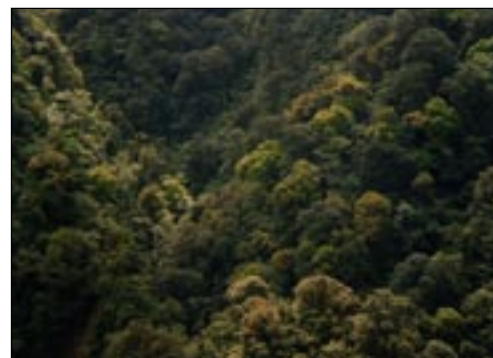


Can payments for avoided deforestation to tackle climate change also benefit the poor?

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Avoided deforestation (AD) is a hot topic in climate change circles, including the United Nations Framework Convention on Climate Change (UNFCCC). Using financial incentives to reduce rates of deforestation and forest degradation in tropical countries has much to commend it, as deforestation is a major contributor to climate change. It might also offer additional benefits, such as protecting biodiversity, preventing soil erosion and protecting the livelihoods of forest dependent populations. This paper discusses the details of how such incentive schemes may be established and considers some of the issues from the perspective of host countries and the forest dependent poor.



Avoided Deforestation could benefit the environment and forest dependent populations

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Policy conclusions

- There are strong arguments in favour of including incentives for AD within the climate change convention.
- Deforestation has multiple economic, socio-political, demographic and environmental origins and any scheme will have to be flexible enough to address a wide variety of issues.
- National policies and processes will need to be strengthened to address the root causes of deforestation and to design systems for transferring payments from international funds to individuals on the ground. Donor funding will be required to help establish such systems.
- Unlike Clean Development Mechanism (CDM) projects, liability for failure to meet targets is likely to lie at host government rather than project level. One of the main concerns for the poor will be how liability is transferred to them: globally-manipulated incentives could worsen governance problems and anti-poor policy biases within forest-rich countries, if existing policies are not well understood. This calls for international oversight mechanisms that set standards for, and monitor the social impact of, avoided deforestation policies. These mechanisms will at the same time need to maintain host nation sovereignty.
- There are a variety of ways that avoided deforestation might be incentivised at the local level, using a combination of policy interventions and financial incentives (including transfers and taxation). These need to be appraised not only for their practicability but also for their effects upon the poor.
- Up front funding will need to be provided to host countries to develop national systems for monitoring and accounting. Such investment will have additional benefits, including: overall reduced costs compared to many separate project activities; access to carbon finance for a wider number of land-uses, through improved carbon accounting in the sector; benefits for existing afforestation/reforestation projects in the CDM, such as improved leakage assessment.
- An important issue for the forest dependent poor will be in how contracts are designed, particularly as regards the length of contracts and the payment schedules (ante- or ex-post); pro-poor appraisal is thus necessary from the inception stage.



FPEP conducts independent policy-oriented research on tropical forestry issues, seeking to inform policy change in ways which improve the livelihoods of the forest-dependent poor, whilst also securing the long-term future of forest resources.

Questions of terminology

Payments for conserving carbon stocks in forests are usually referred to as payments for 'avoided deforestation' (AD). However, there is an argument in favour of the alternative term 'reduced deforestation', as this is less redolent of complete 'forest conservation' (Skutsch et al. (2006). Given that the main aim of payments is to preserve biomass (and therefore carbon), other land-uses, such as certain forms of sustainable forest management, could qualify. It should also be noted that forest degradation can result in emissions and must also be covered by payment schemes. Following present conventions, we retain the phrase 'AD' in this paper, though we use the term in its broadest sense.

Avoided deforestation: why no existing scheme?

Despite the potential benefits, there is as yet no international incentives scheme for reducing deforestation. The Kyoto Protocol is perhaps the most promising existing system but payments for reduced deforestation are not currently permissible. Forestry projects to reduce greenhouse gas emissions are limited to afforestation and reforestation (A/R). The reasons for the existing policy include:

- i. Difficulties in establishing accurate '*baselines*' for reduced deforestation – estimates of emissions had the project or programme not existed;
- ii. Problems in preventing *leakage* (that is, changes in anthropogenic emissions by Green House Gas (GHG) sources, which occur outside the project boundary, but are attributable to its activities);
- iii. Problems of ensuring AD and related carbon

dioxide emissions are *permanent*. Non-permanence occurs if trees are cut down, die or are affected by fire.

- iv. The *large scale* of possible reductions from AD, which could act as a disincentive for developed countries to de-carbonise their societies. (Stern, 2006)
- v. There are also concerns that including AD could destabilise existing carbon markets, by reducing interest in emissions reductions.

Since the 'Conference of the Parties' (COP) 11, held in Montreal in 2005, interest in including AD under the UNFCCC and its Kyoto Protocol has increased substantially. This follows a proposal led by the government of Papua New Guinea to establish an incentives system by which industrialised countries would pay tropical developing countries to reduce deforestation rates. This renewed interest was sustained at UNFCCC COP12/MOP2 in Nairobi in November 2006. There is a strong logic to the inclusion of avoided deforestation in these processes, in that continued exclusion might create a perverse incentive in favour of deforestation, as a means to secure later funding for afforestation. The focus is on tropical forests because of their rapid rates of deforestation, their high capacity to store carbon and the diverse functions they serve.

Causes of deforestation

Deforestation is a complex condition with multiple economic, socio-political, demographic and environmental origins and any such scheme would have to address a wide variety of issues. These include direct causes such as logging, agricultural expansion and infrastructure development, and underlying causes such as policy and institutional failures, economic factors and cultural factors.

Box 1. Compensated reduction

Currently, deforestation is by far the biggest source of greenhouse gas (GHG) emissions from developing countries and is said to account for around 20-25% of global GHG emissions. The idea of Compensated Reduction is for a voluntary international system to incentivise forest protection and bring developing country emissions into the Kyoto Protocol.

It proposes that developing countries agree to voluntary but binding targets to reduce their GHG emissions from deforestation below a nationally averaged baseline (based on their historic emissions from deforestation). Emissions reduction credits, tradable within international carbon markets, would then be issued according to how far emissions are reduced beyond this baseline. Payments for these credits would be made at the end of the first commitment period for the Kyoto Protocol (2012) after emissions reductions have been verified. Countries would agree to stabilise or further reduce their emissions in subsequent commitment periods. Failure to meet agreed targets would involve a mandatory cap on emissions in the next commitment period equal to the volume exceeded in the first commitment period.

Bringing emissions from developing countries into the Kyoto Protocol in this way would overcome one of the key constraints that has prevented the US from ratifying. It would also be a move towards a programme-based rather the project-based approach to greenhouse gas emissions in the forestry sector.



Compensated reduction would use targets to reduce deforestation and emissions

PHOTO: NEIL BIRD

How might incentive schemes work?

There are numerous different ways that such incentives schemes could function and talks are ongoing as to how they might be put in place. They vary in terms of such issues as:

- Are they part of the existing Kyoto Protocol or a separate system?
- Where is funding sourced from (e.g. private or public)?
- How are payments to be made (e.g. direct payments to individuals or payments to governments)?
- Coverage (e.g. regional, national or local).

Systems based on the 'compensated reduction' proposal originally proposed by Santilli et al (2003) are among the most favoured. These would incorporate AD into the market mechanisms of the Kyoto Protocol (Box 1).

There are clearly concerns that need to be considered about how such large and untested systems might impact on host countries and the forest dependent poor.

Addressing the priorities of the host country

Certain features are necessary for the design of all such incentive systems. These relate to the primary objective of AD programmes: to reduce emissions of greenhouse gases and the technical challenges this raises. They include:

- Strong national policies and processes that address the root causes of deforestation and design systems for transferring payments from international funds to payments to individuals on the ground.
- Local systems that use incentive payments to prevent deforestation or degradation and ensure leakage prevention and permanence.
- National systems that enable accurate monitoring and accounting of greenhouse gas emissions from forests and the calculation of baselines.

Strengthening national policies to address the root causes of deforestation

The high transaction costs and significant institutional development needed to establish national systems for AD raise the issue of how such programmes can be funded. There are a number of questions to consider here, including:

1. What would schemes cost?
2. Is it practical for incentive schemes to fund both national level capacity building and project level incentives, or will additional donor support be needed?
3. What steps should be taken if a country defaults from its target to reduce deforestation?

There have been a number of studies of the cost of incentives schemes at international and national levels (e.g. Silva-Chavez 2005). Most target the

project level and focus on the break-even price of carbon compared to other land use practices. Some also consider administrative costs on top of this, with Grieg-Gran (2006) estimating between \$4 and \$15 per hectare. Although these figures seem high, initial estimates would suggest that the overall costs per unit of carbon is similar to the current price of carbon in the CDM.

The timing of payments raises a question over the feasibility of incentives systems to pay administrative costs. Investors will tend to favour an ex-post payment system which guarantees certainty that emissions reductions have occurred. This will not provide the up-front capital needed to establish and maintain the necessary institutional structures and systems. Most of the proposals therefore suggest a combination of payments from governments or companies for the AD 'service', along with donor support for capacity building at national level. As Chomitz et al (2006) suggests, such up-front donor funding could have 'win-win' benefits whether GHG emissions are reduced or not, such as aiding land use planning and forest law enforcement. It might also prove to be a more effective way to develop policies that address the underlying causes of deforestation, rather than merely providing incentives to discourage it, which risk short-termism and low impact.

Whilst this combination of a market system plus donor funding might be the necessary outcome, it raises further potential problems. Firstly, relying on donor support might reduce the long-term sustainability of AD programmes. Donors are unlikely to provide funding indefinitely and Payment for Environmental Service (PES) systems are also thought to perform better if they stick to the underlying principle of a buyer-seller relationship (Wunder 2006). Secondly there is a wider concern that incentive payments based on an international market for carbon will be sensitive to external price fluctuations. Although the value of carbon credits is likely to increase in the short term other commodities that directly compete for land are also likely to increase in value. Biofuels are one example. In the case of Bolivia, Silva-Chavez (2005) finds that the AD has more financial value than soybean production, and this is likely to remain the case for the foreseeable future. However, given current interest in biofuels and large production targets set by the EU and US amongst others, one would hesitate to assume that it will always be so.

Within any of these systems, there will be a need for target setting and enforcement mechanisms at the international level to guarantee compliance and ensure that funding does lead to the desired goal of reducing emissions. Targets that are too weak will have little impact on deforestation rates; if they are too stringent then countries may not participate. There are a number of options for enforcing compliance, which vary from set penalties for missing targets to establishing target 'windows' that incen-

divise compliance beyond targets and fractionally reduce the number of credits sold in a situation of non-compliance (Schladmadinger et al. 2005). In all cases there is a trade-off between attracting host countries to take part and ensuring schemes perform well.

One thing that seems certain is that liability for failure to meet targets will lie at host government level rather than project level, unlike A/R projects in the existing CDM. This is because GHG accounting will be carried out at a national level. If investors paid project participants directly but a country missed its target they could be held liable for national policies which are out of their control. It is therefore likely that the detailed design of schemes at a sub-national level will ultimately be the responsibility of the host government, which will also maintain sovereignty.

Incentives schemes and the sub-national level

There are a variety of ways that AD might be incentivised at the local level. The most basic would be to place a tax on tree felling. Such an approach would be heavily reliant on strong enforcement and would only be possible where land ownership is well defined and deforestation is legal in principle. These are far from guaranteed in most heavily forested tropical countries. Even if such a system were feasible, it could unfairly penalise those who are least able to pay.

A second option would be to make direct payments to people causing deforestation based on the amount of forest they preserved and the opportunity costs of their activities. Again, issues of ownership and coverage of illegal logging raise questions about the feasibility of such an approach - it would have to function within a strengthened national forest protection system. Equally problematic is how payments are calculated. If payments are not targeted at areas at high risk of deforestation, they will have to cover a much wider area and many more people. This would reduce the possible payment per person or increase the absolute cost of the scheme. Experience with Payment for Environmental Services (PES) schemes so far indicates that effective targeting can be difficult.

A third option would be to promote alternatives to deforestation using a combination of policy interventions and financial incentives. Options include promotion of intensive agricultural production and supporting sustainable forest management. Such a strategy would be heavily dependent on being able to identify suitable alternative activities that are sustainable in the long term.

National systems for monitoring and accounting

Any AD programme will need to include a comprehensive monitoring and accounting system which has national scope. Assessing the impact of deforestation and degradation on national carbon

balance requires sophisticated science. The crux would be estimates of emissions deriving from land use changes over time, in four dimensions:

- i. Changes in forest and vegetation cover, including deforestation and forest degradation
- ii. Changes in carbon stocks
- iii. Changes in other GHG producing activities that arise from the AD programme
- iv. Estimates of emissions

This would require both remote sensing and ground measurements. The technical guidelines are already available in the revised Intergovernmental Panel on Climate Change (IPCC) 'Guidelines for National Greenhouse Gas Inventories' (1996) and the IPCC 'Good Practice Guidance for Land use, Land use change and Forestry' (2003). However, for many tropical countries with considerable forest cover, such work would be expensive and highly demanding of scarce expertise. This is particularly the case with forest degradation, where (unlike deforestation) the changes may not be easily observable by imaging techniques. Advanced statistical techniques and modelling can help overcome some of these issues and offer economies of scale (Chomitz et al, 2006). However, high transaction costs and capacity building issues imply a need for upfront funding for national institutions.

GHG accounting systems would also have to be developed at a national level, tracking changes in emissions directly attributable to the AD programme. Their second function would be to connect the payment system to the international market, recording the related value of emissions reductions and transferring credits between parties. Start up and transaction costs for such a system would again be high, with a need for new institutional structures and oversight mechanisms such as third party verification to increase investor confidence.

Despite their evident cost, there are a number of advantages from the perspective of the host countries of monitoring and accounting systems for AD programmes compared to existing project-based systems. These include:

- Overall, reduced transaction costs as it is more efficient to have an integrated national system instead of many separate small-scale projects;
- Encouraging a 'whole country' approach to GHG emissions accounting from land-use activities. To understand whether an AD programme has actually reduced emissions, calculations will have to be made for GHG emissions from all activities that replace it (e.g. intensified farming or sustainable forest management). Knowing about the volume of emissions from a range of other sectors might offer potential to generate carbon finance from a wider range of activities. In particular this could be advantageous to countries with little existing energy infrastructure, but which possess a high potential for land use based projects (the case in many African countries). They might then have more access to

- global carbon markets than is currently the case.
- A/R projects under the CDM would also stand to benefit. Such projects currently suffer from high uncertainties and costs in calculating leakage. Understanding how projects fit within the wider context of GHG emissions beyond their boundaries would enable more accurate assessment of leakage. Increased certainty could also enhance project credibility and encourage investment.

Prioritising the concerns of the forest dependent poor

There are two sets of concerns for the forest dependent poor that underlie all of these systems.

1. How incentives are targeted to ensure that benefits reach those that are affected by changes in land use.
2. How contracts are set up and whether they allow flexibility for those participating.

Targeting and preventing leakage

The ways in which incentives are targeted is a concern for the forest dependent poor because of the wide coverage that schemes are likely to have. At a national level (where there is lots of variation between projects, stakeholders and land ownership), it could become very difficult for governments to target those elements that actually cause deforestation. There is a danger that targeting will be overly simplistic. An example of this would be the case where large logging operations receive financial incentives to reduce deforestation while forest dependent groups using sustainable practices (and not causing emissions) do not receive any financial benefits at all (Skutsch 2006).

For AD schemes, targeting relates closely to leakage, which can only be prevented if opportunity costs are met. On a large scale preventing cross-border leakage will be vital for the success of AD schemes. Leakage might occur if there are differences in the structure or stringency of incentives schemes between neighbouring countries. If this is the case, then there might be a negative impact on forest dependent populations - for example, through the relocation of logging activities between the countries. In the worst scenario, these differences could lead to a 'race to the bottom' as investors try to source cheaper emissions reductions. The development of standards for AD schemes at national and project level will be important in this regard.

At the project level, leakage is likely to be less of a problem in AD schemes than A/R schemes because of the national scope of monitoring and accounting activities, although this ultimately depends on how the scheme is structured at national level. There have already been some successes in preventing leakage through financing alternative livelihood options. The Noel Kempff project in Bolivia, for example, provided communities with economic



The needs of forest dependent people will need to be considered by AD schemes.

PHOTO: CECILIA LUTTRELL

opportunities that encourage forest conservation, such as the adoption of sustainable forest management practices. There have still been problems, however, which relate to a lack of understanding of new conservation and resource management rules and lack of inclusion of more marginal community members (May et al. 2004).

Contract design

One of the main concerns for the forest dependent poor will be in how contracts are designed. Contracts for AD schemes will be influenced by the problem of permanence, as investors will be most interested in ensuring that emissions are avoided indefinitely and hence bind people to their conditions. How to deal with the risks associated with the temporary nature of reductions from forestry has been a subject of much debate in the Kyoto Protocol. Temporary crediting systems have been created that expire after a certain period and can be renewed. This can make credits less easily transferable, which can make them less attractive to investors. This is one of the reasons why the number of forestry GHG sequestration projects in the CDM is still extremely low. This is a missed opportunity to help the poor.

Permanence may be less of an issue in avoided deforestation schemes. Unlike A/R projects, which are normally established to sequester emissions that have already occurred, AD projects prevent emissions from occurring at all. In this way they are more akin to energy projects. As Chomitz et al 2006 imply, it may not even matter if deforestation is avoided for only a limited time. AD projects can



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'buy time' for the development of cleaner energy generation technologies and they can result in behaviour changes that could prompt 're-evaluation of the desirability to convert' despite loss of financial incentives. This was the case in Costa Rica (Ibid).

However, if the main aim of the investor is to avoid future GHG emissions, they will be concerned about permanence. Producers, on the other hand, will prefer temporary emissions reductions, which give them the flexibility to convert forests if their circumstances change. These differences could have a number of implications for the poor:

- investors will favour long contracts that are inflexible, to ensure that forests are preserved indefinitely.
- risk aversion mechanisms will be needed in the event of the producer defaulting on their contract. How these work will depend on who is liable for ensuring emissions reductions.
- ex-post payments will be preferred because they can be made after emissions reductions are guaranteed. These will reduce uncertainty but will not provide up-front capital for the establishment of AD mechanisms. AD mechanisms have some advantage over the A/R projects in this regard, because they do not have to overcome the issue of slow early growth rates for newly established forests.

One of the main concerns for the poor will be how liability is transferred to them by the host country if permanence is not maintained. Forest-rich countries are often known for their severe governance problems and biases in their forest policies, usually in anti-poor directions. If the multiple nature of forest usage is not well comprehended in existing policy, it must be considered whether it will be any better comprehended when subjected to globally manipu-

lated incentives. The danger is that governments would adopt heavy policing policies with regard to their forest areas, whilst also cutting off many of the channels for the only alternative livelihood activities that are available to the poor.

Conclusions

From an environmental angle, AD schemes certainly have huge potential to contribute to climate change mitigation and preserve existing forests. There are still many uncertainties in the detail, particularly on how to build a functional institutional framework. It could be argued that these uncertainties are necessary in order to encourage a broader approach to carbon finance that recognises the full role that forestry can play. Even if the overall contribution of schemes towards emissions reduction is hard to evaluate, the potential scale of investment could do much to strengthen national institutions and policies for forest protection, though significant attention is going to have to be paid to ensure that these schemes benefit the poor.

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