

'Reduced Emissions From Deforestation': Can Carbon Trading Save Our Ecosystems?

By Almuth Ernsting and Deepak Rughani

July 2007

In 2005, COP11 set up a working group on reducing tropical deforestation, which will report back at the end of the 2007. There is a growing consensus that deforestation must be tackled in order to reduce total greenhouse gas emissions, and that the cost for doing so must be shared between nations and not be borne by the, largely poor, rainforest nations.

Those UNFCCC discussions were initiated by proposals submitted by Costa Rica and Papua New Guinea and then endorsed by a large number of countries and institutions, called the Coalition for Rainforest Nations¹. Those proposals were based on Costa Rica's 'Payments for Environmental Services' scheme, which involves payments for "those services provided by forest and forest plantations to protect and improve the environment"². They referred to as 'Reduced Emissions from Deforestation in Developing Countries' (REDD) or 'Avoided Deforestation'.

The stated aim of the Coalition for Rainforest Nations is "to incorporate certified emissions offsets related to deforestation (in addition to afforestation and reforestation) within global carbon emissions markets by revising the Marrakech Accords, amending the Kyoto Protocol, or developing a linked 'optional protocol' under the UNFCCC." At present, carbon trading provides funding for 'afforestation and reforestation', which generally means monoculture tree-plantations which often have a devastating impact on environment and local communities. Under the Kyoto protocol, no carbon finance is available for protecting existing forests. The Coalition for Rainforest Nations aims to raise large sums of funds for conserving tropical forests, much of it via carbon trading mechanisms. Their most recent proposal submitted to a REDD workshop in March 2007 aims for a combination between emissions trading and a separate fund. New funding would be for protecting existing forests only, though Clean Development Mechanism funding for afforestation and reforestation would also be expanded. The trading mechanism would be introduced after 2012 and would be in addition to emission reduction targets by Annex 1 nations.

Alternative proposals which have been discussed at recent REDD meetings³ include

- ▶ 'Compensated Reduction' as proposed by India and supported by Indonesia and China, which aims to compensate countries with low emissions from deforestation as well as rewarding reforestation, although this is already covered by the Clean Development Mechanism. Note that the Coalition for Rainforest Proposal was also initially called 'Compensated Reduction', however their current position is different to India's proposal.
- ▶ Brazil's proposal for a non-market fund for reducing deforestation emissions, without any obligations on developing countries to reduce emissions, and without any trading, targets or integration into a future climate change agreement. Brazil wants to consider only gross deforestation, i.e. real forest destruction, which cannot be off-set by tree plantations;
- ▶ Tuvalu's Forest Retention Incentives Scheme, which would be an international fund for community-based forest management schemes.

Recent scientific publications and declarations made at a UNFCCC (SBSTA) meeting in May 2007 suggest that the preferred option is for the so-called '50-50-50 option: Reducing deforestation rates by 50% by 2050 and then continuing deforestation at that rate, which it is claimed, would save 50 billion tonnes of carbon emissions compared to 'business as usual'⁴. One of the authors of the Science article⁴, Dr Peter Canadell of CSIRO Marine and Atmospheric Research and the Global Carbon Project, has publicly confirmed that the long-term aim would be to conserve 50% of existing tropical forests⁵. This aim of preserving only half of existing forests appears to be the basis for UNFCCC discussions, although it does not yet appear to have been formally endorsed by the Coalition for Rainforest Nations. The figure is derived from calculations of what would be affordable, using figures from the 2006 Stern Review.

From a systems perspective such proposals deal with the symptomatic problem – uncontrolled rainforest destruction – without dealing with the fundamental problem, that we are in sink deficit (we emit 50% more emissions than can be absorbed by sinks and sink capacity has also been considerably reduced

since the industrial revolution). This deficit is also now critical i.e. quite modest increases in deforestation could precipitate ecosystem collapse. By trying to regulate the *rate* of deforestation (the symptomatic response) the fundamental problem of approaching critical sink deficit is masked. Because the problem actually gets worse under this policy (deforestation becomes legislated for) the symptomatic response also acts as an amplifying feedback virtually guaranteeing ecocide.

In this example the amplifying 'shifting the burden' archetype to be employed by the REDD protocol, as with most amplifying loops, will be dramatically balanced by what's known as a 'limits to growth' archetype wherein the system will ultimately impose its own constraint on deforestation by tipping into collapse.

The Stern Review⁶ did not recommend any particular figure for reducing deforestation. In fact, Stern states that, in order to stabilise CO₂ emissions at 450 ppm one, would be looking at "for example a rapid and complete decarbonisation of non-transport energy emissions, halting deforestation and substantial intensification of sequestration activities.", i.e. not simply at reducing the rate of deforestation. Nor does the Stern Review suggest that including forests in carbon trading mechanisms is the best way for protecting them. He does, however, support the principles that payments for protecting forests should be calculated according to the 'opportunity cost' of the use of land that would otherwise be available for agriculture. This means that the 'lost profits' from not converting forest to soya or oil palm plantations, would have to be paid. He suggests that the opportunity cost of stopping deforestation in the eight countries responsible for 70% of global carbon emissions from land-use change might initially be \$5-10 billion per year, although this figure could be higher if countries were to lose profits from processing agricultural products and timber, too and is likely to up as deforestation is reduced. He calculates the actual cost of administering, monitoring and enforcing a deforestation ban in those eight countries as possibly only \$12-93 million per year.

Proposals for Reduced Emissions for Deforestation will be debated at the next UNFCCC Conference of Parties in December 2007, but amendments to the Kyoto Protocol, which runs until 2012, are unlikely. In the meantime, the World Bank is setting up a \$250 million 'avoided deforestation' pilot project with the support of the G8⁷, called the Forest Carbon Partnership Facility. This new fund is expected to pay

governments for not turning parts of their forest into plantations. It will focus on five countries, including Brazil and Indonesia. The announcement of the new fund is already informing the debate in Indonesia: On 26th May, a Governors' meeting spoke about plans to try and use World Bank funding, as well as possibly other international finance, to preserve 1 million hectares of the 10 million hectares classed as 'conversion forest' on West Papua. It is expected that the money will be used largely for infrastructure development, including roads. Indonesia essentially expects to be compensated for destroying possibly 9 million rather than 10 million hectares of intact rainforest.

The new World Bank fund is part of a plan for a new mega-fund called the Global Forest Alliance. This is being developed as a partnership between the World Bank, logging and plantation companies, science institutes, bilateral and multilateral donors, 'business donors' and large conservation NGOs (including WWF, Conservation International and The Nature Conservancy Council), with the aim of "eliminating barriers to investment in the conservation and sustainable use of forests".

What is wrong with those proposals?

1. Slowing down ecocide?

As Dr Glen Barry, President of Ecological Internet says: "Protecting half of what has already been 80% diminished, and continuing to advocate commercial development of the rest, when ancient and old-growth forest ecosystems are already inadequate to maintain life, is a false, deadly message"⁸ If deforestation continues, even at a reduced rate, it will be virtually impossible to stabilise the climate. The Amazon, for example, could well be on the verge of large-scale ecosystem collapse which could trigger abrupt and catastrophic climate change. We need to stop tropical forest destruction and support true ecological restoration, such as re-flooding and restoring drained peatlands in South-east Asia and allowing so-called degraded or 'secondary forests' to regenerate without further logging. These approaches would begin to deal with the fundamental problem of acute sink deficit by setting up balancing or restorative feedback cycles.

As current events in West Papua, described above, funding for 'avoided deforestation' is likely to be used as part of governments' 'economic strategy' which entails large-scale forest destruction.

2. When is rainforest destruction not 'deforestation'?

It has not been decided whether 'Avoided Deforestation' would include curbing forest degradation, namely so-called 'selective' industrial logging in old growth forests. Selective logging can reduce carbon storage by up to 70%⁹ and leads to major biodiversity losses (the removal of one Mahogany tree damages on average 30 other trees) and greater susceptibility to fire even if it is not followed by deforestation. Furthermore, UNFCCC do not class rainforest destruction for monoculture plantations as deforestation, even though plantations on maturity store at best one quarter of the carbon held in old growth forests, and are widely regarded as 'green deserts', largely devoid of biodiversity. From a systems viewpoint this 'shifting the burden' to future sequestration is a massive amplifying loop.

3. Who compensates whom?

The principle that industrialised countries should help to pay the cost incurred by Southern nations for protecting their 'carbon sinks' was endorsed at the Rio Summit in 1992 and is enshrined in the United Nations Framework Convention on Climate Change. It is clearly fair for that richer countries, which are the main consumers of timber, paper and pulp, cash crops and agrofuels produced at the expense of rainforests should pay rainforest nations for protecting their forests.

The current 'avoided deforestation' or 'REDD' proposals, however, suggest that vast sums of money should be transferred, not simply to pay the actual cost of enforcing a logging ban - including satellite photography, community forestry support, public education or fire fighting facilities - but above all a much larger 'compensation' for not destroying forests. This greatly increases the cost for protecting forests. Brazil has estimated that the modest per hectare 'payments for environmental services' currently paid by the Costa Rican government for their forests would translate into \$20 billion per year if all deforestation in Brazil was halted. This high 'market price' is already resulting in Coalition for Rainforest Nations members 'accepting' that preserving more than half of the remaining tropical forests is unaffordable and therefore impossible. Implementing a straightforward logging moratorium, on the other hand, costs considerably less: The Paraguayan government cut deforestation in the eastern half of the country by 85% in 12 months by implementing a moratorium, with very modest investment in forest monitoring

technology and law enforcement. The market-based 'compensation approach' is clearly the most expensive one and, as we shall see below, an approach which has never been successfully tested.

From a systems perspective, if we are truly interested in dealing with the fundamental problem of deforestation then a moratorium is the most robust way of ensuring a balancing loop. Payments for Environmental Services along with Compensated Reduction in contrast are fragile. They generate a balancing loop weakened by the high financial demands while leaving the amplifying loop of deforestation largely intact. Because both loops involve market forces pulling in opposite directions, the strongest market force in terms of financial returns will ultimately determine the proportion of forest safeguarded.

Nor can the 'compensation principle' be justified on grounds of equity: The 'opportunity cost' is calculated on the basis that countries would otherwise gain from converting forests, largely to monocultures for exports. Short-term profits from land-conversion tend to mainly go to agribusinesses and logging companies, whilst millions of people are losing their livelihoods. The absurdity of the moral claims made by proponents of such 'compensation' is illustrated in recent comments on a biofuel industry website, regarding very weak Dutch proposals to set 'standards' for biofuel production: "If the West wants to ensure that this development is not based on its own mistakes (mass-deforestation, massive use of fossil fuels), then it should simply *pay* the South to embrace a more sustainable model. If it doesn't, the West has no legitimacy whatsoever and developing countries have a strong case to bring before the courts, proving that the sustainability criteria imposed on them are non-tariff barriers to trade and hence to development"¹⁰. The 5 million indigenous people likely to be displaced by biodiesel plantations in West Kalimantan alone, and the other 35-65 million Indonesians whose livelihoods depend on the forests might disagree. There is no offer of compensation for the millions of people displaced and impoverished by plantation and logging companies, yet those companies are to be compensated for doing less damage in future.

4. Who will benefit from the money?

There has been little debate as to who will receive the 'compensation funds', but most proposals imply that they will go to governments which will then distribute them further. It is not known whether indigenous and



Indigenous Penan people trying to stop industrial loggers from destroying their forest
<http://www.rainforestweb.org/images/cat/penan-big.jpg>

other local communities will benefit from the payments, or whether they will reinforce government and private sector control over forests at the expense of communities. Many of the previous 'forest protection' schemes funded by international institutions, including the World Bank, have led to the eviction or expropriation of indigenous communities, violated their customary land rights, to land speculation and conflicts, and to greater inequality. The indigenous and local communities who have the greatest knowledge of and interest in preserving forests have often been the victims of policies meant to protect forests and there are fears that they could suffer yet again under 'Avoided Deforestation'.

Systems theory would suggest that, by disregarding the land and humanitarian rights of local and indigenous peoples with a long history in safeguarding forests, we weaken the one fundamental balancing response we have. This balancing response is particularly potent because local and indigenous peoples have a vested interest in forest protection and are best able to deal with fire breakout and restoration projects at low cost.

5. Ignoring the reasons for forest destruction:

The Avoided Deforestation proposals do not address the underlying drivers of forest destruction. Those main drivers can be summarised as:

- ▶ excessive and growing demand for timber, pulp and paper and cash crops in the North;
- ▶ unequal trade and finance rules and institutions which force Southern countries to open up their economies to international agribusiness, mining and logging companies without effective restrictions, and to sell their natural resources in order to pay unfair debts.

Avoided Deforestation is being promoted by the same governments and institutions which also promote the expansion of tree monocultures to serve Northern markets, and the expansion of monoculture plantations to grow biofuels, largely for car drivers in rich countries. The expansion of monocultures is already the main cause of tropical deforestation, at least in Latin America and South-east Asia and the fast growing demand for biofuels could soon become the leading cause of rainforest destruction.

6. A new consensus against a global carbon budget?

There appears to be a consensus between the EU, the Coalition for Rainforest Nations, India, Brazil, China and other nations that deforestation will be addressed in a post-2012 climate agreement which will not involve a global carbon budget, or any binding commitments for countries other than the industrial nations listed in Annex 1 of the Kyoto Protocol. The REDD proposals are inherently incompatible with a global contraction budget - and without such a carbon budget, there will be no hope of stabilising the climate.

7. Flawed market logic

Commodity prices for soya, palm oil, sugar cane and timber are either rising or expected to rise in the near future, particularly if the bioenergy market expands as planned. Climate change will further drive up prices by devastating crops and forests (particularly forests outside the tropics, which are more vulnerable to global warming). As commodity prices rise, so will the potential profits from turning forests into plantations, and thus the compensation bill. The same sum of money will then protect far less forest than intended. Likewise, the 'carbon cost' will increase if more forest is protected - something the Stern Review acknowledges.

Governments seem to be ignoring not just this inflationary principle, but also the possibility of a global recession. The idea that 'the more you pay us the more forest we can preserve' thus effectively translates into 'the less money we get the more forest we will allow to be logged and converted to monocultures'. Climate change, even without the possibility of peak oil, is more than likely to cause a global recession in the near to medium future, as global insurance losses increase almost annually.

Again from a systems perspective, by paying those who are amplifying the problem to stop, we inadvertently legitimise their case in the absence of funding. The balancing loop of payment itself becomes an amplifying loop during a time inflationary prices or global recession.

8. Flawed science:

There are two major flaws in the science behind the proposals for 'Avoided Deforestation':

Firstly, the proposals are based on the assumption that emissions are proportional to deforestation. The risks

of non-linear events, such as rapid Amazon die-back, have been acknowledged by most scientists. Why then are scientists claiming that "reducing deforestation rates 50% by 2050 and then maintaining them at this level until 2100 would avoid the direct release of up to 50 GtC this century (equivalent to nearly 6 years of recent annual fossil fuel emissions, and up to 12% of the total reductions that must be achieved from all sources through 2100 to be consistent with stabilizing atmospheric concentrations of CO₂ at 450 ppm (*I*) (figs.S1 to S5)." ⁴? There is no basis for such certainty, particularly since a recent interdisciplinary science conference about the Amazon concluded that the risk of deforestation combined with global warming triggering large-scale die-back in the next few decades is 10-40% ¹¹. Claims that it will be possible to stabilise atmospheric CO₂ at 450 ppm without stopping deforestation seem to be based on similar wishful thinking.

Secondly, carbon trading, or assigning a monetary value to forests requires precise emission figures and carbon inventories. The most up-to-date figures for emissions from peat destruction in South-east Asia are between 136 million tonnes and 1.42 billion tonnes per year ¹². Those figures are a good enough reason not to convert the peatlands into oil palm and timber plantations and to support ecological restoration, but hardly useful for carbon trading.

9. No evidence that trading in environmental services can work:

There is not a single example of a successful 'payments for environmental services scheme that is based solely on carbon trading, or solely on market-based approaches. Schemes lauded as successful include at the most 10% carbon finance. Costa Rica's PES scheme is primarily financed by a tax on fuel use and by international donors. It is also additional to a successful logging ban, meaning that companies are essentially being paid to abide by the law. Integrating PES schemes into international markets could well lead to successful co-financing scheme which involve public subsidies and regulations being deemed unlawful by the WTO - yet this is exactly the aim of the World Bank's Global Forest Alliance.

From a systems perspective we fail to find the real leverage; the amplifying feedback loop of deforestation is strengthened by payments just as in the case of Costa Rica the balancing feedback loop of a moratorium is being invalidated or weakened by compensatory payments.

10. Better ways of protecting forests:

Moratoriums and bans on deforestation have been successful in many countries, including in Costa Rica, China, Thailand, Paraguay. As discussed above, they are far more affordable and easier to implement than market-based schemes. There are problems with 'leakage', meaning that logging bans in one area or country can displace logging activities into unprotected forests elsewhere, often opening up still intact tropical forests to 'development'. This, however, applies to all regional measures adopted to reduce or stop deforestation, including market-based approaches. Wider adoption of logging bans and moratoriums with the aim of a global deforestation ban would prevent this from happening.

Guaranteeing the customary land rights of indigenous communities, supporting community ownership and management of forests, public education and awareness programmes and programmes which foster traditional value systems of indigenous people have been shown to be successful in halting deforestation¹³. The funding required for this is a small fraction of the billions of dollars required by the various 'Avoided Deforestation' schemes proposed. This makes such schemes more robust by being less financially dependent whilst simultaneously weakening the hold of corporations and skewed government policy.

A moratorium is a 'limits to growth archetype' operating as a fundamental solution. It recognises that we are already in overshoot in terms of diminished sink capacity. Finance for restoration and penalties for transgression act as amplifying loops strengthening the moratorium. Recognition of land rights, community ownership, education and awareness programmes could further strengthen amplifying loops into virtuous cycles.

References:

1. For details of the membership and aims of the Coalition for Rainforest Nations, see <http://www.rainforestcoalition.org/eng/>
2. "Paying for forest environmental services: The Costa Rican experience", Jorge Rodriguez Zuniga, Food and Agriculture Organisation, <http://www.fao.org/docrep/005/y4744e/y4744e08.htm>
3. "Reducing Emissions from Deforestation in Developing Countries (REDD)", Stephanie Long, Global Forest Cover, June 2007, <http://www.wrm.org.uy/GFC/cover/ForestCover22.pdf>
4. "Tropical forests and climate policy", Raymond E Gullison et.al., Science, Vol 316, 18th May 2007
5. CSIRO Media Release, 11th May 2007, <http://www.csiro.au/news/GlobalCarbonProject-Deforestation.html>
6. "Stern Review on the economics of climate change", 2006, final report, http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/stern_review_report.cfm
7. "World Bank targets forest preservation - climate link", Wall Street Journal, 11th June 2007, <http://www.climateark.org/shared/reader/welcome.aspx?linkid=77791>
8. http://www.rainforestportal.org/issues/2007/05/primary_forest_protection_and.asp#more
9. "Can't log the forest for the trees?", Roger Harris, American Science, 7th February 2006, <http://forests.org/articles/reader.asp?linkid=52025>
10. <http://biopact.com/2007/04/dutch-propose-biofuels-sustainability.html>
11. Biopact is a website run by a biofuel consultancy agency which wrongly claims to be a civil society organisation.
12. "Will climate change kill the Amazon?", Science Daily, 4th April 2007, <http://www.sciencedaily.com/releases/2007/04/070403143622.htm>
13. "South-east Asia's peat fires and global warming", Biofuelwatch, updated June 2007, <http://www.biofuelwatch.org.uk/peatfiresbackground060607.pdf>
14. See for example "Madagascan forests regenerate against expectations", Catherine Brahic, New Scientist, 2nd May 2007, <http://environment.newscientist.com/article/dn11771-madagascan-forests-regenerate-against-expectations.html>