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Why are we seeing “REDD”?

An analysis of the international debate
on reducing emissions from deforestation
and degradation in developing countries

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Abstract

Reducing emissions from tropical deforestation and forest degradation (REDD) in developing countries has emerged as new potential to complement ongoing climate policies. The idea consists in providing financial compensations for the reduction of greenhouse gas (GHG) emissions from deforestation and forest degradation. Although excluded from the first commitment period of the Kyoto Protocol, the idea was submitted by Papua New Guinea and Costa Rica, on behalf of the Coalition of Rainforest Nations, at the 11th Conference of Parties (COP-11) to the UNFCCC in Montreal in 2005. The proposal has initiated a two year examination process, characterized by an extremely high participation of the concerned parties, and decisive steps on that topic are expected to occur during COP-13 in Bali in December 2007. Based on the main country proposals, this paper examines the current debate on REDD and discusses some of the main remaining controversies within the debate, notably the REDD financing mechanism (mandatory markets versus voluntary funds) and the institutional framework for REDD (inside or outside the post-2012 Kyoto regime). In doing so, the paper contributes to an improved understanding of the scientific, economic and political aspects associated with the debate.

Résumé

La réduction des émissions issues de la déforestation et de la dégradation tropicale (REDD) dans les pays en développement apparaît comme un nouvel élément pouvant contribuer à l'avancée des actuelles négociations sur le changement climatique. Le principe de la REDD est d'octroyer une compensation financière pour la réduction des émissions des gaz à effet de serre (GES) issues de la déforestation et de la dégradation tropicale. Exclue lors de la première phase de négociations du Protocole de Kyoto, cette idée a été introduite par la Papouasie Nouvelle Guinée et le Costa Rica lors de la 11^e Conférence des parties (COP-11) à la CCNUCC (Convention cadre des Nations unies sur les changements climatiques) à Montréal en 2005. Cette proposition a permis d'initier un processus de discussion qui aura duré deux ans, et aura été caractérisé par un très fort investissement des diverses parties concernées. Il est notamment attendu et espéré que la COP-13, ayant lieu à Bali en décembre 2007, donne lieu à des décisions déterminantes sur cette question. Fondé sur les propositions faites par les principaux pays concernés, cet article éclaire l'actuel débat que la REDD a soulevé. Il en aborde ainsi les principales controverses, en particulier les mécanismes financiers de la REDD (marchés obligatoires vs fonds volontaires) et son cadre institutionnel (inclusion ou non dans le régime post-Kyoto).

Cette analyse vise ainsi à contribuer à une meilleure compréhension des aspects scientifiques, économiques et politiques du débat lié à la REDD.

Introduction

Climate change has become a major threat to human well-being and all life on Earth. Caused by the accumulation of greenhouse gases (GHG) in the atmosphere, it is mainly a result of industrialization. Many countries already face the costs of adapting to regional changes in temperature and natural catastrophes associated with them. According to a recent report commissioned by Greenpeace, global warming could create some 200 million climate refugees by 2040, especially from poor countries (Jakobeit and Methmann 2007).

The severity of the situation and the urgency to act has now become international consensus. Key contributions include the scientific evidence from the 4th assessment reports of the Intergovernmental Panel of Climate Change (IPCC) and the Stern review (2006), which first assessed the economic costs of climate change and, most importantly, the costs of inaction. Specifically, Sir Nicholas Stern stresses the benefits of early climate change mitigation policies: compared to the aggregate monetary costs of climate change consequences of about 5-20% of annual global GDP if no action is taken, a 25% emissions reduction target by 2050 would cost only 1% of global annual GDP by 2050 and would limit the temperature increase to approximately 2°C (Stern 2006).

Compensating emission reductions from deforestation in developing countries has been put forward to complement ongoing policies to mitigate climate change. Influential contributions include the World Bank's policy research report on tropical forests arguing in favor of mobilizing international carbon finance to reduce deforestation (Chomitz *et al.* 2006). Al-

though excluded from the first commitment period of the Kyoto Protocol, the idea was submitted by Papua New Guinea and Costa Rica, with the support of the Coalition of Rainforest Nations, at the 11th Conference of Parties (COP-11) to the UN Framework Convention on Climate Change (UNFCCC) in Montreal in 2005. The proposal has initiated a two year examination process, characterized by an extremely high participation of stakeholders, and decisive next steps are expected at the upcoming COP-13 in Bali in December 2007.

Following up on Tom Griffith's (2007) concern about "seeing RED", this paper analyzes the international debate on reducing emissions from deforestation and degradation (REDD) to seek insights why and how it has become a subject in the international climate negotiations. Specifically, the objectives are to:

- i) document the role of tropical forests in the natural climate system and within the current international climate regime,
- ii) analyze the idea of REDD based on country proposals discussed within the international climate negotiations, and
- iii) discuss main controversial issues to derive insights on the potential direction the debate on REDD as climate change response measure may take.

The methodology bases on an extensive literature review and on several expert interviews. The interviews were conducted during April and May 2007, with experts from French government and development agencies, as well as from the European Commission and other think tanks, using semi-structured, non-standardized questionnaires. Annex 1 provides the list of interviewees and the interview questions.

The paper is organized as follows: section two presents the role of forests in the natural climate system and in the international climate regime; section three analyzes the current discussion on REDD to identify common and diverging points among the different country positions; section four discusses the findings from section three to draw insights on possible avenues for REDD; and section five concludes with final remarks.

Setting the stage: the role of tropical forests in international climate policy

Forests, especially tropical forests, provide an array of important environmental services. These include without being limited to carbon sequestration, biodiversity conservation, hydrological services, scenic beauty and cultural values. This section focuses on the role of tropical forests in international climate policy by explaining how forests can contribute to the reduction of GHG emissions and how and why their role has evolved within the international climate negotiations.

State and trends of tropical forests

About 30% of the world's land area is covered by forests, of which the predominant part is situated in the tropics (FAO 2006). The three

most important tropical forest biomes are located in South America, in Central Africa, and in South East Asia.

Although tropical forests provide important environmental services for human well-being the value of these services is insufficiently integrated into markets. In turn, the conservation of forests for their services competes with a multiple range of seemingly more profitable land-uses including agriculture, logging, human settlements, and infrastructure projects. Even though net deforestation rates slowed between 2000 and 2005 relative to the rates of the 1990s, largely because of forest plantations, global gross deforestation continues at a rate of 12.9 million ha/year, especially in South East Asia and South America (FAO 2006). Forest degradation, defined as the decrease in forest density and composition, is another important contributor to the loss of tropical forests, especially in Africa.

Tropical forests and climate change

Tropical forests play a dual role in climate change. On the one side, they can be carbon sinks and thus contribute to the mitigation of climate change. On the other side, the removal of tropical forests (deforestation and burning) is associated with the emission of greenhouse gases (GHG), especially of carbon dioxide (CO₂).

Tropical forests as carbon sinks

Trees and plants sequester carbon from the atmosphere through photosynthesis, especially during the growing period. Once fully grown, the trees stock the carbon they sequestered. Table 1 depicts the global carbon stocks in vegetation and soil. It is estimated that the carbon stored in forest biomass, dead wood, litter and soil together is three times more than the amount of carbon in the atmosphere (FAO 2006).

Carbon sequestration services from forests can be strengthened through afforestation and reforestation (A/R) activities. As defined by the IPCC (2007), "afforestation and reforestation are the direct human induced conversion of non-forest land through planting seeding and/or the human induced promotion of natural seed sources". Afforestation and reforestation are distinguished by how long the non-forest condition has prevailed, i.e. 50 and more years for afforestation; less than 50 years for reforestation. The accumulation of carbon biomass from A/R ranges between 1 and 35 t CO₂/ha/yr globally (IPCC 2007). Between 1990 and 2005, the proportion of carbon stocked in forest

TABLE 1

Global carbon stocks in vegetation and soil carbon pools down to 1 meter (IPCC 2000)

| Biome | Area (10 ⁹ ha) | Global Carbon Stocks (GtC) | | |
|------------------------|------------------------------|----------------------------|------|-------|
| | | Vegetation | Soil | Total |
| Tropical forests | 1,76 | 212 | 216 | 428 |
| Temperate forests | 1,04 | 59 | 100 | 159 |
| Boreal forests | 1,37 | 88 | 471 | 559 |
| Tropical savannas | 2,25 | 66 | 264 | 330 |
| Temperate grasslands | 1,25 | 9 | 295 | 304 |
| Deserts & semi-deserts | 4,55 | 8 | 191 | 199 |
| Tundra | 0,95 | 6 | 121 | 127 |
| Wetlands | 0,35 | 15 | 223 | 240 |
| Croplands | 1,6 | 3 | 128 | 131 |
| World total | 15,15 | 466 | 2011 | 2477 |

biomass increased in all regions of the world, except for Africa, tropical Asia and South America. However, although global forest areas expanded, mainly as a result of A/R policies, global carbon stocks decreased because of tropical deforestation and degradation (FAO 2006).

Tropical forests as source of greenhouse gas (GHG) emissions

Tropical forests also represent sources of GHG emissions, mainly CO₂, as a consequence of deforestation and degradation. When trees are cut off and burnt, the carbon they stocked is released into the atmosphere. Forest degradation, i.e. the reduction in forest biomass through non-sustainable harvest or land-use practices can also result in substantial reductions of forest carbon stocks (Asner *et al.* 2005).

In 2004, emissions from deforestation were estimated to account for about 17% of global GHG emissions, and nearly 28% of global CO₂ emissions (IPCC 2007). This proportion is higher than the proportion arising from the transport sector, making deforestation and degradation the third source of GHG emissions after energy- and industry-related emissions (Figure 1).

According to the 4th IPCC Review, 65% of global carbon mitigation potential is located in the tropics and at least 50% of that total could be achieved by reducing emissions from deforestation (IPCC 2007). Indeed, when comparing the carbon benefits from land use change related activities, one finds that deforestation is the major source of emissions from land-use change which is hardly compensated by current afforestation and reforestation activities (Figure 2). Moreover, although afforestation practices have better long-term benefits as carbon stocks accumulate in vegetation, they require higher initial investments and take time to accumulate significant amounts of carbon. REDD, from forest protection or sustainable forest management, is supposed to be less expensive and may be associated with a series of co-benefits such as biodiversity conservation (IPCC 2007).

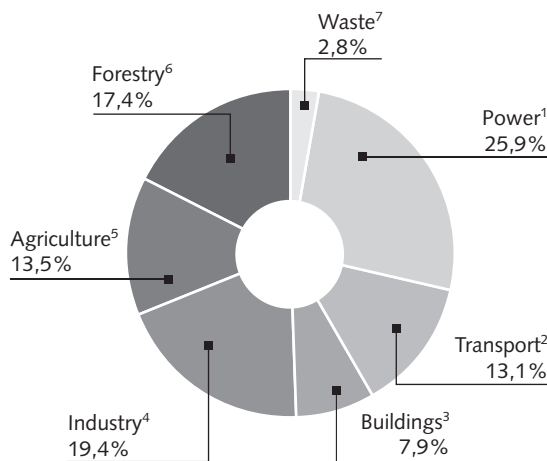
Tropical forests in the international climate negotiations

The main international forum to address climate change is defined by the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC, adopted at the Earth Summit in Rio de Janeiro in 1992, has the objective to reduce GHG emissions to mitigate climate change. It started as a non-binding agreement aiming at stabilizing GHG concentration in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. The parties to the UNFCCC are expected to act "on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities".

The Kyoto Protocol, adopted in 1997 at the

FIGURE 1

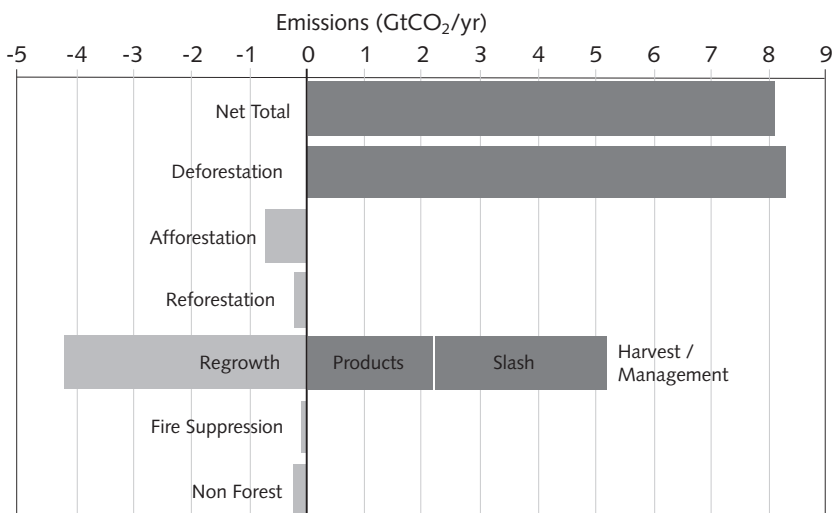
Greenhouse gas emissions in 2004, by sector (IPCC 2007)



1. Excluding refineries, coke ovens which are included in industry.
2. Including international transport (bunkers), excluding fisheries; excluding off-road agricultural and forestry vehicles and machinery.
3. Including traditional biomass use.
4. Including refineries and coke ovens
5. Including agricultural waste burning and savannah burning (non-CO₂). CO₂ emissions and/or removals from agricultural soils are not estimated in this database.
6. Data include CO₂ emissions from deforestation, CO₂ emissions from decay (decomposition) of aboveground biomass that remains after logging and deforestation and CO₂ from peat fires and decay of drained peat soils.
7. Includes landfill CH₄, wastewater CH₄ and N₂O, and CO₂ from waste incineration (fossil carbon only).

FIGURE 2

Figure 2: Sources of emissions from global land use change 2000 (Baumart *et al.* 2005)



3rd Conference of the Parties (COP-3), defines binding emission reduction targets for developed countries (also referred to as Annex I countries) of about 5% below the 1990 emission levels. These reductions have to take place during the first Kyoto commitment period (2008-2012). The three flexible mechanisms of the Kyoto Protocol are i) emission trading ii) Joint Implementation (JI) and iii) Clean Development Mechanism (CDM).

In the first commitment period of the Kyoto Protocol, forests were only considered for their function as carbon sinks (via Article 3.3 and 3.4 for Annex I countries, and via CDM and JI for non-Annex I countries), notably through afforestation and reforestation (A/R) activities. The potential of reducing emissions from deforestation and forest degradation as climate change mitigation measure was excluded, largely due to political and methodological reasons. This section describes the role of tropical forests within the international climate policies.

Valorizing forests for their function as carbon sinks

The Kyoto Protocol's Clean Development Mechanism (CDM) allows Annex I countries to buy emission credits from projects in developing countries without compromising national emission reduction efforts. Forestry CDM projects (afforestation and reforestation, A/R), however, face several peculiar challenges compared to energy and industry projects that limit the supply and demand of A/R project credits. These are as follows (Gardette and Locatelli 2007):

- First, on the supply side, the technical and administrative requirements associated with CDM are more difficult for A/R projects given the technical complexity to estimate forest carbon reductions which result in often lengthy registration processes. And although technical obstacles are being overcome as experience and capacities grow, A/R projects still face substantial legal, financial and institutional barriers.

- Second, still on the supply side, assuring permanence of emission reductions from A/R projects is quite difficult. Land-use change, deforestation or forest degradation caused by human action or natural risks can occur at any moment in time. Therefore, forestry CDM projects issue temporary credits, i.e. temporary Certified Emission Reductions (tCER) and long-term Certified Emission Reductions (lCER).¹ Still, A/R carbon credits present some advantages given the fact that temporary CERs are less expensive than permanent ones (Gardette and Locatelli 2007).²

- Third, demand for CDM A/R project credits is limited as these credits are not yet accepted by the largest carbon market, the EU Emissions Trading Scheme (EU ETS). However, experts and policy-makers are currently discussing the extension of the EU-ETS to CDM forestry credits.³ Another factor limiting the demand for A/R credits is the decision made in Marrakech to limit the use of A/R credits for Annex I countries to less than an annual 1% of a countries' emissions in the reference year.⁴

Despite these difficulties, the Kyoto market is still the most important market for forest carbon. Voluntary markets for forest carbon exist, with simpler modalities and including actions for reducing emissions from deforestation, but their market volume is considerably smaller.⁵ In total, forestry projects have a share of about 1% in the CDM and about 56% in voluntary markets (Gardette and Locatelli 2007). Experts estimate that there is certainly more demand for forestry credits than allowed by current CDM modalities and, if more constraining emission reduction targets are adopted for the next Kyoto commitment period, this demand is expected to further increase.

Addressing deforestation as source of GHG emissions

The role of deforestation as source of GHG emissions has so far largely remained excluded from international efforts to combat climate change. Until today, there is no official instrument to induce emission reductions from deforestation. The reasons are methodological and political. Methodological challenges refer mainly to the difficulty to measure and monitor effective emission reductions. Political challenges include questions of sovereignty, and the risk of substitutability or effort dilution 'at the source' of Annex I countries (i.e. rather than reducing emissions within Annex I countries, emission reduction efforts are "relocated" to developing countries where emissions reduction efforts).

However, the debate has experienced a fundamental shift over the last 2 years. On the scientific side, the idea of compensating emission reductions from deforestation has been advocated by several experts (e.g. Santilli *et al.* 2005; Moutinho and Schwartzman 2005; Chomitz 2000). But the recent contributions by the World Bank (Chomitz *et al.* 2006), Sir Nicholas Stern (2006) and the IPCC (2007) were probably the most decisive in changing the international attitude on this topic. On the political side, the idea was already submitted by the Coalition of Rainforest Nations in 2005, presented by Papua New Guinea and Costa Rica at

COP-11 to the UNFCCC in Montreal which in turn induced the establishment of a 2-years examination process within the climate convention. The subsequent section will focus in more detail on the current REDD debate.

The current debate on reducing emissions from tropical deforestation and degradation (REDD)

Following up on the lively interest in addressing deforestation as source of GHG as complementary climate policy measure, this section documents and analyses the current debate on the efforts to “reducing emissions from deforestation and degradation (REDD)”.

The idea

The idea of REDD is rather simple. It is based upon the concept of ‘payments for environmental services’ (PES) which valorizes the benefits people obtain from ecosystems by providing a direct economic incentive for their provision or generation. Such benefits, also referred to as ecosystem services, include regulating services (climate or water), provisioning services (food, fresh water), supporting services (soil conservation, nutrient cycling) and cultural services (aesthetic or traditional values). PES seek to link providers and suppliers by creating a market for a clearly defined environmental service based on voluntary transaction and *quid pro quo* payments between the supply and demand side (Wunder 2005). By attaching an economic value to the environmental service, it is supposed to get internalized into the economic decision-making process. The same principle is applied with REDD. Specifically, the idea is to recognize and valorize the emissions associated with (tropical) deforestation and to create economic incentives for their abatement, for instance through financial compensations.⁶

Technical challenges for REDD

Although simple and attractive in theory, the implementation of REDD is complex. Several technical and methodological challenges need to be addressed. These refer not only to the definition of the “right price” – which implies the proper, spatially-explicit assessment of the opportunity costs of forgone land uses as well as of the transaction costs associated with the adoption of REDD measures – but also the crea-

tion of a market in which REDD-credits can be sold and the capacity to accurately verify emission reductions. In addition, as for any PES, for REDD to become an attractive investment opportunity for land managers, constant long-term financing for the service delivery has to be ensured. This requires not only the establishment of adequately designed and consequently enforced institutions at international level, but also at the local level (in potential REDD-service providing countries) where weak governance structures may present significant additional challenges as had become evident in past deforestation reduction efforts. This section presents some of the key technical issues in the debate on REDD such as the establishment of baselines, leakages, and natural or accidental deforestation.

- Baselines show emission trends that would occur if no action was taken. Sometimes also referred to as “business as usual” scenario, baselines are counterfactual scenarios that, from a positive angle of view, help determine the magnitude of the necessary effort to achieve compensation for emission reductions. The debate consists of whether baselines should be based on past (historic) deforestation trends or on future projections of deforestation. If baselines base on historical trends, there is a risk of creating adverse incentives by over-compensating countries with high past deforestation rates while penalizing those that have already taken action to reduce deforestation, or those presenting low past deforestation rates but strong economic and population growth pressures. In addition, establishing historical baselines is difficult because of yearly variations in deforestation and a lack of reliable historical data in some countries (Karsenty 2007). For these reasons, some propose the use of projected baselines (e.g. Chomitz *et al.* 2006) in which the current deforestation drivers and their projected impact (e.g. upon projected developments of relevant commodity markets) is taken into account. Yet calculating baselines based on future projections is also difficult and lacks accuracy given the uncertainty regarding the evolution of direct and indirect causes of deforestation – e.g. the evolution of agricultural commodity prices, of biofuel markets, timber goods, etc. Finally, there is a risk of rewarding ‘fake’ emission reductions by projecting large deforestation rates or integrating large development adjustment factors for countries with high economic and demographic growth pressures (Karsenty and Pirard *forth.*). However, despite legitimate concern regarding the calculation of baselines for REDD (e.g. Karsenty

2007, Karsenty and Pirard forth.), one may also argue that the establishment of any baseline is difficult – although certainly very complex for REDD – but that this shouldn't result in inaction. On the contrary, one may consider an approach that, based on the precautionary principle, seeks to use the currently available methods in the best possible way while recognizing the associated uncertainties.⁷

■ **Monitoring.** Accurately estimating carbon emissions reductions from the forestry sector is more difficult than for energy-based activities. This is because mitigation estimates vary significantly according to the specific characteristics of the natural ecosystem, the underlying assumptions associated with the baseline calculation, and the quality of available data (IPCC 2007). In addition, forests also emit GHG, especially methane, (Keppler *et al.* 2006) which requires the calculation of the net carbon benefits from forests. Still, considerable progress in data acquisition and tools for the estimation of deforestation and forest degradation through field studies and remote sensing has been made in many developing countries, especially in Brazil and Indonesia (DeFries *et al.* 2007, Kintisch 2007, Chomitz *et al.* 2006).

■ **Additionality** consists of ensuring that projects will result in emission reductions that would not have been achieved in the absence of the project. For example, financial resources are allocated less efficiently if REDD projects were financed in areas with already low rates of deforestation where the additionality would be minor. On the contrary, financing REDD in tropical forest frontiers most vulnerable to deforestation, and where deforestation rates are highest, may limit access to inner forest and thus increase additionality (but also the costs since the opportunity costs may be higher in frontier areas compared to non-frontier zones).

■ **Risk of non-permanence.** Carbon removal and carbon storage from land-use is potentially non-permanent. Deforestation and degradation can take place at any moment in time (due to natural phenomena or human activity) which reverses carbon emission reductions by releasing formerly removed and stocked GHG emissions into the atmosphere. Still, even short-term sequestration of carbon can be valuable and it helps to buy time for the adoption of alternative and more permanent emission reduction measures (Chomitz *et al.* 2006). This notion is supported by the concept of temporary and long-term Certified Emissions Reductions (tCERs and ICERs), applied in the context of reforestation/affor-

estation CDM projects and which could also be explored for the case of REDD. Moreover, the periods of compliance assessment could be extended such that all fluctuations can be averaged and a reserve pool of about 20% of emissions could be created allowing for unplanned losses – similar to arrangements at the Chicago Climate Exchange to account for Forestry Carbon Emission Offsets (Stern 2006). However, one may also argue that the risk of permanence is not an issue in the context of REDD as the focus lies on the reduction of emissions (i.e. *flows*), rather than the increase of carbon sinks (i.e. *stocks*). In other words, if REDD is viewed as mean to reduce overall emission *flows*, the reduction of deforestation-related emissions is per definition permanent – similar to emission reductions from the fossil energy sector.⁸

■ **Leakage.** This refers to the situation in which the addressed problem is relocated, both in space and time, but not solved. For example, reducing deforestation-related emissions in one area may result in a spatial displacement of the deforestation activity to another area without, in aggregate, actually solving it. Leakage may also occur when a project's output creates new incentives to increase GHG emissions elsewhere, at a different moment in time. One proposition to overcome or prevent such leakage is to cover sufficiently large areas. This suggests, for the case of REDD, to adopt a large-scale approach, rather than a project-level approach (as for CDM), to thus reduce the risk of leakage. National scale of action for example solves for leakages at least within one country, yet not at international level. To address international leakage, a large international or continental participation in REDD schemes would be required.

■ **Price.** Finally, the impact of REDD in climate change mitigation will depend on the price paid. Sohngen and Sedjo (2006) for example estimated the carbon gained through REDD by 2055 over the reference case showing how carbon benefits vary under alternative price scenarios (Figure 3). The ultimate price however is largely the result of existing demand and supply. From the supply side, for the price to be an incentive for REDD, it must at least cover the opportunity costs of forgone land uses, as well as the associated transaction costs to adhere to REDD systems. From the demand side, the willingness to pay for REDD credits will largely depend on the amount of abated GHG emissions and the degree to which REDD can help respond to comply with emission reduction commitments.

Initial experiences with REDD

Although so far excluded from the official carbon markets, several activities involving REDD are already taking place. These can provide with valuable insights on how technical and political obstacles can be approached and how a REDD mechanism could be designed. This section presents important initial efforts exploring REDD in practice.

The Noël Kempff Climate Action Project in Bolivia

The Noël Kempff Climate Action Project was probably the very first REDD experience. It started in 1997 as response to timber harvesting and deforestation threats in tropical forest areas adjacent to the Noël Kempff Mercado National Park in northeastern Bolivia.⁹ It was created upon the initiative of the Bolivian Government and its National Program of Climate Change by a local non-governmental organization called Fundación Amigos de la Naturaleza (FAN), and the American non-governmental organization The Nature Conservancy (TNC). Funding was provided by three American energy companies.

To implement the idea, the project stopped forest exploitation activities (logging, and slash and burn practices) and extended the original limits of the park by incorporating an addition-

al forest area of 832,000 ha. Upon the assessment of carbon stocks and associated emission reductions¹⁰, Noël Kempff became the first deforestation-related emissions reduction project in November 2005, fully and rigorously certified following CDM-like practice (UNFCCC, FCCC/SBSTA/2006/MISC.5).

The Noël Kempff project provides valuable insights in many aspects. It set not only an example of how carbon stocked in forests and emission reductions from deforestation can be quantified, monitored, and certified, but also how additionality, permanence, and leakage issues can be addressed (UNFCCC, FCCC/SBSTA/2006/MISC.5). Today, it presents the most advanced experience in terms of satellite and biomass measurement technologies which has inspired many similar projects elsewhere.

The BioCarbon Fund

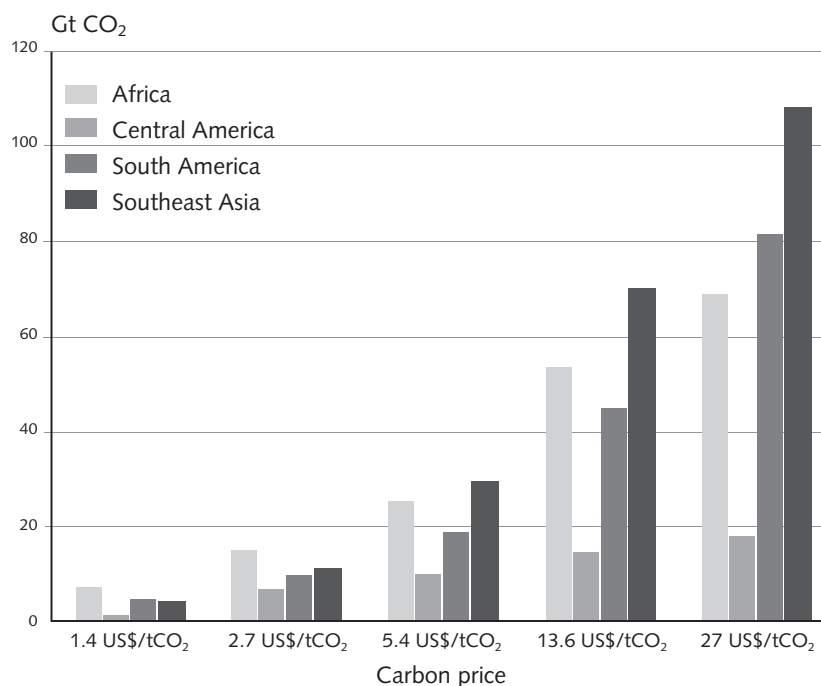
The BioCarbon Fund started in 2004 as a fund dedicated to the forest sector only. Managed by the World Bank, the fund seeks to strengthen forests as part of the Clean Development Mechanism (CDM) and of carbon markets in general, and to develop and apply methodologies to overcome technical obstacles regarding forestry projects. Another goal of the BioCarbon Fund consisted in the creation of opportunities for the participation of Sub-Saharan Africa. In 2005, 36% of the Fund's total project value was located in Sub Saharan Africa (Gardette and Locatelli 2007).¹¹

The BioCarbon fund has two windows: the first works on A/R CDM eligible projects; the second on RED projects. Examples of projects taken by the second window are: Pico Bonito in Honduras, the San Nicolas project in Colombia, the Andasibe Mantadia project in Madagascar, and the Rio Blanco project in Dominican Republic (Gardette and Locatelli 2007). While the investment fund for the first window received contributions from investors (governments or private firms) in exchange for emission reduction credits, the second window has only been funded by the French Development Agency (AFD) and the Japanese company TEPCO.

The BioCarbon Fund is considered as great learning experience. Although its role was limited to the identification of projects and the purchase of attained emission reductions, the fund made important initial investments to support a project's set up including methodological support. In turn, four of the seven CDM A/R methodologies actually originated from BioCarbon Fund experience. Prices for emissions are in the range of US\$ 3-4.5 per tCO₂ sequestered until 2017. The Fund is now working on

FIGURE 3

Forest carbon benefits under alternative price scenarios, by region (Sohngen and Sedjo 2006)



methodologies that allow for precise baseline definitions, leakage accounting, and emission reduction calculation that may eventually also enrich debates on methodological issues concerning REDD (Gardette and Locatelli 2007).

The Forest Carbon Partnership Facility (FCPF)

The Forest Carbon Partnership Facility is a framework specialized on REDD, administered by the World Bank, and expected to be launched officially in December 2007. The initiative against deforestation in developing countries dates from the G8 Gleneagles summit in 2005. The long-term objective of the FCPF, in addition to climate change mitigation, is to also introduce other payments for ecosystem services such as biodiversity and watershed protection and to develop instruments and methodologies that can enrich the UNFCCC.

The Facility will have two lines of action. The first line consists in a 'readiness mechanism' that would initially prepare 10 to 15 (then 20 to 30) countries to access the facility and thus to benefit from financial compensations for REDD. The preparation bases primarily on capacity building on the definition of baselines and monitoring of deforestation-related emissions. The second line consists in a 'carbon finance mechanism' where emission reductions in 3-5 countries would be compensated by non-Kyoto carbon credits (Emission Reductions Agreement), guaranteed by the World Bank and issued after the delivery of emissions reductions, i.e. ex-post, over a period of 10 years. While the ultimate design of the facility is still ongoing the start-up funding will be in the order of \$250 million from both public and private donors: \$50 million for the readiness mechanism; \$200 million for the purchase of REDD credits (World Bank – Carbon Finance Unit 2007).

Other voluntary carbon markets

Voluntary carbon markets, also referred as compensation markets, are not linked to official emissions reductions commitments such as defined by Kyoto Protocol or the EU-ETS. Instead, they allow firms or individuals to voluntarily buy emission reductions to compensate or neutralize their impact on climate change for ethical or PR purposes. Prior to any sale, these deforestation-related emission reductions are verified according to international standards. REDD projects, including the Noël Kempf project and projects of the BioCarbon Fund-Windows 2, generate emission reductions that can be sold to voluntary buyers for example via the Chicago Carbon Exchange.

Voluntary carbon markets are more flexible regarding eligibility criteria, localization of projects and type of activities. They accept carbon credits resulting from projects that are non eligible for CDM, and are usually associated with lower transaction costs enabling small-scale projects with a variety of ancillary benefits to occur more easily. Even if the transaction volume of voluntary markets is relatively low, they are expanding rapidly (Bayon *et al.* 2007). About 56% of the nearly 9 million credits in these markets correspond to the land-use, land-use change and forestry sector (Gardette and Locatelli 2007). However, credibility is at stake when there are no well-defined standards or a control organism certifying the quality of credits in terms of additionality, accountability of measures, permanence, and transparency. This is why non-governmental organizations seek to fix standards for voluntary carbon credits, including those from forests. Examples of such standards include The World Economic Forum Global Greenhouse Register (WEF) and the Climate Community and Biodiversity (CCB) specialized in forestry projects (Gardette and Locatelli 2007).

Main proposals for REDD

Although there is an increasing literature on how future climate policies could be designed to effectively account for REDD (e.g. Schlamdinger *et al.* 2007, Benndorf *et al.* 2007, Skutsch *et al.* 2007, Karousakis 2007), the ultimate decision will also largely be shaped by political reasoning. In negotiations such as within the UNFCCC, parties will take the decisions that ultimately define whether and how REDD is included in climate policy actions.

As part of the technical review initiated by the UNFCCC to explore the idea of REDD, two workshops were held – one in Rome in August/September 2006, and one in Cairns in March 2007. In total about 20 proposals or country views were submitted to the UNFCCC. This section focuses on the four main country positions and elaborates the differences among them.¹²

Papua New-Guinea («PNG») proposal

The submission of this proposal, also referred to as the "PNG proposal", represented the views from Bolivia, Costa Rica, Nicaragua, and Papua New Guinea. It was also supported by the governments of the Central African Republic, the Dominican Republic, and the Solomon Islands. It was presented on behalf of the Coalition of Rainforest Nations (CfRN) which

is composed of several other countries that did not take part in this proposal. At the same time Bolivia and Costa Rica presented a proposal of their own. In February 2007, the CfrN presented another proposal supported by 17 countries, Dominican Republic, Vanuatu, and Tuvalu also presented their own proposal (Gardette and Locatelli 2007)

The PNG proposal supports the idea of financing REDD¹³ via a market-based mechanism, either by integrating REDD credits into existing carbon markets, or creating a parallel market for this purpose. It promotes the development of a mechanism that allows for carbon emissions saved by reducing deforestation and degradation in developing countries to be traded internationally. The carbon credits issued from REDD would be tradable as mean to attain Annex I countries reduction commitments, similar to CDM Certified Emission Reductions (CERs).¹⁴ Early action (of reducing emissions from deforestation) during the period 2008-2012 is mentioned as potentially creditable within post-2012 frameworks. However, while the proposal argues in favor of implementing the mechanism within the UNFCCC framework, it is not clear whether the proposed mechanism should be integrated under a separate protocol or under the post-2012 Kyoto regime.

Baselines would be established by each country on a national basis and voluntary reduction commitments would be negotiated for fixed commitment periods. Action and measurements would be done at a national-level (thus reducing leakage at sub-national level). At the end of each period, verified national emission reductions could be sold to other governments or to international carbon investors.

To account for each country's economic growth context, the PNG proposal considers the integration of a 'development adjustment factor' (DAF) or 'growth cap' in the definition of baselines. This growth cap basically allows for certain amount of deforestation to occur for the purpose of a country's socio-economic development.

In order to control for non-permanence risks, a share of carbon credits (for example 20%) would be banked to compensate for potential future losses. These losses may be due to natural or accidental deforestation, or simply because emission reduction targets were not met.

Finally, two complementary funds are proposed. A "stabilization fund" to support developing countries with historically low deforestation rates seeking to stabilize their existing forest areas, and an "enabling fund" to prepare countries for a participation in the REDD mechanism and in the stabilization fund. The

latter would focus on building capacity so that countries can effectively implement the other two mechanisms.

Several ideas are presented concerning the sources of funding for the stabilization funds including taxation of Emission Reduction Units traded in Kyoto markets, taxation of carbon intensive commodities and services, taxation of industries excluded from emission reduction policies, or (ODA) (FCCC/SBSTA/2007/MISC.2). Specifically, the proposal is in favor of ODA to finance readiness and pilot activities during the period up to 2012.

In their latest submission in August 2007, the proposal reminds of the urgency to move forward on REDD as climate change response measure, emphasizes the potential ancillary environmental and social benefits, and calls for the development of methodological guidelines to facilitate rapid implementation of incentive frameworks in both during the 2008-2012 phase and beyond (UNFCCC/FCCC/SBSTA/2007/MISC.14, 2007).

Brazilian proposal

Although Brazil was initially opposed to the integration of deforestation to the Kyoto Protocol (at COP-7 in Marrakech 2001), it presented a proposal in Rome in September 2006 and in Cairns in March 2007. This proposal has generated a considerable amount of debate as it distinguishes itself in several relevant points from the PNG proposal.

Brazil proposes to offer positive financial incentives to countries' that voluntarily engage to reduce emissions from deforestation. Important to note is that Brazil opposes the inclusion of emission reductions from forest degradation, i.e. focus on reducing emissions from deforestation (RED) only.

It further argues in favor of a scheme embedded in the context of the UNFCCC, but outside Kyoto that, contrary to the PNG proposal, would not generate future obligations and would not account for Annex I countries emission reduction commitments. Credits issued from RED would be part of a separate protocol which would not rely on market-based mechanisms for their financing but on multilateral voluntary funds or ODA.

Baselines would be defined according to historical deforestation rates, and would be periodically updated (baselines would be based on deforestation rates on the decade before the start of the commitment period and they would be updated every three years). Standard values of carbon per hectare would be established so that emission reductions can be com-

pared periodically to a reference level. In this way, countries would gain credits or debits, deducted from future incentives, according to achieved emission reductions. In other words, emission reductions that could not be attained will be carried on to subsequent commitment periods.

Finance of RED should be additional, provided voluntarily by Annex I countries and transfers would be performance-based, ex-post. Brazil recognizes the need to finance capacity building and technology transfers and of a continuous investment to sustain RED efforts. Resources for capacity building should come from multilateral institutions and voluntary donors in Annex I countries (FCCC/SBSTA/2007/MISC.2).

Congo basin countries (COMIFAC) proposal

The submission of this proposal was presented by the Congo basin countries together as the Commission of Central African Forests (COMIFAC). COMIFAC is in charge of common actions for sustainable forest management. It is supported by the Congo Basin Forest Partnership (CBFP), and by a set of donors including multilateral organisms, non-governmental organizations, and private sector representatives. The members of the COMIFAC are Equatorial Guinea, Democratic Republic of Congo, Central African Republic, Gabon, Congo, Cameroon, Sao Tome and Principe, Burundi, Rwanda, and Chad. Four of its members are also in the Coalition of Rainforest Nations (CfRN).

The particularity here is the emphasis on the need to extend compensations for emission reductions from tropical deforestation to also consider emissions reductions from forest degradation. The reason therefore bases on the fact that degradation constitutes the main driver of forest cover loss, likely to affect nearly 60% of productive lands in the Congo Basin, while on the same time, Congo Basin countries have dedicated significant efforts to ensuring the conservation and sustainable management of forest ecosystem, and thereby contributed to the reduction of emissions from forest degradation. Countries of the Congo Basin therefore think that degradation-related emission abatement should be considered in future climate regime (UNFCCC/FCCC/SBSTA/2007/MISC.14, 2007).

Compensations would be financed by a mixed mechanism combining voluntary funds with REDD carbon market credits. Two further funds are proposed: an 'activation fund' to finance institutional capacity building and readiness activities, and a 'stabilization fund' to remunerate forest carbon stocks.

With respect to baselines, the proposal underlines that baselines based on historical trends would strongly penalize Congo Basin countries with low deforestation rates in the past. They therefore argue in favor of a reference scenario that, in addition to historical baselines, include a 'development adjustment factor', so that future forest exploitation development needs can be met in countries with low emissions per capita and low economic development.

Regarding the scale of action, Congo Basin countries emphasize the need to be open-minded and allow for national and project-level approach depending on national circumstances. Finally, the COMIFAC proposal states that early REDD action should be rewarded and implemented to gain more experience on the design of such schemes (FCCC/SBSTA/2007/MISC.2).

Latin American countries proposal

Ten Latin American countries submitted two proposals to the UNFCCC in March 2006 in Rome, and a final one in 2007.¹⁵ In their submissions, the need to consider emissions from forest degradation is acknowledged as well as the stabilization of carbon pools. The need of adequate, predictable and long-term sources of funding is further recognized, together with the need to offer a basket of policy options adapting to each country's deforestation dynamics and capacities. Reference scenarios are proposed to base on historical trends including a 'development adjustment factor'.

In terms of financing, Latin American countries acknowledge the limitation of traditional funding to ensure long-term finance of emission reductions from deforestation and are favorable to a market mechanism rewarding REDD during the second commitment period of the Kyoto Protocol, and to the integration of REDD carbon credits into the Kyoto framework. Early action crediting for future commitment periods is also stressed. In addition, the implementation of an enabling fund, financed through voluntary funds or ODA, is suggested to initiate early action and pilot activities. An additional stabilizing fund, financed through taxes on Emission Reduction Units or on carbon intense goods and services in Annex I countries, is also proposed (FCCC/SBSTA/2007/MISC.2).

Some countries such as Bolivia and Ecuador stress the need to recognize project level action within the national-level approach as mean to overcome institutional and governance shortcomings that could threaten the effective functioning of a REDD mechanism. In this case, compensation for REDD would be made from either voluntary funds or carbon markets, or

both, and distributed to national governments in charge of directly compensating land-owners for the environmental service provided proposed (FCCC/SBSTA/2007/MISC.2).

Other perspectives

Numerous countries have submitted their view on REDD, mostly supporting the idea of REDD. As mentioned before, our analysis focuses on the main four proposals from topical countries. Still, some elements of other country perspectives are also worthwhile to mention.

India and China for example share the view that a REDD mechanism would only favor countries with high deforestation rates, setting up adverse incentives including the risk of international leakage. In their view, as first proposed by India in Cairns 2007 and jointly since the SBSTA26 meeting in Bonn 2007, an additional mechanism of “compensated conservation” may be appropriate to allow countries that have implemented strong conservation measures (or reforestation policies) to be compensated for their efforts and thus inducing the preservation existing forest carbon pools (UNFCCC/FCCC/SBSTA/2007/MISC.2, UNFCCC/FCCC/SBSTA/2007/MISC.14). The position of these two powerful actors is extremely relevant and very likely to induce a REDD system that also compensates low deforestation rates.

The European Union (EU) has actively participated in negotiations, but mainly as mediator. In their submission in February 2007, the EU recognizes that REDD is a key element in the post-2012 agreement to halt emissions caused by deforestation and reverse them in the next two decades, although concrete actions and policies would largely depend on the development of the negotiations. The EU is in favour of an incentive-based approach, including the carbon market, yet silent on the exact role that the carbon market should play – largely because it fears that linking REDD credits to the carbon market could over-supply the market and thus lower the carbon price, especially in the EU-ETS. At this stage, the EU is supportive of the aforementioned Forest Carbon Partnership Facility, and considers option for FCPF funding, with a clear preference for the “readiness mechanism”. The EU is further considering a preparatory scheme in the period up to 2012 to explore approaches combining national action and international support including assessment of national implementation of policies to combat deforestation, activities to improve the monitoring and reporting capacity, baseline definition and positive incentives to encourage countries to take actions (UNFCCC/FCCC/

SBSTA/2007/MISC.2, 2007). The view of European countries on this issue is relevant as they present important potential buyers of REDD-credits. Indeed, the integration forest carbon (from afforestation and reforestation CDM projects) into future commitment periods of the EU-ETS is currently being discussed. In addition, the EU considers more ambitious emission reduction targets provided that developing countries also show a certain level of commitment, notably in reducing emissions from deforestation (EU 2007).

Interestingly, Indonesia has so far remained rather silent – at least in the UNFCCC debate on REDD. Still, there are increasing signs that Indonesia is actively looking into REDD and exploring its potential to complement ongoing international and national policies (Government of Indonesia 2007; Reuters, 29 June 2007). In addition, since the country will be hosting the upcoming COP-13 in Bali, which among negotiators is already termed as the “REDD COP”, one can be confident that Indonesia will be taking part in the discussions, at the latest in Bali.

Table 2 depicts the main elements of the different proposals presented in this chapter. Not surprisingly, the main actors involved in the RED/REDD debate are the concerned developing countries containing parts of the world largest tropical forest biomes, i.e. Africa and Latin America. The next section will discuss some of the key issues in the debate.

Discussion: open questions in the international debate on REDD

As the UNFCCC induced examination process on REDD is taking place, significant progress has been made regarding several methodological challenges and an agreement has been reached over several points throughout the different proposals that have been submitted after Montreal. For example, there is consensus on the need for pilot activities, capacity building and the need for continuous, predictable and long-term funding for REDD. In addition, an agreement on the importance tropical forest degradation abatement as means to reduce GHG emissions was reached in Bonn in 2007 (FCCC/SBSTA/2007/L.10). Agreement has been reached further on the existence of appropriate and consistent methodologies to evaluate REDD as well as on the fact that REDD activities will not issue carbon credits for the first Kyoto commitment period (UNFCCC/FCCC/SBSTA/2007/3, 17 April 2007). The need to take into account different national situations and

deforestation drivers and levels to successfully integrate developing countries was also recognized by most parties to the conference (FCCC/SBSTA/2007/L.10, 17 May 2007).

Yet there also remain several points of disagreement which reflect the controversy of the debate and the challenge to accommodate the interests of all parties. While there seems to be coherence among the proposals by COMIFAC, the PNG/Rainforest Coalition, and the Latin American countries¹⁶, Brazil's position, at least within the official negotiations, appears to be the most contrasting.¹⁷ The main differences refer to the financing system, the appropriate framework, and whether or not to also consider emission reductions from degradation. This section will address selected open questions in the REDD debate.

Financing REDD through mandatory markets or voluntary funds?

Probably one of the key questions in the international debate on REDD is the issue of

how to finance REDD. Most parties to the UNFCCC support in principle the idea of using a mandatory market approach to finance REDD. Mandatory markets, such as the European ETS, are often preferred because they would assure long-term, continuous, and predictable flows of finance for REDD projects contrary to voluntary funds. However, if REDD finance via mandatory markets refers to a direct connection of REDD into existing carbon markets, one has to consider that the potential arrival of cheap REDD credits may ultimately undermine the price signal function (i.e. investors may prefer to pay for REDD credits rather than investing in more expensive clean technologies) which in the end may even be counterproductive and destabilize the entire system. In addition, REDD finance via mandatory markets may require more robust carbon accounting systems, higher performance requirements and higher carbon prices per ton compared to voluntary markets (UNFCCC, FCCC/SBSTA/2007/L.10). Especially countries with weak legal, institutional and governance structures may not nec-

TABLE 2

Overview of the main proposals on REDD (Source: adapted from Dutschke and Wolf, 2007)

| Most relevant proposals | | | | | Other important actors and their positions | | |
|-------------------------------|--|--|---|--|--|--------------------------|--|
| | Papua New Guinea (Rainforest Coalition) | Brazil | Central Africa (Comifac) | Latin American countries | Indonesia | India/China | European Union |
| Scope | Deforestation and Degradation | Deforestation | Deforestation and Degradation | Deforestation and Degradation | Deforestation and Degradation | Compensated Conservation | Deforestation and Degradation |
| Framework | Open, preferably within Kyoto | Separate Protocol, but within UNFCCC | open | Kyoto Protocol | Open, favors Kyoto | Kyoto Protocol, UNFCCC | Open, but deforestation will play a role in post-Kyoto arrangement |
| Reference Level ¹⁸ | Historical with a development adjustment factor | Strictly Historical (about 10 years) ¹⁹ | Historical (> 5 years) with a development adjustment factor | Historical (> 5 years) with a development adjustment factor and taking past efforts into account | Historical and present circumstances | Historical | Open |
| Liability | Banking and Borrowing ²⁰ | Commitments transferred to subsequent periods | | | | | Mixed ²¹ |
| Finance | Market-based ²² | Voluntary fund | Mixed financing, market and fund based | Mixed financing: market and fund based | Market-based | | Favors incentive-based financial mechanism, supports FCPF |
| Fungibility | Tradable credits for Annex I countries' reductions | No, REDD credits are non-substitutable for Annex I countries' reductions | Tradable credits for Annex I countries' reductions | Tradable credits for Annex I countries' reductions | | | |
| Price formation | Open | Fixed Price per tCO ₂ (periodically reviewed) | | | | | |
| Early Action | Compensated | Compensated | Compensated | Compensated | | Compensated | Compensated |
| Additional funds | Stabilization and enabling funds | Capacity building and technology transfer | Stabilization and enabling funds | Stabilization and enabling funds | | | |
| Spatial Scale | National | National | Open: national or local, depending on country circumstances | Open: national, local or sectors-specific, depending on country circumstances | National | National | Open |

essarily be in the position to assure long-term compliance with the requirements of a mandatory market mechanism.

Voluntary markets or funds are discussed as alternative means to finance REDD (e.g. Bayon *et al.* 2007). One advantage of specialized funds is that they are not limited to account for “carbon tons” but can use other measurement units such as “per ha” (Stern 2006). Sources of funding are seen in voluntary private sector engagement, Official Development Assistance (ODA) or tax revenues such as proposed by some countries suggesting the taxation of carbon market transactions or carbon intensive sectors in Annex I countries. However, while long-term specialized deforestation funds can present certain advantages as they allow for more targeted action at lower costs, they may not be able to generate sufficient and sustainable flows of resources (Stern 2006). ODA for instance has progressively decreasing trends, especially with regard to assistance for forestry action (El Lakani *et al.* 2007). This suggests that relying on such aids and multilateral funds only is unrealistic in the long run.

Whether mandatory markets or voluntary funds, one may also argue that any scheme allowing REDD finance in the tropics would be beneficial for the global climate, and the most promising way seems to be a combination of both. Mandatory markets seem to be the best way to effectively provide continuous and sustained financial flows assuring permanence of efforts. However, for the aforementioned risks, REDD finance may not rely solely on the existing carbon markets, at least not in the short run, and probably only in a highly regulated manner in the longer run. The question is then whether a mandatory parallel market – inside or outside the Kyoto Protocol – for REDD can be created that ensures sufficient demand to effectively induce emission reductions from deforestation and degradation (see discussion below). The alternative to mandatory markets, voluntary funds and ODA, can hardly present a long-term solution to ensure constant REDD finance but are especially adequate for financing early REDD action and pilot activities or stabilization funds such as proposed by COMIFAC and Latin American countries. Most parties agree on these principles, except for Brazil which currently prefers fund-based long-term REDD finance. However, Brazil’s position is relevant since it is a powerful stakeholder in the debate and its participation in a REDD system is crucial as it belongs to the nations with the highest rates of tropical deforestation. One avenue to overcome the disagreement on long-term REDD finance may consist

in a global fund as intermediary between buyers and providers of REDD credits (similar as in many systems of payments for ecosystem services). The so generated REDD credits may be used by Annex I countries to comply with Kyoto commitments, yet only in a highly regulated manner (e.g. proportion of emission reduction commitment, similar to current forestry CDM credits). In essence, this avenue corresponds to the idea of the Forest Carbon Partnership Fund. Although not necessarily the first-best solution from an economic perspective, REDD finance via voluntary funds appears to be among the currently more feasible political solutions.

Implementing REDD inside or outside the post-2012 Kyoto framework?

The debate on how to finance REDD will largely define the institutional framework in which a future REDD mechanism is embedded. While voluntary markets – with potential links to mandatory carbon markets – are always an option to finance REDD, politically institutionalized platforms or markets in connection with binding commitments such as in the case of the Kyoto Protocol or the European ETS, may result in greater impacts. This is why advocates of REDD tend to argue in favor of exploring ways to incorporate REDD into an official commitment (e.g. Chomitz *et al.* 2006).

There seems to exist a consensus on placing REDD within the framework of the UNFCCC, but there is a large discussion whether this implies its integration into the existing Kyoto Protocol (i.e. in the post-2012 arrangement periods) or into a separate Protocol. This is a crucial question since the way REDD is instituted at the international level affects the level of commitment of participating countries – or potentially both the demand side (Annex I or equivalent countries group) and supply side (forest rich tropical countries).

The main arguments put forward in favor of integrating REDD into future commitment periods of the Kyoto Protocol are of pragmatic nature referring to the already existing framework and demand for carbon credits. This argument is supported by the perception that the creation of an independent protocol for REDD may face the risk of insufficient demand and unfeasibility as the creation of such a separate protocol for the forest sector will take too long to be agreed and implemented (e.g. Dutschke and Wolf 2007). Indeed, the creation of an international regime for forests (e.g. UNFF) with binding commitments has remained an unsolved endeavor since Rio 1992.

Skeptics of integrating REDD into the post-2012 Kyoto regime however fear that such an integration may weaken the entire system. Reasons therefore include the tedious negotiation process prior to the establishment of the Kyoto Protocol, and more importantly the fear that the arrival of cheap forest carbon credits (from REDD) on mandatory carbon markets may lower the carbon price and thus discourage actions towards climate change mitigation. Although this fear can be counterbalanced by the argument that for the carbon price to remain strong and stable under the integration of REDD, it is necessary to assure a sufficiently high demand, e.g. by adopting more ambitious emission reduction targets (Chomitz *et al.* 2006, Stern 2006), this issue remains of concern especially for potential buyers (Annex I countries) such as European Unions.

The establishment of parallel markets may be one way to include REDD into the existing Kyoto Protocol without threatening the current Kyoto carbon market regime. Ogonowski *et al.* (2007) for example argue in favor of a 'dual markets approach' for the post-2012 Kyoto regime in which a new market for REDD would exist in parallel to global carbon market with only partial fungibility between the two. In this constellation, developed countries would commit a percentage of their post-2012 target to come from the REDD market. This, so the authors, reduces the risks of disruption of the post-2012 global carbon market while allowing for the development of a new parallel market which, once mature, may be connected more directly to the carbon market. However, although attractive in theory, it should be acknowledged that in practice, one cannot control for every circumstance. So even in supposedly non-fungible parallel markets, some clever traders may find ways to arbitrage the two which brings back the risks and fears associated with the direct integration of REDD into the existing carbon market. Acknowledging this eventuality, motivates the argument that rather than allocating time and money to designing complex parallel market systems, one may want to focus right away on how to limit the risks of adverse effects associated with a direct integration into existing Kyoto carbon markets.

An alternative design may consist in separate arrangement or protocol for REDD. The attractiveness of a separate protocol lies in its disconnection to Kyoto-specific commitments which may increase the political acceptance of crucial stakeholders in the debate, notably the European Union and Brazil. It may also allow for greater coherence with other actions that may interact with REDD measures such as the

promotion of agro-fuels and sustainable agriculture. A separate protocol for REDD may also be seen as a chance to overcome obstacles that have long prevented binding agreements within an international forest regime (e.g. UNFF). Yet, the important arguments in favor of a separate protocol should not lead to an underestimation of the aforementioned challenges of ensuring constant long-term REDD finance and of potentially substantial transaction costs (in terms of time and money) associated with the establishment of a separate protocol.

In the end it seems more important to recognize the relevance of REDD in the global efforts to combat climate change and to adopt a pragmatic approach to establishing a REDD system. Whether this means the integration of REDD into the future Kyoto framework, either directly or via a parallel market, or the establishment of a separate protocol will ultimately remain a political decision. Still, what seems clear is that the post-2012 climate regime won't be able to ignore the role of deforestation related emissions. This recognition has been accompanied by the increasing request that the post-2012 discussion should go beyond the notion of "north-south" compensations. Instead, following the principle of common but mutually differentiated responsibilities, it is being suggested that also developing countries, especially emerging countries, agree to progressively adopt their ambitious emission reduction targets (e.g. Colombier *et al.* 2006). This could occur in the form of a "global deal", as suggested by Stern and Tubiana (2007), in which tropical forest countries, especially emerging countries, agree to their own emission reduction efforts – via REDD and under consideration of their national circumstances – while developed countries agree to significantly support and finance these effort. Such a "global deal" is even expected to help overcome some of the issues that currently hinder developed countries to advance in the post-Kyoto debate (Stern and Tubiana 2007), and at least the European Union seems adhering to the idea of a global participation in emission reduction efforts (e.g. EU 2007). Although politically ambitious, such a "global deal" may even help to overcome some of the obstacles that currently prevent an agreement on whether or not integrate REDD into a future climate regime.

How to establish the reference levels (baselines)?

In the views expressed by the parties to the UNFCCC, there seems to be a preference for strictly historical baselines. However, histori-

cal baselines may be unfair in cases where low deforestation rates or significant forest conservation efforts have occurred in the past. Therefore, some countries – including Costa Rica, China and India – defend the position that past efforts to reduce deforestation should be taken into account when drawing baselines to thus account for past conservation efforts. Indeed, leaving out countries with low deforestation rates from REDD finance may provoke international leakage: deforestation activity may be displaced from countries with currently high deforestation rates to countries with currently low deforestation rates i.e. induce new deforestation and associated emissions in these countries. One solution to this problem may consist in the use of reference emission rate indexed to the global deforestation rate for countries with little or no historic deforestation (Mollicone *et al.* 2007) and the establishment of “preventive credits” for countries with high forest cover and low deforestation rates to be compensated for not releasing emissions from new deforestation (Fonseca *et al.* 2007).

To allow for future deforestation for development purposes, the COMIFAC and Latin American countries, the Rainforest Coalition and the European Union agree on an additional adjustment factor or ‘growth cap’. Adding a growth cap to the reference scenario may only allow to take into account national development objectives, but also respond to the UNFCCC principle of ‘common but differentiated responsibility’ in the efforts to mitigate climate change. On a practical level, to account for diverse national circumstances, including differing levels of development, the introduction of separate targets for separate sectors has been suggested including a ‘no-lose’ target whereby emission allowances can be sold only if the target is reached (IPCC 2007). No-lose targets may also be attractive from the perspective of potential buyers (Annex I countries), since it assures preceding efforts by developing countries to reduce emissions from deforestation.

Include or not emissions from forest degradation?

The idea of integrating ‘emission reductions from degradation’ has been introduced by African countries (COMIFAC proposal). Central Africa is the third most important tropical forest biome in the world and it has so far been threatened more by degradation rather than deforestation. Although recent studies indicate that deforestation may become a considerable threat to Central African forests in the future

(e.g. Laporte *et al.* 2007), forest degradation is estimated to threaten about 60% of the productive lands in the Congo Basin (UNFCCC/FCCC/SBSTA/2007/MISC.14, 2007).

Emissions from forest degradation are now recognized as important contributor to climate change that matter not only in Africa, but also in Latin America and South-East Asia. Asner *et al.* (2005) for example find that degradation from selective logging adds 25% to the gross emissions in the Brazilian Amazon. In turn, compensating emission reductions from degradation is efficient for two reasons: firstly to contribute to greater GHG emission reductions than could be achieved with deforestation-related emission abatement only, and secondly, to avoid providing adverse incentives by encouraging deforestation in forest areas that are primarily threatened by degradation (or where substantial efforts in sustainable forest management, SFM, have occurred to combat degradation), to thus benefit from RED finance. In addition, and despite some critical voices (e.g. Griffiths 2007), REDD finance could also provide new economic opportunities to local land users and thus entail social co-benefits including poverty reduction. Indonesia for example has expressed special interest in exploring the opportunities of REDD for poverty reduction (Reuters, 29 June 2007).

Hence although initially received hesitantly, mainly for methodological reasons, there is now a political agreement among the parties to the UNFCCC on the efficiency argument to also consider emission abatement from forest degradation (FCCC/SBSTA/2007/L.10). Indeed, unless for technical difficulties, there remains no reason for not recognizing emission reductions from forest degradation as climate change response measure.

Implementing REDD efforts at local or national scale?

Whether REDD finance should be established at a national or at a project scale is subject of debate, and both ways are explored. National-level approaches are preferred to facilitate monitoring of emission reductions and reduce the risk of leakage. Most proposals agree in this point although several Latin American countries argue that a national scale may not be favorable in a context of weak governance. Specifically, they fear that financial compensations for REDD may not reach the ultimate providers of the REDD-services (land managers) due to weak public governance. However, payments from REDD do not necessarily have to go to in-

dividuals on the ground. They could also go, for instance, into systems to resolve land and forest tenure disputes. Hence, although a national-level approach seems more appropriate for REDD, a certain flexibility for project-level approaches will probably remain, at least initially.

Conclusions

So why are we seeing "REDD"? Although the international debate on REDD has been showing complex and many areas of disagreement remain, the idea of REDD has never been discussed more seriously by all relevant stakeholders. The recognition of the potential of REDD as means to mitigate climate change has had several drivers. On the academic side, the idea had been advocated by several experts but the contributions by Chomitz *et al.* (2006), Stern (2006) and the IPCC (2007) were probably the most decisive. On the political side, the idea was already (re-)introduced by the Coalition of Rainforest Nations in 2005, presented by Papua New Guinea and Costa Rica at COP-11 to the UNFCCC in Montreal which in turn induced the establishment of a two-years examination process within the climate convention that so far has received great attention and participation – not only for its climate benefits, but also for its potential social and ecological co-benefits including poverty reduction and biodiversity conservation.

The future of REDD within the UNFCCC will be significantly shaped by the outcomes of the COP in Bali in December 2007. The preceding international discussions have led to a consensus on the need to move from talk to action. REDD will certainly play a role in the post-2012 Kyoto negotiations, although the discussions will have to go beyond the notion of pure north-south compensations, take into account the risks associated with a direct integration of REDD into the existing carbon markets, and consider the opportunities (and constraints) of establishing a separate protocol for REDD. In the end it seems that the decision on how REDD will be financed (via mandatory markets or voluntary funds) determines the framework REDD will be placed. In addition to the politi-

cal issues, a number of technical and political issues remain to be solved, and a precautionary approach seems appropriate to reduce the risks of adverse effects. But even if the REDD debate is only progressively developing early action and pilot activities are necessary to address remaining technical and political-economic uncertainties and disagreements. A first step into this direction may consist in the Forest Carbon Partnership Facility which will be dedicated to REDD and expected to be operational in 2008.

The liveliness of the REDD debate within the climate negotiations is remarkable when considering the tedious developments for years to advance on the international governance of tropical forests. The current climate-driven debate on REDD may also need to consider the reasons why past efforts to combat deforestation and to reach an international forest agreement have had limited success (e.g. weak local-level institutions and governance structures, incoherent policies, political-economic interests etc.). Still, it may be worthwhile to explore to which extent the current discussions on REDD may actually contribute to overcoming some of the challenges that have long hampered the advance in the international forest negotiations. But to take fully advantage of this opportunity, the forestry community would need to be much more active in the REDD debate than has so far been the case.

Recall however that REDD is only one among several ways to biological climate change mitigation. Further climate benefits from ecosystems need yet to be explored more extensively for their technical and political feasibility as official means to mitigate climate change. Potential avenues include the valorization of soil conservation services (or reduced emissions from land degradation), biodiversity conservation services (as means to healthy ecosystems to mitigate climate change or impacts from climate change), or carbon sequestration services from wetlands and peatlands. More research is needed for a better understanding on how other biological climate change mitigation measures can be accounted for. Still, the methodological and political insights gained from the REDD debate may present a significant contribution to this endeavor. ■

NOTES

- ¹ *Temporary Certified Emission Reductions (tCER)* are issued for a 5 year period; they can be renewed but will have to be substituted by *permanent CER (pCER)*. *Long-term Certified Emission Reductions* are non-permanent, issued for three-times 20 or one-time 30 years (Gardette and Locatelli 2007).
- ² Note, however, that the measures to be taken by project developers to guarantee the permanence of the carbon stock, in particular for the replacement of tCERs, may be costly. In the end, the low price of CDM sinks credits reflects the risks associated with the risk of non-permanence (Matthieu Wemaere, op. citation).
- ³ Note, however, that, despite the calls from Member States in March and June Environment Councils, the European Commission seems very reluctant to include links credits into the EU ETS for the post 2012 trading periods. The Commission will table its proposal for a Directive reviewing the EU ETS by the end of 2007 (Matthieu Wemaere, op. citation).
- ⁴ Each year between 2008 and 2012, an Annex I country can buy only less than 1% of its emissions in 1990 (the reference year), less than 5% of 1990 emissions for the whole period (Gardette and Locatelli 2007).
- ⁵ Voluntary markets represents between 2% and 11% of total forestry CO₂ volumes and between 2% and 5% of exchanged values (Gardette and Locatelli 2007).
- ⁶ Note that some see the primer objective is to reduce deforestation-related emissions to mitigate climate change, not to preserve existing carbon stocks in forests (i.e. forest conservation). Still, an important side-effect of REDD consists in mobilizing additional financial means for the conservation of natural forests and biodiversity.
- ⁷ The methods used for calculating baselines in reforestation/afforestation CDM projects for example are usually highly conservative and, to reduce the risk of overestimation, only count the amount of carbon sequestration for which proven methods exist.
- ⁸ We thank Olivier Bouyer for pointing out this line of thought.
- ⁹ In 1990, Bolivia's GHG emissions were equivalent to 0.1% of global emissions, 80% originating from the LULUCF sector: 52% of the Bolivian territory is covered by forests facing large deforestation rates (FCCC/SBSTA/2006/MISC.5).
- ¹⁰ Reduced emissions were estimated to 989.622 tons of CO₂ between 1997 and 2005. Leakages are already taken into account.
- ¹¹ In 2005 only 1% of the CDM projects were afforestation and reforestation (A/R) activities, and only 2% of that total was located in Africa – mostly in the 'Maghreb', in South Africa, and in Egypt- (Gardette and Locatelli 2007).
- ¹² The presented positions originate from a literature review and of a thorough revision of UNFCCC documents and the submission of countries proposals to the UNFCCC until September 2007. Many other countries have submitted their views, however, most (if not all) relevant issues for the debate are contained in the four proposals that will be presented. A table below will complement these proposals with other relevant country information. It is important to note that presentation of proposals has taken into account the first submission of most parties in Rome 2006 and the second after Cairns workshop, at Bonn SBSTA-26 in 2007, as well as those submitted in August 2007 in view of COP-13 in Bali in December 2007.
- ¹³ Initially, the PNG proposal only referred to deforestation; however, Congo basin countries joined the CFRN and Latin American countries in several workshops and pushed for the inclusion of degradation. This is why we refer to REDD.
- ¹⁴ As mentioned before, the Kyoto CDM instituted temporary certified emission reductions (tCER) to deal with the problem of non-permanence. The validity of CERs is linked to the existence of A/R carbon stocks. The beneficiary of carbon credits would be liable to replace them when they expired or when losses were verified at the end of the commitment period. And the value of those temporary CERs depends on the expected mitigation costs for future periods. With constant carbon prices the value of a temporary CER was between 14% and 35% of a temporary CER (Gardette and Locatelli 2007). However, confidence of investors on market and price stability is extremely important to overcome the lower value and higher transaction costs of temporary CERs (Stern 2006).
- ¹⁵ The first one was supported by Colombia, Costa Rica, Ecuador, Mexico, Nicaragua, Panama, and Peru. The second one came from Central America, specifically: Panama, Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. Finally, a common submission was made in February 2007, supported by all countries, except for Colombia. And a separate proposal was made by Argentina, Chili, Colombia, Paraguay, and Mexico (Gardette and Locatelli 2007).
- ¹⁶ The Coalition of rainforest Nations (CFRN) contributed to the other two proposals during several seminars organized throughout 2006.
- ¹⁷ Note that the perspective and interest on REDD is highly diverse within the country. Substantial pro-active interest on REDD has been shown at the state level, such the initiative "Zero Deforestation" recently launched by nine NGO's and supported by several Amazonian State Governors (Amazonia.org.br; 2 October 2007).
- ¹⁸ Baselines determined at the beginning of each commitment period.
- ¹⁹ The Baseline or Reference Level would be historical and recalculated every three years. The new re-calculated baseline would be adopted only if they are below the previous deforestation baseline (FCCC/SBSTA/2007/MISC.2).
- ²⁰ The PNG proposal also considers temporary credits and commercial insurance as means of addressing permanence/liability issues of emission reductions.
- ²¹ The European Community proposes to deal with liability through several approaches: temporary credits, carry-on to subsequent periods of emissions above the agreed level, bank credits and debits from one period to the other; and mandatory banking of a share of the emission reductions (FCCC/SBSTA/2007/MISC.2).
- ²² Compensated reductions through carbon credits

References

- Asner G.P, Knapp DE., Broadbent EN., Oliveira p.j.c., Keller M. and Jn. Silva (2005): "Selective Logging In The Brazilian Amazon", *Science*, 310 (5747): 480-482.
- Amazonia.org.br (2 October 2007): "Ongs Lançam Pacto Desmatamento Zero Em Brasilia" (www.amazonia.org.br/noticias/noticia.cfm?id=253566).
- Baumert K.a., Herzog T. and J Pershing (2005): *Navigating The Numbers: Greenhouse Gas Data and International Climate Policy*, Washington, Dc: World Resources Institute.
- Bayon R., Hawn A. and K. Hamilton (2007): *Voluntary Carbon Markets: An International Business Guide To What They Are and How They Work*, Earthscan, London.
- Benndorf R., Federici S., Forner S., Pena N., Ramesteiner E., Sarz M.j. and Z. Somogyi (2007): "Including Land Use, Land Use Change and Forestry In Future Climate Change Agreements: Thinking Outside The Box", *Environmental Science and Policy* 10: 283-294.
- Brazil - Federal Republic Of Brazil, Ministry Of External Relations (2007): *Brazilian Perspective On Reducing Emissions From Deforestation*, February.
- Chatham House (2007): "Workshop On Reducing Emissions From Tropical Deforestation" The Royal Society For The Protection Of Birds (The Rspb) and Chatham House 16-17 April 2007, Chatham House, London", <http://www.chathamhouse.org.uk/pdf/research/sdp/160407workshop.pdf>
- Chomitz K. M., Buys p. Di Luca G., Thomas T.s. and S. Wertz-kanounnikoff (2006): *At Loggerheads? Agricultural Expansion, Poverty Reduction, and Environment In The Tropical Forests*, World Bank, Washington D.C.
- Chomitz K.M. (2000): "Evaluating Carbon Offsets From Forestry and Energy Projects: How Do They Compare?", World Bank Development Research Group, Washington D.C.
- Colombier M., Kieken H. and M. Kleiche (2006): "From Rio To Marrakech: Development In Climate Negotiations", in *Bringing emerging countries into the energy equation*, coll. Analyses, n°2, p.43-52, Iddri, Paris.
- Defries R., Archard F., Brown S., Herold M., Murdiyarto D., Schlamadinger B. and C. De Souza (2007): "Earth Observations For Estimating Greenhouse Gas Emissions From Deforestation In Developing Countries", *Environmental Science and Policy* 10: 385-394.
- Dutschke M. and R. Wolf (2007): *Reducing Emissions From Deforestation In Developing Countries. The Way Forward*, German Technical Cooperation, Eschborn. <http://www2.gtz.de/dokumente/bib/07-0646.pdf>.
- El Lakani H., Jenkins M. and M. Richards (2007): Background Paper On Means Of Implementation, Contribution By Profor To Discussions At The Unff-7, April 2007.
- Eu (2007): "Limiting Global Climate Change To 2° Celsius - The Way Ahead For 2020 and Beyond", Presentation By The European Union, http://ec.europa.eu/environment/climat/pdf/2007_01_24_erp.pdf.
- Fonseca A.b. Da, Rodriguez C.m., Midgley G., Busch J. Hannah L., Mittermeier R. A. (2007): "No Forests Left Behind", *Plos Biology* 5(8): 1645-1646.
- Food and Agriculture Organization - Fao (2006), *Global Forest Resources Assessment 2005. Progress Towards Sustainable Forest Management*, Fao Forestry Paper 147, Food and Agriculture Organization Of The United Nations, Rome, <http://www.fao.org/forestry/site/1191/en>
- Gardette Y.-m. and B. Locatelli (2007): *Les marchés du carbone forestier. Comment un projet forestier peut-il vendre des crédits carbone?*, ONF International/Cirad, http://climat.cirad.fr/media/files/les_marches_du_carbone_forestier
- Goldemberg J (2006): "The Perspective Of Developing Countries", in *Bringing emerging countries into the energy equation*, coll. Analyses, n°2, p.43-52, Iddri, Paris.
- Government Of Indonesia (2007): "Reducing Emissions From Deforestation and Degradation In Indo-

- nesia (Reddi): Readiness Mechanism Support", Presentation At The High-level Meeting On Forest and Climate Change, Sydney 22-23 July 2007 (<http://www.greenhouse.gov.au/international/forests/pubs/gfrc-nmasripatin.pdf>).
- Grieg-gran M. (2006): "The Cost Of Avoiding Deforestation – Report Prepared For The Stern Review Of The Economics Of Climate Change", International Institute For Environment and Development (Iied), London.
- Griffiths T. (2007): "Seeing 'Red' – Avoided Deforestation and Rights Of Indigenous Peoples and Local Communities", Forest Peoples Program, www.forest-peoples.org/documents/ifi_igo/avoided_deforestation_red_jun07_eng.pdf
- Houghton R. A. (2005): "Tropical Deforestation As A Source Of Greenhouse Gas Emissions", In Moutinho, p. and S. Schwartzman (Eds.), *Tropical Deforestation and Climate Change*, Amazon Institute For Environmental Research, Belém.
- IPCC (2007): *Mitigation Of Climate Change*, Working Group Iii Fourth Assessment Report, Intergovernmental Panel On Climate Change, www.mnp.nl/ipcc/pages_media/far4docs/chapters/ch9_forestry.pdf.
- Jakobeit C. and C. Methmann (2007): *Klimafluechtlinge – Die Verleugerte Katastrophe*, Greenpeace Germany, http://www.greenpeace.de/fileadmin/gpd/user_upload/themen/klima/klimafluechtlinge_endv.pdf.
- Karousakis K. (2007): "Incentives To Reduce GHG Emissions From Deforestation: Lessons Learned From Costa Rica and Mexico", Organisation For Economic Cooperation and Development, Paris.
- Karsenty A. and R. Pirard (Forth): "Changement climatique : faut-il récompenser la « déforestation évitée » ?", *Natures Sciences Sociétés*
- Karsenty A. (2007) : « Les paradoxes de la lutte contre la déforestation », *Telos-eu*, http://www.telos-eu.com/2007/04/1a-deforestation_evitee_contreprint.php.
- Keppler F., Hamilton J.T.G., Brass M. and T. Rockmann (2006): "Methane Emissions From Terrestrial Plants Under Aerobic Conditions", *Nature*, January 12 2006.
- Kintisch E. (2007): « Improved Monitoring Of Rainforests Helps Pierce Halt Deforestation », *Science*, Vol. 316, 27 April.
- Laporte N., Stabach J.A., Grosch R., Lin T.S. and S.J. Goetz (2007): "Expansion Of Industrial Logging In Central Africa" *Science* 316(5830): 1451.
- Letrillart M., Jacobee F., Joucla V., Gueneau S. (2006): *Le livre blanc sur les forêts tropicales humides Analyses et recommandations des acteurs français*, Réponses Environnement, La Documentation française, Paris.
- MAP/DGFAR/SDFB/BDE/ONF/DEDD, réunion inter-services au MAE pour préparer l'atelier de CAIRNS (mars 2007) portant sur la réduction des émissions dues à la déforestation dans les pays en développement, dans le cadre des négociations climat, compte rendu de réunion du 26 janvier 2007, June 30th 2007
- MAP/DGFAR/SDFB/BDE, atelier sur la réduction des émissions dues à la déforestation dans les pays en développement, compte rendu de l'atelier déforestation de CAIRNS du 7 au 9 mars 2007, March 28th 2007.
- MAP/DGFAR/SDFB/BDE, réunion de présentation du « Forest carbon partnership » au MINEFI, compte rendu interne de réunion du 18 octobre 2006, October 18th 2006
- MAP/DGFAR/SDFB/BDE, atelier conjoint g8/banque mondiale de présentation du « Forest carbon facility » de la Banque mondiale, compte rendu de réunion du 14 février 2007, February 26th 2007.
- MAP/DGFAR/SDFB/BDE, atelier conjoint G8/Banque mondiale de présentation du « Forest carbon partnership facility » de la Banque mondiale, compte rendu de réunion du 10 et 11 avril 2007, April 20th 2007.
- MAP/DGFAR/BDE, réunion du Groupe d'experts européens sur les puits de carbone forestiers (SINK), compte rendu de réunion du groupe d'experts puits # 8 du 12 et 13 avril 2007 à Berlin, April 19th 2007.
- MAP/DGFAR, CR des débats et décisions du sbsta26 concernant la forêt, compte rendu de mission au sbsta26 de la convention climat du 7 au 16 mai 2007, May 24th 2007.
- MAP, minutes des négociations « Forêt » du SBSTA26 de la convention Climat – Bonn, 7 au 17 mai 2007
- MAP (A), "A. In Is In The Interest Of Member States To Include Sink Credits In The Eu Ets", *Note Blanche*, June 2007.
- Mollicone D., Archard F., Federici S., Hugh E.d., Grassi D., Belward G., Raes F., Seufert G., Stibig H.j., Matteucci G., and E.d. Schulze (2007): "An Incentive Mechanism For Reducing Emissions From Conversion Of Intact and Non-intact Forests", *Climate Change* 83(4): 477-493
- Moutinho P. and Schwartzman S. (2005), *Tropical Deforestation and Climate Change*, Amazon Institute For Environmental Research, Belém.
- Ogonowski M., Helme N., Movius D. and J. Schmidt (2007): "Reducing Emissions From Deforestation: The Dual Market Approach", Center For Clean Air Policy, Washington D.C. <http://www.ccap.org/international/final%20redd%20report.pdf>.
- Reuters (29 June 2007): "Avoided Deforestation Could Attract Massive Funds To Indonesia".
- Santilli M., Moutinho p., Schwartzman S., Nepstad S., Curran L. and C. Nobre (2005): "Tropical Deforestation and The Kyoto Protocol", *Climate Change* 71: 267-276
- Schlamadinger B.; Bird N., Brown S., Canadell J., Ciccarese L., Dutschke M., Fiedler J., Fischlin A.,

Annex: Interviewees and interview questions

The following experts were interviewed during the conduct of the study between April and June 2007:

- Dimitri Kanounnikoff, French Development Agency (AFD)
- Katia Karousakis, Organisation for Economic Cooperation and Development (OECD)
- Marc Letrilliart, French Ministry of Foreign Affairs (MAE)
- Marianne Rubio, French National Forestry Office (ONF)
- Olivier Bouyer, French Ministry of Agriculture and Fisheries (MAP)
- Valérie Merckx, European Commission – Environment Directorate
- Valentin Bellassen, Caisse des depots & formerly Environmental Defense.

The interviews were conducted using semi-structured, non-standardized questionnaires. The questions were as follows:

I. Introduction

- *Why do we talk about tropical forests in the debate on climate change?*
- *How do we analyze this topic?*
- *Where are we now in international climate negotiations?*

II. General climate policy

- *What is the role of climate change in your organization?*
- *How do you explain the role of forests before and after it became part of the CDM?*
- *Why does the EU ETS and the Kyoto CDM exclude forestry credits?*

III. Role of tropical forests in climate change

- *What is the role of tropical forests regarding climate change mitigation?*
- *How would you explain the evolution of forest's role in the UNFCCC?*
- *How can we explain today's popularity of tropical forests?*

IV. Role of REDD in the international climate negotiations

- *What is the view of your organization on the role of REDD in the climate debate?*
- *How can we explain the evolution of the role of forests in the UNFCCC framework?*
- *What are the most controversial points of the REDD debate?*
- *What is your perception towards the Forest Carbon Partnership Facility?*
- *What is your perception of a post-2012 Kyoto regime with regard to REDD?*
- *What would be the best way to finance emission reduction compensations?*
- *What are the main difficulties to overcome?*
- *What is your perception of the EU, USA, and Brazilian positions?*



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Why are we seeing “REDD”?

An analysis of the international debate on reducing emissions from deforestation and degradation in developing countries

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Reducing emissions from tropical deforestation and forest degradation (REDD) in developing countries has emerged as new potential to complement ongoing climate policies. The idea consists in providing financial compensations for the reduction of greenhouse gas (GHG) emissions from deforestation and forest degradation.

Based on the main country proposals, this paper examines the current debate on REDD and discusses some of the main remaining controversies within the debate, notably the REDD financing mechanism (mandatory markets versus voluntary funds) and the institutional framework for REDD (inside or outside the post-2012 Kyoto regime). In doing so, this paper contributes to an improved understanding of the scientific, economic and political aspects associated with the debate.

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