

A local guide at Turtle Mountain in the Iwokrama Forest in Guyana.

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REDD myths

a critical review of proposed mechanisms
to reduce emissions from deforestation
and degradation in developing countries

december 2008 | **issue 114**



**Friends of
the Earth
International**



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This REDD primer has been prepared for Friends of the Earth International by Ronnie Hall (ronnihall@googlemail.com) as a contribution to discussion within Friends of the Earth International and civil society.

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executive summary

United Nations negotiations on Reducing Emissions from Deforestation in Developing countries (REDD) are in fast forward mode, both in the negotiating halls and on the ground. This is partly because of the considerable sums of money being discussed – figures of tens of billions of dollars per year are the norm. Yet many critical questions remain unanswered. Will REDD help to mitigate climate change or actually negate efforts that have been made so far? Who will really benefit from REDD funds? How might trading in forest carbon credits impact on REDD-related policies and projects?

From a climate change point of view, the overall goal is to stabilize the atmospheric concentration of CO₂ at as low a level as possible. This can partly be achieved by stopping deforestation, which is responsible for some 18% of carbon emissions to the atmosphere. But REDD is not intended to stop deforestation. A detailed analysis shows that ‘reducing emissions from deforestation’ is actually a dramatically different approach that could have significant negative impacts on people, on biodiversity and even on our climate.

Firstly, in current REDD scenarios it is perfectly plausible that deforestation could be allowed to continue at or return to unacceptable rates, with prolonged damage to biodiversity and the risk that forests will be tipped into a process of dieback.

This is because the atmospheric concentration of CO₂ can also be reduced by *deferring* deforestation: even if deforestation rates return to their original level after a certain period, there will still have been a beneficial effect on CO₂ concentrations. This rather undermines one of the key arguments used to promote REDD: that it will be good for biodiversity.

In addition, REDD could also be used to reward those engaged in logging and industrial agriculture, whilst ignoring those countries and communities that have low deforestation rates. This is because REDD is primarily intended to create financial incentives that will prompt those engaged in deforestation to switch to managing standing forests. Most calculations of how much REDD will cost focus on the profits that would be forfeited by those engaged in deforestation. This ‘opportunity cost’ approach also implies that REDD will be used to channel public funds, through facilities such as the World Bank’s Forest Carbon Partnership Facility, to pay the polluter. REDD is also likely to provide lucrative opportunities for those with money to invest, including forest carbon finance companies.

These opportunity cost calculations, and others that look at the potential income that could be generated from simply conserving carbon stocks (in countries with low rates of deforestation, for example) have another major drawback. They give the impression that completely stopping deforestation would be prohibitively expensive. But this is *only* the case if those engaged in deforestation are compensated. It would be more useful to focus on the opportunity costs to government revenue streams, jobs and value-added industries. This approach would still provide the necessary positive incentives to governments considering changing their policies with respect to deforestation.

Critically, REDD will also hamper much-needed efforts to mitigate climate change so long as it is based on a definition of forests that includes plantations. Plantations are not forests. Large-scale monoculture tree plantations cause serious environmental, social and economic problems. Furthermore, plantations store only 20% of the carbon that intact natural forests do. It thus seems inconceivable that the UN Framework Convention on Climate Change (UNFCCC) would sanction any process that allows natural forests to be replaced with plantations. Yet this is exactly what is being proposed in REDD. Some countries even support a ‘net deforestation’ approach: this would allow them to continue logging and cutting forest to make way for agricultural commodities (including agrofuels) in some areas, whilst conserving forests and/or extending plantations in others.

A further major concern is that REDD could actually negate existing efforts to mitigate climate change if it is funded by the sale of forest carbon credits on the international compliance markets.



Left: Forest cleared for a palm oil plantation in Indonesia.
Right: logging in Indonesia.



executive summary

continued

If REDD is funded through carbon offsetting it will undermine current and future emissions reductions agreed to by industrialized countries. Allowing countries with carbon intensive lifestyles to continue consuming inequitably and unsustainably, by permitting them to fund cheaper forest carbon 'offsets' in developing countries, diverts critical resources and attention away from measures to address fossil fuel consumption and the real underlying causes of deforestation.

REDD also refocuses attention on a key moral and legal dilemma – to whom, if anyone, do forests belong to? And who has the rights to sell forest carbon credits? It is certainly clear that in the absence of secure land rights, Indigenous Peoples and other forest-dependent communities have no guarantees that they will receive any form of REDD 'incentive' or reward for their extensive forest conservation efforts.

Whether national or project-based, REDD policies will trigger a rapid expansion in lands set aside for REDD projects. In many countries, governments and others are likely to ignore the customary and territorial rights of Indigenous Peoples, as they seek to protect an increasingly valuable resource from 'outside' interference, violently or otherwise. The simple fact that forests are becoming an increasingly valuable commodity means that they are more likely to be wrested away from local people. Previous experiences, with the Clean Development Mechanism, voluntary carbon offset projects and payments for environmental services schemes, indicate that there is little reason for optimism, especially for already marginalized communities living in the forests.

Commodifying forest carbon is also inherently inequitable, since it discriminates against people, and especially women, who previously had free access to the forest resources they needed to raise and care for their families, but cannot afford to buy forest products or alternatives. Any REDD projects that deny local communities and Indigenous Peoples access to forests risk having grave impacts on poverty and the achievement of the Millennium Development Goals.

Indigenous Peoples and forest-dependent communities may also find it hard to benefit from REDD even if they actively wish to participate in REDD projects.

Firstly, if they are not engaged in unsustainable deforestation they may not qualify for REDD incentives.

Secondly, they may be disadvantaged by uncertainties or conflicts over land tenure (and these conflicts are even less likely to be resolved in their favour if forests increase in value).

Thirdly, because of the uncertainties associated with deforestation projects (because of storms or forest fires, for example) project managers are likely to find themselves saddled with the projects' risks and liabilities. They may also find themselves responsible for finding upfront funding and operational costs to tide them over until they are paid at the end of the project period. Either way, larger and richer organisations operating to economies of scale can deal with these difficulties much more easily, than Indigenous Peoples and local communities, who may therefore find themselves in a poor negotiating position right from the start. They may also have to address language barriers and hire or find assistance to deal with the technical complexities involved in establishing, monitoring and verifying REDD projects.

An additional suite of risks arise if REDD is to be funded through compliance carbon markets. Many observers assume that REDD is synonymous with carbon trading and offsetting, but this is not the case (so far, at least). Although using the markets to fund REDD has been favoured by a majority of governments (or was, before the global financial crisis erupted onto the global scene) it has still been a contentious issue.



Nevertheless, the full range of risks associated with using carbon offsetting to fund REDD has not been properly considered. In addition to the fundamental problem of equating forest and fossil carbon it could:

- *Hold REDD hostage to the vagaries of markets and the activities of speculators, and generally lead to funding that is unstable and unpredictable.*
- *Reduce developing countries' sovereignty over their natural resources, by prioritising investment decisions that focus on maximising profits and allowing foreign investors to buy up forest 'services'.*
- *Allow richer, industrialized countries to continue polluting and divert resources and attention away from measures that could address the real underlying causes of deforestation.*
- *Foster an 'armed protection' mentality that could lead to the displacement of millions of forest-dependent people, including by force.*
- *Facilitate corruption and poor governance in countries with tropical forests, because of the large sums of money proposed and the complex nature of the financial mechanisms likely to be involved.*
- *Prioritize 'least cost' measures, which increase the likelihood of environmentally and socially damaging activities and push liability for failed projects onto local communities.*
- *Flood carbon markets, reducing the price of carbon and thereby stalling other climate change mitigation programmes.*
- *See most funding channelled to countries such as Brazil and Indonesia, which have high deforestation rates or large areas of forest cover.*
- *Be so complex and have such high transaction costs that only the largest companies operating to economies of scale are able to participate.*

In addition to concerns about financing, it has long been known that there are numerous methodological problems associated with deforestation projects. Although there have now been some technological improvements (especially in satellite imaging technology), most of these problems and associated risks remain, meaning that REDD might fail even if the large sums of money being discussed are raised and distributed.

An enduring problem is whether REDD can address 'leakage' concerns. A project-level approach, for example, could mean that deforestation activities simply shift to another area in the same country (depending on the specific causes of deforestation in that country). One obvious solution to this predicament is to focus efforts at the national level and to involve as many countries as possible. Even so, a question still remains about possible leakage from tropical forests to boreal and temperate forests. Ultimately, the only real solution is to remove the underlying causes of deforestation.

Measuring degradation is also problematic, but important. If degradation is not included in REDD, great quantities of carbon could be lost without the system recognising it. In some countries, such as those in the Congo Basin, losses from degradation tend to be much higher than those from deforestation. However, the fact that degradation data may be less reliable – and is more expensive to acquire – is likely to discourage carbon finance investors, which may mean negotiators choose to exclude degradation in order to accommodate carbon trading. This dilemma seems to be yet another cogent practical argument for using publicly rather than privately sourced finance.

In conclusion, efforts to reduce emissions from deforestation and degradation, being discussed in the post-2012 negotiations, must be replaced with a mechanism to stop deforestation. Governments are already committed to this under the Climate Change Convention and in other agreements such as the Convention on Biological Diversity.

Renewed efforts to achieve this goal should be founded on the ecosystems approach, climate justice and the rights and role of Indigenous Peoples and local communities. They should also address biodiversity and poverty effectively and challenge the underlying causes of deforestation directly, nailing down demand-side drivers in importing countries and resolving governance, poverty and land tenure issues in forested countries. It is particularly important that stopping deforestation is seen as more than just a carbon counting exercise; and that plantations are removed from the equation.

In so far as funding is required to stop deforestation, financing should be invested in national programmes and infrastructure that directly support alternative rights-based forms of forest conservation, sustainable management, natural regeneration and ecosystem restoration, such as community-based forestry.

Funding – from whatever source – should address the needs of developing countries, but should not directly increase the financial value of forests. Benefits to governments could be tied to national commitments to cease commercial deforestation and to restructure logging, pulp and paper and other industries, possibly over a number of years.

executive summary

continued

It is important to bear in mind that financing is not everything. There are other important and relatively cheap options that could help to prevent deforestation, including deforestation bans and moratoria and a global forest fire fighting fund and expertise bank, to assist countries unable to prevent or stop forest fires.

It could also be useful to focus on developing transition funds that would help developing countries match lost tax revenue streams, jobs and value-added industries. This approach could provide the necessary positive incentives to governments considering changing their policies with respect to deforestation, but would be additional to the costs associated with tackling the underlying causes of deforestation.

Carbon markets cannot be used to fund efforts to stop deforestation: they will simply negate existing efforts to reduce reliance on fossil fuels. There are alternative sources of funds that do not rely on voluntary assistance or on carbon trading, such as taxing fossil fuel use and diverting fossil fuel energy subsidies in industrialized countries. These would be true win-win options, since they would also, in themselves, work to reduce greenhouse gas emissions. They would also provide a predictable source of transition funding.

Furthermore, all funding should be grant-based only: any concessional loans could mean that developing countries are pushed into increasing their debt burden because of climate change, a problem for which they are not responsible. Neither the World Bank nor the Global Environment Facility (so long as it is unduly influenced by the World Bank) should be permitted to drive this process forward. Instead, a transparent, accountable and participative fund-based mechanism should be established within the UN.

The UNFCCC negotiations are a last chance to take action to stop the worst excesses of climate change. The REDD proposals currently on the table are intended to generate profits for polluters, not to stop climate change. They must be replaced with a commitment to stop deforestation once and for all.

Sustainable timber harvesting operation in Guyana.



introduction

Forests are a key component of the earth's carbon and hydrological cycles and are now recognized as being fundamental to our efforts to stop runaway climate change¹ (FOEI, 2008). Some 18% of the world's anthropogenic GHG emissions come from what is referred to as the 'land use change and forestry' sector (IPCC, 2007). In other words, demand for timber and agricultural commodities is contributing more to climate change, through deforestation, than all the world's different forms of transport combined.

Yet forests themselves are being impacted by climate change and may be losing their ability to regulate the planet's climate. Critically, if global temperatures increase more than 2°C, the planet's forests, plants and soil could switch from acting as a carbon sink to being a net source of carbon emissions (Scholze et al, 2006). Tropical forests are already acting as a carbon source because of deforestation and degradation (FOEI, 2008).

These facts are already recognized by governments. Furthermore, because addressing deforestation is also seen as a relatively 'cheap' way of mitigating climate change (Stern, 2006), governments meeting in Bali for the 13th Conference of the Parties (COP-13) to the UN Framework Convention on Climate Change (UNFCCC) decided to focus on Reducing Emissions from Deforestation in Developing countries (REDD) as part of their efforts to mitigate climate change² (UNFCCC, 2008).

However, it is important to note that deforestation was previously excluded from the Kyoto Protocol because of methodological problems and concerns about countries losing sovereignty over their natural resources (Gullison et al, 2007; Myers, 2007). In spite of the evident enthusiasm that there is for REDD (no doubt because of the large sums of money that are being discussed) many of these concerns still remain. Contentious issues include the way in which REDD could or should be structured (in particular, whether it should be integrated into or otherwise linked to the Kyoto Protocol's regulatory carbon markets); whether it can really impact on deforestation rates; and what other impacts it might have, beneficial or otherwise.

Nevertheless, the issue is now back on the UNFCCC's negotiating table, put there by members of the Coalition for Rainforest Nations, a group of developing countries with tropical forests. Governments in these countries hope to be able to reduce their deforestation rates without being financially disadvantaged, through a system of positive financial incentives. There are now a number of other proposals on the table as well, and some of these suggest alternative financial mechanisms with which to fund a REDD mechanism. All are also based on the idea that Northern countries are responsible for providing financial support to Southern countries' climate change mitigation and adaptation activities; and seek to generate a significant level of compensation or economic incentive to outweigh the income generated through deforestation.

This paper sets out to unpack the ongoing REDD debate, looking at proposals that have already been made by governments; and ideas and proposals from other intergovernmental organisations and civil society, with a view to drawing conclusions about what might and might not work in relation to REDD. It focuses particularly on financial mechanisms, looking at where funds might come from and how they might be managed; and how these two factors might influence the way in which REDD funds would or could be used at the national and local levels.

REDD's roots, columbia university and the coalition for rainforest nations

A process of 'further consideration' of Reducing Emissions from Deforestation in Developing Countries was agreed to at UNFCCC's COP-11 in Montreal in 2005, after 'Compensated Reduction' was formally proposed by Papua New Guinea and Costa Rica *"on behalf of many supportive Nations"* (Papua New Guinea and Costa Rica, 2005). This grouping, now established as the Coalition for Rainforest Nations (CfRN),³ continues to offer *"voluntary carbon emission reductions by conserving forests in exchange for access to international markets for emissions trading"* (CFR, 2008).

The formal launch of REDD negotiations followed *"two years of quiet discussion amongst developing and industrialized country governmental and non-governmental experts"* according to staff of the US-based Environmental Defense Fund (Carbon Finance, 2005/6). Economists and academics from Columbia University in New York, including Jeffrey Sachs, Joseph Stiglitz, Geoffrey Heal and Don Melnick, have all been involved in the development of these ideas (Somare, 2005) and are all members of the Coalition's Advisory Board. The Secretariat of the Coalition for Rainforest Nations is also housed in the University.

1 For a review of the current science on forests and climate change see *Forests in a Changing Climate* (FOEI, 2008).

2 The term 'REDD' is also used to refer to reducing emissions from deforestation and degradation, including within Decision 2/CP.13 (UNFCCC, 2007). The Decision itself, however, is entitled *Reducing Emissions from Deforestation in Developing countries*.

3 The following members of the Coalition for Rainforest Nations support "market-based development finance", but it should be noted that UNFCCC submissions are from specific listed countries, which can differ from paper to paper, so any one paper may be signed by some but not necessarily all of the following countries: Bangladesh, Belize, Bolivia, Central African Republic, Cameroon, Congo, Colombia, Costa Rica, DR Congo, Dominican Republic, Ecuador, Equatorial Guinea, El Salvador, Fiji, Gabon, Ghana, Guatemala, Guyana, Honduras, Indonesia, Kenya, Lesotho, Liberia, Madagascar, Malaysia, Nicaragua, Nigeria, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Samoa, Sierra Leone, Solomon Islands, Suriname, Thailand, Uruguay, Uganda, Vanuatu and Vietnam.

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Kevin Conrad, CfrN's Executive Director and environmental spokesperson for Papua New Guinea, recently commented that forests were not previously included in the Kyoto Protocol because climate change had been seen as an issue to be dealt with by developed countries; that perception is now changing as the issue of climate change becomes more urgent (Asia Cleantech, 2008) – and, no doubt, because of the possible financial benefits that could accrue to developing countries with tropical rainforests.

However, although the REDD debate has moved ahead relatively swiftly, in the UNFCCC and other fora, there are still numerous methodological, political and ethical problems associated with REDD that need to be considered and addressed as a matter of urgency.

REDD is only intended to reduce deforestation, not to stop it

First and foremost, REDD is about reducing deforestation, not stopping it. From a climate change point of view, the goal is to stabilize the atmospheric concentration of CO₂ at as low a level as possible. This can partly be achieved by reducing deforestation, which is a significant source of carbon emissions to the atmosphere.

However, some countries, such as Brazil, are talking about reducing 'net' deforestation rates. This approach would enable countries to allow logging and agricultural expansion into the forest to continue in some areas, whilst conserving forests and/or extending plantations in others. Zero 'net' deforestation is not the same as stopping deforestation.

It is also argued that the cumulative atmospheric concentration of CO₂ can be reduced by deferring deforestation: even if deforestation rates return to their original level after a certain period, cumulative concentrations of greenhouse gases will still be less than they would have been (Ebeling, 2007). There now seems to be increasing governmental consensus around what is known as the '50-50-50' option which involves: *"reducing deforestation rates 50% by 2050 and then maintaining them at this level until 2100 [which] would avoid the direct release of up to 50GtC [gigatonnes of carbon] this century (equivalent to nearly 6 years of recent annual fossil fuel emissions)"* (Gullison et al, 2007).

This rather undermines another argument used to promote REDD: that it will be good for biodiversity (see below). In current REDD scenarios it is perfectly plausible that deforestation could be allowed to continue at unacceptable rates, with prolonged damage to biodiversity and the risk that forests will be tipped into a process of dieback (FOEI, 2008).

Calculating the cost of reducing deforestation by considering the profits that would have been generated if the land had been used for alternative purposes (see below) might also be counterproductive. Completely stopping or significantly reducing deforestation could, as a result, come to be seen as being too expensive and therefore unfeasible. This would be a highly retrograde step.

REDD and 'co-benefits' – biodiversity and poverty reduction

There is a great deal of momentum behind the REDD negotiations, both within and outside climate change fora. This is partly because of the considerable sums of money being discussed (figures of tens of billions of dollars per year are the norm). However, REDD is also being sold as a win-win-win option with 'co-benefits': not only will it help to mitigate climate change, it will also contribute to alleviating poverty, protecting biodiversity and conserving watersheds.

Yet whether these 'co-benefits' are likely to materialize is at best uncertain. It is even possible that REDD could make poverty worse and deplete biodiversity even further. A key reason for this is that the current definition of forests includes plantations (FAO, 2000), meaning that under a REDD mechanism governments could continue to cut down natural forests and replace them with plantations.

Furthermore, there is some concern about what might happen in low carbon, high biodiversity regions. UNEP, for example, refers to research indicating that only 15% of global carbon stocks are currently located in protected areas (Price, 2008). Will high biodiversity areas be neglected or de-prioritized? Or might they be funded, as suggested by UNEP staffer Jeff Price, through premiums attached to high biodiversity REDD credits, or even through a completely separate financial mechanism? Such concerns indicate the considerable complexity and uncertainty that underlies REDD in reality.

There are many important questions to be asked about who will really benefit from REDD funds and whether the scheme will really help to mitigate climate change. Yet REDD negotiations are in fast forward mode, both in the negotiating halls and on the ground, as the following case study of Indonesia shows.

⁴ The terms 'Avoided Deforestation' and 'Reduced Deforestation' seem to be used almost interchangeably by carbon traders and others. This is no doubt due to the fact that 'Avoided Deforestation' was the term negotiators used in the 1990s and early 2000s when they were seeking payments for existing carbon stocks. However, this approach has since evolved into the REDD debate in which the focus is on actual emission reductions. Brazil has made such a distinction, observing that 'Avoided Deforestation' is different from 'Reduced Deforestation' because the former is about the maintenance of carbon stocks on forest land and the latter about reductions in emissions (UNFCCC, 2007f). An important difference between these two approaches is that Indigenous Peoples and countries whose deforestation rates are close to or at zero cannot reduce their levels of deforestation. Thus they would not qualify for REDD payments. They could, however, be rewarded for avoided deforestation in the future or for conserving standing forests. Still, it should be noted that neither term refers unambiguously to stopping or completely avoiding industrial deforestation (see also WRM, 2008).

box: REDD projects already underway in indonesia

COP-13, held in Bali in December 2007, was the scene of significant developments in relation to REDD. Firstly, governments agreed that REDD should be included in the negotiations towards a second commitment period for the Kyoto Protocol (UNFCCC, 2008). This, combined with some astute advance footwork by a number of academics and others, sent clear signals out to carbon investors that the time was right to start moving on REDD, particularly in Indonesia:

"First, we develop a [business-to-business] avoided deforestation pilot program pre-Bali Conference of the Parties (COP). We want the government of Indonesia's tacit support for this pilot project. In return, we will issue positive financial press releases before the Bali COP. This will create investor momentum pre-Bali COP while demonstrating investor confidence in Indonesia's capital markets... Currently, Indonesia is making a macroeconomic long-term bet that oil palm will be worth more than avoided deforestation. In 2004, the oil palm market gave \$43 million in taxes to Indonesia's treasury. Estimated conservatively, the \$10 billion annual estimate of revenue from the two avoided deforestation frameworks, [business-to-business] avoided deforestation and state-sponsored avoided deforestation, would add over \$1 billion to Indonesia's treasury." (Thoumi & Butler, 2007)

west papua, aceh and carbon conservation During the Bali conference, the governors of two of Indonesia's provinces, West Papua and Aceh, and the governor of Amazonas in Brazil signed a joint pact declaring a moratorium on deforestation in their provinces. During this moratorium the carbon contained in their forests will be mapped, in anticipation of a full agreement on REDD that permits forest carbon credits to be sold on the carbon markets. It seems that the pact was *"fostered by Carbon Conservation, an Australian firm that is seeking to push carbon credits for forest conservation as a means to reducing carbon dioxide emissions"* (Mongabay, 2007).

The three governors also signed the 'Forests Now Declaration', which also calls for compensation for reduced deforestation via forest carbon credits to be sold on international carbon markets (Mongabay, 2007b). The Governor of Papua province, Barnabas Suebu, stated that *"Conversion of these spectacular forests to agribusiness would be a great loss... I hope this approach can provide a new development path for the forests and people of the Province of Papua"* (Butler, 2008). This raises the question of whether Suebu's approach brings him into conflict with the Indonesian Government, which has stated its intention of looking to West Papua to expand Indonesia's palm oil plantations (InfoPapua, 2008).

Seemingly as a direct result of these clear economic and political signals, a number of Indonesian projects, intended to sell REDD credits on the existing voluntary markets, are now underway.

merrill lynch and carbon conservation In April this year, for example, investment banking firm Merrill Lynch signed a deal with Carbon Conservation to buy a minimum of US\$9million worth of carbon credits from a 750,000 hectare avoided deforestation scheme⁴ in Ulu Masen, Aceh, Indonesia. Merrill Lynch clearly expects the value of these credits to increase

significantly when REDD is established as part of the Kyoto Protocol's second commitment period (Business Green, 2008). Fauna and Flora International is also involved.

The project states that it will still provide local communities with timber. Abyd Karmali, Global Head of Carbon Emissions at Merrill Lynch, also stated that *"Merrill Lynch's thesis on the carbon market is that the days of vanilla credits [that simply deliver emission reductions] are nearing an end... companies will be looking for credits that deliver more benefits and the Aceh project is a prime example of this approach – there are five endangered species in this region that will benefit from biodiversity protection while the income will also aid development in an area badly affected by the 2004 tsunami"* (Business Green, 2008). However, there are also reports that Dorjee Sun, head of Carbon Conservation, has said that the forest will be guarded by *"1000 heavily-armed former Free Aceh rebels"* (Counsell, 2008). Who will it be guarded from, one wonders?

papua and new forests The Indonesian province of Papua has also entered into an agreement with another Australian financial firm, New Forests. It intends to establish a one million hectare forestry-based carbon finance project on the island of New Guinea, as *"a perpetual financial base for local communities"* (Butler, 2008). Again, the intention is to sell forestry credits on the voluntary markets.

APRIL, REDD and the kampar peninsula REDD is also being used as an excuse to finance the spread of plantations in Indonesia (Franklin, 2008). In the Kampar Peninsula in Riau, for example, the Asian pulp and paper firm Asia Pacific Resources International Holdings Limited (APRIL, 2008) has proposed a REDD-related. This involves surrounding an area of forest with a ring of acacia and eucalyptus to 'protect' the forest from 'illegal logging' by local communities. However, the establishment of these plantations would involve clearing a significant area of the remaining forest. The local communities are resisting the project, and have blocked the waterways that the firm uses to transport logs to its pulp mill further upstream. As the Transnational Institute comments, this project does nothing to address one of the key drivers of deforestation in the region, which is the overcapacity of the pulp and paper mills themselves. APRIL and a competing pulp and paper firm, APP, jointly process over four million tons of pulp each year, primarily for export to Northern countries (TNI, 2008).

indonesia and australia: government to government REDD project launched On 13 June 2008, Indonesia and Australia signed an agreement to develop REDD-related policies and capacity, and to carry out forest carbon projects, initially targeted at the voluntary carbon markets. The first REDD project was intended to be launched in August 2008 in Central Kalimantan. Soenaryo, a senior official at the Indonesian Forestry Ministry, said, *"This project is vital because the world is watching to see whether or not the REDD concept can be used as a legal mechanism to slash greenhouse gas emissions"* (Jakarta Post, 2008).

According to Soenaryo, Germany, Britain, Japan, Spain and Norway have also submitted forest partnership proposals to conduct REDD projects with Indonesia (Jakarta Post, 2008).

one how much does REDD 'cost'?

how much does REDD 'cost'?

The question of how much REDD might cost (or how much it might raise, depending on your point of view) is one much discussed within climate change negotiations at present. Sums in the tens of billions of dollars per annum are the norm. This is creating an incentive for most governments to speed ahead with REDD negotiations without paying sufficient attention to whether REDD will really work and what unexpected impacts it might have.

Even the figures being discussed need to be treated with great caution, not least because there are very significant methodological difficulties involved in estimating the costs of climate change mitigation (Trines, 2007:57; Myers, 2007). Figures can give a false or confusing impression as to who may benefit and by how much, depending on the methodologies employed.

Research based on the market price of exported commodities such as soy, palm oil or timber, for example, yield high figures; but these are not necessarily representative of the real lost income streams to national governments and local communities, in terms of income streams (from concessions, tax and export tariff revenues), jobs and value-added industries. Such figures are likely to be considerably lower.

The use of methodologies that include exporters' profits as opportunity costs also implies that those companies might be compensated for lost profits; and that only the market can change concession-holders or other land-holders' behaviour. However, as can be seen in Indonesia, it is quite possible for politicians to simply revoke concessions for logging and commodity production if they have sufficient incentive to do so.

Whether or not this approach is used is critical. Considering the 'full' costs, including company profits, generates extremely high figures which are then used to justify the use of carbon trading, on the basis that no other funding source can generate finance on the scale required. The Stern Review exemplifies this approach (even though its final estimates are still rather low compared with some other estimates). Its figures are based on total lost income or cost to GDP. Stern states, for example, that the Net Present Value of income "ranges from \$2 per hectare for pastoral use to over \$1000 for soya and oil palm, with one off returns of \$236 to \$1035 from selling timber" (Grieg-Gran, 2006, quoted in Stern 2006, Chapter 25:543).

From this, Stern estimates that "returns in [the] 8 countries, responsible for 70% of emissions from land use, are \$5 billion a year including one-off timber sales. This level of financial incentive would offset lost agricultural income to producers, although it would not reflect the full value chain within the country... Nethertheless, the high carbon density of each hectare of forest that would be preserved (up to the equivalent of 1000t CO₂) suggests that reducing deforestation offers a major opportunity to reduce emissions at relatively low cost. Assuming a carbon price of \$35-50, a hectare containing 500t CO₂, would be worth \$17,500-25,000 in terms of the carbon contained if it were kept as forest, a large difference compared with the opportunity costs at the low end of the range" (Grieg-Gran, 2006, quoted in Stern 2006, Chapter 25:543). The same research also indicates that an upper figure for opportunity costs – based on the assumption that the highest return land use occupies all of the annual deforested area in a country, and including administrative costs – would be \$11 billion per year (Grieg Gran, 2006).

In contrast, very little research seems to have been done into tax revenue streams. Gabriel Thoumi, a University of Michigan researcher, has made some estimates for Indonesia, including a recent calculation in the Jakarta Post. He compared Indonesia's 2005 export revenues from timber and palm oil (reported as being 150 million and 30 million euros respectively) with a potential annual income of 1.4 billion euros from tax revenues on avoided deforestation credits. A key factor here, however, is that Thoumi is assuming that credits will be allocated for "all standing unlogged natural virgin forest", rather than for reduced deforestation rates based on some historical or other baseline (a point currently under discussion in the UNFCCC) (Thoumi, 2007).

It is also interesting to note that yet others, such as EcoSecurities, calculate how much money can be 'generated' by selling REDD credits on the carbon markets, rather than considering 'costs'. EcoSecurities simply calculates the hectares to be conserved, on the basis of average deforestation rates for all relevant countries between 1990 and 2005, and the carbon content of those hectares, using country-specific average carbon densities. It then compares these with different market prices for carbon. It thus estimates that a 10% reduction in the world's deforestation rate could generate between US\$ 3-9 billion per year, and a 50% reduction would generate somewhere between US\$15-45 billion (assuming there is sufficient demand for credits) (EcoSecurities, 2007).

Also important to note is the fact that most research looks at the cost of a percentage reduction in deforestation (in line with the REDD goal of reducing rather than stopping deforestation). Generally, researchers then estimate the tons of carbon that will be saved in achieving a given level of reduction, and whether or not it is financially feasible to do this at different carbon prices (thus, of course, propping up the mistaken perception that REDD will definitely be based on carbon trading, which is not yet agreed).

The Stern review is again a case in point, in that its US\$5 billion figure is based on the cost of reducing deforestation by 50% over a decade (admittedly an admirable ambition on such a tight timescale) (Grieg-Gran, 2006). Similarly, the World Bank estimates that US\$2-20 billion will be needed every year. However, that figure is actually significantly higher than Stern/Grieg-Gran's since it only relates to a 10-20% reduction in deforestation (SBSTA 26, 2007).

choke prices

Some researchers do try to assess the cost of completely stopping deforestation, calculating what have been termed 'choke prices'. These figures, and the methodologies used to arrive at them, probably require our keenest attention although they are also likely to be the least precise (since all the different drivers of deforestation would have to be accurately accounted for).

Stern, for example, refers to studies that indicate that deforestation could be completely eliminated at \$30/tCO₂ (Sohngen, 2006 and Obersteiner, 2006, quoted in Stern, 2006: 540). Sathaye et al have also estimated theoretical choke prices per ton of carbon by region: \$39/tC in Africa, \$127/t in Central America, \$147/t in South America and \$281/t in Asia (Sathaye et al, 2008). Finally, Trines's report to the UNFCCC combines Sathaye's research with the FAO's Forest Resource Assessment 2005 data, and concludes that the cost of stopping the loss of 148 million ha primary forest in 40 key countries will be between \$25-185 billion per year (Trines, 2007:43).



Left: Crude palm oil tanker, Indonesia.
Right: Land cleared for palm oil plantations in Indonesia.

box: how high will carbon prices go?

Carbon prices are driven by demand for carbon credits as Annex I countries seek to meet their emission reduction commitments (which they agreed to under the Kyoto Protocol) as cheaply as possible. The basic premise is that the sharper the cuts committed to by Annex I countries, now or in the future, the higher the demand for carbon credits will be, thus pushing up the price of carbon. Unless, as happened with the first phase of the EU Greenhouse Gas Emissions Trading Scheme (EU ETS), too many credits are issued in the first place, meaning that there is no effective reduction in emissions and less demand. In the ETS this caused the price of carbon to crash at one point.

Carbon prices can also be affected by a wide range of other factors, such as the inclusion of aviation and shipping and/or new countries in future UNFCCC agreements (EcoSecurities, 2007); and changing energy demand. Deutsche Bank estimates that the price of EU allowances will reach €40/tonne (\$60/t), with a possibility of spiking up to €100/t near the end of Phase II of the EU Emissions Trading Scheme (ETS) (Deutsche Bank, 2008). However, similar estimates were floated during the early stages of the first ETS allocation phase and few predicted the price collapse. It is also particularly difficult to predict carbon prices in advance of relevant UNFCCC decisions.

One interesting point to note is that the EU ETS effectively created a cap on the price of carbon, since it set fines for non-compliance at 40 euros/ton of excess CO₂ emitted. However this fine is being increased to 100 euros/ton (EurActiv, 2008).

Should the success of REDD be dependent upon its ability to match the price of various commodities, then it will also depend on the vagaries of the commodities markets, as well as being open to manipulation by speculators. For example, the current high price of oil is fuelling demand for agrofuels. High prices for agrofuels such as soy and palm oil are in turn putting pressure on food production, thereby increasing food prices. Thus demand for forested land for alternative food- and fuel-related land uses is increasing dramatically.

If REDD is directly linked to opportunity costs, the incentive for farmers and agribusiness to switch back to commodity production would kick back in again whenever the price of one or more commodities shot up unexpectedly.

As a consequence, the percentage of forest that could be saved would be reduced proportionately.

one how much does REDD 'cost'?

continued

A further key concern is how the price of timber would be affected by REDD, which should significantly reduce the supply of timber. This could lead to rapidly increasing timber prices, if there is no change in demand for timber (Stern, 2006).

Finally, Blaser (also reporting to the UNFCCC) calculates the costs of stopping deforestation by 2030 by looking at different drivers in different regions. Excluding investment, maintenance, administration or transaction costs, and noting that insufficient information is available in advance of key UNFCCC decisions, Blaser gives a figure of a minimum of US\$12.2 billion per year. He also claims that a carbon price of just US\$2.8/tC will account for 65% of emissions from deforestation. Blaser's calculations are based on a detailed analysis of the income derived from different drivers operating in different regions, including commercial agriculture (crops and cattle); subsistence farming (small-scale agriculture and shifting cultivation); gathering fuel-wood and non-timber forest products for local use; and legal and illegal commercial-scale timber extraction (Blaser, 2007). However, it is likely that these figures are underestimates because they fail to pay sufficient attention to the real and important costs of providing subsistence farmers with other forms of income and sources of food.

In conclusion, then, it seems to be hard to pinpoint the real levels of funding required to stop emissions from deforestation in developing countries: methodologies differ enormously. On the one hand, certain important costs (such as proper compensation to subsistence farmers) may have been underestimated. On the other hand, many studies include the opportunity costs that would accrue to companies exporting commodities, implying that the polluter will be paid. Little attention seems to have been paid to opportunity costs in terms of public revenue streams and value-added activities. These costs could be significantly lower than currently predicted.

In addition, the drivers of deforestation and associated costs vary significantly from region to region, and any agreement on forests and climate will have to be based on country-specific action plans.



Sacred tree surrounded by a palm oil plantation, Indonesia.

two the REDD bonanza - winners and losers

the REDD bonanza - winners and losers

In spite of many promises (and hopes) to the contrary, there is a still a strong possibility that REDD could be used to benefit the already wealthy at the expense of the poorest and most marginalized communities in the world. This has tended to be the case so far, with the Kyoto Protocol's Clean Development Mechanism and Payments for Environmental Services projects (see below).

Who wins and who loses from REDD depends on the way in which REDD policies are constructed. For example, if REDD leads to timber or land increasing significantly in price (as may already be happening) it is likely to have significant impacts on poor forest-dwelling communities and on land reform programmes. The simple fact of the forest becoming an increasingly valuable commodity will mean that it is more likely to be wrested away from local people.

winners

Many governments, especially those participating in the Coalition for Rainforest Nations, expect REDD to generate significant levels of income for developing countries. However, whether funds are channelled through governments or directly to project managers, and whether increasing income will be distributed in a way that benefits those most in need, remain to be seen. It depends on the design of REDD.

Following Bali, the financial sector is beginning to take a keen interest in REDD, as it anticipates the inclusion of REDD credits in carbon markets. This is exemplified by Merrill Lynch, which is already involved in the Ulu Masen project in Aceh, Indonesia (see the Indonesia case study above). Merrill Lynch explicitly states that it expects REDD credits to increase in value when a REDD mechanism is established (Business Green, 2008). FERN also reported that "*Speculation lies behind the dash to carbon. A survey of energy traders by Energy Risk magazine revealed that while few believe that the market would do anything to tackle global warming, 40% felt it could lead to financial gain*" (FERN, 2008:3). Some of the large conservation NGOs engaged in establishing carbon finance projects may also benefit financially.

box: trading in biodiversity credits – an overlapping market?

It is also interesting to note developments in the parallel (and potentially overlapping) biodiversity 'market'. Investors are buying land with a view to benefitting from the sale of environmental services credits; this could include REDD credits at some point.

guyana London-based Canopy Capital, with the support of "*ten undisclosed private investors*" recently launched a project in the Iwokrama reserve in Guyana, and is said to be "*working on a number of tradable investment products in an attempt to monetarize the services of the 371,000 hectare forest, such as rainfall protection, water resource preservation and conservation of native biodiversity*" (Climate News for Business, 2008).

In relation to REDD and forests' carbon sequestration services, Canopy Capital's Managing Director Hylton Murray-Philipson recently commented that one should "take away the romance of it, forget about the indigenous people, the birds and the bees and the butterflies... think of it like a utility... if you don't pay your bill, eventually you'll get cut off" (BBC, 2008).

borneo Similarly, Sydney-based New Forests Pty Ltd, using funds from its asset management business, plans to establish a

wildlife habitat conservation bank to manage the 34,000 ha Malua Forest Reserve on the island of Borneo. New Forests plans to generate income from the reserve by selling 'forest conservation outcomes' – which might, one presumes, include forest carbon credits – to palm oil developers, energy firms and others. They anticipate yields on their investment in the region of 15-25%, based on conservation banking experiences in the USA.

"The objective of the Sabah Government and New Forests is to create a winning situation for all: palm oil companies can help protect rainforest, private investment can make a return from rainforest rehabilitation and conservation, and the Government can offer a solution to current concerns around oil palm plantation," said David Brand, Managing Director of New Forests. *"We hope that via a commercial approach to conservation, we may be able to contribute to a sustainable landscape on Borneo that includes palm oil, timber production and wildlife conservation all being managed on a commercial basis in harmony"* (Butler, 2007) (emphasis added).

brazil Even hotel chain Marriott International is investing in the Juma Sustainable Development Reserve, in partnership with the state of Amazonas, in Brazil; and will be seeking certification for the forest under the Climate, Community and Biodiversity (CCB) standards initiative (Marriott, 2008).

two the REDD bonanza - winners and losers

continued

losers

Many argue that forest-dependent communities and peoples will benefit directly from REDD if they engage with it. However, experiences to date – with the Clean Development Mechanism (CDM) and voluntary carbon offsets, payments for environmental services (PES) schemes, and increasing prices for commodities such as agrofuels, palm oil or soya – indicate that there is actually little reason for optimism, especially for already marginalized communities living in the forests. As demand for land increases, people are being pushed off their existing territories, often from farmland to the forest frontier, which in turn worsening the deforestation crisis.

If REDD aggravates this situation by significantly increasing the value of forests, it is likely to have extremely detrimental impacts for some of the poorest people in the world. Up to 1.6 billion people are at least partially reliant on access to forests for their everyday needs (FAO, 2008); and some 60 million Indigenous People depend wholly on forests for all their requirements. Impacts could include conflict between and within communities (especially where land rights are unclear), changes to local power structures and shifts in social and traditional values and behaviours (UNEP-WCMC, 2007). Forest-dependent communities can also find themselves denied access to their forests. This is a key concern in relation to REDD, regardless of where REDD funds come from.

If REDD had national coverage in participating countries (which is clearly the better option, to prevent leakage (see below)), then income streams going directly to government coffers could be equal to or greater than current tax revenue streams. However, there is a risk in some countries that this could also be at the expense of Indigenous Peoples and local communities currently benefiting from forests and often already existing at the whim of the state in terms of recognition of their land rights. There is currently no guarantee that income streams will be used in ways that benefit Indigenous Peoples or local communities: this is an issue that needs to be resolved.

A project-based REDD, or some form of nationally-based REDD that included direct payments to projects, might increase the chance of funds being directed towards communities – but not if they have to compete or negotiate with large predatory commercial investors and carbon finance companies. Any sort of engagement would be further complicated by difficulties relating to the official languages used, a hurdle that many Indigenous Peoples face, and to technical complexity (Lovera, 2007). Communities will probably have to rely on external consultants and organisations, further reducing sovereignty over natural resources. They are also likely to have to shoulder the projects' risks and liabilities. Given the additional risks of a strictly project-based REDD leading to continued deforestation outside project boundaries this option should be rejected.

REDD, land values and impacts on Indigenous Peoples

Whether national or project-based, REDD could trigger a rapid expansion in lands set aside for REDD projects, without regard for the customary and territorial rights of Indigenous Peoples, as governments seek to protect an increasingly valuable resource from 'outside' interference, violently or otherwise.

Some 1.6 billion people rely on forests, including 60 million Indigenous people, who are entirely dependent upon forests for their livelihoods, food, medicines and/or building materials (FAO, 2008). These people have already been severely impacted both by the loss of forests, cleared largely to grow crops and agrofuels for export, and by CDM reforestation and afforestation projects. Often having no formal land title, many people have already been forcibly and even violently ejected from their ancestral territories. If the financial value of standing forests goes up they are increasingly likely to face governments and companies willing to go to extreme lengths to wrest their forests from them.

Commodifying forest carbon is also inherently inequitable, since it discriminates against people, and especially women, who previously had free access to the forest resources they need to raise and care for their families, but cannot afford to buy forest products or alternatives (GFC, 2008).

Baka family in Cameroon.



box: previous experiences with the clean development mechanism and payments for environmental services schemes

The UNFCCC's Clean Development Mechanism (CDM), which was launched in Kyoto in December 1997, allows emissions-reducing projects in developing countries to sell Certified Emissions Reduction units (CERs) to business or industry in industrialized countries. This means that Annex B countries can meet their emissions reduction targets more cheaply. This process is very similar to any future project-based REDD mechanism based on carbon trading.

However, the CDM has an extremely poor record. It has tended to lead to excessive profits for business, generating investment in many projects that would have happened anyway (BBC, 2008b). This permits the continued release of emissions in industrialized countries without compensating reductions elsewhere.

Project costs have also impacted disproportionately upon local communities. Few of them are the 'owners' of the projects, yet restrictions are often placed on community activities such as fishing, hunting and cattle grazing, by external carbon finance investors.

One review of the CDM literature, however, finds that "left to market forces, the CDM does not significantly contribute to sustainable development." (Holm Olsen, 2007) A further study, considering equity and sustainable development, argues that *"this new carbon economy... has difficulties in incorporating local ecological and social realities, particularly in terms of losers and winners at the local scale. This is partly because carbon markets do not spontaneously emerge; they are created by global and national institutions. Their creation may involve changing property rights, often overturning long-established traditional management and property rights regimes."* It goes on to observe that *"the ability of the 'new carbon economy' to provide real benefits for sustainable development may ultimately be constrained by the nature of the market itself"* (Brown & Corbera, 2003).

the CDM's failure to deliver additional emissions reductions A 2008 working paper by two Stanford University academics also states that, because of the way it is structured, *"At root, the CDM and other offset schemes are unable to determine reliably whether credits are issued for activities that would have happened anyway while also keeping transaction costs under control and assuring investor certainty"*. It also says *"the CDM is structurally unable to engage developing countries in ways that would actually make a dent in emissions"* (Wara & Victor, 2008).

An earlier paper from one of the same authors also states that, even though he believes that the CDM could be reformed and used in conjunction with other financial mechanisms, at the moment *"The CDM is neither functioning well as a market for emissions reductions nor is it a successful subsidy. As a result, it is creating skewed but powerful political institutions and interest groups whose interests are not aligned with the ultimate goals of either the UNFCCC or the Kyoto Protocol"* (Wara, 2006).

International Rivers (IR) also states that 73% of all hydro power projects registered by 1 March 2008 were already complete at the time of registration with the CDM, indicating that they may well have been implemented anyway, even without CDM funding. IR also reports that a survey undertaken for the German environment ministry found that 86% of participants agreed with the statement *"in many cases, carbon revenues are the icing on the cake, but are not decisive in the investment decision"*(IR, 2008).

payments for environmental services (PES) schemes National Payments for Environmental Services (PES) schemes are intended to compensate those providing environmental services (forest owners, for example). They can be problematic if they are used in conjunction with offset schemes, because, like the CDM, they then allow environmental harm to happen elsewhere (Lovera, 2007).

It is also important to note that so far there seems to be little evidence that stand-alone PES schemes really work. Costa Rica's well-known scheme is intended to compensate farmers for not deforesting their lands. However, it is not a purely commercial mechanism and thus not an advertisement for stand-alone PES schemes: to meet its objectives it has relied upon additional subsidies (from a petrol tax) and regulation, including a moratorium on deforestation (Lovera, 2007).

The World Resources Institute also uses this same Costa Rican PES scheme to demonstrate that participation in PES schemes, as with the CDM, can be easier for the rich and wealthy than it is for the poor, especially since PES schemes are designed with conservation in mind, not poverty alleviation. A survey in one Costa Rican watershed found all of the large landholders participating, but only one third of the small landowners. Barriers to participation in PES schemes include lack of tenure, restrictions on land uses (barring grazing or other traditional forests uses, for example); high transaction costs; and lack of credit for start-up funds (WRI, 2005).

three what are the consequences of a market-based approach to REDD?

what are the consequences of a market-based approach to REDD?

Many observers assume that REDD is synonymous with carbon markets, but this is not the case (so far, at least). Although many governments favour using carbon trading to fund REDD, this is still a contentious issue.

A subset of this discussion is whether REDD should generate carbon credits that are exchangeable and can be traded on existing 'compliance' carbon markets, such as the EU ETS (this exchangeability is known as 'fungibility'), or whether REDD credits should be traded on a separate REDD market.

However, the full range of risks associated with using carbon trading and offsetting to fund REDD has not been properly considered. The focus has generally been on whether sufficient funds can be leveraged through trading, and whether REDD credits might flood carbon markets, causing the price of carbon to crash.

the arguments for linking REDD to carbon markets

The Coalition for Rainforest Nations wants REDD to be brought into the negotiations on a second commitment period for the Kyoto Protocol. It also wants the sale of REDD offset credits on compliance carbon markets to be given the go ahead.

CfRN and other countries that support linking REDD into carbon markets have done so for a number of reasons, including:

- *the fact that industrialized countries have frequently reneged on previous commitments to provide voluntary financial assistance for reducing deforestation to developing countries;*
- *a belief that carbon markets are the best and most cost-effective option given the scale of financing being considered;⁵*
- *a desire to link funding directly to emissions reductions in Annex 1 countries because of 'moral synergies' (for more detail see Myers, 2007:19); and*
- *as a way for developing countries to participate in climate change mitigation.*

Apart from the fact that there is a real question about the scale of funding actually required (given that the profits generated by exporting companies do not need to be included, and that regulation might be equally or more effective), the first argument is entirely valid. Funds raised to date for existing UNFCCC and Kyoto Protocol financing mechanisms are minuscule in comparison to sums discussed in REDD negotiations. Industrialized country governments have also reneged on many similar financial commitments, such as funding to meet the Millennium Development Goals (Sachs, 2008). The prospect of significant REDD funding, on the other hand, is already changing the behaviour of some government officials and carbon traders, as can be seen in deals being struck in Indonesia (see Indonesia case study above).

However, in addition to ethical objections to the use of carbon 'offsetting' through the markets, arguments in favour of linking REDD to carbon trading can be countered by the fact that there are other potential sources of funding that do not rely on voluntary contributions from the North or carbon markets (as CfRN states themselves admit) (UNFCCC, 2007d:5). These could include, for example, a tax on fossil fuel consumption and/or monies freed up by removing industrialized countries' energy subsidies for fossil fuels. These would be true win-win options, since they would also, in themselves, work to reduce greenhouse gas emissions.

However, CfRN is currently arguing that these options should be used in addition to carbon trading, not instead of it.⁶ But there are many other compelling ethical and practical reasons why this should not happen. Carbon trading could spell disaster for both climate change mitigation efforts and forest-dependent communities.



Left: Chimney at an oil refinery facility.
Right: Sustainable timber harvesting operation in Guyana.

⁵ Regulatory markets generated US\$5.3 billion in 2006. Voluntary carbon markets are smaller at present, although growing rapidly. They generated US\$92 million in 2006. Both are expected to grow significantly (EcoSecurities, 2007). It should be noted, however, that these figures can be misleading since they indicate trading volume and are not synonymous with actual funding available at the project level.

⁶ They also propose market-linked mechanisms, such as levies on CDM credits and the auctioning of emissions allowances (UNFCCC, 2007d).

funding REDD through carbon trading will increase emissions from fossil fuel and other sources

In terms of climate change, forest carbon is quite different from the carbon locked up in underground fossil fuel stores, and this difference is critical to the REDD debate (WRM, 2008).

CO₂ absorbed by trees is returned to the atmosphere when trees die and rot or timber products decompose; this is part of the above ground carbon cycle which happens over a relatively short –time-scale. When looked at in its entirety, this carbon cycle rarely increases net emissions of CO₂ into the atmosphere (apart from through the decomposition of soil organic matter, see first footnote). On the other hand, the carbon stored underground in fossil fuels has been sequestered there over hundreds of thousands of years and, once released, cannot be returned to those underground stores other than through the same process.

Using carbon offsetting to fund REDD means that the CO₂ emissions ‘saved’ by reducing deforestation (which would eventually have been reabsorbed by forests anyway) will be used to sanction the use of fossil fuels elsewhere, thus increasing net CO₂ emissions to the atmosphere. This simply cannot be allowed to happen: the carbon that is underground now needs to stay underground.

This is not to say that deforestation should not be stopped though. Of course it must, for both environmental and social reasons. Furthermore, that reduction should be fully supported and financed as necessary. But stopping deforestation should not be directly connected to the reduction of fossil fuel burning in industrialized countries.

loss of national sovereignty over natural resources

If REDD is financed through carbon markets, this could also determine the way in which funds can be used at the national and local levels. Even if funds were distributed at the national level, investors would probably have considerable influence over where funds went, and these decisions would be made with a view to maximising profits, not minimising deforestation.

Developing countries and local people could also lose sovereignty over and control of their natural resources, as forest ‘services’ are bought up. This is one of the reasons given by Brazil’s opposition for opposing the use of carbon markets to fund REDD and is the reason why it has proposed an alternative funding mechanism.

carbon markets are complex and susceptible to corporate lobbying

As FERN and others have pointed out: “Even economists like Alan Greenspan see the flaws in carbon trading, and businessman George Soros has described it as “not effective” (FERN, 2008).

The experience of the first phase of the world’s most significant carbon trading experiment to-date, the European Union’s Greenhouse Gas Emissions Trading Scheme (EU ETS), has demonstrated that carbon trading is particularly susceptible to corporate lobbying. As a result too many permits were initially provided to certain industries, contributing to a slide in the price of carbon (World Bank, 2007:15) and a failure to restrict emissions.

As one media commentator has pointed out: “*the experience in Europe, which established the world’s largest greenhouse gas market three years ago, tells a cautionary tale – one in which politicians and influential industries may be diverting carbon trading from its original purpose of reducing planet-warming gases*” (IHT, 2008). The scheme has certainly generated “*record profits for... RWE AG and other utilities*” (Bloomberg, 2006). The UK’s Environmental Audit Commission has also cautioned that “*unless airlines are forced to buy their emissions permits through auction, they are expected to earn windfall profits – perhaps between €3.5 billion (£2.4 billion) and €4 billion (£2.7 billion)*” in Phase II of the ETS (EAC, 2007).⁷

It also seems that EU officials found establishing such a vast market much more complicated than they anticipated (IHT, 2008) (even though monitoring credits in the EU ETS is likely to be much simpler than trying to verify REDD credits).

However, tough reforms have been promised in Europe, including the auctioning of allowances (meaning companies would have to pay for their emissions rather than being given credits); and the price of carbon has largely recovered. Whether the European Commission is able to deliver on these promises, in the face of corporate opposition from energy intensive industries, remains to be seen though; and the European Parliament has proposed phasing in the auctioning of emissions allowances so that companies will have to pay for them.⁸ Companies such as Royal Dutch Shell and the steel giant ArcelorMittal have reportedly threatened to freeze some of their investments in Europe unless the plan is reviewed (IHT, 2008).

⁷ At the time of writing there is a consultation underway in the EU concerning the inclusion of aviation in the ETS.

⁸ The EU is in the process of reviewing the ETS and the Environment Committee of the European Parliament has proposed full auctioning for the power sector and phasing in the auctioning of emissions allowances for other sectors so that companies will have to pay for them.

three what are the consequences of a market-based approach to REDD? continued

ex-post payments and liability contracts

Carbon finance is also likely to disadvantage smaller players. Payments may be made 'ex-post', which means that the project is paid after the delivery of emissions reductions, because of the uncertainty associated with REDD. This would be difficult for smaller projects because they would have to fund upfront and operational costs from other sources. Alternatively, projects may have stringent risk assessments and contractual liability arrangements attached to them (EcoSecurities, 2007), meaning that the seller bears the risk of project failure. Both scenarios would be particularly onerous for smaller projects run by local communities.

A recent submission from CfrN acknowledges that "*upfront costs must be carried by the seller and interim financing may be necessary in many cases*" (SBSTA, 2008). This difficulty is also recognized by those focusing on what is termed 'pro-poor REDD', who identify a number of associated impacts. The need for upfront funding will limit small producers' market access, put buyers in a better negotiating position, and could even marginalize smaller operators into illegality (ODI, 2008).

It seems the market for such projects has been dominated by public and/or philanthropic institutions that have 'bought' environmental assets for public benefit purposes. Of the 287 examples of 'environmental services markets' that the International Institute for Environment and Development analyzed in 2002 (Landell-Mills & Porras, 2002), hardly any could be considered to be purely commercial. Most were rather conventional schemes that support community-based biodiversity conservation initiatives, which have suddenly been re-baptized as 'payments for environmental services' schemes in order to make them more acceptable given the current trend towards market-based approaches to conservation.

REDD and market volatility

Markets are also notoriously volatile, and opportunity costs/compensation could easily vary wildly from one day to the next. Any sudden increase in the price of timber or agricultural commodities could greatly reduce the area of forest that could be protected, if it suddenly becomes more profitable to harvest the timber and/or use the land for commodity production rather than maintain a REDD agreement. This is in complete contrast to the predictable and stable funding that CfrN countries are requesting.

The current biofuels boom provides a perfect example. The US Foreign Agricultural Service reported that soy prices rose 13% in just five months, between December 2006 and April 2007. Furthermore, in 2006 alone, global ethanol production increased by 22% and biodiesel (which has a much smaller share of the overall agrofuels market) went up by 80% (GJEP/GFC, 2008).

Prices that escalate as rapidly as this make compensation for reduced soy or palm oil production difficult, if not impossible.

The same issue of volatility arises in relation to reliance on the price of carbon. For example, if small farmers or local communities are being paid in relation to tons of carbon saved, those payments could plummet below subsistence levels if the price of carbon crashes, as it has done in the past. Returning to activities that involve some degree of deforestation would then be highly likely.

REDD credits could destabilize or flood existing carbon markets

One key concern, that even those in favour of carbon markets are worried about, is whether cheap and plentiful REDD credits could flood carbon markets such as the EU ETS, causing the price of carbon to drop. They are concerned that this would damage other climate change mitigation efforts that also depend on the price of carbon.

A number of solutions to this problem have been suggested. One is to ensure that demand for forest carbon credits remains high by making Annex I emission cuts so stringent that more credits are needed. But data from the Rainforest Foundation suggests that this would be difficult: it looked at several different scenarios and found that the demand for credits would only exceed supply if Annex I countries were required to make emissions cuts in the order of 80%, and if 50% of those emissions reductions could be offset with credits from non-Annex I countries (Rainforest Foundation, 2008).

Another solution that has been put forward is to 'gear' credits, so that one REDD credit is equal to several carbon credits (Czebinak, 2008). However, as has been pointed out this would significantly reduce the value of REDD credits and the carbon financing that could be obtained through them. Another option would be to establish a separate REDD market.

REDD and voluntary offsets

Even with no REDD agreement within the UNFCCC, the voluntary market could still be used to purchase carbon offsets unless these are prohibited. Although reforestation/afforestation projects have not been all that popular within the CDM because of high transaction costs (World Bank, 2007), forest carbon credits account for about 35% of credits traded on voluntary markets like the Chicago Climate Exchange (Forecon, 2008). West Papua and Aceh are already engaging with the voluntary offset market, in advance of a multilateral decision on REDD (see Indonesia case study above).

four methodological problems with REDD

methodological problems with REDD

In addition to concerns about financing, there are other equally serious methodological problems with REDD. This is why it has not previously been included in carbon finance mechanisms such as the EU ETS.⁹

Although there have since been a number of technological improvements (especially in satellite imaging technology), most of these problems and risks remain, meaning that REDD might fail, even if the large sums of money being discussed are raised and distributed.

high likelihood of leakage

An enduring problem in relation to REDD is whether it can address 'leakage' concerns. A project-level approach, for example, could mean that deforestation activities simply shift to another area in the same country (depending on the specific drivers in question). Similarly, there are also concerns about whether the use of protected areas will reduce deforestation overall or merely displace the pressure elsewhere (UNEP-WCMC, 2007).

CfRN's Kevin Conrad and many others thus argue that REDD should be nationally-based (Asia Cleantech, 2008). However, even a national level approach could see deforesting activities shifting to countries that are not participating in REDD (and this is, of course, even more of a concern during any stage when REDD activities are being piloted in a restricted number of countries).

One obvious solution to this predicament is to involve as many countries as possible in a REDD agreement. Ultimately, the only solution is to remove the underlying causes of deforestation.

This seemingly technical discussion about leakage also obscures some rather more political concerns.

Firstly, if leakage does occur, REDD will fail to reduce overall carbon emissions to the extent predicted, even if credits are successfully delivered on a project-by-project or country-by-country basis. Even more worrying is the prospect of carbon offsetting using a 'leaky' REDD system, which would permit continued emissions in the North, without supposedly offsetting emissions reductions occurring in the developing world (WRI, 2007).

Secondly, decisions on leakage could have very significant outcomes in terms of how REDD projects are managed, who engages with them and who the interim and final beneficiaries of REDD funds are.

Project-level crediting, for example, can be expected to result in more leakage. However, it is likely to be preferred by carbon finance investors because it is easier for the private sector to engage with, the risks associated with specific projects can be managed more effectively, and because poor national governance will be less of a risk factor. It may also take longer for entire countries to get 'ready' for REDD (EcoSecurities, 2007). Critically, project-level crediting under a UNFCCC agreement also means that funds would be channelled directly to project managers and participants, be they carbon finance companies, conservation NGOs or local communities. This would make it more difficult to address the drivers of deforestation in a targeted way at either the national or the international level. In short, carbon finance companies are likely to prefer a project-level REDD mechanism.

On the other hand, national-level crediting under the UNFCCC would see credits issued to national governments to be distributed as they see fit, or perhaps with some conditionalities attached (relating to governance, for example). Leakage could be significantly reduced and funds used for a more systemic attack on the underlying causes of deforestation. With national-level crediting it is still possible to distribute funds at the local level, but it should be noted that there is no guarantee that this will happen. Generally one can at least predict that governments will favour a national-level approach to REDD.

Clearly, however, both approaches have their disadvantages, which need to be addressed. However, from a leakage point of view, national-level contributions to a multilateral effort to stop deforestation are essential.

monitoring, verification and degradation

Monitoring and verification of deforestation are difficult, although officials claim that technologies have improved sufficiently to proceed with REDD. There is some discussion about whether methodologies should be based on those already developed in the UNFCCC Good Practices Guidance for Land Use, Land Use Change, and Forestry (LULUCF¹⁰) (IPCC-NGGIP 2003) which are used by Annex I countries; and the Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories (IPCC-NGGIP, 2006).

¹⁰ Trading under the Kyoto Protocol is not confined to countries' Assigned Amount Units. It also includes a number of other units, including Removal Units, (RMUs) which are generated through LULUCF activities such as reforestation, afforestation and sustainable forest management. When these activities result in a net removal of greenhouse gases, an Annex I country can issue RMUs as part of meeting its climate change commitment (UNFCCC, 2008b). There is also a debate underway about the inclusion of Harvested Wood Products (HWPs), including wood and paper products, in countries' net emissions inventories under LULUCF. It is not difficult to envisage a future scenario in which the same governments supporting HWPs in LULUCF suggest including them in REDD (which would mean that forests could still be cut down so long as the timber products were reused or recycled). The discussion on common methodologies might have the same impact.

⁹ The EU, in response to lobbying by forest conservation groups, is currently in the process of reconsidering whether forest-related credits should be accepted in the EU ETS.

four methodological problems with REDD

continued

However, even if methodologies are deemed sufficient, cost could still be a stumbling block, because of:

- *the cost of satellite imaging;*
- *the cost of 'ground truthing', which is particularly important if degradation is to be included (still a contested point, for precisely this reason);*
- *the fact that the cost of installing monitoring and verification systems are up-front costs, whereas income through carbon financing is likely to be ex-post; and*
- *the likelihood that associated technical documents will be inaccessible to local communities without advice from external consultancies.*

Measuring degradation is particularly problematic, but also particularly important. If degradation is not included in REDD, great quantities of carbon could be lost without the system recognising it. In some countries, such as those in the Congo Basin, losses from degradation tend to be much higher than those from deforestation.

However, the fact that degradation data may be less reliable and much more expensive to acquire are likely to discourage investors. This and the need for upfront funding seem to be fairly cogent practical arguments for using publicly rather than privately sourced finance.

different baselines favour different countries

A further dilemma currently under discussion is how (and indeed whether) to establish baselines against which to measure deforestation rates. This thorny issue has the potential to overwhelm the whole REDD debate since it is virtually impossible to establish baselines that work fairly for everyone.

One particular concern is how to provide positive incentives to deforesters, whilst rewarding those countries with low historical and potential deforestation rates. As ODI has pointed out, "Historic baselines result in more finance to poorer performers" (ODI, 2008).

There have been proposals to establish a baseline which spans a number of years instead of a business-as-usual scenario, which would allow for anomalous years. Using a historic reference period in this way would also have the advantage of rewarding countries that have successfully decreased deforestation rates in the intervening years; and would remove any incentive for countries to increase their current deforestation rates in order to maximize future gains from REDD.

The debate is complicated even further by concerns about accounting for reductions in deforestation that might have happened anyway (akin to the concerns about whether CDM projects are really additional). For example, Indonesia and Malaysia had very high rates of deforestation in the 1980s and 1990s, and deforestation is now likely to focus on highland areas. This means that deforestation rates can be expected to decrease anyway, for 'mechanical' reasons (Karsenty, 2008). Some countries are therefore proposing that baselines account for 'anticipated trends in deforestation.'

A further critical element of the baselines debate concerns whether to measure standing carbon stocks instead. This approach is favoured by countries that are still heavily forested and may have made considerable efforts to remain so. If they are excluded from REDD, the benefits would go only to the most prolific deforesters.

However, this approach is also problematic because natural changes, such as forest fire and dieback, cannot be excluded (although it could be argued that these are no longer entirely natural, because of the impacts of climate change on weather patterns and forest health) (FOEI, 2008). India favours this approach, proposing a 'Compensated Conservation' mechanism (UNFCCC, 2007e: 85).

There is also the problem of how to avoid 'hot air' – the generation of credits through the establishment of artificially high baselines. This benefits both the sellers and purchasers, as more credits can be generated, but makes no difference to changing deforestation rates per se. At the same time, increasing the volume or availability of offset credits would make it easier for companies to offset emissions instead of reducing their own emissions at home.

Finally, there are also methodological concerns about the accuracy of available baseline data. For example, FAO's global forest assessments have been criticized because they are based on poor data and inconsistent reporting methods, and because they include figures for plantations, thereby masking real losses in primary forest (WRI, 2001).

Some other solutions that have been proposed to these difficulties include:

- *Countries being rewarded for reductions relative to historic emissions and on the basis of reductions below an agreed global baseline; and supported by a combination of market- and fund-based financing (Strassburg, 2008).*
- *The use of a Target Band or Range Approach instead of a baseline, which allows countries to increase the financial benefits they accrue per credit the closer they get to their upper targets. However, this approach could make it difficult to generate full-value credits and to identify leakage.*

forests are not permanent

There are obvious risks associated with the fact that forests, or at least trees, are impermanent by nature, and forest fires and die-back (whether natural or caused by climate change) could impede reductions in deforestation rates. From an investor's point of view this is a significant challenge to guaranteed profit-generation and the reason why ex-post payments are likely to be preferred.

In other systems, this is resolved by the use of short-term and long-term temporary credits (tCERs and ICERs respectively), which have to be renewed at the end of a given period or if forest stocks disappear for any reason. Thus the liability for the project rests with the purchaser (although purchasers can also insure against credits expiring unexpectedly). However, temporary credits generate less income, so the sellers may prefer to shoulder liability themselves and sell more expensive permanent credits. One way round this is to save a certain proportion of all credits to be banked in trust or reserve accounts against future losses (proposed by CfrN) (SBSTA, 2008).

plantations are not forests!

As long as plantations are included within FAO's definition of forests (FAO, 2000) there is a very real risk that REDD will be used to fund the expansion of plantations, even though it is now recognized that plantations store only 20% of the carbon that intact natural forests do (Palin et al, 1999, for CGIAR).

Brazil's position, which talks about reducing 'net' deforestation levels, is an extension of this definitional issue. Brazil has called for positive incentives to be applied to 'net' reductions in emissions from deforestation (UNFCCC, 2007f); and recently confirmed this position with a new draft national plan that aims to ensure that more trees are being planted than cut down by 2015. Although the Brazilian Environment Minister has argued that this will be achieved in part by restoring native forests and a crackdown on illegal logging (BBC, 2008c), this approach is probably designed to ensure that Brazil can continue to deforest if forest lost is matched by expanding plantations. This strategy could allow Brazil to benefit from increased revenue from both plantations and REDD credits.

Replacing forests with plantations will also fail to generate any of the promised REDD 'co-benefits', since plantations are associated with a drastic loss of biodiversity and severe negative impacts for forest-dwelling communities.¹¹

can REDD work in the absence of clear land tenure?

REDD refocuses attention on a key moral and legal dilemma –to whom, if anyone, do forests belong? And who has the rights to sell forest credits? It is certainly clear that in the absence of secure land rights, Indigenous Peoples and other forest-dependent communities have no guarantees that they will receive any form of REDD 'incentive' or reward for their extensive forest conservation efforts. There are also territorial disputes and claims in many of the countries eligible to participate in REDD. REDD could inflame these debates and/or lead to increased state or corporate control over forests. There is some evidence to suggest that the redistribution of land in land reform programmes is already being impeded by increasing land and commodity prices (GFC, 2008b).

Investors themselves say that REDD funds are more likely to favour low-risk projects or countries, where land tenure is not a contentious issue (EcoSecurities, 2007). Some might argue that this is, in theory at least, one area where carbon finance might have a positive benefit, encouraging the resolution of land tenure issues. But this is most unlikely. Rather, one can anticipate that 'resolutions' of land tenure issues may actually go against local communities and Indigenous Peoples as so much is at stake. There are anecdotal reports of such developments emerging already.

Experience with similar forestry projects in the past also suggests that many private companies are in fact quite happy to invest in countries with abusive dictatorships and poor human rights records. The lack of regulation can work in their favour.

Forest cleared for a palm oil plantation in Indonesia.



¹¹ For more detail see World Rainforest Movement's Plantations Campaign at <http://www.wrm.org.uy/>

five REDD and the underlying causes of deforestation

REDD and the underlying causes of deforestation

Increasing the value of forests and ramping up the amount of funding available to those who 'own' forests is not necessarily going to stop deforestation. It is the underlying causes of deforestation, rather than the immediate or proximate drivers, that need to be accurately identified and effectively addressed.

The complex and regionally-specific way in which these underlying causes operate needs to be fully understood if deforestation is to be effectively addressed (Geist and Lambin, 2001). Simply deciding to pay the most obvious proximate polluters not to pollute (which is anyway morally dubious) is unlikely to do the trick. As has been pointed out *"As previous projects in the forestry sector have shown, investing in forest conservation projects without understanding the causes of deforestation can result in wasted resources with no impact on deforestation rates"* (Myers, 2007).

In short, it is necessary to assess what the underlying causes of deforestation really are; and to address these directly, securing and targeting funding as (and only if) necessary. It is also important to assess whether the use of carbon markets to resource REDD might prevent such a thorough and targeted approach.

Looked at through the underlying causes lens it becomes clear that reducing demand for timber and agricultural commodities must be an immediate priority. Yet REDD as it is currently construed seems most unlikely to address this issue. Worse, it could even aggravate the situation by reducing timber supplies. Without a reduction in demand, this could lead to an increase in timber prices and thus more incentive to deforest.

Similarly, cordoning off a forest to protect it from the fuel gathering activities of money-poor local communities is not going to solve the energy needs of those people. It will simply worsen their plight and/or move the same problem to another area. In this case the rational approach, in line with the Millennium Development Goals, would be to use some form of forest conservation funding to resolve people's energy access needs in an equitable and sustainable way.

Unfortunately, stopping the underlying causes of deforestation may be easier said than done, particularly given the fact that some causes – such as the price of various commodities and currency rates – may be beyond the reach of governments acting in isolation (Karsenty, 2008). But persuading governments to act multilaterally to stop deforestation has been an elusive goal so far. The UN Forum on Forests and the International Tropical Timber Organization, for example, *"have provided support to national forest planning efforts but have not yet had demonstrable impacts on reducing deforestation"* (Trines, 2007:567).

Industrialized countries' seemingly insatiable demand for timber and other natural resources belonging to economically-poor but resource-rich countries in the South is also expressed through their attempts to use multilateral and bilateral trade liberalization negotiations, such as those currently underway in the World Trade Organization and the EU-ACP Economic Partnership Agreements. Aiming to stop or reduce deforestation without reducing demand for and the liberalization of trade in natural resources is pointless.

A further complication is that different causes and drivers dominate in different regions of the world, meaning that a complex country-by-country approach with nationally-specific action plans will undoubtedly be required if deforestation is to be stopped.

Commercial agriculture, including large-scale cattle ranching, is the predominant driver of deforestation in Latin America and Northern Dry Africa; and commercial crops, including for biofuels feedstocks, predominate in some South-East-Asian countries. On the other hand, commercial timber extraction is a more influential driver in South-East Asia as a whole. Commercial fuelwood extraction has also been identified as an emerging driver in 'forest-poor' countries with rapidly expanding urban centres (Blaser, 2007), although it is important to bear in mind that much fuelwood collection is probably of fallen dead wood or offcuts from industrial felling.

role of subsistence farming

The role of subsistence farming in deforestation is a particularly sensitive point. To what extent are subsistence farmers responsible for deforestation; and how much would it really 'cost' to compensate them?

Figures given in research commissioned for UNFCCC (Blaser, 2007) may be misleading. They seem to indicate that subsistence farming is probably the main driver in all regions; and that it is relatively cheap to compensate such farmers (because subsistence farmers mostly grow crops for their family's own consumption, meaning that compensation will be negligible). Addressing the opportunity costs of commercial agriculture and commercial logging are seen as the most expensive options (Blaser, 2007: 11). But this undoubtedly overlooks the very real costs of convincing subsistence farmers to adopt alternative or adapted forms of agriculture or other livelihoods.

In Paraguay the impacts of commodity prices on small and subsistence farmers and neighbouring Indigenous communities are very visible. Members of Friends of the Earth Paraguay, Friends of the Earth Netherlands and the Global Forest Coalition visited an area (Caazapa) on the soy frontier, where farmers explained that all their neighbours had already rented or sold their land to large soy farmers, and that they expected them to sow soy during the coming season. This soy would be grown on lands surrounding an Mbya Guarani village that takes its drinking water from streams that will be polluted with pesticides next year, as a result of the expansion of soy (Lovera, 2008).

An overly general approach to subsistence farming can also lead to the bundling together of many different kinds activities under the one heading, including:

- slash-and-burn activities, including by people who have migrated to the forests (Geist & Lambin, 2001) (such as the Indonesian Transmigration Programme, and before that Polonoeste in Brazil);
- shifting cultivation;
- the collection of non-commercial fuelwood and non-timber forest products; and
- traditional, sustainable types of forest farming, that are known to gradually increase carbon sequestration.

Clearly, these activities all have different impacts on deforestation (as Blaser recognizes in his disaggregated data). However, what is not recognized is that there is evidence to suggest that some kinds of subsistence agriculture can actually increase forest cover.

box: subsistence farming can increase forest cover

Research suggests that human farming has helped increase the distribution of indigenous oil palms, and other forest animals and plants, partly because regular low-level burning, as practised in traditional slash-and-burn farming systems, suppresses grass/shrub vegetation, which otherwise builds up and allows catastrophic fires. This alteration encourages fire-resistant trees to grow (especially oil palm) which in turn act as attractants to seed-dispersing animals and birds. This leads to natural forest regeneration (Maley, 2001).

Research conducted in Kissidougou, Guinea, also revealed that: *"Far from being relics, Kissidougou's forest islands prove to have been created by local populations. In the majority of villages, elders describe how their ancestors encouraged forest patch formation around settlements which had been founded either in savanna or beside gallery forests. The formation and growth of forest islands around recently established village sites is often visible when 1952 and modern air photographs are compared. Villagers also suggest that woody cover on the upland slopes and plateaux between the forest islands has generally increased during this century, and not declined as has been thought..."*

In the north and east of the prefecture, grass savannas have become more densely wooded with relatively fire-resistant savanna trees and oil palms. Indeed that oil palms have spread north into savannas, encouraged by villagers, suggests that they may be better seen as outposts of anthropogenic forest advance than as relic indicators of forest retreat. Even more strikingly, in the south and south-east, large expanses of grass and sparse shrub savanna have ceded entirely to forest fallow vegetation: the area is actually a 'post-savanna', not a 'post-forest' zone." (Fairhead & Leach, undated)



Left: Land cleared for palm oil plantations in Indonesia.
Right: Family living near the Iwokrama Forest in Guyana.

five REDD and the underlying causes of deforestation

continued

REDD, governance, corruption and illegal logging and demand for timber products

It is widely acknowledged that poor governance and corruption also need to be addressed if deforestation is to be stopped. This is recognized by the UN Forum on Forests, the International Tropical Timber Organization, and in negotiations on Forest Law Enforcement and Governance (Brack, 2007). The question is whether REDD can address these issues; and how it links to existing established processes intended to deal with illegal deforestation (which includes illegal logging and illegal forest conversion to agriculture). Furthermore, would the use of a REDD fund rather than carbon markets improve governments' ability to reign in such illegal activities?

Although the definition of 'Illegality' is fraught with difficulty (who defines what is or is not illegal?), it is nevertheless important to note that illegal logging is often listed as one of the prime proximate drivers of forest degradation, and one of the hardest to stop, especially in the absence of any reduction in demand for timber. Yet without such a reduction in demand, REDD could actually increase illegal/industrial logging (by leading to an increase in timber prices, as discussed above).

It has been estimated that illegal activity was responsible for between 73% and 88% of Indonesia's deforestation in 2006; and the Indonesian government has estimated that 2.8 million ha of forest, worth US\$3.3 billion, is lost to illegal logging every year. In Amazonia, illegal activity could account for anything up to 60% of deforestation (at least down from 80% in 1997). Similarly, estimated levels for Cameroon are alleged to be about 50%; and for Papua New Guinea about 70% (Saunders & Nussbaum, 2008:2). There are also issues about whether logging companies are ignoring compliance requirements with respect to land rights, royalties and harvesting limits, which can also be construed as illegal logging.

This raises a number of important questions in relation to REDD. Why, for example, should complex REDD policies involving large amounts of money work in countries unable to contain illegal logging and forest conversion in the first place? And if increased infrastructure, good governance and financing can help to stem these illegal activities, why not use new or existing policy measures to target these aspects directly?

In addition, why implement a new REDD process to compensate lost opportunity costs when some governments significantly undervalue their legally exploited forests? At the moment, REDD appears to offer a golden opportunity to corrupt government officials to benefit from low rents in some areas and REDD income in others.

There are already measures in place to address illegal logging, including the Forest Law Enforcement, Governance (FLEG) Programme; the EU Forest Law Enforcement, Governance and Trade (FLEGT) Action Plan; and schemes in the Amazon Cooperation Treaty countries and Central America (Saunders & Nussbaum, 2008). There is considerable doubt as to how successful these have been to-date (Brack, 2007; Trines, 2007), but this does not mean that these processes should be ignored or sidestepped. They need to be improved.

In conclusion, it is not at all clear how, or even if, REDD could address 'illegal' logging and forest conversion. This uncertainty would be compounded if REDD were project-based and funded through carbon markets. How, in practice, could or would one stop illegal activity with a process based on positive incentives? One cannot reward the illegal loggers and farmers themselves.

It seems that this driver, at least, requires a more general form of funding focused on improving governance and reducing demand. As Chatham House points out, when observing that tropical governments are thought to have lost US\$15 billion in the last decade from failing to enforce forest laws and collect fees and taxes, this failure "is the result of a range of factors, from lack of enforcement capacity to systemic corruption, but the figures suggest that establishing a funding mechanism for avoided deforestation will not automatically ensure that the most important tropical-forest countries achieve their aims, if the capacity and will to effectively govern the resource and capture potential revenues are not considered at the design stage" (Saunders & Nussbaum, 2007:2).

IUCN also observes that REDD can only help to avoid climate change "if it is based on sustainable forest management and integrated into broader carbon emission reduction strategies.... Weak forest governance and the marginalization of forest dependent communities are important factors that exacerbate forest loss and degradation. As long as these challenges remain unresolved, the success of REDD is uncertain and REDD mechanisms might even inadvertently reinforce corruption, undermine human rights and threaten forest biodiversity" (IUCN, 2008).

To take the REDD argument one, logical, step further, one might also ask the question: should the 'polluters being paid' include those taking bribes, to ensure that REDD really will work? Looked at in this light, it becomes clear that the underlying premise of REDD as it is currently construed – to provide positive incentives to those engaged in deforestation to stop – is wrong. What is required is a clear, targeted effort to stop illegal deforestation, including by rooting out corruption.

six who should manage multilateral funds?

who should manage multilateral funds?

There are a significant and growing number of carbon funds and facilities designed to manage climate change funds. But few if any of these are suitable candidates for managing funds to stop deforestation and forest degradation.

Furthermore, those mechanisms sitting within the UN have received what can only be described as lukewarm support from rich donor governments. The one exception to this is Norway's support for the new UN-REDD initiative (see below).

A review of existing climate funds in the UN reveals the paltry levels of funding secured for most climate change activities. Stern has estimated that the annual costs of stabilising the concentration of CO₂ at around 550ppm CO₂e equivalent are likely to be around 1% of global GDP per annum by 2050 (Stern, 2006: xiv); and that stabilising at 450ppm CO₂e could cost in excess of 2% (Stern, 2008). Estimated global GDP in 2007 (using the official exchange rate) was US\$54.62 trillion (CIA, 2008), meaning that 1% in today's economy would be the equivalent of some US\$546 billion annually. Yet UN climate change funds (committed and pledged) for its Special Climate Change and Least Developed Country Funds totalled just US\$263 million at the time of writing (see below).

box: UNFCCC funds

The UNFCCC currently has three climate change funds, the first two of which are administered by the Global Environment Facility (GEF):

A **Special Climate Change Fund** (SCCF) was established under the UNFCCC in 2001. It is mandated to finance projects relating to adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification. However, although mitigation projects are included, at COP-9 (UNFCCC, 2001), governments decided that adaptation activities should have top priority for funding. Nevertheless, in 2006, governments did specify that projects to be financed would include reforestation and afforestation (UNFCCC, 2006). By March 2008, US\$90.3 million had been pledged (GEF, 2008b). The SCCF is a voluntary fund relying on contributions and is currently operated by the GEF.

The **Least Developed Countries Fund** (LDCF) was also established by the UNFCCC in 2001 and is intended to facilitate the preparation and implementation of urgent National Adaptation Programmes of Action (NAPAs) in Least Developed Countries (LDCs). By 21 May 2007, 15 NAPAs had been completed (Action Aid, 2007). By March 2008, US\$172.84 million had been pledged (GEF, 2008b). The LDCF is also a voluntary fund relying on contributions and operated by the GEF.

the UNFCCC

There is heated debate within UNFCCC about how to manage climate change funds. Developed countries are legally obliged under the UNFCCC to provide finance and technology to developing countries to meet the full incremental costs of taking action to address climate change. The debate is not confined to discussions about REDD, but will certainly have a bearing on REDD outcomes. The G77 and China (representing 130 developing countries) have explicitly stated that a multilateral financing mechanism must be under the authority of the UNFCCC. In general, the key disagreement is over whether there is scope for the World Bank to be involved through its existing carbon funds, its newly proposed climate investment funds and its influence over the Global Environment Facility (GEF), which is currently the operating entity of the UNFCCC's financial mechanism; or whether funds should be handled within the framework of the UNFCCC itself (a view held by many developing countries, as expressed by the G77/China).

These tensions are not new. Indeed they have been brewing and periodically bubbling up since the early 1990s, when the various conventions and the GEF were set up. But they are now top of the agenda again, as governments try to agree to UNFCCC arrangements. They have also been fuelled by announcements that a number of key donor countries are channelling their climate change funds through the World Bank, even though the UNFCCC's existing climate funds remain massively underfunded.

An **Adaptation Fund** has also been established, under the Kyoto Protocol, to support practical adaptation projects in those developing countries that have signed the Kyoto Protocol and are particularly vulnerable to the impacts of climate change. However, it is not yet operational.

The Adaptation Fund does not depend on voluntary contributions, but is funded through a 2% adaptation levy on CDM projects (although Annex I parties are also able to make voluntary contributions) (UNFCCC, 2007b). Institutional arrangements are not yet finalized and the levy is currently held as Certified Emission Reduction certificates (CERs) in the CDM registry, totalling 560,000 CERs by January 2007. At a price of US\$20/tC, this fund could equal US\$11.2 million. However, the World Bank has predicted that this fund could generate between US\$100 million and US\$500 million by 2012 (Action Aid, 2007).

The Adaptation Fund also differs from the other two funds in that it is managed by an Adaptation Fund Board (this Board met for the first time in March 2008). The Board is composed of two representatives from each of the UN regional groupings, one from the small island states, one from the Least Developed Country parties, two from the Annex I countries and two more from non-Annex I countries. However, the GEF still acts as a Secretariat to this Board; and the World Bank remains as the trustee responsible for dealing with the funds (UNFCCC, 2007c).

six who should manage multilateral funds?

continued

the global environment facility (GEF)

The GEF was set up in 1991. It is an independent financial entity, although it has three implementation agencies – UNDP, UNEP and the World Bank. It is mandated to provide new and additional grants and concessional funding to meet the “*agreed incremental costs of measures to achieve agreed global environmental benefits*” relating to biological diversity, climate change, international waters, land degradation, ozone layer depletion and persistent organic pollutants (GEF, 2008).

The GEF was adopted as the UNFCCC’s operating entity for its financial mechanism largely against the wishes of developing countries, who object to the considerable influence that the World Bank has over it. The World Bank is one of the GEF’s three implementing agencies, along with UNDP and UNEP. However, it is also the trustee for the GEF’s funds, receiving and holding government contributions in a special account. It has been argued that this gives the World Bank considerable influence over the disbursement of all GEF funds, even for those projects managed by UNDP and UNEP (Young, 2002:109). There are also concerns that the GEF Council’s voting procedures give undue weight to donor countries, giving veto power to the five largest donor countries if a vote is called (Action Aid, 2007). This power imbalance has led to continuing disputes between donor and recipient countries, including over whether least developed countries have to find co-financing from other sources for National Adaptation Programmes of Action (NAPAs); and the complexity of its reporting requirements (Action Aid, 2007).

It is probably fair to say that, within the UNFCCC, the status of the GEF is once again being seriously challenged. In Bonn, in June 2008, the Subsidiary Body for Implementation failed to reach consensus on the operation of the GEF, including in relation to the mandate of its Consultative Group of Experts and its Resource Allocation Framework. A heavily bracketed text has been forwarded to COP-14 in Poznan. The Philippines, speaking for G77/China, said, “*There is only one operating entity (the GEF) and we are looking to widening this as allowed by Article 11 of the Convention so that it is fully under the governance of the COP*” (TWN, 2008).

box: the GEF trust fund

In addition to managing the two UNFCCC climate change funds, the Global Environment Facility also has its own climate change funding stream.

The **GEF Trust Fund** focuses on mitigation in the fields of energy efficiency, renewable energy and sustainable transport; by September 2007 it had raised US\$2.3 billion for climate change activities (and a further \$6.9 billion in co-financing from other sources) (UNFCCC, 2007:19).

The Trust Fund incorporates a **Strategic Priority on Adaptation** which aims to reduce vulnerability and increase adaptive capacity in relation to climate change by supporting pilot and demonstration projects that address local adaptation needs and generate global environmental benefits. The fund contains US\$50 million (Action Aid, 2007).



Road with a palm oil plantation on one side and forest on the other, Indonesia.

the world bank

The World Bank has a Carbon Finance Unit (CFU) which purchases project-based greenhouse gas emissions reduction credits in developing countries, for OECD countries and companies. At present, it is managing over US\$2 billion across ten carbon funds and facilities, of which US\$1.4 billion has already been committed (World Bank, 2008).

The explicit aims of the CFU are *“to catalyze a global carbon market that reduces transaction costs, supports sustainable development and reaches and benefits the poorer communities of the developing world”* and to ensure that *“developing countries and economies in transition are key players in the emerging carbon market for greenhouse gas emission reductions”* (World Bank Carbon Finance Unit, 2008).

The World Bank was encouraged in its efforts by the 2005 G8 Gleneagles Summit, which asked it to produce a road map for accelerating investment in clean energy for the developing world. As a result it established a Clean Energy Investment Framework. It is worth noting that the Bank states that *“in order to make a more substantial difference we need to go to a larger scale”* (World Bank, 2008).

However, the Bank's new found interest in funding carbon and forest-carbon projects needs to be seen in the broader context of its funding for the fossil fuel industry. Between 2007 and 2008, the World Bank Group increased fossil fuel financing by 60%. During this time, the International Finance Corporation (IFC), the private sector lending arm of the World Bank Group, increased its fossil fuel financing by 165%. The World Bank Group's fossil fuel financing totalled US\$2.275 billion in 2008 (BIC, 2008). Less than 10% of its carbon finance goes to small clean energy projects, whilst 75-80% goes to 'greening' the coal, chemical, iron and steel industries, effectively subsidising their transition towards cleaner technologies (SEEN, 2008).

The World Bank's own 2004 Extractive Industries Review recommended an immediate end to coal financing and a phase out of investments in oil production by 2008 and found that *“often times the environment and the poor have been further threatened by the expansion of a country's extractive industries sector”* (World Bank, 2004). Yet in April 2008, the Bank's private sector lending arm, the International Finance Corporation, approved a US\$450 million loan for a massive 4,000 megawatt coal project in India, expected to be one of the 50 largest greenhouse gas emitters in the world (SEEN, 2008). The World Bank's new Strategic Framework on Climate Change and Development also argues that coal should remain as an important source of energy (World Bank, 2008j).

The World Bank also has a very poor record when it comes to funding projects that would have gone ahead anyway (such as the Xiaogushan hydropower project in China (IR, 2005)). This means – most importantly – that funds are invested in projects that do not result in greenhouse gas savings, while the companies involved gain financially, and Northern donors continue to pollute.

Nevertheless, the Bank is pressing ahead with its climate change related activities. This could be linked to the fact that between 2005 and 2007 the Bank charged an average 'overhead' of 13% on projects to cut emissions, meaning that it has earned something in the order of US\$260 million for projects intended to resolve a problem to which the Bank itself is contributing (SEEN, 2008).



Left: A natural gas well burns off gas before capping the well for production, Texas, USA.
Right: Pumping machines in oil field.



six who should manage multilateral funds?

continued

box: world bank carbon funds and partnerships

The **Prototype Carbon Fund** (PCF) was established in April 2000, to pioneer the market for project-based greenhouse gas emission reductions. It is funded by 17 companies and six governments, to the tune of US\$180 million.

One project funded by the PCF clearly demonstrates the way in which the Bank prioritizes corporate concerns. It invested in the Plantar SA project in Minas Gerais, Brazil, even though the company in question, Plantar, was operating a pig-iron smelting project that involved expanding eucalyptus plantations, as well as increasing pressure on the surrounding native forests. In addition to that, Brazilian eucalyptus is generally harvested in seven-year cycles meaning that the carbon sequestration would be temporary at best (GFC/FOEI, 2005).

The **BioCarbon Fund** is another public-private initiative, established in 2004, which focuses on land-use projects intended to sequester carbon, including through afforestation and reforestation projects; and now through REDD. Projects are also supposed to promote biodiversity conservation and poverty alleviation. Three quarters of the Fund's projects generate carbon credits for the self-regulated voluntary carbon markets (SEEN, 2008). There are questions about whether the fund is more likely to generate funds for investors or contribute to poverty alleviation. The San Nicolas Carbon Sink and Arboreal Species Recovery Project in Colombia, for example, will generate very little income for local communities in comparison to the profits that may be made by those investing in it (GFC, 2008c).

In an apparent effort to position itself as a key player on forest carbon financing, the Bank also set out, in 2007, to establish a **Global Forest Partnership** (GFP), to act as a "new inclusive partnership arrangement" that would provide a "common umbrella for all the forest-related activities of the Bank". Curiously, an extensive list of potential participants in this partnership does not seem to include any United Nations institutions. The GFP is intended to focus on forests and livelihoods, sustainable production and markets, and forest environmental services and financing. The project documents specify that all of these should be addressed with a view to alleviating poverty. Thematic work programs would also be supported by its existing cross-cutting forestry programs, the Program on Forests (PROFOR) and the Forest Law Enforcement and Governance initiative (FLEG) (World Bank, 2007b).

However, the results of a preliminary survey of interested stakeholders, based on 600 responses, has clearly indicated that whilst some kind of collaborative effort on forests is desirable (to improve coordination, information sharing and confidence building; to pilot 'people's' forest diagnostics'; and to improve networking for innovation and scale-up), a range of stakeholders including "certain NGOs, some government respondents, indigenous peoples, and a few donor staff in particular" considered that the World Bank should not be a 'central driver' (IIED, 2008). The Bank acknowledges and refers to the outcomes of this consultation, but neglects to mention those results that refer to the Bank itself (World Bank, 2008b).

The World Bank also launched a proposal for a new World Bank **Forest Carbon Partnership Facility** (FCPF) at COP-13 in Bali, clearly with a view to promoting carbon finance as the financing mechanism for REDD. It certainly seems to second guess the outcome of the UNFCCC's REDD negotiations— and could have considerable influence on the outcome of those negotiations.

The FCPF includes a Readiness Fund was initially capped at US\$100 million, which will help fund 20 countries to participate in eventual REDD schemes, by developing baseline scenarios, national strategies to reduce emissions and monitoring systems. The Fund has received contributions from France, Finland, Norway, Spain, Switzerland, UK, USA and Japan.

As of October 2008, twenty countries have been selected to participate in the facility with full access to funding. These countries are Cameroon, the Democratic Republic of Congo, Ethiopia, Gabon, Ghana, Kenya, Liberia, Madagascar, Bolivia, Colombia, Costa Rica, Guyana, Mexico, Panama, Paraguay, Peru, Lao PDR, Nepal, Papua New Guinea, and Vietnam. An additional six countries, Republic of Congo, Uganda, Argentina, Nicaragua and Vanuatu have partial access to funding from the facility (though are expected to participate fully conditional on additional donor funding).

The FCPF will also include a Carbon Fund of up to US\$200 million, to remunerate a few selected countries "in accordance with negotiated contracts for verifiably reducing emissions beyond the reference scenario" (World Bank, 2008d:2). The Bank announced that it had already received pledges totalling US\$165 million, from 10 donor countries and The Nature Conservancy whilst in Bali (World Bank, 2008e).

The Bank has, however, gone even further in its efforts to position itself as the key player on forest and other carbon finance. On 1 July 2008, the World Bank's Board of Directors approved proposals for two new **Climate Investment Funds** (CIF) – a Clean Technology Fund and a Strategic Climate Fund – designed "to provide interim, scaled-up funding to help developing countries in their efforts to mitigate rises in greenhouse gas emissions and adapt to climate change." (World Bank, 2008f).

The second of these, the Strategic Climate Fund (SCF), is intended to promote and channel new and additional financing which can go to other funds addressing climate change, including the Forest Carbon Partnership Fund (World Bank, 2008f:9). Potential SCF programmes listed include climate resilience, greening energy access and Sustainable Forest Management (World Bank, 2008g:7).

Less than four months after being launched, these funds have so far attracted financial pledges totalling US\$6.1 billion – more than 20 times as much as has been pledged to the UN funds (World Bank, 2008h). This is a clear indication of Northern donor countries' reluctance to commit available funds to the UNFCCC's more accountable and democratic financial processes. These funds have been pledged by Australia, France, Germany, Japan, the Netherlands, Sweden, Switzerland, the UK and the USA (World Bank, 2008h).

There is also a separately noted proposal to include a **Forest Investment Fund/Program** (FIF) within the SCF by 2008. This would be intended "to mobilize significantly increased funds to reduce deforestation and forest degradation and to promote improved sustainable forest management, leading to emission reductions and the protection of carbon reservoirs"; and will, apparently, be "developed on the basis of broad and transparent consultations" (World Bank, 2008i:11).

It also seems that FIF would be intended to complement the FCPF by plugging a perceived gap between the FCPF's Readiness and Carbon Funds, providing the additional financial resources necessary to fund the policy reforms and investments necessary to reduce emissions in a sustainable manner. The Bank also reports that the Forest Investment Fund is currently under consideration by several bilateral donors (World Bank, 2008d:3).

It is these new CIFs, along with the proposed FCPF, which seem to have prompted such a heated response from the G77/China and other developing countries during the UNFCCC's deliberations on financial mechanisms. The key concern is that these funds will be controlled by the donor countries (who have their own interests and priorities) and the Bank (which continues to have a large fossil fuel portfolio, as described above). It is entirely possible that recipient countries will not be effectively involved in the management of the funds.

It has been pointed out by the Bank that the CIF proposals include sunset clauses to ensure that they do not undermine any decision made at COP-14 or beyond (World Bank, 2008f). However, this does not apply if the UNFCCC mandates the continued existence of the funds (World Bank, 2008g:20). The World Bank is clearly positioning itself to wrest control of new climate funds.

The International Finance Corporation (IFC) The World Bank's IFC also has a little known **Carbon Partnership Facility** (CPF), which aims to "facilitate the development of a commercial carbon market and to deliver innovative financial products that will unlock the value of carbon assets in developing countries and mitigate risks in this new market". At the moment, in terms of forests, only the "Planting of trees or other biomass to sequester carbon on lands that have not been forested since 1989 or later (in Europe only)" qualifies (IFC, 2008). However, it would seem reasonable to assume that should REDD's prominence increase, this could change in the near future.

Top: Palm oil plantation in Indonesia. Bottom left: Exhaust pipe of an automobile and waste gases. Bottom right: Sustainable timber harvesting operation in Guyana.



six who should manage multilateral funds?

continued

other UN Funds

UN-REDD programme fund On 24 September 2008, the UN launched its own dedicated REDD preparation programme, the UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD) (UN, 2008). It has been established with the assistance of Norway, which has committed US\$35 million to the initiative (and has already deposited US\$12 million) (UN, 2008b). It is also open to other donor governments.

FAO, UNDP and UNEP will jointly lead the Programme, which is intended to support capacity building, strategy development, testing financial approaches, and institutional arrangements for monitoring and verification. Nine countries are involved so far: Bolivia, the Democratic Republic of Congo, Indonesia, Panama, Papua New Guinea, Paraguay, Tanzania, Vietnam and Zambia (UN, 2008c).

The initial proposal notes that a REDD mechanism would only be viable in the long-term (by which they mean over the course of 100 years) *“if REDD policies and measures are effective in altering local development paths to those that permanently reduce pressure on forests without the need for additional and sustained cash alternatives”* (UN, 2008c:10).

It also notes that *“REDD schemes do not automatically guarantee a capacity to link carbon sensitive policies with pro poor and environmental policies”*(UN, 2008c:11); and concerns itself with the problems of the *“elite capture”* of funds and equitable revenue distribution (UN, 2008c:11).

It is too early to tell whether such expressions of concern will be matched by effective action on the ground. However, what is clear is that the Programme does not seek to challenge the notion that ‘reducing’ deforestation rates is insufficient; or that increasing the value of forests (especially with a definition of forests that includes plantations) could have significant negative impacts for biodiversity, Indigenous Peoples and local communities (UN, 2008c:1).

UN MDG facility One additional fund has been established, by UNDP, in collaboration with Fortis Bank. The MDG Carbon Facility is intended to “help leverage the potentially significant benefits of carbon finance” for sustainable development and poverty reduction purposes; and aims to “bring about market transformation with respect to carbon finance in developing countries, effecting the transition from a pre-market to a fully market-enabled environment that supports MDG-grade carbon projects and attracts substantial direct investment from the private sector.” Fortis Bank will assist with the practicalities of purchasing and marketing emission offsets.

This fund, although focused on sustainable development and poverty reduction priorities, also seems to be an unsuitable route for funds focused on stopping unsustainable deforestation, in so far as it seems entirely focused on accessing forest carbon finance through carbon offsetting.



Sustainable timber harvesting operation in Guyana.

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seven other ways of raising or using forest carbon funds

other ways of raising or using forest carbon funds

Given that at least some increased levels of funding will certainly be necessary to address the underlying causes of deforestation, such as demand for timber products and commodities, poor governance, and basic energy needs and energy access, it is worth considering a range of alternative funding sources. A number of alternative and 'hybrid' proposals have already been proposed, by governments, actors and civil society actors;¹² and further options may of course be possible. This section considers a few key proposals.

brazil opposes carbon finance to fund REDD

The government of Brazil has been one of the more outspoken governments in the REDD negotiations.

Brazil has so far been an outspoken opponent of linking REDD into carbon markets stating that it does not want its forests to be used by Annex I countries to offset their domestic emissions reductions commitments (UNFCCC, 2007f). It also rejects the idea of mandatory reduction commitments for developing countries, which are not responsible for climate change. Brazil does not want to cede control over the Amazon and forest policy in general to carbon markets (WorldWatch Institute, 2008).

It has proposed *"the distribution of financial incentives to countries that demonstrate, in a transparent and credible manner, a reduction in their emissions from deforestation. These financial incentives should be provided by Annex I countries that voluntarily engage in the arrangement, and shall be new and additional to financial resources provided for other activities (according to Art. 4.3 of the UNFCCC)"* (UNFCCC, 2007f).

However, governors from the Amazon states of Mato Grosso and Amazonas do support linking REDD to carbon markets, on the basis that REDD funding could potentially raise something in the region of US\$531 million over 10 years according to Woods Hole Research Center estimates (WorldWatch Institute, 2008).

¹² Greenpeace International, for example, has proposed a 'market-linked' alternative, in which Annex I countries would purchase a new dedicated unit, the Tropical Deforestation Emission Reduction Unit (TDERU), from a new dedicated international mechanism, the Tropical Deforestation Emission Reduction Mechanism (TDERM). The price of TDERUs would be set by auction or by linking to the price of Kyoto units (Greenpeace International, 2007). The TDERM proposal aims to address many of the practical concerns raised in relation to REDD, such as leakage, lack of national capacity, uncertainty and the involvement of all tropically-forested countries and "appropriate stakeholders" including Indigenous communities, but does not address the potential on-the-ground social and environmental impacts that this or any other financial mechanism that increases the value of forests might have in terms of implementation at the national level.

tuvalu proposes forest retention incentive scheme

Tuvalu, another outspoken nation in the UNFCCC negotiations, proposed a Forest Retention Incentive Scheme based on funding community-based forestry projects.

This scheme would be established under the UNFCCC and would be funded from a mix of sources, including the Special Climate Change Fund, bilateral official development assistance, corporate sponsorship, and non-governmental and governmental contributions.

This upfront funding would be held in Community Forest Retention Trust accounts, from which communities could withdraw a certain amount initially and annually to cover upfront and ongoing operational costs. They would subsequently be awarded Forest Retention Certificates, issued by national governments under the guidance of the COP, and would be able to redeem a certain number of these certificates at the end of a prescribed period of time (say ten years). They could only redeem their certificates against an International Forest Retention Fund: they could not be sold, transferred or traded (UNFCCC, 2007e).

Tuvalu has also proposed the creation of disincentives for importing REDD-unfriendly forest products, through carbon deficit levies, to be paid by importers of carbon intensive products (ENB, 2008).

developing countries call for new climate change funding mechanism within UNFCCC

How to finance climate change mitigation and adaptation measures is one of the most heated negotiations within the UNFCCC at present and will undoubtedly be high on the agenda at COP-14 in Poznan.

The key points of divergence are whether funding is generated through implementation of Annex I countries' commitments (the position of G77+China); the role of private sector financing including through carbon markets and 'innovative' financing mechanisms (with India, the African Group, China and the Alliance of Small Island States stating that the private sector can play only a limited role); and the balance between funds for mitigation and adaptation (a concern expressed by the African Group) (IISD, 2008).

seven other ways of raising or using forest carbon funds

continued

At an official workshop on investment and financial flows, held as part of the June 2008 meeting of the Ad Hoc Working Group on Long-term Cooperative Action, a range of developing countries were particularly outspoken about their desire to see a new financial architecture for climate change, this time within the auspices of the United Nations Framework Convention on Climate Change (TWN, 2008b).

Countries including India, China, Argentina and Mexico were vocal in their support for a new financing mechanism within the UNFCCC. Mexico, for example, has proposed a World Climate Change Fund to be managed by the UNFCCC. It would be funded through contributions made in accordance with common but differentiated responsibilities, which could be determined on the basis of population, gross domestic product, and/or greenhouse gas emissions (Robledo, 2008).

During the workshop a number of principles that should underpin such a mechanism were outlined by various countries, including that it should:

- consist of new and additional funding beyond Official Development Assistance (ODA);
- provide grants and not loans;
- be based on the polluter pays principle; and
- be based on a percentage of developed countries' GDP (TWN, 2008b).

China also proposed that the mechanism contain a number of specialized funds including an adaptation fund and a multilateral technology acquisition fund. Other countries supporting a new financial mechanism within the UN included Bangladesh (for the LDCs), Barbados (for the small island states), the Philippines, Malaysia and Saudi Arabia (TWN, 2008b).

During the workshop China and India also made it abundantly clear that they would not accept funds channelled through the World Bank as fulfilling developed countries' commitments to provide financial resources for developing countries to take action on climate change (TWN, 2008b).

Developed country inputs at this same workshop included a proposal from Switzerland to establish a global CO₂ levy of US\$2/tCO₂, with countries contributing a proportion of the funds raised domestically to a global fund. Germany also suggested that the EU can discuss auctioning allowances and a possible levy on bunker fuels (TWN, 2008b).

This debate moved forward at the UNFCCC's inter-sessional meeting in Accra, Ghana, in August 2008, when the G77 and China formally proposed a mechanism to "ensure the full, effective and sustained implementation of the Convention" which would "operate under the authority and guidance, and be fully accountable, to the COP." The G77 and China insist that recipient countries be involved in all stages of identification, definition and implementation ensuring that the mechanism is "truly demand driven." It would be "essentially grant-based", and funding would be set at 0.5% to 1% of the GNP of Annex I parties (UNFCCC, 2008d:35).

developing countries propose non-market funding sources

A number of alternative (or additional) funding sources have also been suggested, such as this list which comes from members of the Coalition for Rainforest Nations (UNFCCC, 2007d):

- *Introduce a voluntary user-fee on emissions from air transport within Annex-1 countries of around US\$22/ton.*
- *Auction Annex-B emissions allowances in a post-2012 framework and allocate around US\$0.30/tCO₂e from the proceeds.*
- *Apply an additional tax of US\$0.30 per barrel of oil equivalent consumed in the EU and US.*
- *Reduce distorting energy subsidies within industrialized countries by around 12.5%.*
- *Increase Official Development Assistance by 12.5%.*

some northern governments are already proposing bilateral climate change funds

Although focused on climate change more generally, it is important to note that a number of industrialized country governments have already set aside or are proposing fairly substantial funds for bilateral collaborative partnerships with key developing countries. These include Australia's \$200 million¹³ Global Initiative on Forests and Climate (Australia, 2007), Norway (the equivalent of about \$US600 million per year) and Germany (International Climate Change Initiative) (UNFCCC, 2008c).

Other bilateral projects focusing more specifically on deforestation are also underway. Britain and Norway, for example, have committed US\$200 million towards conserving rainforest in Cameroon, Central African Republic, the Democratic Republic of Congo, Equatorial Guinea, Gabon and the Republic of Congo. Reported objectives include funding the use of satellite imaging, community-based conservation projects and sustainable poverty alleviation projects (Mongabay, 2008).

¹³ It is unclear from press releases and speeches to the Australian Parliament whether these are Australian or US dollars.

the poverty environment partnership and 'pro-poor' REDD

In the UK, the Department for International Development (DFID), the Overseas Development Institute and others are working to define and promote 'pro-poor REDD' (ODI, 2008). They argue that pro-poor REDD will improve the sustainability of REDD projects and reduce risk for investors.

They also point out that there has been "little rigorous analysis of poverty implications so far" (ODI, 2008) and that "Markets are likely to raise more funds but efficiency-equity trade-off may require that pro-poor redistribution mechanisms are put in place" (ODI, 2008). They have made a detailed analysis of the implications that various different REDD proposals are likely to have on poverty, and conclude inter alia that:

- poverty reduction should be an explicit goal of REDD, not just an add-on;
- it will be critical to determine pro-poor liability arrangements;
- land and carbon rights need to be clearly defined and enforced;
- REDD funds must be distributed equitably;
- processes need to be simplified; and
- up-front financing is required.

box: ideas and pilot projects already underway in the democratic republic of congo

A Chatham House process underway (Chatham House, 2007) reveals a wide number of pilot REDD projects and experiments already being set up or planned in the Democratic Republic of Congo (DRC). This process demonstrates just how rapidly REDD-related pilot projects and ideas are being developed on the ground, as well as in UNFCCC negotiations. It also shows how complex the final results of REDD might be, in terms of different funding sources and REDD projects.

- Key amongst these is a collaborative project by the Woods Hole Research Centre and DRC's Ministry of Environment, who are developing a series of activities to prepare the DRC for participation in any future UNFCCC REDD mechanism.

The project's activities include establishing a baseline and scenarios for future emissions; exploring the possibility of using a carbon stock approach for REDD; mapping and monitoring the major areas of current emissions using satellite imagery; informing local communities about REDD to ensure their participation; and developing transparent REDD policies and programmes that are "synchronized with existing forest and agricultural policies."

However, they have explicitly stated that "The goal of this work is to promote sustainable forest use and the protection of forest carbon stores by rural households, the agro-industrial sector, timber concessions and protected areas." This seems to indicate an intention to channel REDD funds to the agro-industrial and timber sector.

- Forests Monitor is also developing a pilot project to support community forest management intended to include research into 'asset creation', i.e. how to provide legal certainty for forest communities on their rights to protect and exploit forest assets. The project will also explore capacity-building needs for communities and local producers, to support their sustainable forest enterprises; and help to build mechanisms to connect producers with markets, including global markets.
- Conservation International (CI) is proposing a system of conservation contracts with forest communities, for limited term rights over the management of forest resources, supported by a multinational investment fund or investors. CI argues that these contracts could cover both conservation and social benefits, and be developed with the participation and consent of local communities.
- Similarly, WWF Central African Region (CARPO) is proposing an endowment fund for protected areas, primarily to contribute to the long-term funding of priority protected areas within DRC, but also with the stated goal of supporting the sustainable management of natural resources by local communities in the zones adjacent to these areas. Funds could come from a variety of sources including debt conversion and carbon markets.
- The French Ministry of Foreign Affairs is also considering the potential for debt conversion for DRC, to generate funds for the environmental sector, including support for sustainable management of production forests, community forest management and biodiversity conservation.

conclusions

REDD is designed to reward those who deforest, not those who already protect the forests. It also has several significant inbuilt flaws that mean it is most unlikely to have a positive impact on climate change. In particular, it permits the replacement of natural tropical forest with plantations; and it would increase net emissions of carbon to the atmosphere if carbon offsetting were involved.

But that does not mean that deforestation should be off the UNFCCC's agenda. Far from it: the REDD debate should be replaced by UN-wide negotiations focused on stopping unsustainable deforestation and forest degradation once and for all.

Governments are already committed to this under the Climate Change Convention itself and in other agreements such as the CBD. They have already agreed that countries should conserve their forests (UNFCCC Article 4.1(d)) and that developed countries should contribute substantial new and additional financial resources to enable developing countries to cover the incremental costs of global environmental benefits (UNFCCC Article 4.3).

It is particularly important that stopping deforestation is seen as more than just a carbon counting exercise. Fair and effective efforts to stop deforestation need to be based on an ecosystems approach and climate justice. Such a policy would benefit both climate change and biodiversity; and could be used to help alleviate poverty. To this end, a new definition of forests that excludes plantations is an absolute prerequisite. The UNFCCC also needs to collaborate with other UN institutions and processes, such as the UN Forum on Forests and the CBD's Expanded Programme of Work on Forest Biological Diversity.

In addition, it is critical that implementation measures must be developed with and take into account the rights and role of Indigenous Peoples, as expressed in the United Nations Declaration on the Rights of Indigenous Peoples, and help them to build sustainable livelihoods. All measures to stop unsustainable deforestation must also respect human rights in general.

Efforts to stop deforestation should focus on nailing down demand-side drivers in importing countries; and on governance, poverty and land tenure dilemmas in forested countries. In so far as finance is required to stop deforestation, funds should be invested in national programmes and infrastructure that directly support alternative rights-based forms of forest conservation, sustainable management, natural regeneration and ecosystem restoration that are already known to work, such as community-based forestry.

It would also be useful to focus on developing transition funds that could help developing countries match lost tax revenue streams, jobs and value-added industries. This approach could provide the necessary positive incentives to governments considering changing their policies with respect to deforestation. It would, however, be additional to the costs associated with tackling the underlying causes of deforestation.

Carbon markets cannot be used to fund efforts to stop deforestation: they will simply negate existing efforts to reduce reliance on fossil fuels. There are alternative sources of funds that do not rely on voluntary assistance or on carbon trading, and these have already been identified, including by the Coalition for Rainforest Nations. These could include a tax on fossil fuel consumption in industrialized countries and/or monies freed up by removing industrialized countries' fossil fuel energy subsidies. These would be true win-win options, since they would also, in themselves, work to reduce greenhouse gas emissions. They would also provide a predictable source of transition funding.

Funding – from whatever source – should address the needs of developing countries, but should not directly increase the financial value of forests.

Finance could instead be directed to governments and local communities to fund specific projects or to nationwide efforts that effectively challenge the underlying causes of deforestation and promote alternative forms of sustainable forest management, without changing the 'price' of forests; and to reward those already conserving and managing their forests sustainably. In addition, all funding should be grant-based only: any concessional loans could mean that developing countries are pushed into increasing their debt burden because of climate change, a problem for which they are not responsible.

Benefits to governments could be tied to national commitments to cease commercial deforestation and to restructure logging, pulp and paper and other industries, possibly over a number of years.

Neither the World Bank nor the GEF (so long as it is unduly influenced by the World Bank) should be permitted to drive this process forward. From a climate change point of view it would be more productive for the World Bank to concentrate its very considerable energies on withdrawing its funding from oil, gas and mining projects. Indeed, none of the existing institutional mechanisms are suited to managing funds to stop deforestation and forest degradation. A transparent, accountable and participative fund-based mechanism that numbers this amongst its objectives should be established within the UN.

However, it is vital to bear in mind that financing is not everything. There are other important and relatively cheap options that could help prevent unsustainable deforestation, including deforestation bans and moratoria and a global forest fire fighting fund and expertise bank, to assist countries unable to prevent or stop forests fires.

In conclusion, there are many policy-oriented, practical and financial measures that could be taken to stem the tide of unsustainable deforestation and forest degradation – but only if the political will to do so exists. The post-2012 negotiations are a last chance to take action to stop the worst excesses of climate change. The REDD proposals currently on the table are designed to generate profits for polluters, not to stop climate change. They must be replaced with a new and real decision to meet existing commitments to stop deforestation, once and for all.



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A local guide at Turtle Mountain in the Iwokrama Forest in Guyana.

annex 1

UNFCCC papers on climate change finance

For recent official papers concerning financial mechanisms relating to climate change in general, read:

- *Review of the experience of international funds, multilateral financial institutions and other sources of funding relevant to the current and future investment and financial needs of developing countries, Technical Paper, FCCC/TP/2007/4, 21 November 2007.*
<http://unfccc.int/resource/docs/2007/tp/04.pdf>

This paper includes a review of relevant funding from the World Bank and regional development banks.

- *An assessment of the funding necessary to assist developing countries meeting their commitments relating to the Global Environment Facility replenishment cycle, Note by the Secretariat, FCCC/SBI/2007/21, 14 November 2007,*
<http://unfccc.int/resource/docs/2007/sbi/eng/21.pdf>

This document includes a UNFCCC overview of the evolution of the Global Environment Facility Trust Fund from its pilot phase to its most recent replenishment period (GEF 4) and of the special climate change funds since their recent inception.

- *Dialogue on long-term cooperative action to address climate change by enhancing implementation of the Convention, Dialogue Working Paper 8, 2007, UNFCCC, 8 August 2007.*
http://unfccc.int/files/cooperation_and_support/financial_mechanism/financial_mechanism_gef/application/pdf/dialogue_working_paper_8.pdf

This paper includes an analysis of existing and potential investment and financial flows relevant to the development of an effective and appropriate international response to climate change.



Children from the Makushi tribe playing, Iwokrama Forest, Guyana.

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glossary

You can find the UNFCCC glossary here:

http://unfccc.int/essential_background/glossary/items/3666.php

AAU	Assigned Amount Unit, allocated under Kyoto Protocol emissions trading scheme	GEF	Global Environment Facility
Annex I	UNFCCC list of industrialized countries limiting emissions	GFC	Global Forest Coalition
Annex II	UNFCCC list of industrialized countries committed to assisting developing countries financially and by transferring technology	IFC	International Finance Corporation
Annex B	Kyoto Protocol list of countries with their individual greenhouse gas emissions targets (list is the same as Annex I minus Belarus and Turkey)	IPCC	Intergovernmental Panel on Climate Change
APP	Asia Pulp and Paper Co Ltd	JI	Joint Implementation
APRIL	Asia Pacific Resources International Ltd	HWPs	Harvested Wood Products
CDM	Kyoto Protocol's Clean Development Mechanism	LDCF	UNFCCC Least Developed Countries Fund
CCS	Carbon Capture and Sequestration	LULUCF	Land Use, Land Use Change and Forestry
CER	Certified Emissions Reduction credit issued by the CDM	NAPA	National Adaptation Plan of Action
CFU	World Bank Carbon Finance Unit (www.carbonfinance.org)	PCF	World Bank's Prototype Carbon Fund
CIFs	World Bank Climate Investment Funds	PES	Payment for Environmental Services
COP	Conference of the Parties	PROFOR	Program on Forests, a multi-donor trust fund program housed at the World Bank
CPF	IFC Carbon Partnership Facility	REDD	Reduced Emissions from Deforestation in Developing countries
CfRN	Coalition for Rainforest Nations	RMU	Removal Unit, based on LULUCF activities under Kyoto Protocol emissions trading scheme
DRC	Democratic Republic of Congo	SBI	UNFCCC Subsidiary Body on Implementation
EU ETS	EU Emissions Trading Scheme	SBSTA	UNFCCC Subsidiary Body for Scientific and Technological Advice
EUAs	European Union Allowances	SCF	World Bank Strategic Climate Fund
FAO	UN Food and Agriculture Organization	SPA	GEF Strategic Priority on Adaptation
FCPF	World Bank Forest Carbon Partnership Facility	SCCF	UNFCCC Special Climate Change Fund
FLEG	Forest Law Enforcement and Governance process	UNDP	United Nations Development Programme
FLEGT	EU's Forest Law Enforcement, Governance and Trade process	UNEP	United Nations Environment Programme
FOEI	Friends of the Earth International	UNFCCC	United Nations Framework Convention on Climate Change

references

- Action Aid (2007). Compensating for Climate Change: Principles and Lessons for Equitable Adaptation Funding, December 2007, Ilana Solomon, Action Aid USA, www.actionaidusa.org/images/climate_change/CompensatingforClimateChange.pdf
- Asia Cleantech (2008). Avoided deforestation credits head for the voluntary carbon markets. January 7, 2008 by Ron Mahabir <http://asiacleantech.wordpress.com/2008/01/07/avoided-deforestation-credits-head-for-the-voluntary-carbon-markets/>
- APRIL (2008). Forestry: Bridging the Gap Between Climate Change Mitigation and Sustainable Development, Dr Neil Franklin, APRIL, presentation to UNEP Media Workshop, 21 April 2008, http://www.roap.unep.org/MediaWorkshop/WS2008/Presentations/Forestry_Bridging_Gap_NeilF.ppt (can be viewed in html)
- Australia (2007). Australia to lead the World: Global Initiative on Forests and Climate: Media Release from Australian Prime Minister and Ministers, 29 March 2007, www.cifor.cgiar.org/publications/pdf_files/media/Howard%20Downer%20Turnbull%20Release.pdf
- BBC (2008). Can Money Grow on Trees?, Panorama, BBC, 8 September 2008 (spoken comment during the programme) <http://news.bbc.co.uk/1/hi/programmes/panorama/7601213.stm>
- BBC (2008b). The great carbon bazaar. Mark Gregory, Business correspondent, BBC World Service, India, 4 June 2008. <http://news.bbc.co.uk/1/hi/business/7436263.stm>
- BBC (2008c). Brazil unveils deforestation plan, Tim Hirsch, BBC, Sao Paulo, 26 September 2008, <http://news.bbc.co.uk/2/hi/americas/7637070.stm>
- BIC (2008). IFI Extractive and Energy Project Spreadsheets, updated July 2008, Bank Information Center, <http://www.bicusa.org/en/Article.3395.aspx>
- Blaser (2007). Initial Analysis on the Mitigation Potential in the Forestry Sector, prepared for the UNFCCC Secretariat, Juergen Blaser 1 August 2007. http://unfccc.int/cooperation_and_support/financial_mechanism/financial_mechanism_gef/items/4054.php
- Bloomberg (2006). Europe Fails Kyoto Standards as Trading Scheme Helps Polluters, 17 July 2006, Bloomberg News, www.bloomberg.com/apps/news?pid=20601087&sid=aw51xfkPVRs8&refer=home
- Brack (2007). Illegal logging, Duncan Brack, Chatham House, July 2007, www.chathamhouse.org.uk/research/eedp/current_projects/illegal_logging/
- Brown & Corbera (2003). Exploring equity and sustainable development in the new carbon economy, Katrina Brown and Esteve Corbera, Climate Policy 351 (2003) S41-S56, Elsevier Ltd, <http://www.eci.ox.ac.uk/~dliverma/articles/Brown%20and%20Corbera%20in%20Climate%20Policy.pdf>
- Business Green (2008). Investment bank predicts strong demand for credits that it claims will deliver biodiversity benefits alongside carbon reductions, James Murray, BusinessGreen, 17 Apr 2008, www.businessgreen.com/business-green/news/2214613/merrill-lynch-throws-weight
- Butler (2007). Can wildlife conservation banking generate investment returns? Rhett A. Butler, mongabay.com, November 27, 2007, http://news.mongabay.com/2007/1127-palm_oil.html
- Butler (2008). Papua signs REDD carbon deal to generate income from rainforest protection, Rhett Butler, mongabay.com, May 14 2008, <http://news.mongabay.com/2008/0514-papua.html>
- Carbon Finance (2005/6). Rainforest Credits, Gustavo Silva-Chavez and Annie Petsonk, Carbon Finance, December 2005/January 2006, www.carbon-financeonline.com/www.edf.org/documents/5051_CF%20Forestry%20article1.pdf
- CFR (2008). Website of Coalition for Rainforest Nations, Welcome page, as at 8 July 2008, www.rainforestcoalition.org/eng/
- Chatham House (2007). Information from Workshop Summary Report: Alternative Models and Finance Mechanisms for Sustainable Forest Use in the Democratic Republic of Congo, Chatham House, December 2007, www.chathamhouse.org.uk/files/11387_171207sumreport.pdf
- CIA (2008). World fact book, 2008, Central Intelligence Agency, <https://www.cia.gov/library/publications/the-world-factbook/geos/xx.html#Econ>
- Climate News for Business (2008). Forests: a carbon trader's gold mine? 7 May 2008, Climate News for Business, www.climatechangecorp.com/content.asp?ContentID=5305
- Counsell (2008). Information contained in a presentation made to side-event on 'REDD, forest conservation and indigenous peoples' rights: more than just money', 2 June 2008, Bonn, Germany, www.iisd.ca/climate/sb28/enbts/2.html
- CRN (2008). Views on outstanding methodological issues related to policy approaches and positive incentives to reduce emissions from deforestation and forest degradation in developing countries, Submission from Belize, Bolivia, Cameroon, Central African Republic, Congo, Costa Rica, Democratic Republic of Congo, Dominican Republic, Equatorial Guinea, Gabon, Ghana, Guatemala, Guyana, Honduras, Kenya, Lesotho, Liberia, Madagascar, Panama, Papua New Guinea, Singapore, Solomon Islands, Thailand, Uganda & Vanuatu, 21 May 2008, FCCC/SBSTA/2008/MISC.4/Add.1, <http://unfccc.int/resource/docs/2008/sbsta/eng/misc04a01.pdf>
- Czebinak (2008). E-mail communication, June 2008, Roman Paul Czebinak, Greenpeace International)
- Deutsche Bank (2008). It takes CO₂ [carbon dioxide] to cotango, Deutsche Bank, 04 June, 2008, www.carbon-financeonline.com/index.cfm?section=lead&action=view&id=11288
- EAC (2007). Emissions Trading Scheme must improve robustness and transparency, UK Environmental Audit Committee, 1 March 2007, www.parliament.uk/parliamentary_committees/environmental_audit_committee/eac_28_02_07a.cfm
- Ebeling (2007). Potential of carbon finance to protect the Amazon and mitigate climate change, powerpoint presentation, Johannes Ebeling, for EcoSecurities, 22 March 2007, www.eci.ox.ac.uk/news/events/amazon/ebeling.pdf
- EcoSecurities (2007). Policy Brief: REDD Policy Scenarios and Carbon Markets (p4, Supply-side scenarios of future REDD markets), EcoSecurities Briefing, December 2007, Oxford, UK. [www.ecosecurities.com/Assets/10043/pubs%20-%20redd%20policy%20brief%20ecosecurities%20\(background%20version\)_je%20v1.pdf](http://www.ecosecurities.com/Assets/10043/pubs%20-%20redd%20policy%20brief%20ecosecurities%20(background%20version)_je%20v1.pdf)
- ENB (2008). Summary of the UNFCCC workshop on methodological issues relating to reducing emissions from deforestation and forest degradation in developing countries. Earth Negotiations Bulletin, 30 June 2008, <http://www.iisd.ca/vol12/enb12376e.html>
- EurActiv (2008). EU Emissions Trading Scheme policy summary, EurActiv.com web page as at 26 June 2008, www.euractiv.com/en/climate-change/eu-emissions-trading-scheme/article-133629
- Fairhead & Leach (undated). Webs of power: forest loss in Guinea, James Fairhead and Melissa Leach, Revised version of a paper published in R. Grillo and R.L. Stirratt (eds), Discourses of Development. Berg Press, Oxford, 1997, www.india-seminar.com/2000/486/486%20fairhead%20leach.htm
- FAO (2000). Global Forest Resources Assessment 2000, Main report, Appendix 2: Terms and definitions, FAO, 2000, www.fao.org/DOCREP/004/Y1997E/y1997e1m.htm#bm58
- FAO (2008). Forests and poverty reduction, website as at 10 July 2008 www.fao.org/forestry/site/livelihoods/en/
- FERN (2008). Avoiding Deforestation and Degradation, Walking the tightrope to success, Richard Wainwright for FERN, May 2008, www.fern.org/media/documents/document_4249_4250.pdf
- FOEE (2008). Kyoto targets remain distant prospect for EU countries, FOE Europe press release, 18 June 2008. www.foeeurope.org/press/2008/Jun18_Kyoto_targets_remain_distant_prospect_for_EU_countries.html
- FOEI (2008). Forests in a Changing Climate: will forests' role in regulating the global climate be hindered by climate change? Ronnie Leach, for Friends of the Earth International, to be published, see www.foei.org
- Forecon (2008). Carbon markets, forests and carbon market strategies, power point presentation by Matthew Smith, Forecon EcoMarket Solutions LLC. <http://www.forestlandowners.com/proceedings/2008/voluntary-carbon-markets-and-climate-policies-strategies-for-private-forest-landowners>
- Franklin (2008). Forestry: Bridging the Gap Between Climate Change Mitigation and Sustainable Development, UNEP Media Workshop 2008, April 21st 2008, Dr. Neil Franklin, Sustainability Director, APRIL, http://64.233.183.104/search?q=cache:muMYRTkmbkEJ:www.roap.unep.org/MediaWorkshop/WS2008/Presentations/Forestry_Bridging_Gap_NeilF.ppt+kampar-redd&hl=en&ct=clnk&cd=1&gl=uk&client=firefox-a
- GEF (2008). Instrument for the Establishment of the Restructured Global Environment Facility, GEF, March 2008, www.gefweb.org/uploadedFiles/GEF_Instrument_March08.pdf
- GEF (2008b). Status Report on the Climate Change Funds as of March 4, 2008. Global Environment Facility, GEF/LDCF.SCCF.4/Inf.2, 20 March 2008, www.gefweb.org/uploadedFiles/Documents/LDCFSCCF_Council_Documents/LDCFSCCF4_April_2008/LDCF.SCCF.4.Inf.2%20Trustee%20Status%20Report%2003.21.08.pdf
- Geist and Lambin (2001). What drives tropical deforestation? A meta-analysis of proximate and underlying causes of deforestation based on subnational case study evidence, Helmut J Geist and Eric F Lambin, LUCC report Series No 4, CIACO, Louvain-la-Neuve, 2001, www.globallandproject.org/Documents/LUCC_No_4.pdf
- GFC (2008). Life as Commerce: the impact of market-based conservation mechanisms on women. Simone Lovera, for Global Forest Coalition, 2008, www.globalforestcoalition.org/img/userpics/File/Impacts-marketbasedconservationmechanisms-on-woman.pdf
- GFC (2008b). Forests and the Biodiversity Convention: Independent Monitoring of the Implementation of the Expanded Programme of Work, Summary, May 2008, www.globalforestcoalition.org/img/userpics/File/IndependentMonitoringofForestandtheBiodiversityConventionSummary.pdf
- GFC (2008c). Life as Commerce: international financial institutions, payments for environmental services and carbon finance, May 2008, Global Forest Coalition, www.globalforestcoalition.org/img/userpics/File/publications/IFIS-leaflet.pdf

- GFC/FOEI (2005). Privatization, Nature for Sale: the new markets 1: selling our carbon, Friends of the Earth International and Global Forest Coalition, November 2005, www.globalforestcoalition.org/img/userpics/File/publications/TheNewMarkets1SellingOurCarbon.pdf
- GJEP/GFC (2008). The true cost of agrofuels: impact on food, forests, peoples and the climate, Global Justice Ecology Project and Global Forest Coalition, 2008, www.globalforestcoalition.org/img/userpics/File/publications/TrueCostAgrofuels.pdf
- Greenpeace International (2007). Tropical Deforestation Emissions Reduction Mechanism (TDERM): a Discussion Paper, Bill Hare and Kirsten Macey, for Greenpeace International, 4 December 2007, www.greenpeace.org.uk/media/reports/tropical-rainforest-emissions-reduction-mechanism-tderm-a-discussion-paper
- Grieg-Gran, M. (2006). 'The cost of avoiding deforestation' – report prepared for Stern Review, International Institute for Environment and Development, Maryanne Grieg-Gran, October 2006, International Institute for Environment and Development, London, http://62.164.176.164/d/stern_review_supporting_technical_m_grieggran_261006a.pdf
- Gullison et al. (2007). Tropical Forests and Climate Policy, Raymond E. Gullison, Peter C. Frumhoff, Josep G. Canadell, Christopher B. Field, Daniel C. Nepstad, Katharine Hayhoe, Roni Avissar, Lisa M. Curran, Pierre Friedlingstein, Chris D. Jones, Carlos Nobre. *Science*, Vol 316 p986, 18 May 2007, www.sciencemag.org or www.globalcarbonproject.org/global/pdf/Gullison.2007.DeforestationandClimate.Science.pdf
- Holm Olsen (2007). The clean development mechanism's contribution to sustainable development: a review of the literature, Karen Holm Olsen, *Climatic Change journal*, Volume 84, Number 1 / September 2007, Netherlands, <http://www.springerlink.com/content/60g30h3367115396/>
- IFC (2008). IFC and Carbon Finance: Building for the Future, International Finance Corporation webpage as at 10 July 2008, www.ifc.org/ifcext/media.nsf/Content/CarbonFinance
- IHT (2008). Europe's carbon market holds lessons for the U.S., *International Herald Tribune*, James Kanter, 19 June 2008, <http://www.ihf.com/articles/2008/06/18/business/emit.php>
- IIED (2008). Global Forest Partnership, Consultation and Assessment, Update on IIED's main findings and preliminary recommendations, 29 February, 2008, www.iiedgfpcconsultation.org/downloads/G02223.pdf
- IISD (2008). Report of UNFCCC SB28, 2-13 June 2008, *Earth Negotiations Bulletin*, www.iisd.ca/vol12/enb12375e.html
- InfoPapua (2008). West Papua is Indonesia's palm oil target, 27 May 2008, *West Papua News and Information*, http://www.infopapua.org/artman/publish/article_1747.shtml
- IPCC (2007). IPCC 4th assessment report, *Climate Change 2007: Synthesis Report*, www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf
- IPCC-NGGIP (2006). 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds). Published: IGES, Japan. <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>
- IPCC-NGGIP (2003). Good practice Guidance for Land Use, Land-Use Change and Forestry, IPCC-NGGIP, 2003, www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf.html
- IR (2005). Comments on World Bank PCF Xiaogushan Large Hydro Project (China), *International Rivers*, 21 August 2005, www.internationalrivers.org/en/climate-change/carbon-trading-cdm/comments-world-bank-pcf-xiaogushan-large-hydro-project-china
- IR (2008). The Great Carbon Offset Swindle, How Carbon Credits are Gutting the Kyoto Protocol, and Why They Must Be Scrapped, Patrick McCully, published in *Dams, Rivers and People 2008*, *International Rivers*, www.internationalrivers.org/files/DRP2English2008-521_0.pdf
- IUCN (2008). REDD Opportunities: integrating sustainable forest management approaches, IUCN, April 2008, http://cmsdata.iucn.org/downloads/redd_opportunities.pdf
- Jakarta Post (2008). RI to begin forest carbon projects, <http://www.thejakartapost.com/news/2008/06/17/ri-begin-forest-carbon-projects.html>
- Jenkinson et al (1991). Model estimates of CO₂ emissions from soil in response to global warming, D S Jenkinson, D E Adams & A Wild, *Nature* 351, 304 – 306, 23 May 1991, <http://www.nature.com/nature/journal/v351/n6324/abs/351304a0.html>
- Karsenty, (2008). Is "avoided deforestation" scheme workable as an International PES?, Alain Karsenty, CIRAD, power-point presented to side-event at CDB COP-9, Event on Developing International Payments for Ecosystem Services (IPES): Avoided Deforestation (Paris, 11 July 2007), www.cbd.int/doc/side-events/wgri-02/wgri-02-presentation-cirad-en.pdf
- Landell-Mills, N. and I.T. Porras (2002). Silver bullet or fool's gold? A global review of markets for forest environmental services and their impacts on the poor. *International Institute for Environment and Development*, London, 2002, www.iied.org/pubs/display.php?o=9061IIED Quoted in Lovera (2007).
- Lovera (2007). The impacts of market-based biodiversity conservation on Indigenous Peoples, local communities and women: A paper presented at the fifth Trondheim Conference on Biodiversity, Simone Lovera, 1 November 2007, www.globalforestcoalition.org/img/userpics/File/publications/Trondheimpaper.pdf
- Lovera (2008). Direct communication by e-mail, Simone Lovera, *Sobrevivencia-FOE Paraguay*, 28 June 2008
- Maley (2001). The Role of Fire, J Maley, published in *African rain forest ecology and conservation: an interdisciplinary perspective*, Ed. William Weber et al, Yale University Press, New York, 2001.
- Marriott (2008). Helping protect the Amazon's Rainforest: the Centerpiece of Marriott's Five-Point Environmental Strategy, Marriott International website, as at 10 July 2008, www.marriott.com/marriott.mi?page=green_protecting
- Mongabay (2007). Rainforest logging moratorium established in Indonesian provinces, Amazonas state, [mongabay.com](http://www.mongabay.com), 7 December 2007, news.mongabay.com/2007/1207-governors.html
- Mongabay (2007b). Aceh, Papua, Amazonas governors sign carbon-for-forests pact, [mongabay.com](http://www.mongabay.com), 8 December 2007, news.mongabay.com/2007/1208-forests.html
- Mongabay (2008). Britain, Norway commit \$210 million towards Congo rainforest conservation, [mongabay.com](http://www.mongabay.com), June 24, 2008, <http://news.mongabay.com/2008/0624-congo.html>
- Myers (2007). Policies to Reduce Emissions from Deforestation and Degradation (REDD) in Tropical Forests, an examination of the issues facing the incorporation of REDD into market-based climate policies, Erin C Myers, December 2007, <http://ideas.repec.org/p/rff/dpaper/dp-07-50.html>
- Obersteiner (2006). 'Potentials and cost of avoided deforestation', presentation made at the Workshop on Reducing Emissions from Developing Countries, Kindermann, G., M. Obersteiner and E. Rametsteiner, Bad Blumau, Austria, May 2006. (Quoted as 'Obersteiner 2006' in Stern (2006)). www.joanneum.at/REDD/REDD-Obersteiner.pdf
- ODI (2008). The potential for pro-poor REDD, side event presentation by Leo Peskett to CBD COP-9, 21 May 2008, http://unfccc.meta-fusion.com/kongresse/CBD2008_2/download/Presentation_2_PEP_presentation_CBD_COP_2008_May_21_JTB.pdf
- Palin et al. (1999). Carbon Sequestration and trace gas emissions in slash-and-burn and alternative land uses in the humid tropics, Palin et al., ASB Climate Change Working Group, CGIAR, Final Report, Phase II, www.asb.cgiar.org/pdfwebdocs/Climate%20Change%20WG%20reports/Climate%20Change%20WG%20report.pdf
- Papua New Guinea and Costa Rica (2005). Reducing Emissions from Deforestation in Developing Countries: Approaches to Stimulate Action, Submission by the Governments of Papua new Guinea and Costa Rica to the Eleventh Conference of the Parties to the UNFCCC, Agenda Item 6, May 2005, www.rainforestcoalition.org/documents/COP-11AgendaItem6-Misc.Doc.FINAL.pdf
- Price (2008). A presentation by Jeff Price, UNEP, Reducing emissions from deforestation: a unifying mechanism and cost estimates, at UNFCCC SB28. Reported in A Special Report on Selected Side Events at the UNFCCC SB28, 2-13 June 2008, Bonn, Germany, www.iisd.ca/climate/sb28/enbots/7.html
- Rainforest Foundation (2008). Carbon Sunk? The Potential Impacts of Avoided Deforestation Credits on Emissions Trading Mechanisms, Paul Leach for the Rainforest Foundation, 2008. www.sinkswatch.org/pubs/Carbon%20Sunk%20Report.pdf
- Robledo (2008). World Climate Change Fund, a proposal by Mexico, powerpoint presentation to Workshop in Investment and Financial Flows, AWG-LCA, Bonn, Germany, 5 June 2008, http://unfccc.int/files/meetings/ad_hoc_working_groups/lca/application/pdf/mexico.pdf
- Sachs (2008). Progress summary of the MDGs: update for ministers, Professor Jeffrey D Sachs, Director, The Earth Institute at Columbia University, first written for G8 summit 2008, published by Newdesk Communications with Agora Projects, www.earth.columbia.edu/sitefiles/File/The%20Commonwealth%20Ministers%20Reference%20Book%20June%202008%20-%20Progress%20summary%20of%20the%20MDGs,%20Update%20for%20ministers.pdf
- Sathaye et al. (2008). GHG mitigation potential in global forests, Jayant A Sathaye, Larry Dale, Willy Makundi and Peter Chan, Lawrence Berkeley National Laboratory, Berkeley, CA, presented to World Bank, in Washington DC, 28 May 2008, <http://siteresources.worldbank.org/EXTCC/Resources/407863-1213125462243/Sathaye.pdf>
- Saunders & Nussbaum (2008). Forest Governance and Reduced Emissions from Deforestation and Degradation (REDD), Jade Saunders, Chatham House and Ruth Nussbaum, ProForest, January 2008, <http://www.chathamhouse.org.uk/publications/papers/view/-/id/591/>
- SBSTA (2007) Report on the second workshop on reducing emissions from deforestation in developing countries, Note by the secretariat, FCCC/SBSTA/2007/3, 17 April 2007, Subsidiary Body for Scientific and Technological Advice, Twenty-sixth session, Bonn, 7–18 May 2007, <http://unfccc.int/resource/docs/2007/sbsta/eng/03.pdf>
- SBSTA (2008). Views on outstanding methodological issues related to policy approaches and positive incentives to reduce emissions from deforestation and forest degradation in developing countries, FCCC/SBSTA/2008/Misc.4/Add.1, 21 May 2008, <http://unfccc.int/resource/docs/2008/sbsta/eng/misc04a01.pdf>

references

continued

- Scholze et al. (2006). A climate-change risk analysis for world ecosystems, M Scholze, W Knorr, NW Arnell, IC Prentice, 21 August 2006, Proceedings of the National Academy of Sciences, vol 103, no 35, www.pnas.org/cgi/content/full/103/35/13116, quoted in (Sohngen et al., 2007).
- SEEN (2008). World Bank, Climate Profiteer, Janet Redman, Sustainable Energy and Economy Network, Institute for Policy Studies, Washington DC, April 2008. www.ips-dc.org/reports/
- Sohngen, B. (2006), quoted in Stern (2006). 'Cost and potential for generating carbon credits from reduced deforestation', presentation made at Workshop on Reducing Emissions from Developing Countries, Bad Blumau, Austria, May 2006. www.joanneum.at/REDD/REDD-Sohngen.pdf
- Somare (2005). Statement by Sir Michael T Somare, Prime Minister of Papua New Guinea, Columbia University, New York, 12 May 2005, www.rainforestcoalition.org/documents/SirMichaelSomareGROCCSpeech-FINAL.pdf
- Stern (2006). Stern Review on the Economics of Climate Change, HM Treasury, UK. Website as at 25 June 2008. The Executive Summary, Chapter 25 and all other chapters can be downloaded from <http://62.164.176.164/6520.htm>
- Stern (2008). Key Elements of a Global Deal on Climate Change, Nicholas Stern
The London School of Economics and Political Science, April 2008, http://www.lse.ac.uk/collections/granthaminstitute/publications/KeyElementsOfAGlobalDeal_30Apr08.pdf
- Strassburg (2008). presentation to UNFCCC SB28 side event on Reducing emissions from deforestation: a unifying mechanism and cost estimates, Bernardo Strassburg, University of East Anglia, UNFCCC, 7 June 2008, <http://www.iisd.ca/climate/sb28/enb0ts/7.html>
- Thoumi (2007). Tax revenue from avoided deforestation projects, The Jakarta Post, Jakarta, 30 October 2007, Gabriel Thoumi, Detroit, USA, www.thejakartapost.com/news/2007/10/30/tax-revenue-avoided-deforestation-projects.html
- Thoumi & Butler (2009). Carbon credits could be big earner for Indonesia
Gabriel Thoumi and Rhett Butler, San Francisco, Detroit, 29 July 2007, The Jakarta Post.com, www.rainforestcoalition.org/documents/CarboncreditsabigearnerforIndonesia.pdf
- TNI (2008). RED/D. CO-lonialism of Forests: Photo exhibition, Kampar Peninsula: potential pilot project poster, Transnational Institute, 5 June 2008, www.tni.org/detail_page.phtml?&act_id=18356&menu=11c
- TWN (2008). TWN Bonn News Update, Conclusion of meeting of UNFCCC's implementation body, Meena Raman, 16 June 08, www.twinside.org.sg/bonn.news.htm
- TWN (2008b). Developing Countries ask for a new Financial Architecture, 12 June 2008, Third World Network Info Service on Finance and Development, www.twinside.org.sg/title2/finance/twninfofinance20080601.htm
- Trines (2007). Investment flows and finance schemes in the forestry sector, with particular references to developing countries/ needs, a report for the Secretariat of the UNFCCC, Final Report, corrected version, 24 July 2007, Eveline Trines, http://unfccc.int/files/cooperation_and_support/financial_mechanism/application/pdf/trines.pdf
- Tyndall Centre (2007). Reducing greenhouse Gas Emissions from Deforestation in Developing Countries: Revising the Assumptions, Tyndall Centre for Climate Change, Working Paper 155, December 2007, www.tyndall.ac.uk/publications/working_papers/twp115.pdf
- UN (2008). Overview, UN-REDD Programme Fund, webpage as at 1 October 2008, <http://www.undp.org/mdtf/UN-REDD/overview.shtml>
- UN (2008b). Donor Pledges, Commitments and Deposits, UN-REDD Programme Fund, as at 1 October 2008, http://www.undp.org/mdtf/UN-REDD/pledges_commitments_deposits.shtml
- UN (2008c). UN Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (UN-REDD), FAO, UNDP, UNEP, Framework Document, 20 June 2008, <http://www.undp.org/mdtf/UN-REDD/docs/Annex-A-Framework-Document.pdf>
- UNDP (2008). MDG Carbon Facility, Leveraging carbon finance for sustainable development, UNDP web page as at 15 October 2008, <http://www.undp.org/mdgcarbonfacility/index.html>
- UNEP-WCMC (2007). Protecting the future: carbon, forests, protected areas and local livelihoods. Extended abstract. Prepared by Lauren Coad, Alison Campbell, Sarah Clark, Katharine Bolt, Dilys Roe and Lera Miles for UNEP-WCMC, December 2007, www.unep-wcmc.org/climate/pdf/Coad%20et%20al%202007%20Bali%20summary.pdf
- UNFCCC (2001). Decision 5/CP.9, UNFCCC, http://unfccc.int/files/cooperation_and_support/ldc/application/pdf/13a01p32.pdf
- UNFCCC (2006). FCCC/CP/2006/5/Add.1, <http://unfccc.int/resource/docs/2006/cop12/eng/05a01.pdf>
- UNFCCC (2007). Uniting on Climate, UNFCCC, 2007, http://unfccc.int/resource/docs/publications/unitingonclimate_eng.pdf
- UNFCCC (2007b). Adaptation Fund information webpage, UNFCCC, as at 15 October 2008, http://unfccc.int/cooperation_and_support/financial_mechanism/items/3659.php
- UNFCCC (2007c). Draft decision -/CMP.3, UNFCCC, http://unfccc.int/files/meetings/cop_13/application/pdf/cmp_af.pdf
- UNFCCC (2007d). Views on issues related to further steps under the Convention related to reducing emissions from deforestation in developing countries: approaches to stimulate action, 10 September 2007, FCCC/SBSTA/2007/Misc.14, http://unfccc.int/documentation/documents/advanced_search/items/3594.php?rec=j&preref=600004437
- UNFCCC (2007e). Investment and Financial Flows to Address Climate Change, UNFCCC, 2007, http://unfccc.int/cooperation_and_support/financial_mechanism/items/4053.php
- UNFCCC (2007f). FCCC/SBSTA/2007/MISC.2, UNFCCC, 2 March 2007, <http://unfccc.int/resource/docs/2007/sbsta/eng/misc02.pdf>
- UNFCCC (2008). Reducing emissions from deforestation in developing countries: approaches to stimulate action. Decision 2/CP.13, published in Report of the Conference of the Parties on its thirteenth session, held in Bali from 3 to 15 December 2007, FCCC/CP/2007/6/Add.1, 14 March 2008, www.unisdr.org/english/risk-reduction/climate-change/docs/Bali-Action-plan.pdf
- UNFCCC (2008b). Emissions Trading, Essential Background, UNFCCC webpage as at 16 October 2008 http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php
- UNFCCC (2008c). Innovative Financing Mechanisms side event, UNFCCC SB28, 7 June 2008, <http://www.iisd.ca/climate/sb28/enb0ts/7.html>
- UNFCCC (2008d). Financial mechanism for meeting financial commitments under the Convention, submitted by the Philippines on behalf of the G77 and China, in FCCC/AWGLCA/2008/Misc.2/Add.1, 27 August 2008, <http://unfccc.int/resource/docs/2008/awglca3/eng/misc02a01.pdf>
- Wara (2006). Measuring the Clean Development Mechanism's Performance and Potential, Michael Wara, Working Paper 56, Program on Energy and Sustainable Development, Stanford University, http://iisdb.stanford.edu/pubs/21211/Wara_CDM.pdf
- Wara & Victor (2008). A Realistic Policy on International Carbon Offsets, Michael W Wara and David G Victor, Working Paper 74, Program on Energy and Sustainable Development, Stanford University, April 2008, http://iisdb.stanford.edu/pubs/22157/WP74_final_final.pdf
- World Bank (2004). Extractive Industries Review report "Striking a Better Balance", Chapter 2, September 2004, <http://www.ifc.org/eir>
- World Bank (2007). State and Trends of the Carbon Market 2007, World Bank, 2007, <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:21319781~pagePK:64257043~piPK:437376~theSitePK:4607,00.html>
- World Bank (2007b). Global Forest Partnership, A Partnership Proposal in Conservation and Sustainable Use in the World's Forests, Draft World Bank discussion document, July 03, 2007, rev2, <http://www.iiedgfpcconsultation.org/downloads/GFP-PCN-consv-EN.pdf>
- World Bank (2008). Climate Change FAQs. World Bank web page as at 1 October 2008. <http://web.worldbank.org/WBSITE/EXTERNAL/EXTSITE/TOOLS/0,,contentMDK:20205607~menuPK:435332~pagePK:98400~piPK:98424~theSitePK:95474,00.html>
- World Bank (2008b). Forestry, At a Glance, World Bank webpage as at 10 July 2008, <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20103458~pagePK:34370~piPK:34424~theSitePK:4607,00.html>
- World Bank (2008c). First Countries Named to Benefit from Forest Carbon Partnership Facility, Press Release No:2009/029/SDN, World Bank, 21 July 2008, <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:21846447~menuPK:34463~pagePK:34370~piPK:34424~theSitePK:4607,00.html>
- World Bank (2008d). FCPF Information Memorandum (English), June 13, 2008, <http://carbonfinance.org/Router.cfm?Page=DocLib&CatalogID=40801>
- World Bank (2008e). Information note, Subject: Forest Carbon Partnership Facility – Next Steps, World Bank, 10 February 2008, http://carbonfinance.org/docs/FCPF_General_Update_02-10-08.pdf
- World Bank (2008f). World Bank Board Approves Climate Investment Funds, World Bank press release No:2009/001/SDN, 1 July 2008, <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:21826304~pagePK:34370~piPK:34424~theSitePK:4607,00.html>
- World Bank (2008g). Strategic Climate Fund, World Bank, 3 June 2008, http://siteresources.worldbank.org/INTCC/Resources/Strategic_Climate_Fund_final.pdf#Strategic_Climate_Fund
- World Bank (2008h). Donor Nations Pledge Over \$6.1 Billion to Climate Investment Funds, Press Release No:2009/092/SDN, World Bank, 26 September, 2008 <http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:21916602~menuPK:34463~pagePK:34370~piPK:34424~theSitePK:4607,00.html>

World Bank (2008i). Q and A : Climate Investment Funds, 1 July 2008, World Bank, http://siteresources.worldbank.org/INTCC/Resources/Q&A_CIF_July_1_08.pdf

World Bank (2008j). Towards a Strategic Framework on Climate Change and Development for the World Bank Group, Concept and Issues paper

World Bank, March 2008, [http://siteresources.worldbank.org/DEVCOMMINT/Documentation/21712411/DC2008-0002\(E\)ClimateChange.pdf](http://siteresources.worldbank.org/DEVCOMMINT/Documentation/21712411/DC2008-0002(E)ClimateChange.pdf)

World Bank Carbon Finance Unit (2008). 'About Us' World Bank Carbon Finance Unit web page, as at 10 July 2008, <http://carbonfinance.org/Router.cfm?Page=About&ItemID=1>

WRM (2008). From REDD to HEDD: WRM contribution to the Convention on Climate Change, World Rainforest Movement, August 2008, www.wrm.org.uy/publications/briefings/From_REDD_to_HEDD.pdf

WorldWatch Institute (2008). In Amazon, Money May Grow on Trees After All, by Ben Block, April 14, 2008, <http://www.worldwatch.org/node/5704>

WRI (2001). Understanding the Forest Resources Assessment 2000, Emily Matthews for World Resources Institute, http://archive.wri.org/item_detail.cfm?id=51§ion=newsroom&page=newsrelease_text&z=?

WRI (2005). The Challenges of Pro-Poor PES, World Resources 2005, World Resources Institute, <http://multimedia.wri.org/wr2005/043.htm>

WRI (2007). REDD Flags: what we need to know about the options, Florence Daviet, Hilary McMahon, and Rob Bradley, with Fred Stolle and Smita Nakhoda for

World Resource Institute, December 2007, <http://pdf.wri.org/redd-flags.pdf>

Young (2002). A New Green Order? The World Bank and the Politics of the Global Environment Facility, Zoe Young, Pluto Press, 17 October 2002, ISBN-13: 978-0745315485

Flying over the road that cuts through Iwokrama Reserve, Rupunini, Region 9, Guyana. There are controversial plans to tarmac the road which presents a challenge to the rainforest.



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