

# **Reducing Emissions from Deforestation and Forest Degradation (REDD)**

## **A Discussion Paper for the Climate Action Network (CAN)**

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This Discussion Paper was drafted by members of the Climate Action Network (CAN) to provide background information for those attending the Bali Conference, on reducing emissions from deforestation and forest degradation (REDD). It is a separate document from the CAN Position Statement on reducing emissions from deforestation and forest degradation, and does not represent CAN's positions on REDD issues. Rather, it is intended to summarize the main points under discussion, giving the arguments of both sides on issues in controversy.

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## 1. Tropical Deforestation and Climate Change

Between **8 million** and **16 million hectares** of tropical forest was destroyed yearly in the 1980s and 1990s, sending from **0.8 billion to 2.4 billion tons of carbon**<sup>1</sup> into the atmosphere. Deforestation causes about **20%** of global warming, about as much as the United States, the world's leading emitter. There are many drivers of deforestation, and they vary a great deal by region. Major causes of deforestation include cattle pasture, industrial agriculture (soy, oil palm), and logging of tropical timbers for export, largely in South America, SE Asia and Central Africa. Global greenhouse gas emissions from developed and developing country fossil fuels and tropical deforestation must start to come down in the next decade if warming is to remain below 2°C by 2050.

Global warming will have major effects on the world's forests, and will very likely accelerate the destruction of tropical forests. Forest fires and dying trees can double carbon emissions in El Niño and other dry years. In the 1998 El Niño event, peat and forest fires in Indonesia released **0.8 – 2.6 billion extra tons of carbon** into the atmosphere<sup>2</sup>. Many climate models predict a warmer, dryer climate in tropical regions under business-as-usual scenarios, and some project that large part of the Amazon forest could become savanna. Unchecked, climate change will devastate the forests' immense species diversity and the resource base on which indigenous and forest peoples depend. This document focuses on forests in the tropics, the region from which nearly all emissions from deforestation currently come.

## 2. Measuring Deforestation, Degradation and Forest Carbon

Rates of deforestation can be measured using a variety of remote sensing instruments combined with field surveys<sup>3</sup>. Forest biomass must be measured to calculate emissions. The accuracy of both deforestation rate and forest biomass measurements depend on technological and forest monitoring **capacity**, which varies greatly among tropical countries.

While there are various peer-reviewed **methodologies**, scientists have only done extensive forest carbon inventories in a few countries, and only Brazil and India now measure their deforestation regularly using **high resolution satellite data**. These methods must be applied to other tropical regions to reduce uncertainty

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<sup>1</sup> Houghton, R. 2005. Tropical deforestation as a source of greenhouse gases. In *Tropical Deforestation and Climate Change*, Edited by P. Moutinho and S. Schwartzman, Instituto de Pesquisa Ambiental da Amazônia (IPAM) and Environmental Defense. [www.ipam.org.br](http://www.ipam.org.br)

<sup>2</sup> Page, S E, Sigert F, Riley J O, Boehm H-DV, Jaya, A, Limin S (2002). The amount of carbon released during peat and forest fires in Indonesia during 1997. *Nature* 420:61-65.

<sup>3</sup> GOFC/GOLD 2006; INPE 2006;

about deforestation emissions.<sup>4</sup> It is therefore very important that significant investment is made in scientific and technical work on inventories.



Figure 1. Forest burning for soy plantation, Mato Grosso, Brazil.

The current state of monitoring technology was summarized by the Climate Action Network in February, 2007 as follows:

- Sufficient technical and data acquisition methodologies exist at present to undertake a national-level inventory of land use change, including periodic monitoring and detection of interannual variability;
- Considerable scientific and technological challenges remain in the development of remote sensing technologies to measure and monitor biomass changes with a high degree of accuracy.

The Intergovernmental Panel on Climate Change (IPCC) has approved **standard methods** for measuring emissions from **deforestation** in several reports (1996, 2003, 2006). The higher the satellite image's resolution, the more it costs. **Degradation**, which causes carbon emissions but does not completely destroy forest, can also be measured, but requires more sophisticated and expensive methods<sup>5</sup>. Including degradation in a deforestation regime is likely to significantly increase the burden of monitoring, and consequently capacity

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<sup>4</sup> DeFries 2004; Achard et al 2006; Houghton 2005.

<sup>5</sup> Asner, 2005; 2007

building efforts too. While remote sensing could be used to monitor forest cover and hence deforestation fairly reliably, the same is not generally true of degradation, where more ground-based measurement are required. Satellite and airplane-based sensors under development, such as radar and LIDAR, are likely to improve our capabilities.

### 3. Forests and the UNFCCC

Deforestation and related emissions have been an important part of the scientific and political discussions since the start of the negotiations on the UNFCCC and its Kyoto Protocol. All countries that signed the UNFCCC (or “Parties to the UNFCCC”) agreed to protect and conserve reservoirs of carbon, including forests<sup>6</sup>, but so far this has had little effect. When parties to the UNFCCC created the **Kyoto Protocol** in 1997, establishing mandatory reductions targets for industrialized countries, they also set up the **Clean Development Mechanism (CDM)**, allowing countries with those targets to get carbon credit for projects in developing countries. Whether deforestation would be included in the CDM was controversial as there were many problems with a project-based approach: baseline uncertainty, displacement beyond the project boundaries, ability to achieve biodiversity objectives if leakage occurs, and concerns with the undermining of efforts to reduce fossil fuel emissions if a large number of credits become available at low cost. Therefore, so-called “avoided deforestation” credits were excluded from the Kyoto Protocol.

At the 11<sup>th</sup> Conference of the Parties (COP) to the UNFCCC in December 2005, Papua New Guinea, Costa Rica and a group of tropical forest countries (**the Coalition for Rainforest Nations, CfRN**) put forward a proposal to consider approaches to reduce emissions from deforestation (RED) in developing countries using a **national emissions approach**. This proposal was welcomed by many Parties, primarily because of the new focus, which resolves some of the issues from the previous ‘avoided deforestation’ discussion focusing on project level or sub-national approaches. The COP referred the issue to the **Subsidiary Body for Scientific and Technical Advice (SBSTA)**, which has received numerous submissions and held two workshops (FCCC/SBSTA/2006/10 and FCCC/SBSTA/2007/3). The SBSTA chair has proposed draft conclusions and prepared draft decision text on RED to be discussed at COP13 in Bali (FCCC/SBSTA/2007/L.10).

### 4. Policy options for Reducing Emissions from Deforestation and Forest Degradation (REDD)

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<sup>6</sup> UNFCCC, Article 4.1(c).

There is broad agreement that the post-2012 emissions control regime should include incentives to reduce emissions from deforestation for tropical countries and that any reductions must be real and verifiable. There is also broad agreement that if Annex I Parties are to use reduced deforestation to meet part of their national commitments, they must take correspondingly deeper reduction targets. Reliable funding is needed for all developing countries where tropical deforestation occurs, and there is agreement that a **variety of funding sources and policy options** will be needed to achieve national level reductions in deforestation.

There are a variety of **market** and **non-market** policy options on the table to reduce emissions from deforestation. NGOs and many Parties generally agree that both market and non-market incentives will be needed to provide adequate resources to affect deforestation rates. Both approaches have pros and cons. Some argue that if deforestation reductions are real and verifiable they should be freely tradable for fossil fuel reductions or emissions allowances, or “fully fungible”. Others are concerned that allowing forest credits unlimited access to carbon markets will weaken incentives for reducing fossil fuel emissions.

Financing from sources not coupled to the international carbon market is also possible. However, a fund approach may not be able to provide enough funding to meet developing country needs.

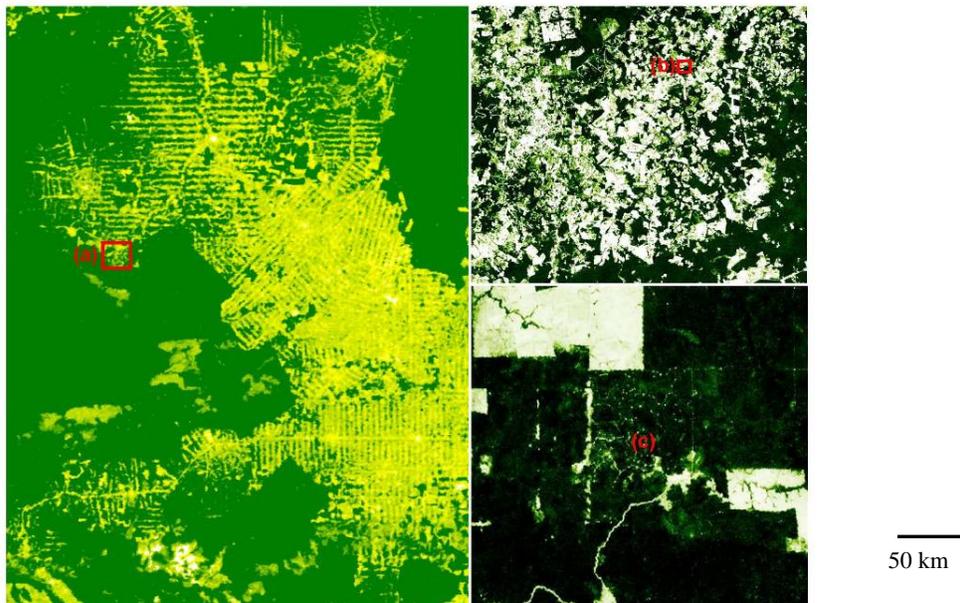


Figure 2. Deforestation in the Amazon. Source: Greg Asner, Stanford University and Carnegie Institution of Washington, Stanford, CA, USA

Any effective regime to reduce national deforestation will need, at least, to 1) support governments to monitor and measure deforestation transparently and to improve environmental law enforcement and forest governance; 2) provide direct benefits to local, indigenous and traditional forest peoples; and 3) offer incentives for businesses with legal rights to deforest, to forgo those rights.

The **CfRN** supports a “flexible basket” of mechanisms, including carbon market crediting for national-level deforestation reductions below an historical baseline, official assistance funds, and taxes on Kyoto or post-2012 emissions allowances. **Brazil** supports a fund made up from Northern country donations that would provide incentives for tropical countries for reducing national deforestation below an historical baseline. **India** and **China** also want some type of compensation for maintaining carbon stocks. **Congo Basin** countries want market incentives and aid for conserving large areas of forest that have historically not had high deforestation rates. The **EU** supports positive incentives for REDD and highlights the need for a performance based approach. **Tuvalu** is proposing a “community retention fund” to provide incentives to reduce emissions from deforestation.

## 5. Baselines, permanence and leakage

Certain technical issues arise regardless of policy approach, and can be addressed in various ways. They include:

- The setting of **baselines** (or reference periods)
- How to ensure “**permanence**” of reduced deforestation
- **Leakage** – how to ensure that reductions achieved in one place are not cancelled by increases elsewhere

The setting of baseline levels – the levels below which reductions will be credited or compensated -- can be done in different ways. The simplest is to use the average deforestation rate for a country over a **historical multi-year period**. Globalization is increasing demand for tropical commodities including timber, beef, soy and palm oil, and almost all of the land available for increased production of these commodities is in the tropics. Adoption of biofuels will further increase incentives to clear forest. Thus in the absence of large-scale incentives for conservation, deforestation will tend to continue or increase over time. Any reduction of national – level deforestation below historic rates contributes to bringing down overall global emissions, and thus to limiting warming to 2° C. The setting of targets and baselines must ensure that the commitments require real deforestation emission reductions and do not provide incentives to increase the rates of deforestation before the system starts.

One of the key issues is how to ensure “**permanence**” – that is, to make sure that reduced deforestation is not annulled by increased deforestation or damage such as fires later. There are many proposals on how to address permanence through insurance mechanisms such as banking or requirements for setting aside a reserve. Some argue for only temporary credit for reduced deforestation on these grounds. Others hold that REDD credits should not be treated differently from fossil fuel credits, and that if a country receives REDD credit and then surpasses its baseline, it should be obliged to make up the excess without compensation, or should not be allowed access to the market until it has made up the excess. Permanence pertains not only to forest carbon, but to any emissions reduction that is traded. The question of liability if targets are not met, or if a country trades allowances at one moment but increases emissions above its limit later, needs to be worked out for the entire emissions control regime, not only for REDD.

The risk that reductions in one place can be cancelled by increases elsewhere is called “**leakage**”. National-level monitoring eliminates the issue of leakage within a country, but may not address leakage that occurs at the international level. This too applies to all sectors – companies can move high-emissions activities out of regulated regions such as the EU to unregulated countries. Ultimately only involving all of the major emitters in the international emissions control regime will solve the problem. Not all countries may be able to account at a national level, and therefore need support for capacity building to do so.

Some Parties argue that project-level activities should be credited as a way for countries that are not ready to start nationally to begin to address deforestation. Others argue that this raises the same issues as in the polemical discussion on deforestation in the CDM and its associated problems, which have a long history of contentious debate in the UNFCCC process. Ultimately the environmental integrity of reduced deforestation (whether funded by the market or by public funds) depends on achieving overall reductions in deforestation rates, not just success in individual projects.

## 6. Co-benefits

### Indigenous peoples

There are many concerns that **indigenous or other forest communities** may not benefit from incentives for REDD, or may even suffer negative effects if authoritarian governments or large landowners displace them to receive incentives from REDD<sup>7</sup>. On the other hand, Amazon indigenous and traditional peoples’ organizations have called on their governments to pursue market-based compensation for reduced deforestation in the UNFCCC.

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<sup>7</sup> Griffiths, T. (2007) Seeing “RED”, Forest Peoples’ Program.



Figure 3. Schoolhouse, La Union Cooperative, R.A.A.S., Nicaragua

Incentives for reducing emissions from deforestation may offer potential benefits as well as risks for indigenous peoples. In most of the tropical world, indigenous peoples not only do not benefit from the activities that drive deforestation (industrial agriculture, cattle ranching, logging) but lose land, livelihoods and life-ways because of them. Stopping deforestation would itself benefit many indigenous groups. National systems can and should be designed with indigenous peoples and ensure that they benefit. For example, the “Agreement on Acknowledging the Value of the Forest and Ending Amazon Deforestation” launched October 3, 2007 by nine Brazilian NGOs, with the support of Brazil’s Ministry of Environment, four Amazon state governments, and the National Bank for Economic and Social Development, outlines a national system of financial incentives for ecosystem services and ending deforestation that would include indigenous and traditional peoples as major beneficiaries.

Forests provide sources of livelihood for hundreds of millions of people globally. Therefore, extra attention should be paid to **land tenure** and **customary usage rights**. When devising REDD programs and policies, reference to other guidelines and international fora decisions (for example the Convention on Biological Diversity and the International Labor Organization) will help to ensure indigenous

and local peoples properly benefit. These guidelines have often been conceptualized for protected areas, genetic resource acquisition, or industrial efforts and they often focus on the mechanism of Free and Prior and Informed Consent (FPIC). International human rights jurisprudence and provisions also give guidance as to how local and indigenous peoples' concerns and rights must be taken into account for land use policies.

The **design of national systems** for incentives is central to any effective REDD mechanism. CAN members and other international NGOs should work with indigenous peoples' and other local organizations to incorporate their views, promoting openness, transparency, forest peoples' participation and equity in national systems.

### **Biodiversity**

Preserving **biodiversity** and safeguarding **ecosystems** stand out as the most prominent environmental co-benefits from well-considered REDD programs. Preserving key species, maintaining viable population levels, and protecting unique natural areas – all can result from REDD programs, especially in the tropics and on island ecosystems. In addition to being the “glue” for healthy ecosystems, biodiversity serves as the source for numerous medicinal and industrial products, as well as the livelihood base for forest peoples.

Parties have a responsibility to adhere to the **agreed principles** governing LULUCF. When dealing with social and environmental issues, the most starkly relevant principle is that LULUCF projects “...contribute to the conservation of biological diversity and sustainable use of natural resources”<sup>8</sup>. Thus Parties need to determine methods by which they can ensure that they are indeed adhering to this agreed principle.

It is clear that preserving biodiversity often correlates with reducing deforestation. In fact, high biodiversity increases the **resilience** of forests and other ecosystems. Thus preserving biodiversity can increase the long term mitigation effect of REDD. However, hastily implemented REDD programs may fail to maximize biodiversity protection. The UNFCCC decision on REDD should thus call for **synergies** with other international agreements and bodies, such as the Convention on Biological Diversity's expanded action-oriented work program on all types of forest biological diversity.

Similarly, ecosystems and the services they provide would be safeguarded by REDD including maintaining populations of natural crop pest predators and of

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<sup>8</sup> Decision 11/CP.7, Marakesh Accords, 2001.

pollinators, water regulation, timber and food provision as well as many other benefits to agriculture and rural communities.<sup>9</sup>



Figure 4. Lowland swamp forest and mangroves, R.A.A.S., Nicaragua

### Programme examples combining community, environment and climate benefits

#### The Pilot Program to Protect the Brazilian Rain Forest (PP-G7) and the Amazon Region Protected Areas (ARPA) program, Brazil:

The aim of PP-G7 was to reduce deforestation in the Brazilian Amazon, while ARPA aims to expand the amount of protected areas in the region and to sustain this protection in the long term.

PP-G7 initiated a large range of projects to reduce deforestation, many involving local communities. ARPA, funded by the Brazilian Government, the German Development Bank, the GEF and WWF, establishes new parks and reserves and strengthens management of old ones. To sustain the reserves in the long term, a Trust Fund is being set up.

In ARPA, **local communities** are involved in setting up sustainable use reserves, while in PP-G7 **indigenous lands** were legally recognized and demarcated, sustainable use by local communities was supported, and communities started taking part in forest management and monitoring. Also, a **social network** of over 700 civil society organizations was initiated. PP-G7 and ARPA were not designed to quantify the amount of greenhouse gas emissions they avert.

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<sup>9</sup> Kapos, V., Herkenrath, P., Miles, L, “Reducing Emissions from Deforestation: A Key Opportunity for Attaining Multiple Benefits”. UNEP-WCMC, p.9.

However, both most likely have contributed to reduced deforestation and thus reduced emissions<sup>10</sup>.

Zero Deforestation Law, Paraguay: From 2004 to 2006 a complete **ban on logging** was established in the Upper Parana Atlantic Forest in Paraguay. The ban worked - deforestation went down by 85% - and the law has been extended until the end of 2008. In order to maintain the forests in the long run, WWF initiated a '**Social Pact**' as well, which worked to find economic alternatives to deforestation for the local population in the Atlantic Forest region and encouraged sustainable use of natural resources<sup>11</sup>.

### Local-level projects

There are many local level projects around the world that have combined forest conservation and poverty alleviation – one good place to find examples is [www.povertyandconservation.info](http://www.povertyandconservation.info), which is a network set up by the International Institute for Environment and Development, IIED. Only a few of these projects have incorporated carbon accounting.

## 7. Conclusions

Reducing Emissions from Deforestation and Forest Degradation is increasingly recognized as critically important to combating global warming, and many elements of REDD have gained widespread agreement. These include:

- the need to provide sufficient financing from industrialized countries, both to compensate for opportunity costs and for capacity building;
- the importance of technical and institutional capacity building;
- the importance of national baselines;
- the need to deal with quality issues such as permanence and leakage;
- the key role of co-benefits such as biodiversity and the rights and livelihoods of forest peoples.

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<sup>10</sup> Dutschke, M. and Wolf, R. (2007). "Reduced Emissions from Deforestation in Developing Countries – The way forward." Pp 16-20 in Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH, Climate Protection Programme in Developing Countries; WWF (2007). "A future for protected areas in the Brazilian Amazon". Accessed Oct. 10, 2007. URL: [www.panda.org/about\\_wwf/where\\_we\\_work/latin\\_america\\_and\\_caribbean/region/amazon/our\\_solutions/amazon\\_protected\\_areas/financing/arpa/index.cfm](http://www.panda.org/about_wwf/where_we_work/latin_america_and_caribbean/region/amazon/our_solutions/amazon_protected_areas/financing/arpa/index.cfm)

<sup>11</sup> WWF (2006). "Deforestation Rates Slashed in Paraguay." Accessed Oct. 10, 2007. URL: [www.panda.org/news\\_facts/newsroom/successes/index.cfm?uNewsID=79520](http://www.panda.org/news_facts/newsroom/successes/index.cfm?uNewsID=79520); Mongabay (2006). "Paraguay extends deforestation law that has cut forest loss by 85%." Accessed Oct. 10, 2007. URL: [www.mongabay.com/archives/archives\\_2006-12.html](http://www.mongabay.com/archives/archives_2006-12.html)

At the same time, there is broad agreement that several different financial mechanisms will be necessary to accomplish these goals: carbon markets, funds, development aid and/or lending. The Bali COP and subsequent meetings will need to resolve these questions to make REDD an effective tool in the fight against global warming.