



Deforestation  
and climate  
change: acting  
on the causes

# What the (carbon) market cannot do...

Alain Karsenty

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With an estimated average loss of around 13 million hectares per year between 2000 and 2005 – 7.3 million hectares if reforestation is taken into account, according to FAO –, tropical deforestation is a major source of greenhouse gas emissions. At around 4.4 to 5.5 GtCO<sub>2</sub> per year (the latter including peat forest degradation) according to the latest estimates, these emissions account for about 12 to 15% of annual anthropogenic CO<sub>2</sub> emissions (from 8 to 20% taking into account the considerable uncertainties in the deforestation and degradation estimates). Moreover, tropical deforestation has a devastating impact on biological diversity, since tropical forests contain over two thirds of the 250 000 higher plants known to scientists.

At present, emissions caused by deforestation in developing countries are regulated neither by the Framework Convention on Climate Change nor by the Kyoto Protocol. However, the issue of “avoided deforestation” is expected to be one of the difficult areas of the 15<sup>th</sup> Conference of the Parties to the UNFCCC (Copenhagen, December 2009), which will propose a post-Kyoto “climate” regime. Is the solution a market mechanism to “reward” actors or a fund to finance reforms that tackle the causes? The debate is open.

## Ineffective tools

Deforestation is a problem that mainly concerns developing countries. Yet these countries are not committed to quantified emissions reduction targets under the Kyoto Protocol. They only participate in the collective effort through the Clean Development Mechanism (CDM), for which tree planting projects are eligible. These are emissions reduction projects for which the promoters can earn certified “carbon credits”, which are negotiable on specialised markets. To date, “forest” CDM projects (afforestation and reforestation) have been something of a failure: only 8 projects have been registered out of almost 1 900. As for non-forest CDM projects, we now know that many of them have failed to comply with the rules on establishing baseline scenarios, against which the reductions attributed to the project are measured. Furthermore, contrary to the hopes expressed when it was created, the CDM has not prevented the massive use of coal in emerging countries.

perspæctive

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**Should the deforestation level be compared with a past period, or with a projected business-as-usual scenario?**

Another market mechanism, whose procedures are not as lengthy, costly or binding, has been set up: voluntary carbon offset schemes. These make it possible to sell carbon credits to companies or entities (large towns, institutions, etc.) wishing to mitigate the emissions linked to their activities. Although more and more of these projects are certified by third parties, at least one condition is not evaluated in many cases: additionality, in other words the “net” effects of the private action (project) or public action (policies, measures) that are attributed to this action alone, irrespective of the circumstances that would occur in the absence of this action. Difficult to respect, it is nevertheless essential in a market-based emission trading system: if the carbon credits acquired by companies and countries do not come from projects that have actually brought about changes in practices, this amounts to generating “hot air”.

In 2005, the Coalition for Rainforest Nations, which includes around 30 southern forest countries, proposed a new mechanism called REDD (Reducing Emissions from Deforestation and Degradation), or “avoided deforestation”. The idea is simple: paying developing countries that reduce deforestation over a given period. It has generated unprecedented enthusiasm among the international community, and the 13<sup>th</sup> Conference of the Parties to the UNFCCC (Bali, 2007) suggested that it should be included in the post-Kyoto agreement.

## **Redd: four possible structures**

### **Cap-and-trade**

States are paid according to a baseline or a politically negotiated deforestation reduction target. Credits generated by REDD, which are fungible, are integrated into the market. Companies and States can acquire them in order to implement actions of their choosing.

### **International fund to remunerate national results**

This system is similar to cap-and-trade, but payments for States are not linked to the emissions trading market or negotiable on it.

### **Decentralised market mechanism**

Modelled on the CDM procedures with a broader range of eligible activities, REDD projects, rather than States, would benefit from certified carbon credits that could be traded on the international emissions allowances market.

### **International fund to finance structural reforms**

This possibility avoids the need to develop national baseline scenarios and aims to mobilise the funding required to conduct structural reforms at the national level and payment for environmental services (PES) programmes targeted at local actors, in the regions threatened by deforestation.

A variation of this proposal consists in sharing credits between projects and States (the nested approach). This would provide direct funding for projects but would not prevent the risk of “leakage”, in other words a simple geographical shift in deforestation, rather than a global reduction.

Since the last Conference of the Parties in Poznań (2008), negotiators are talking about REDD+: the activities that could be remunerated go beyond avoided deforestation and include reforestation, forest conservation and forest management.

## **To find out more**

GOFC-GOLD, 2008. “Reducing greenhouse gas emissions from deforestation and degradation in developing countries: a sourcebook of methods and procedures for monitoring, measuring and reporting”.  
[www.gofc-gold.uni-jena.de/redd/](http://www.gofc-gold.uni-jena.de/redd/)

Angelsen A. (ed.), 2008. “Moving ahead with REDD: issues, options and implications.” Bogor, Indonesia: Center for International Forestry Research (CIFOR).  
[www.cifor.cgiar.org/publications/pdf\\_files/Books/BANgelsen0801.pdf](http://www.cifor.cgiar.org/publications/pdf_files/Books/BANgelsen0801.pdf)

Zarin D., Angelsen A., Brown S., Loisel C., Peskett T., Streck C., 2009. Reducing emissions from deforestation and forest degradation (REDD): an options assessment report. The Meridian Institute.  
[www.REDD-OAR.org](http://www.REDD-OAR.org)

## **The thorny problem of the baseline scenario**

The choice of the reference period used to measure the reduction in deforestation is one of the thorniest issues regarding REDD. Should the deforestation level during the commitment period (probably 2013-2017) be compared with a past period, or with a projected business-as-usual scenario, possibly modified according to political and equity criteria? The method chosen will have different implications depending on the country. Countries that have seen high deforestation rates in the recent past and which have little forest cover will come out on top if a past period is taken into consideration. Conversely, countries whose deforestation rate was low in the past but is expected to rise due to investment in road infrastructure and the extension of agricultural areas are in favour of a business-as-usual scenario that takes into consideration their development needs. This was the proposal supported in negotiations by the Central African countries belonging to the COMIFAC (Commission for the Forests of Central Africa).

Referring to the past assumes that deforestation patterns will be constant over time. However, there is little reason to suppose this would be the case. Deforestation rates are

linked to the level of development and to demographic transition, and they tend to slow as forests are depleted. In Malaysia and in several parts of Indonesia, the major lowland forests have been massively converted in the last 20 years into oil palm plantations and other agricultural activities. The major remaining forests are mainly found in mountainous or remote regions, which cost more to exploit and convert. Future reductions will thus be largely “mechanical”, linked to the depletion of forests. In contrast, the Congo Basin countries have relatively low deforestation rates, not because of any “good governance”, but because of the poor state of their infrastructure and the limited appeal of this region for major agricultural investments. In the immense Democratic Republic of the Congo, the annual deforestation rate is 0.21%, but there is no doubt that if the political situation stabilises, road infrastructure repairs and the return of private investment will result in a rise in deforestation, at least in the short term.

If we choose not to use past data alone, we must attempt to predict future deforestation based on the anticipated evolution of key variables. But deforestation rates are not only influenced by relatively predictable factors such as population size or road infrastructure. They are also affected by random events such as conflicts (which trigger migration), fluctuations in major agricultural commodity prices, changes in currency parity and climate variations (which reduce or increase the risks of large-scale fires and have a considerable impact on deforestation).

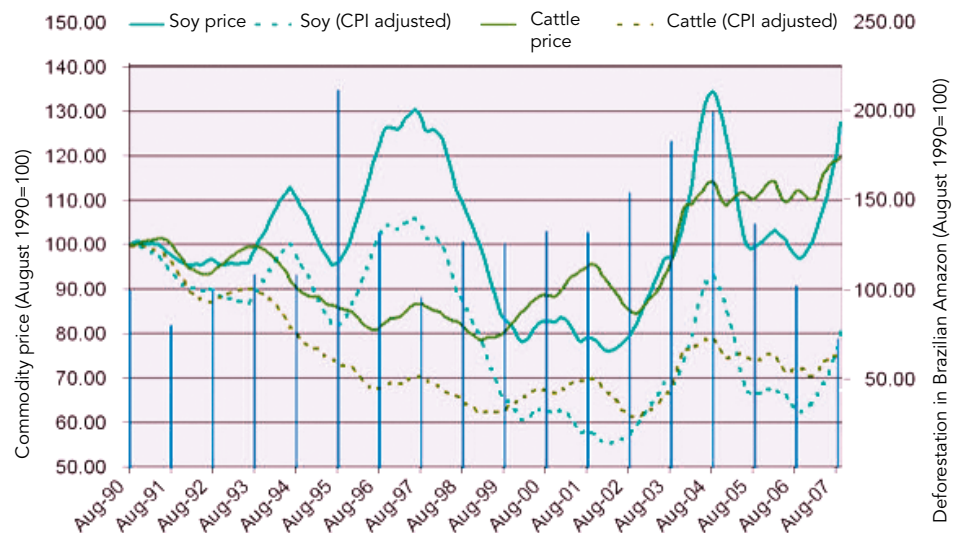
In Brazil, for example, deforestation varies greatly from one year to another. Fluctuations in the prices of agricultural products (beef, soy, etc.) are largely responsible for frequent reversals of the trend. While “predictive” models can more or less anticipate *where* the next deforestation will take place (usually close to roads), they are incapable of telling *when* they will occur: this depends particularly on agricultural prices – and, incidentally, on the price of wood – which vary according to global market speculation.

A number of proposals have been put forward to attempt to solve this problem, aimed at limiting the quantity of credits that can be acquired in order to limit the risk of producing hot air, which seems to be in contradiction with the idea that strong financial incentives are needed to ensure States act. But no system makes it possible to tell whether payments will in fact correspond to additional reductions that can be attributed to the policies and actions implemented. The strategic behaviour of States will also have to be taken into account. For example, despite its very low deforestation rates to date, Guyana presented a baseline scenario in August 2009 that anticipated the conversion of 90% of its forests into industrial crops over the next 25 years; this was in order to maximise its chances of being paid for any deforestation rate below this figure. Another potential perverse effect is that a form of environmental blackmail may become widespread (“pay me or I will let my forests be destroyed”), quite the opposite of the government responsibility required on such a critical issue for the public good.

The risk with a cap-and-trade system based on “performances” (reducing deforestation relative to a baseline) is that it may remunerate the result of circumstances rather than efforts. If, however, a market mechanism is chosen, it is likely that this will contribute to introducing hot air, when the market is struggling to maintain a carbon price that is high enough to be dissuasive. By offering new ways out for high emissions-producing nations and companies, this solution further weakens the incentive system sought by the Kyoto Protocol.

Annual soy prices, cattle prices, and deforestation in the Brazilian Amazon, 1990-2007

Data sources: USDA, INPE.  
Analysis by mongabay.com



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#### A few words about...

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## Tackling structural problems

The option of an international fund for agricultural land transformation policies is the only one that tackles the structural causes of deforestation and finances reforms whose impact on deforestation cannot be directly and immediately measured; something the market cannot do. The priorities will differ from one country to another, but there are clear benefits (and not only for forests) to agricultural land reforms that strengthen farmers' property rights and introduce more productive and sustainable farming practices. Recognising enforceable land rights for forest-dwelling communities will help them to cope with the neocolonial land-grab led by agribusiness groups looking for relatively unpopulated forest areas. Governance is also a key issue: financing the reorganisation of forest administration and of monitoring systems may prove decisive. As may the consolidation of the legal system: many laws exist to protect forests, but too often they are violated with complete impunity. As an eminently political process, these ambitious reforms, especially those concerning land, produce winners and losers. Ensuring they are accepted implies compensation for the losers, hence the need for a well-endowed fund.

The country level is not the only one at which to act. Encouraging farmers to conserve trees, to plant new ones and to protect existing forests requires large-scale payment for environmental services (PES) programmes. But payments of this kind will only result in lasting transformations if they are accompanied by support for changes in technical agricultural processes and accompanying programmes to perpetuate them (rural credit, insurance, stabilised prices, land registries, etc.). This implies evaluating the financial needs of these programmes over and above the opportunity cost alone (the cost associated with ending deforestation practices). The permanence of emissions reductions (a forest may burn or be replaced by other uses) and additionality (the forest would be conserved even without payments) are problems that do not disappear with PES, but attempts can be made to contain them through the prior assessment of projects, as in the case of the CDM; something that is not possible with a national market-based approach, since payment, which is unconditional, is based on "results".

This leaves financing. Official aid is inconstant and limited. The European Union put forward the idea of attributing some of the revenue generated by the auction of emissions allowances planned for the post-2013 period to combating deforestation; but even if this materialised, it would still not be enough. Mexico proposed a global climate change fund supported by contributions from all nations and particularly based on equity criteria. Lasting funding to combat deforestation demands new resources that could be provided by an international tax system based on the taxation of financial transactions or on greenhouse gas emissions and energy consumption. It may prove difficult to rapidly reach an international agreement on the matter, but opting for an unsuitable mechanism (the carbon market) just because it is easier to come to an international agreement on this option since it does not involve any unpopular measures would be a short-sighted decision.

Beyond this lies the issue of our individual and collective consumption patterns. Forests are converted to meet the growing demand for beef; soy is used to feed cattle; the demand for palm oil is stimulated by the demand for agrofuels; and the increase in paper consumption leads to deforestation in the degraded Indonesian forests in order to plant quick-growing species, etc. Economic instruments are needed to modify collective choices, but let it not be thought that their magic will enable us to avoid questioning our development patterns.

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The findings gave rise to several publications:

Karsenty A., Guéneau S., Capistrano D., Peyron, J.-L. (eds), 2008. International Forestry Review 10 (3), Special Issue "REDD and the evolution of an international forest regime".

Karsenty A., 2008. The architecture of proposed REDD schemes after Bali: facing critical choices. International Forestry Review 10 (3): 443-457. [www.redd-monitor.org/wordpress/wp-content/uploads/2008/10/karsenty-ifredd-2008.pdf](http://www.redd-monitor.org/wordpress/wp-content/uploads/2008/10/karsenty-ifredd-2008.pdf)

Karsenty A., Pirard R., 2008. Changement climatique : faut-il récompenser la « déforestation évitée » ? Natures, Sciences, Sociétés 15 (4/2007) : 357-369. [www.biodiversite2012.org/IMG/pdf/NSS\\_REDD\\_Karsenty\\_Pirard\\_2008.pdf](http://www.biodiversite2012.org/IMG/pdf/NSS_REDD_Karsenty_Pirard_2008.pdf)

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