ecuador	Netherlands	Small farmers plantation forestry
RUSAFOR-SAP	1993	79	450	Russia	USA	Plantation forestry
Face Uganda	1994	6,750	27,000	Uganda	Netherlands	Forest rehabilitation
Rio Bravo	1994	1,300	87,000	Belize	USA	Forest protection and management
Carfix	1994	2,000	91,000	Costa Rica	USA	Forest protection, and management
Ecoland/Tenaska	1995	350	2,500	Costa Rica	USA	Forest conservation
ICSB-NEP 2	1996	360	9,000	Malaysia	USA	Reduced Impact Logging
Noel Kempff M.	1996	14,000	1,000,000	Bolivia	UK/USA	Forest protection and management
Klinki forestry	1997	1,600	6,000	Costa Rica	USA	Reforestation with klinki
Burkina Faso	1997	67	300,000	Burkina Faso	Denmark	Fire wood community forestry
Scolel Te	1997	15	13,000	Mexico	UK/France	Community forestry
PAP OCIC	1997	18,000	570,000	Costa Rica	Norway, USA	Forest conservation
Norway-Costa Rica	1997	230	4,000	Costa Rica	Norway	Forest rehabilitation and conservation
Tesco "green petrol"	1998	n.a.	n.a.	Undefined	UK	Forestry
Green fleet initiative	1997	n.a.	n.a.	Australia	Australia	Reforestation
AES - Ilha Bananal	1998	n.a.	n.a.	Brazil	USA	Forest rehabilitation
NSW + Pacific Power + Delta Electricity	1998	69	1,041	Australia	Australia	Reforestation
World Bank Prototype Carbon Fund	1998	n.a.	n.a.	Internationa	International	Renewable energy and forestry
Totals/average	-	103,631	3,978,191	-	-	-

n.a. = not available

Table based on Moura-Costa, P. & Stuart, M., 1998