

Financing options to support REDD+ activities



Funded by the
European Commission

Based on a review of the literature

April 2012



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LA RECHERCHE AGRONOMIQUE
POUR LE DÉVELOPPEMENT



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April 2012

Report for the European Commission
DG Climate Action

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Disclaimer: The views expressed by the authors in this document may not in any circumstances be regarded as stating an official position of the European Commission

Purpose and scope of this study

The purpose of this report is to review key messages from relevant literature in order to support the European Commission in analysing the impacts of long term financing options for REDD+ on the overall effectiveness, efficiency (in terms of minimising costs and leveraging private-sector involvement) and equity of the mechanism.

The CIRAD gathered, summarized and synthesized a significant number of articles (http://ur-bsef.cirad.fr/en/content/download/4122/32257/version/3/file/Reading_sheets_final.pdf) on the most effective and efficient ways to mobilize and deliver funds for maximizing the long term benefits of REDD+ action in view of its multiple objectives (mitigation, adaptation, poverty alleviation and conservation of biodiversity)

The European Commission and the authors would like to express their gratitude for the contributions of:

Samuel	Buys	Belgian Federal Public Service of Health, Food Chain Safety and Environment - DG Environment
Mariteuw Chimere	Diaw	African Forests Model network
Kate	Dooley	FERN
Andreanne	Grimard	Prince's Rainforest Project
Kelly	Hertenweg	Federal Public Service Health, Food Chain Safety and Environment of Belgium
David	Huberman	IUCN
Thais	Linhares- Juvenal	UNREDD Programme Secretariat
Danae	Maniatis	FAO of the United Nations - Forestry Department
Constance	McDermott	University of Oxford
Simon	Petley	Enviromarket Ltd
Romain	Pirard	IDDRI - Institut du Développement Durable et des Relations Internationales
Michael	Richards	Forest Trend (will travel from UK)
Simon	Rietbergen	WB
Davyth	Stewart	Global Witness
Thorsten	Treue	Danish Centre for Forest, Landscape and Planning, Faculty of Life Sciences, University of Copenhagen
Christopher	Webb	PwC UK

These individuals participated in a workshop which took place in Brussels the 10/11/2011. They were invited to provide their feedback on the scope, structure and content of a draft version of this report but were not asked to seek consensus or to endorse any of the views here expressed, for which the authors are solely responsible.

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Acronyms

AFD	French Development Agency
AfDB	African Development Bank
A/R	afforestation and reforestation
ASB	Alternatives to Slash-and-Burn
AAU	assigned amount unit
BAU	business-as-usual
BNDES	Brazilian Development Bank
CAR	Central African Republic
CBFF	Congo Basin Forest Fund
CDM	Clean Development Mechanism
CER	Certified Emissions Reduction
CIFOR	Centre for International Forestry Research
CISDL	Centre for International Sustainable Development Law
COFA	Amazon Fund Guidance Committee
COP	Conference of the Parties to the UNFCCC
CTFA	Amazon Fund Technical Committee
DAF	development adjustment factor
DRC	Democratic Republic of Congo
DSRP	<i>Document de Stratégie de Réduction de la Pauvreté</i>
EdF	Environmental Defence
ES	Environmental Service
ETS	European Trading Scheme
EU	European Union
FAO	Food and Agriculture Organisation
FCPF	Forest Carbon Partnership Facility of the World Bank
FFEM	<i>Fonds Français pour l'Environnement Mondial</i>
FLEGT	Forest Law Enforcement, Governance and Trade
FSC	Forest Stewardship Council
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFATM	Global Fund to fight AIDS, Tuberculosis and Malaria
GHG	greenhouse gas

IIED	International Institute for Environment and Development
IMF	International Monetary Fund
KP	Kyoto Protocol
LCA	Ad-Hoc working group on Long-term Cooperative Action (UNFCCC)
LULUCF	Land Use, Land Use Change and Forestry
ICER	Long-Term Certified Emissions Reduction
IPAM	<i>Instituto de Pesquisa Ambiental da Amazonia</i>
IWG-IFR	Informal Working Group on Interim Funding for REDD+
MMA	Ministry of the Environment (Brazil)
MRV	measuring, reporting and verifying
NAMAs	nationally appropriate mitigation actions
NGO	non-governmental organisation
OC	opportunity cost
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation and Development
PAM	policies and measures
PNG	Papua New Guinea
PES and PSA	Payments for Environmental Services
PSA-H	Water-oriented payments for environmental services in Mexico
PSFE	<i>Programme Sectoriel Forêt et Environnement</i>
RED	Reduced Emissions from Deforestation
REDD/REDD+	Reduced Emissions from Deforestation and Forest Degradation
RIL	Reduced Impact Logging
SFM	sustainable forest management
ICER/tCER	Temporary Certified Emissions Reduction
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations collaborative initiative on REDD+
VPA	Voluntary Partnership Agreement
VCS	Verified Carbon Standard

Glossary

Adaptation: Responses to climate change that seek to reduce the vulnerability of natural and human systems to climate change effects. Since UNFCCC COP17 (Durban, December 2011) it is recognized as one of the possible benefits of REDD+ along with poverty alleviation, the conservation and restoration of terrestrial biodiversity and of course, mitigation.

Additionality: Measurable, long-term reductions in greenhouse gas (GHG) emissions and/or removal enhancements that would not have occurred in the absence of a particular project, policy or activity.

Afforestation: Direct human-induced conversion of land that has not been forested for at least 50 years to forested land through planting, seeding, and/or the human-induced promotion of natural seed sources, as defined by the Marrakesh Accords.

Annex I Parties: The industrialised countries listed in Annex I to the UNFCCC that were committed to return their greenhouse gas emissions to 1990 levels by the year 2000 as per Article 4.2 (a) and (b). Annex I Parties have also accepted emissions targets for the period 2008–2012 as per Article 3 and Annex B of the Kyoto Protocol.

Bali Action Plan: In December 2007, in Bali, the 13th Conference of the Parties to the UNFCCC adopted the Bali Action Plan, outlining a two-year process to finalise an agreed outcome in 2009 in Denmark. In the Bali Action Plan, the Parties confirmed their commitment to address the global climate challenge by including policy approaches and positive incentives on issues related to Reduced Emissions through Deforestation and Forest Degradation (REDD).

Business-as-usual (BAU) baseline: A projection of what would happen without any intervention, and serving as a benchmark to measure the impact of REDD+ actions.

Carbon market: Any market that creates and transfers emissions units or rights.

Carbon stock: The mass of carbon contained in a carbon pool.

Carbon sink: A pool that absorbs or takes up carbon released from other components of the carbon cycle, with more carbon being absorbed than released.

Certified Emissions Reduction (CER): A unit of GHG reductions issued under the clean development mechanism. One CER equals one metric ton of CO₂ equivalent, calculated using global warming potentials recommended by the Intergovernmental Panel on Climate Change and approved by the COP. Forest CER are temporary: they expire at the end of the commitment period subsequent to the one in which they were issued (tCER), or at the end of the crediting period for the project (iCER) and must be replaced by genuine CER to accommodate the non permanence of forest removals compared to irreversible emissions from fossil fuels.

Clean Development Mechanism (CDM): A mechanism established in Article 12 of the Kyoto Protocol and designed to assist non-Annex I Parties to achieve sustainable development, and to assist Annex I Parties to comply with their quantified emissions limitation and reduction commitments.

Counterfactual scenario: expressing what has not happened but could, would, or might under differing (usually “business-as-usual”) conditions

Crediting baseline: An emission/removal threshold, based inter alia on Reference Levels, beyond which financial incentives would be awarded.

Deforestation: The direct human-induced conversion of forest land to other land use.

Degradation: Changes within the forests that negatively affect the structure or function of the forest stand or site, and thereby lower the capacity of the forest to supply products and/or services. It is usually understood in the REDD+ context as a decrease of carbon density in forest land remaining forest land although few countries could actually monitor such a decrease.

Ecological intensification: The process of designing sustainable production systems that save on inputs and are less harmful to the environment; the development of varieties that are better suited to their environment, and new pest and disease control techniques; and research into how nature functions, to enable us to exploit its resources without destroying it, and breaking with practices based on the intensive use of pesticides, chemical fertilisers, water and fossil fuels.

(www.cirad.fr/en/research-operations/priority-lines-of-research/ecological-intensification/research-issues)

Forest Carbon Partnership Facility (FCPC): The World Bank programme created to assist developing countries in their efforts to reduce emissions from deforestation and land degradation. Objectives include capacity-building for REDD+ activities in developing countries and testing a programme of performance-based incentive payments in some pilot countries.

Fund-based approach: An approach that relies on pooling various sources, including bilateral aid, philanthropy and Corporate Social Responsibility, international or national taxation schemes and other innovative sources. The fund can then spearhead or catalyse investments supporting REDD+ activities, and/or deliver performance based payments.

Market-based approaches: The rationale for market-based approaches is to try to put the advantages of markets, in particular price incentives, to work in service to the environment. The most prominent market based approaches in the context of environmental and climate change policies are measures that influence prices. Depending on authors, they can include a combination of different solutions: (i) Cap and trade: limitation of emissions and the option to trade emission rights. (ii) taxation, and subsidies. (iii) Public intervention on existing markets (e.g. credit for rural development or critical commodities like oil, cattle, sugar, soy, timber) which have a direct impact on tropical forest stocks.

Indigenous peoples: There is no universally agreed definition of this term. According to the United Nations, the most useful approach is to identify, rather than define indigenous peoples. This is based on the fundamental criterion of self-identification as underlined in a number of human rights documents.

Leakage: Greenhouse gas emissions displacement that occurs when interventions to reduce emissions in one geographical area (subnational or national) cause an increase in emissions in another area through the relocation of activities.

Local communities: Again, there is no universally agreed definition. With respect to a particular activity, the term commonly refers to communities within the activity's area of influence.

LULUCF: "Land use, land-use change and forestry" aims at accounting for emissions and removals related to Afforestation/Reforestation, Deforestation as well as the management of Forest land, Cropland and Grazing land in A1 countries. Within this sector it is possible under the Kyoto Protocol to generate compliance emissions offsets for Annex 1 Countries from afforestation and reforestation projects in developing countries as part of the Clean Development Mechanism.

Measuring, reporting and verification (MRV): A process which aims to ensure measureable emission reductions and enhancement of removals (quantified tons of CO₂ equivalent) for accounting purposes.

Mitigation: In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases.

Non-annex I Parties: All countries that are not listed in Annex I of the UNFCCC or the Kyoto Protocol. Most developing countries are non-Annex I Parties.

Permanence: refers to the fact that carbon capture and storage in trees cannot be guaranteed for more than a few decades (contrary to fossil stocks) in the best case scenario. Forests are part of the terrestrial carbon cycle, and subject to climate change impacts and to fierce competition with agricultural land due to raising demand for food, fibres and energy. They will eventually die and release carbon back to the atmosphere. Permanence is sometimes assimilated to the issue of non-reversal, *i.e.* the short-term stewardship of forest land and associated insurance schemes aiming at environmental and market integrity by requiring modification of carbon credit accounts when forest carbon pools are subsequently disturbed either through natural means such as fire and wind or anthropogenic means such as harvesting.

Readiness: REDD+ country actions including a process of policy design, consultation and consensus building, testing and evaluation for a REDD+ national strategy, prior to scaled-up REDD+ implementation.

REDD+: Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation,

sustainable management of forests and enhancement of forest carbon stocks in developing countries" (UNFCCC Decision 1/CP16).

REDD+ Implementation Plan: A document detailing how national REDD+ strategies are to be implemented, and which can serve as a request for international funding.

REDD+ national strategy: A summary of policy actions a country plans to take to implement REDD+. It reflects the commitment obtained from key actors at the country level in the design of low-carbon development strategies.

Reference level: "Business as usual" benchmarks (expressed in tonnes of carbon dioxide equivalent per year) for assessing performance in implementing REDD+ activities, taking into account historic data, and adjusted for national circumstances but maintaining consistency with national GHG inventories. They should be submitted voluntarily and updated periodically by Developing Countries to take stock of new knowledge, new trends and any modification of scope and methodologies. The process that would enable their technical assessment and their link with crediting baselines remain to be developed

Subnational activity: Activities implemented at the subnational level as part of a country's REDD+ strategy. Subnational activities can be implemented by governments, local authorities, non-governmental organisations or private entities. They may be embedded in a national or international crediting mechanism.

UN-REDD: A collaborative programme on REDD+ that brings together the Food and Agriculture Organisation, the United Nations Development Programme, and the United Nations Environment Programme in the development of a multi-donor trust fund. It was established in 2008, allowing donors to pool resources, and provides funding to activities of the programme.

Verification: Independent third-party assessment of the expected or actual emissions reductions of a particular mitigation activity.

Voluntary Carbon Standard (VCS): Certification schemes for emission credits not regulated under the Kyoto Protocol.

Executive Summary

Halting the degradation and loss of tropical forests would go a long way towards mitigating climate change, preventing biodiversity loss, and securing the supply of vital goods and services, while underpinning long-term sustainable development. Deforestation results from numerous and complex interactions, driven from both within and outside the country where deforestation is occurring. REDD+ has been developed as a “positive incentive” to compensate countries for reducing emissions from deforestation and forest degradation, with a view to influencing development pathways towards sustainable land use. This literature review explores several questions related to the efficiency, effectiveness and equity of REDD+ and discusses the suitability of various funding options to create the enabling conditions for addressing the drivers to deforestation.

The importance of **sustained investments** (in improving the design and implementation of policies addressing the drivers of deforestation and forest degradation and leading to reduced deforestation and forest degradation) as compared to **ex-post results based payments** emerged as a key framing distinction to identify approaches to reducing deforestation with greater potential to trigger the kind of structural change, policy reform and long-term strategic planning for sustainable use of the forest resource required to address the drivers to deforestation which emanate from within forested countries. The ability to demonstrate performance towards agreed objectives remains an important factor whatever the finance source for REDD+. The conceptual shift from paying for results ex-post to sustained investment, however, allows for a broader definition of performance related to national-level political commitment and implementation of policies, rather than the narrow definition of results as quantified emissions reductions.

The origins of REDD+

- The inclusion of forests within the climate convention was debated and rejected during the establishment of the Clean Development Mechanism (CDM) under the Kyoto Protocol (KP) due to concerns of permanence, additionality (compensating actions that would have occurred anyway) and leakage (the displacement of deforestation inherent in a project-based approach).
- In 2005, Papua New Guinea and Costa Rica reintroduced forests to the UNFCCC debate following a proposal for “compensated reductions” based on national-level accounting of emissions reductions designed to circumvent the drawbacks of project-based approaches to avoiding deforestation.
- This led to the official adoption of reducing emissions from deforestation and forest degradation (REDD) in the Bali Action Plan in 2007. In Poznan in 2009 the scope was extended to include three further activities related to the management of carbon stocks, known as REDD+.
 - **The origins of the REDD+ debate show the need for a national approach to monitoring performance, which is confirmed in the lessons emerging from the suite of “demonstration projects” which have blossomed following the inclusion of REDD+ in the climate negotiations. Early research from these projects shows that the fundamental concerns of leakage, lack of additionality and high costs and uncertainties in quantifying emission reductions remain.**

The issue of architecture

REDD+ is a positive incentive instrument by design, and not a cap-and-trade instrument, due to the voluntary nature (meaning developing countries choose to participate) and the “no-liability” design, meaning that there are no sanctions for participating countries that do not reduce, or even increase,

emissions. The question of REDD+ architecture is therefore not bound to a cap-and-trade type system, but remains open, and should be determined by the most cost-efficient and effective method of reaching the objectives of REDD+.

The thorny problem of the baseline

- Whilst emissions from fossil fuels are relatively predictable based on trends in gross domestic product (GDP), deforestation is multi-causal and highly variable from year to year. For this reason setting reference levels remains an unresolved issue for REDD+. All of the approaches put forward have serious weaknesses. They fail to circumvent the “counterfactual scenario” (determining what would have happened in the absence of REDD+ policy approaches and incentives) against which reductions would be measured, which carries an associated risk of hot air, undermining the climate mitigation objective.
 - The most commonly accepted approach is the historical baseline, but this does not account for a country’s position in the forest transition curve, underestimating deforestation rates for countries at early stages in the transition, while overestimating deforestation for countries in the later stage, leading to under- or over-payments. Other issues include the lack of historical data for most forested countries, and unpredictable external impacts on deforestation rates.
 - Countries with low deforestation rates and high forest cover argue for an “adjustment factor” to set the crediting baseline above the reference level, to allow for some increase in deforestation for development, and for crediting if deforestation is kept below the forecast increase. The problem with this approach, aside from the risk of creating hot air, is that it does not address the need for up front investments in these countries to tackle deforestation, but offers only ex-post payments in the form of a “rent”.
 - The severe lack of socio-economic data and forest data for most REDD+ countries implies that disentangling the share of own efforts and of windfall effects in REDD+ results would require ex-post econometric analysis, which in itself implies an irreducible uncertainty ex ante. It is unlikely that donors or recipient countries would agree to such an approach.
- **A thorough examination of the various approaches to determining crediting baselines and “reference levels” concludes that no approach can reliably determine future deforestation rates, and baselines will to a large extent be politically determined, leading to risks of “hot air” and windfall effects, or of not rewarding genuine efforts, which undermine the objectives of REDD+. A more pragmatic approach would be to circumvent the baseline issue by defining performance criteria which go beyond quantified emission reductions.**

Competing incentive architectures for REDD+

(1) Global market-based mechanism (government to government trading)

REDD+ countries are awarded “carbon assets” for reductions in emissions from REDD+ activities below a national baseline. Industrial countries (and/or companies) can purchase these credits, possibly to offset their own industrial emissions and meet compliance targets for reductions in greenhouse gases (GHGs).

“Specific market mechanisms” could be agreed which are based on the non-fungibility, temporary nature, buffering, discounting and/or quantitative limitation of REDD+ credits in order to protect the overall carbon price and reflect uncertainty over environmental integrity. This could in the end be very similar to a centralized fund approach, in that governments commit to create demand for a certain amount of REDD+ reductions in developing countries. There is a risk that Annex 1 countries would revise down their reduction targets in other sectors to accommodate this commitment, hence lowering overall climate mitigation ambition.

(2) Project based (project to company trading)

In the project approach, certified emission reductions from projects are traded on a global market. Differs from the first approach in that projects can be credited directly, rather than accounting for emission reductions on a national level.

The concept of a “nested approach” (project to government trading) has been proposed to circumvent the problems in project level trading, by scaling up from project level to national rewarding of credits. In this approach, projects which verify reduced deforestation would be credited first, even if national monitoring subsequently showed an overall increase in deforestation (due to leakage outside project boundaries). The nested approach therefore does not appear to address the many flaws identified with the CDM approach: atomization of efforts and quality standards, methodological issues related to permanence, leakage and additionality, high monitoring and transaction costs. Carbon objectives sometimes put other benefits at risk: for example dry forests – where many rural poor live, especially in Africa, and where there are high levels of biodiversity – are currently neglected as targets for REDD+ demonstration activities (Werz-Kanounnikoff & Kongphan-Apirak, 2009).

(3) Centralised funding scheme (International fund to compensate governments for reductions against a baseline)

An international fund rewarding governments or programs for changes in deforestation rates, or reduced emissions from REDD+ activities, below a national baseline.

Institutional issues to be resolved include the governance of an international fund, which could include finance from a variety of market/non-market sources. Benefits include the more flexible delivery to allow for multiple objectives, such as biodiversity and development objectives.

(4) Investment instrument (International fund to invest in policies and programmes)

An international fund used to finance investment in sectoral and extra-sectoral policies and measures. Performance assessed against policy implementation indicators rather than though changes in deforestation rates against a baseline.

Of these four approaches to REDD+ architecture, the first two source finance through the trading of carbon credits, while the second two rely on an international fund, which could source finance from a variety of market and non-market sources. The first three approaches rely on a crediting baseline to determine performance, which would appear as a limiting factor (due to problems of baseline setting previously discussed) regarding the ability to deliver efficient and timely outcomes from REDD+. The fourth approach does not entail a baseline, but is based on the trustworthiness of agreements with host governments to implement cross-sectoral and integrative policies and measures. Whilst the fund approach is often rejected over concerns that only the market can raise finance at scale, collecting the required amount of monies to an international fund is technically feasible, subject to political decision. Of consideration is recent trends in and analysis of carbon markets which indicate that it is unlikely that carbon markets will deliver finance at scale before a much more ambitious climate regime enters into force.

- **More work is needed on developing sources of climate finance, to meet commitments made in Copenhagen, Cancun and Durban. The assumption that these funds would come from carbon markets may prove incorrect. In parallel, the REDD+ debate needs to move away from a preoccupation with sources of finance and decide on an architecture which best supports the appropriate policies to meet REDD+ objectives.**

The theory of rational choice

- REDD+ is currently premised on the theory of rational choice – that governments decide to deforest or not based on an economic balance, and can be incentivized (as with any economic agent) to make rational decisions not to deforest if the relative prices of alternatives are offered, i.e. net opportunity cost of sustainable use of forests.
 - This theory assumes that the state is in a position to base decisions on cost-benefit analysis, and that having done so, it is capable to implement and enforce the appropriate policies and measures which could translate into reduced deforestation. In reality, public decision-making is influenced by a number of factors beyond rational economic choice, including weak governance, low administrative capacities, corruption and conflicts of interest in decision-making between government departments and public agencies.
 - The assumption that governments can voluntarily reduce deforestation if they choose to do so ignores the pressure to deforest from global liberalized markets, as well as the case of states that may not have built the capacity to implement and enforce policy decisions.
- **A focus on governance and institutional reform, including cross-sectoral decision-making, the promotion of general interests over vested interests, effective implementation of the rule of law and participation of non-state actors in decision-making are long but necessary detours for enabling REDD+ to work. An appropriate REDD+ strategy can be a catalyst for these changes as well as contributing to their advent.**

Implementing REDD+

There is general agreement on the need for a three-phased approach to sequence REDD+ implementation, with national strategy development in phase 1, to implementing policies and measures in phase 2, to a focus on payments for performance (too often understood narrowly as quantified emission reductions against an agreed crediting baseline) in phase 3.

Questioning the notion of performance

- The notion of performance is central to the effective and efficient use of finance for the implementation of REDD+, with “performance” being understood in the broad sense of measurable results in curbing forest loss and degradation.
 - The efficiency of basing performance on measurable emission reductions leads back to the issue of the baseline – an incorrectly set baseline allowing countries to claim performance for results that would have occurred anyway, or failing to acknowledge their genuine efforts if unpredicted demand drives illegal logging beyond expectations for instance.
 - Significant variance in capacity between forested countries means that it is very likely that only few countries will be in a position to curb deforestation, whatever “performance-based” incentives are offered. This leads to either a REDD+ mechanism which rewards countries with higher technical capacity (similar to the CDM), or a reconsideration of the notion of “performance” which evaluates performance over a longer period of time (as recommended in the literature on aid effectiveness) and allows for direct budgetary support of longer-term strategies.
- **Performance should be understood in a broad sense, with a mix of indicators based on the effective and sustained implementation of policies and measures, with some elements of performance that can be considered as “proxies” for reduced deforestation, degradation and the resultant emission reductions. It is critical for REDD+ policy makers and donors to understand that most “performances” will need previous “investments” in various sectoral activities to strengthen governance and institutional capacity.**

Addressing the drivers to deforestation and degradation

- The major drivers to deforestation differ within continents and sub-regions. These drivers range from large-scale ranching to industrial agriculture (such as oil palm), and logging (often illegal) to small-scale agriculture. Mining and oil-extraction is an increasing pressure on forests, and common to all regions is the (relative) expansion of the impact of industrial drivers.
 - The use of the opportunity cost model within REDD+ raises the question of whether financial compensation as a key component of policies to curb deforestation will be effective to address the drivers outlined above. Incentives based on the price of carbon are only able to out-compete the lowest-value uses of forest land, such as subsistence agriculture, and cannot address the increased profitability of deforestation due to the escalating value of agricultural land.
- **In the range of instruments governments could adopt as part of REDD+ policies, financial incentives can cover only activities where the opportunity costs are low, while regulation, proportionate law enforcement, demand-side measures and political will are needed to stop the development of the more profitable drivers to deforestation. Effective combinations between regulations and incentives will be needed in order to avoid important drifting of the costs and prevent the capture of the bulk of the funds by opportunistic and powerful players.**

Payments for Environmental Services as an incentive model for REDD+?

- Payments for Environmental Services (PES) are a voluntary agreement between parties to maintain a well-defined environmental service or land use in exchange for compensation. The source of funds for payments is a separate question, and PES are most commonly operated from a centralized fund, such as in Costa Rica where the PES programme was funded through a levy on oil distribution.

- The prospect for PES programmes achieving REDD+ objectives is high, but these programmes must expand from the traditional view of PES as compensation for opportunity costs, to include the provision of new resources to change agricultural or agroforestry practices. The inclusion of an investment subsidy to develop new sustainable agricultural technologies within a broader mechanism for rural development and public policy frameworks would further reform PES towards sustained investment in lasting reform.
- There remains a trade-off between equity (the risk of paying those that threaten to deforest) and efficiency (the risk of incentivizing actions which are not additional and paying for BAU) in PES schemes. Where opportunity costs are high, the sums required are not enough; but when the opportunity cost is low, the risk of paying for environmental services that are not endangered (lack of additionality) is high. PES also highlights the need for clear ownership rights to land.
 - **PES provides a promising distribution model for REDD+ incentives which can be targeted to reach joint environmental and development benefits, even though as with other instruments, they can create perverse incentives. Finance for PES schemes could be raised through funds or trading, but trading an environmental service again raises the issue of the baseline.**

The need for land tenure clarification

- Clear land tenure is critical for the implementation of activities to successfully reduce deforestation. They are needed to identify beneficiaries, to allocate liabilities and to prevent conflicts and resource rushes. In most REDD+ countries, forests are state property. In many countries, land titling is conditioned upon development, which requires clearing the land. Reforming land tenure codes to allow individuals and communities to claim property rights (individually or collectively) without being pushed to “develop the land” will be an important policy shift to encourage in national REDD+ strategies.
- Research into community-managed forest areas and collectively held lands in a sample of countries has shown that collective ownership may result in lower resource extraction and higher carbon storage, compared to a higher probability of overuse and reduced carbon storage on state owned land, including protected areas and concessions. However, this cannot be taken as a general rule since community-based management has yielded contrasted results between regions, and its performances often depends on the governance conditions at national level.
 - **There is a clear need to support policies aimed at securing collective tenure as property rights to local communities and indigenous peoples. Critical to the environmental and development objectives of REDD+ is support for land tenure reform and, if appropriate, support for decentralized management of natural resources.**

What role for the private sector?

The role of the private sector, aside from **as buyers or sellers of carbon credits**, has generally been neglected in the REDD+ discussion, despite the fact that the trade in carbon credits has led more to speculation than to investment. More serious consideration is needed of the role that private companies could play in a national REDD+ strategy. When weighing policy options it will be essential to question whether a more direct regulatory measure would not provide the same result at lower cost in order to avoid windfall effects in engaging the private sector.

- Public-private partnerships offer alternative approaches to investment such as implementing large-scale PES programmes under national guidelines or investment approaches which quantify a range of carbon and non-carbon benefits in and around forests, creating both public and private investment

opportunities. For instance, tree plantations under out-growing schemes can unlock the potential for planting trees currently impeded by unclear tenure rights, providing communities' land tenure rights are secured and contract farming is monitored by governments and civil society.

- Current initiatives to address illegal logging, such as the EU FLEGT action plan, provide a model for creating incentives (through regulation and demand-side measures) for other sectors (oil, cattle, sugar, soy), as well as support for creating the governance and legal reform required for sustainable land management.
 - REDD+ compensation could include a reduction of the “exploitation effort” in forest concessions, either through a voluntary increase of rotation (time between harvests) or a limitation on the number of trees allowed for felling. Compensation could then be provided by lighter taxation, better market access or other benefits. Using REDD+ incentives to reduce forest taxation for concessions behaving well would be another way of encouraging sustainability.
- **Private sector engagement focused on productive investment rather than speculation is likely to be more conducive to achieving the objectives of REDD+. There is a wide range of current and potential initiatives for engaging the private sector in REDD+ which require further discussion and innovation.**

Governance and risks of corruption

- Theft and misappropriation of REDD+ funds is a very real risk, which is reduced by avoiding stagnation and tying funding in tranches to the progress of investments designed to support national implementation, including the reform of institutions and the legal regime at the national level (such as investing in new land tenure regimes, reforming land-use strategies and building capacity in monitoring and governance). There is a need for effective oversight of REDD+ funds, including transparent and effective institutional structures and strengthening institutional capacity to absorb, process and disburse REDD+ funds effectively.
- Sound governance systems are necessary to address these risks, and a comprehensive and independent assessment of a country's policies, laws, regulations and governance systems will be an important stage of the REDD+ process to determine where legal and policy reforms are necessary, and where institutional capacity needs strengthening.
- An essential element of governance reform relates to the participation of non-state actors in decision-making. The risk of corruption and state capture will be minimized and the effective implementation of REDD+ will be strengthened through institutional reform which recognizes the rights of stakeholders, in particular local communities and indigenous peoples, and ensures greater stakeholder participation.

Equity issues and carbon rights

The issue of equitable distribution of REDD+ benefits, and the potential for REDD+ rents are linked and are discussed here in relation to the concept of ‘carbon rights.’

- An economic rent is the excess paid above what is needed to maintain investment in a given activity. If one dismiss the case of overinflated baselines, and since the basic idea is to compensate the opportunity cost of not deforesting, **the prospect for rent in REDD+ is limited**, due to the expected low price of carbon that would not cover high opportunity costs, and the limited resources of Official Development Assistance (ODA).
- The literature shows two divergent interpretations when it comes to carbon rights: the first defines carbon rights (where they currently exist in law) as a specific easement, such as a conservation easement, which are a limitation of the ownership right, and which belong to those who invest and

compensate the land owner. Whilst this definition is currently applied in western countries, in developing countries this legal interpretation is complicated by the general situation of state ownership of forest land, with overlapping customary rights. The second interpretation sees carbon rights as inalienable from rights over land, territories and resources. Research into developing country contexts cautions that separating carbon rights from land ownership is likely to undermine local tenure security. This differs from the first approach of carbon rights as an “easement” which aims precisely to allow carbon rights to be distinguished from land ownership (in the sense of the effective property rights exercised by the local users). Under this frame of thought, “carbon rights” cannot compare to a right embodied in the land, in the sense they are **generated** by an investment (or a payment) that can be made either by the land-holder or a third party.

- **The difficulty with the interpretation of carbon rights as being inalienable from tenure rights is that it could pave the way for an assimilation of “carbon rights” to a “rent”. If carbon rights are indivisible from land tenure rights, the issue of its *generation* (through changes against a business-as-usual situation) risks being overlooked and rent-seeking strategies in the name of forest property rights will prevail over the idea of compensating efforts for changing practices.**

The institutional governance of funds

- REDD+ finance, unless determined as a project-based mechanism selling credits directly to a global carbon market, will require funds at various levels, most likely both national and international. The governance of funds is therefore an area of key concern regarding effectiveness and much can be learned from looking at existing global funds.
 - Experiences with funds have shown there is generally a trade-off between 1) funds embedded in national budgets being misused or diverted to other priorities, and 2) funds managed by an independent body which are often plagued by cumbersome disbursement procedures and fail to create a critical mass of expertise in the national administration.
 - A global review of funds finds that the capacity both to disburse and absorb funds substantially lags behind the level of monies pledged, yet a clear strategy to address the lack of absorptive capacity (including institutional capacity and unclear land tenure regimes) remains lacking from REDD+ planning at both national and project level.
 - An evaluation of both the Amazon Fund and the Congo Basin Forest Fund, whilst finding very different levels of performance, leads to the conclusion that the international efforts towards reversing tropical forest cover loss are insufficiently focused on supporting large scale strategic programmes linked to emerging national and sub-national REDD+ strategies, including addressing the drivers of deforestation. Overall, support is geared to enabling specific, smaller scale forest-based projects which do not influence national policy or alter development pathways.
- **The “project driven” approach can be seen as a current hindrance to achieving the integrated and cross-sectoral national level reform needed for curbing deforestation. The literature identifies the need for a substantial new forest fund for climate, biodiversity and poverty with an appropriate scale of ambition which bases performance on a set of commonly shared principles which frame targets at a national level and require demonstrated political commitment and progress against nationally adopted strategies to achieve these objectives.**

Conclusions and recommendations

The theory of incentives that underlies the REDD+ mechanism suggests rewarding “performance”, leaving the choice of the means to governments. This approach has several shortcomings:

- Performance’ risks being artificially generated by overinflated and/or politically negotiated baselines. In a fund-based system, it would create windfall opportunities for a few governments and divert financial resources from an efficient use to tackle the key drivers of deforestation. In an offset system, it would additionally create more “hot air,” undermining existing commitments, and leading to inefficient and inequitable use of climate finance.
- The theory of incentives does not account for the fact that most governments in REDD+ countries have very limited capacity to implement the measures requested for obtaining the ‘performance’ that determines future payments.
- Financial incentives have little chance to address profitable forest uses such as oil extraction, mining and large-scale industrial agriculture entailing forest conversion at a scale which would make a difference in global emissions. Regulation and engaged civil society actions, possibly combined with financial incentives, are likely to be more effective than financial incentives alone in that respect.

➤ **The main recommendations arising from this report is to put “sustained investments” at the centre of REDD+ architecture and to redefine performance**

Future progress in REDD+ will require supporting nation states to develop and carry out legal and policy reforms that lead to long term and sustainable land use and improvements in governance, leading to improved management, use and conservation of forest land. This requires redefining the notion of performance from **ex-post results** towards results related to **sustained investments** in structural and long-term reforms that are needed for curbing deforestation and, as they focus on agriculture, tenure and governance, are “no regret” policies. It will also be critical for REDD+ recipient governments to understand that REDD+ benefits are related to capacity building, sustainable use of forest resources and land use that ensures social and environmental progress and secures the sustainable provision of goods and services.

Sustained Investments and Performance

"Sustained investments" should be understood as progressive disbursements pending on agreed performance indicators at a scale depending on the respective capacities of developing countries and for a duration that would encourage the swiftest convergence towards a high and sustainable level of forest cover.

“Performance” should be understood in a broad sense, to encompass a mix of indicators based on the effective and sustained implementation of forest-related policies, with some elements of performance (like forest cover and forest fragmentation) that can be considered as “proxies” for reduced emissions. For example, incentivising government investment to clarify and secure tenure rights and remove the legal incentives to deforest for securing land tenure, would appear as a prerequisite to prevent “land-grabbing” and enable a range of measures targeted at integrated forest and agriculture public policies and sustainable community forestry, potentially linked to “investment-oriented” PES programmes.

Finally, addressing the drivers to deforestation which are under the control of governments of forested countries will not be sufficient to rescue rainforests if in-depth changes in global consumption patterns are not carried out, especially in industrialised countries. Whilst appropriate economic instruments can contribute to solving the problem, the ultimate solution (still) remains in the collective choices and both collective and individual behaviour: forests are not only depleted and cleared to meet basic human needs; they are often converted supporting response to new demands for meat, timber, energy and fibre which – at the end of the day – boils down to the issue of ever-increasing consumption.

I. The origins of REDD+

A. Forestry in the Clean Development Mechanism

The inclusion of forestry in the Clean Development Mechanism (CDM) was heavily debated in the past, especially in the lead-up to COP 6 in The Hague in 2000. The questions revolved around how to deal with non-permanence and the risk of leakage in a project-based approach, and how to avoid inflation of carbon credits in an already unbalanced market. To deal with the issue of non-permanence a solution was found through the creation of “temporary credits” (see Box 1).

Box 1: Temporary credits in the CDM

To address the issue of non-permanence, two specific assets have been designed for afforestation and reforestation (A/R) projects: the temporary credits or tCERs (which expire after 5–9 years), and the long-term expiring credits or ICERs, valid for the crediting period but delivered by sections alongside growing trees. However, such credits are valued at only a fraction of the value of “permanent credits”, and they need to be replaced by its user when they expire, at the end of the commitment period for tCERs or at the end of the crediting period for ICERs. According to Chomitz and Lecoq (2004), the value of expiring credits is 25% of permanent credits under certain hypotheses (e.g. a 6% discount rate). According to Dutschke et al. (2004), “A tCER with a fixed validity period of 5 years will be worth between 14 and 38 percent of a permanent CER. An ICER with a validity period of 60 years, on the other hand, would nearly reach the value of a CER.”

It is unclear whether REDD+ would use the restrictive definitions of forests, afforestation and reforestation, which have been agreed upon in the United Nations Framework Convention on Climate Change (UNFCCC) for the purpose of land use and forestry activities in developed country Parties. It excludes (for example) any reforestation activity carried out within degraded natural forest land that would be comparable to a restoration of forest landscapes.¹

Current UNFCCC forest definition relies on two main parameters and implicitly leaves a third one up to the countries:

- (a) Land use parameter: a “Forest” land excludes land under any other (non-forest) use, in particular the agriculture use, e.g. “trees on farmland” or oil palm plantations may be excluded but areas that are “un-stocked” (i.e. bare of trees) but “expected” to regrow as forests (e.g. clear-cuts) are included.
- (b) Land cover parameter: “Forest” is a minimum area of land of 0.05-1ha with tree crown cover (or equivalent stocking level) of more than 10-30% with trees with the potential to reach a minimum height of 2-5m”. Each country can select its own thresholds in the above-defined ranges.
- (c) It does not consider any “naturalness” or degradation related pattern parameters (e.g. forest plantations versus natural regeneration, intact versus disturbed) nor account for sustainability of forest management practices, leaving such stratification of forests to the countries themselves.

The exclusion of “avoided deforestation” activities from the CDM

¹ The term “restoration” of the plant cover refers to direct anthropogenic activities that began on or after 1 January 1990, with the objective of increasing carbon pools by planting vegetation covering a minimum surface of 0.05 ha, and that do not correspond to the above-mentioned definitions of afforestation and reforestation (UNFCCC, 2001, Decision 11).

COP 6 decided not to allow for “avoided deforestation/conservation” projects, because of concerns that huge amounts of carbon credits would be generated by large conservation projects in forests not fully threatened (lack of additionality). However, the most persuasive argument revolved around the risk of “leakage” – inherent in projects which do not address national drivers of deforestation but only erect fences around forests which would inevitably lead to the displacement of pressure for deforestation elsewhere.

B. The “New Proposal” by Santilli et al. (2005) on “Compensated Reductions”

A seminal article, subtitled “A New Proposal” and presented as a discussion paper in 2003 at the COP 9 – and published in 2005 with another title – can be regarded as the starting point for the REDD proposal. It drew on lessons learned during the debates that took place before and during COP 6, and the rejection of project-based conservation schemes. The “Compensated Reductions” concept refers explicitly to a **national crediting scheme**, not a project-based one in order to reduce the problems of national leakage, even though the authors recognized that *“international market leakage is an issue”* (i.e. deforestation avoided in one country moving to another country). In Santilli et al.’s proposal, the historical baseline was favored, with the option to inflate baselines for countries with low deforestation. The concept also included the option for carbon stock increases for heavily deforested countries, in order to incentivize reforestation.

1) From RED to REDD

Introduced in COP 11, the concept of Reduced Emissions from Deforestation (RED) concept was further elaborated, expanded and officially adopted during COP 13 in Bali, Indonesia in 2007 in the form of REDD. The addition of “degradation” as the final “D” in the acronym resulted from the observation that forest degradation in some developing countries was as threatening as deforestation to the forest ecosystems, and a significant precursor to deforestation. Converging interests actively sought the inclusion of degradation: on one hand, conservationist groups wanting to turn selective logging (involved in degradation but not directly in deforestation) into conservation concessions; on the other hand the governments of the Congo Basin were seeking remunerations for the “sustainable forest management (SFM) plans” (and Forest Stewardship Council, or FSC, certification) endorsed by many timber concessionaires in Central Africa.

2) From REDD to REDD+

Following the debates during the 14th COP in Poznan, Poland in 2008, it was decided that REDD should evolve to REDD+ to encompass all the initiatives that can increase the carbon absorption potential of forests. The “+” in the REDD acronym refers to all activities associated with the preservation, restoration and sustainable management of forest carbon stocks. The official definition of REDD+ as set by the UNFCCC is as follows: *“Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries”* (UNFCCC Decision 1/CP16).

The inclusion of these activities is also linked to the pressure exerted by several countries and interest groups to advance their own agendas:

- Sustainable forest management could allow the remuneration of logging companies that improve their exploitation practices
- Plantations, which were already included in the CDM, albeit under very strict conditions, were supported by Indonesia, India and China (Parker et al., 2009) who would like to see their industrial plantations subsidised, despite already being highly profitable and in spite of high trade-off with biodiversity compare to natural forests.

- As for the conservation of carbon stocks, its meaning remains ambiguous: it may either refer to remunerating existing Protected Areas (as requested by some major environmental NGOs) rather than states, or to compensating countries which have preserved their forests and want to be compensated based on the amount of carbon contained in their standing forests. The latter perspective is fiercely defended by highly forested countries with low deforestation rates, which promote the idea that the fact that their forested expanses are still largely intact thanks to their public policies.²

Demonstration projects

COP 13 encouraged “demonstration projects” to tackle the drivers of deforestation. It triggered a blossoming of self-declared REDD+ projects throughout the world, despite the original intention to circumvent such atomized approaches and to focus on the national level. In breach of the principle of additionality, most of them repackage existing conservation or reforestation projects towards selling carbon credits on the voluntary market. According to a survey on pre-REDD+ projects, *“The design, data collection, and analysis methods for understanding the impacts of pre-REDD+ projects frequently lack rigor. In particular, the counterfactual scenarios for establishing socioeconomic impacts are vague, unscientific, or omitted completely”* (Caplow et al., 2011).

A voluntary certification scheme, the Verified Carbon Standard (VCS), which sets methodological standards, aims at giving more legitimacy to the “project-based” approach (Chagas et al., 2011), in spite of the loopholes associated with it (high risk of leakage, cost of verifying additionality, tackling “low-hanging fruits” rather than the structural causes of deforestation).

Box 2: REDD+ chronology

Activities

2005: Papua New Guinea and Costa Rica supported by eight other Parties propose a mechanism for reducing deforestation and forest degradation (Parker et al., 2009).

2007: As envisaged in the Bali Action Plan³ (COP 13), REDD is primarily about emissions reductions from deforestation and forest degradation (Parker et al., 2009). Additional roles of conservation and sustainable management of forest as well as enhancement of carbon stocks were also mentioned.

2009: The Copenhagen Accord⁴ (COP 15) recognised the crucial role of REDD+ to enable the mobilisation of financial resources from developed countries.

2010: As defined by the Cancun Agreements⁵ (COP 16), REDD+ is not only about reducing emissions but also halting and reversing forest loss to maintain existing forests and carbon stocks. REDD+ activities include reducing emissions from deforestation and forest degradation, conservation and enhancement of forest carbon stocks and sustainable management of forest.

Phased approach

2009: Meridian Institute (Zarin et al., 2009): readiness phase (national REDD+ strategy preparation, monitoring, reporting and verification – MRV – and capacity-building); more advanced readiness phase (implementation of policies and measures, or PAMs); and the compliance phase (compensation for reduced emissions and enhanced carbon stocks relative to agreed reference levels).

2010: The Cancun Agreements recognised the necessity of the three-phase approach and listed the systems and information that developing countries need to undertake REDD+ activities. These activities include a national plan, a national reference mission level, a robust and transparent national forest monitoring system and a system for addressing safeguards.

² Others would explain it through the absence of agro-industrial pressure and low demand for land in these sparsely populated countries.

³ <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>

⁴ http://unfccc.int/files/meetings/cop_15/application/pdf/cop15_cph_auv.pdf

⁵ <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>

Safeguards

2007: At Bali (COP 13), the United Nations Permanent Forum on Indigenous Issues⁶ pointed out that indigenous peoples should be fully involved in designing, implementing and evaluating initiatives REDD initiatives.

2009: CIFOR (Tacconi et al., 2009) suggested that effective social and environmental safeguards including the free, prior and informed consent of affected communities should be adopted.

2010 (May): In response to the long process and numerous conditionalities of REDD+ implementation, Papua New Guinea⁷ proposed an alternative plan that simply dismissed the issue of safeguards, land rights and corruption in forestry sector.

2010 (December): The Cancun Agreements requested that countries develop an information system to report how safeguards are addressed and respected in REDD+ implementation.

Cancun Agreements: a summary

The 16th Conference of the Parties (COP 16) at Cancun resulted in a series of decisions and set of principles that form a solid foundation for REDD+. The Cancun Agreements provide an important guidance for all actors – countries, NGOs, multilateral institutions – who are helping countries prepare for REDD+ in the fast start period (prior to 2012). However, these actions will remain outside of the UNFCCC until discussions about appropriate methods for tracking and financing national mitigation actions are completed.

The Cancun Agreements are based on the REDD+ text that has been in discussion for years. Key issues agreed include: (i) activities coverage, (ii) phased approach, (iii) role of developed countries, and (iv) safeguards.

First, REDD+ activities include: reducing emissions from deforestation and forest degradation, conservation and enhancement of forest carbon stocks and sustainable management of forests. Compared to the previous REDD+ texts, the Cancun Agreements put an emphasis on activities of maintaining existing forests and carbon stocks, making REDD+ not only about reducing emissions but also halting and reversing forest loss (Austin et al., 2010). Agriculture is not considered as part of REDD+ activities, instead (i) as nationally appropriate mitigation actions (NAMAs), (ii) in the REDD+ work program on drivers of deforestation and (iii) in the planning, prioritising and implementing adaptation actions (Climate Focus, 2011).

Secondly, the Agreements provide countries with guidance on REDD+ readiness. The decision supports a three-phase approach, which are strategy development and capacity-building (phase 1), strategy implementation (phase 2) and performance-based payment (phase 3). The Agreements recognise that the phased approach will be necessary and list the systems and information that developing countries need to undertake REDD+ activities. These include a national REDD+ strategy, national and sub-national reference emission levels, an MRV system and a system for providing information for how safeguards are being addressed and respected.

Thirdly, the Agreements clarify the role of developed countries in REDD+ activities. They should provide financial support and coordinate financing and activities in each REDD+ country. At present, activities sometimes overlap and/or in conflict. Moreover, they should address their own actions that drive deforestation. The text also recognises the role of international organisations and other stakeholders in both the implementation and coordination of REDD+ activities.

Lastly, the Agreements provide details on safeguards that actors undertaking activities and providing finance will need to respect, even in the fast-start period. The Agreements also request countries to develop an information system to track how safeguards are addressed and respected

⁶ Statement on the Announcement of the World Bank Forest Carbon Partnership Facility by Victoria Tauli-Corpuz, Chair UN Permanent Forum on Indigenous Issues, 11 December 2007.

⁷ <http://www.redd-monitor.org/wordpress/wp-content/uploads/2010/06/PM-Somare-at-Oslo-Forest-Climate-Conference-27-May-2010-Final.pdf>

for REDD+ – an important operational step for making safeguards applicable.

Durban Agreements: a summary

In Durban, the debate on REDD+ covered key issues of finance and safeguards. Both support and objections to a market mechanism became stronger, alongside the weakening of rules related to social and environmental integrity.

As regards financing, some governments are clearly opposed to financing REDD+ through carbon offsetting, while others pushed for this financing option. As a result, there is a stated possibility (it is “considered”) that appropriate market-based approaches “could be developed by the COP” to support results-based actions under a phased approach, subject to full respect for all safeguards. It is also noted that non-market based approaches could also be developed. Countries are invited to submit their proposed reference levels, on a voluntary basis and when deemed appropriate. It is agreed that countries should update their reference levels periodically. They are also invited to say how they developed their reference levels, why, and how national circumstances were taken into account. Subnational reference levels may be elaborated as an “interim measure” until national levels are developed. According to delegates, subnational reference implicitly refers to regions and provinces, not projects level.

The Durban agreement put the emphasis on national sovereignty. “The logic of REDD will be the logic of realpolitik » (Bioclimate, 2012).

Though the issue of safeguards was addressed in Durban (COP 18), the language used for safeguards to protect local communities, indigenous peoples and biodiversity remained weak (Kovacevic 2011). The draft reduces requirements from collecting data and measuring impacts of REDD+ to merely reporting how developers implement safeguard measures (Aurora 2011) and most likely at the behest of developing countries, many of which lack the capacity to meet complex and costly donor requirements (Kovacevic 2011; Dooley and Horner 2012). The Draft Decision on Safeguards of the Durban Agreements paragraph 2 reads (UNFCCC 2011):

“... Systems for providing information on how the safeguards referred to in appendix I to decision 1/CP.16 are addressed and respected should, taking into account national circumstances and respective capabilities, and recognizing national sovereignty and legislation, and relevant international obligations and agreements and respecting gender considerations...”

The lack of robust safeguard reporting rules as well as remedial measures in cases of under-performance could create a risk to the rights of indigenous peoples and local communities as well as the environment (Kovacevic 2011).

The CoP 17 also established a process to develop a protocol, another legal instrument or a legal outcome under the Convention applicable to all Parties, through a subsidiary body under the Convention to be known as the Ad Hoc Working Group on the Durban Platform for Enhanced Action; it shall complete its work as early as possible but no later than 2015 in order to adopt this protocol and for it to come into effect and be implemented from 2020. It implicitly became the time horizon for the full implementation of REDD+.

Remaining concerns

Although the Agreements represent two steps towards a fully-fledged REDD+ framework, important questions are left unanswered:

First, most of the activities included in REDD+ remain undefined by the UNFCCC (Austin et al., 2010), and this may impact negatively on biodiversity and on indigenous peoples. Proxies, guidance and modalities for monitoring performance are still needed. A group convened by IPCC to resolve the definition of degradation (Penman et al 2003) was unable to produce a clear definition because losses of biomass in forest may be temporary or cyclical and therefore essentially sustainable, even if on average the carbon stock remains permanently below that of intact: forests. The concept of

"sustainable management of forests" (SMoF) is often related to commercial timber operations, although low intensity community forest management (CFM, Herold & Skutsch 2011) may also qualify. It is usually understood as sustained yield, i.e. the extraction rate equals natural increment. In the absence of binding standards, other interpretations might be tempted. In a gradual approach to REDD+ activities, countries with high forest cover, which have not started their forest transition (Rudel et al 2005) yet could argue that, following the model of developed countries, their "sustained yield" is higher than current yield, and that converting or degrading is part of their sustainable development, hence of SMoF. This would open the door for factoring some emissions out, even if monitoring and reporting of deforestation and degradation activities would be mandatory themselves. Enhancement of Carbon Stocks may be understood either as afforestation and reforestation (reverse deforestation) or as enrichment planting (reverse degradation). According to Herold & Skutsch conservation of forest carbon stocks is an effort to ensure permanence by establishing long-term commitments to preserve forests. It would imply that human activities in such areas are minimal, and in sum, will result in a net zero carbon balance in the near and long-term, referring in particular to forests not considered at risk and resulting in the continued supplies not only of carbon but also of other ecosystem services. For example, as happened with the establishment of some national parks, the term "conservation of forests" could lead to large-scale evictions and loss of rights for indigenous peoples and local communities. Similarly, "enhancement of forest carbon stocks" may result in conversion of land to industrial tree plantations with serious implications for biodiversity, forests and local communities (Lang, 2010; Bucki et al, 2012).

Secondly, further clarity is required on the process that would enable a technical assessment of national reference levels, as they will determine the potential compensation a country could receive from REDD+ for a given level of activity. (Austin et al., 2010).

Thirdly, the use of language related to safeguards remains weak (Dooley, 2011). The safeguards "should be promoted and supported" rather than being obligatory for governments to comply. Not only is the principle of free, prior and informed consent not included: there is no definition of what is meant by international monitoring, or the consequences of breaching the safeguards (Lang, 2010). This could lead some developing countries to misuse REDD+ funds by not ensuring customary land rights, and to see forests only carbon sinks rather than biodiverse ecosystems (CIFOR, 2011). Parties must still consider the need for further guidance to ensure transparency, consistency, comprehensiveness and effectiveness when informing on how all safeguards are addressed and respected.

Lastly, there have been some concerns over the lack of promised financial resources flows towards building capacity in developing countries (Bernard et al., 2011; La Vina et al., 2011).

C. The issue of permanence in REDD+

As with the CDM, non-permanence is a critical issue for REDD+, especially in an approach in which carbon credits would be used as offsets to "compensate" for actual emissions: forest emissions removals can only be guaranteed for the duration of REDD+ (probably a few decades) whereas the emissions from fossil fuels that forest offsets would allow are irreversible. Although no decision has been made in the UNFCCC negotiations on this point, the debates are similar to those that took place in the development of the CDM. Some, like those who prepared the seminal proposal (Santilli et al., 2003), consider that the same solution would apply, i.e. the issuance of temporary credits. Others (Zarin et al., 2009) are looking for alternative accounting solutions such as setting aside a certain quantity of credits over commitments periods ("buffer accounts") or insurance schemes (although an insurance scheme cannot prevent the non-permanent carbon credits from being used as an emission permit elsewhere).

In a carbon trading approach, to cope with non-permanence, REDD+ credits would have to be discounted. Indeed, discounting is the traditional economic response in the face of risky assets. Discounting has also been proposed as a way of mitigating the risk of non-additionality or leakage

(The Nature Conservancy, Conservation International & Wildlife Conservation Society, 2010). Buffer accounts are also an indirect manner of discounting, since only a fraction of the credits are available by the host country for selling.

However, it is frequently overlooked that **discounting reduces incentives**, especially when the opportunity costs of conserving forests are high. There is in fact a contradiction between the (fully rational) claims that there must be a high level of incentives for developing countries to reduce deforestation, and the (no less rational) statement that to cope with the risks of non-permanence, limited additionality and potential leakage, the carbon assets that constitute these incentives should be discounted.

This issue is also well known to CDM practitioners, and was raised regarding the “incremental cost” in the procedures of the Global Environment Facility (GEF). In the CDM, the risk is that discounted credits would not be sufficient to trigger shifts in the production process and would be considered only as the “icing on the cake” by project developers (see Schneider, 2007). In other words, the CDM would essentially be made up of non-additional projects: those already profitable without the discounted incentives. There is no reason to think that things would necessarily be different with REDD+.

II. The issue of architecture

It is worth recalling that REDD+ was not meant as a cap-and-trade instrument but as an incentive instrument:

- First, there is no reason to believe a priori that all developing forested countries want to participate in this voluntary scheme. A country such as Angola has clearly expressed its intention to welcome as much large-scale foreign agricultural investment as possible, illustrating the risk of international leakage of deforestation through the reorientation of agribusiness. Issues such as the international displacement of land use entailed by forest conservation or plantation schemes, within the context of the growing scarcity of arable lands and increasing agricultural product demand (including biofuels), have been well illustrated by the research work of Meyfroidt et al. (2010).
- Second, REDD+ is asymmetrical, which means that participating countries can only be credited (“no-lose”); there are no sanctions if they do not reduce deforestation against a reference level (“no-liability” or unsanctioned “reversals”), since developing countries still oppose quantitative caps on their emissions. It could be considered as a first step toward an unified cap-and-trade system (Eliasch Review, 2008), but the prospect for such architecture seems more remote than ever, given the current state of international negotiations and carbon markets.

A. The baseline/reference level issue

REDD+ shares with the CDM the thorny need of designing “counterfactual scenario” against which the reduction would be measured. This refers to the efforts to determine a baseline, or reference level, which is a projection of future deforestation rates in a business-as-usual (BAU) scenario, and serving as a benchmark to measure the impact of REDD+ actions. The counterfactual refers to expressing what would have happened in the absence of REDD+ policy approaches and incentives and underlines the risk that, due to the unpredictable nature of deforestation, countries are rewarded for reductions that would have occurred anyway, or penalised for increases over which they have no control.

In economic evaluation, setting a baseline to assess the net effect (i.e. excluding factors external to the project) amounts to comparing two situations, one with the project and one without, and never a “before” versus “after” comparison, as in the case of REDD+, which does not distinguish between the specific impacts of the project and the external events and dynamics taking place at the same time which impact on deforestation rates.

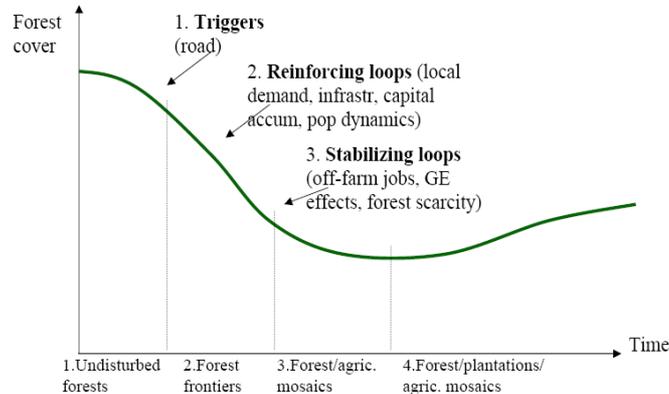
Additionality is also difficult to assess at the national level: it is hardly possible to know what would have occurred regarding deforestation and degradation without the REDD+ incentive. At least two key factors can be mentioned:

- The number of variables at national level: deforestation is a result of numerous and complex interactions, both human and natural (such as climate), rather than the consequence of a single project undertaken by an individual or a company.
- Political influence of interested governments and the role of state diplomacy which plays a key role in setting crediting baselines (politically negotiated).

“Historical” vs “adjusted” in a baseline scenario

The initial proposal presented by Papua New Guinea (PNG) and Costa Rica in 2005 was to adopt a historical reference, i.e. the average of past deforestation converted into carbon emissions. However, such a proposal has serious weaknesses. The forest transition theory (Angelsen, 2007), which often begins with massive deforestation, shows that such high rates of deforestation are unlikely to be maintained over time. Behind the forest transition theory, there is the increasing marginal cost of deforestation of landlocked areas. Hyde and colleagues (Hyde et al., 1991, 1996;

Hyde, 1998) have highlighted the causal relationship between the frontier of the economic rent and deforestation. Of course, such a frontier evolves with relative prices, and decisions such as public road building can move the profitability perimeter of deforestation. But when the remaining forests tend to be concentrated in mountainous highlands, as in parts of Asia, including Borneo, the decline in the area deforested annually is unavoidable: the only question is when the inflexion point will be reached, and the rate of the slow-down. Countries with historically high rates of deforestation are likely to benefit from REDD+ credits and could enjoy a high probability of being rewarded, without any alteration in public policies regarding forests.

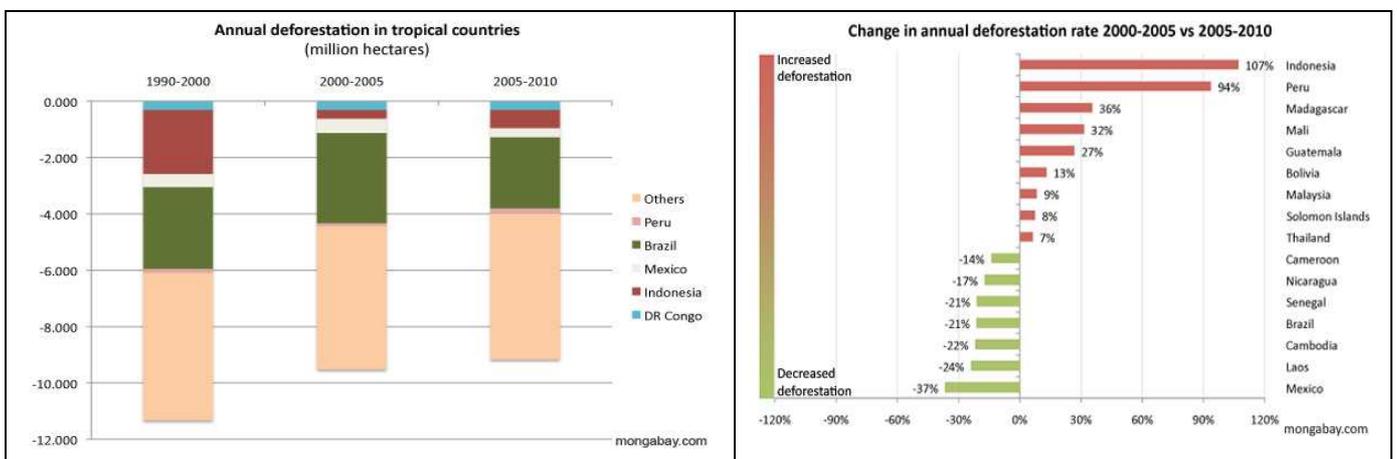


Source: Angelsen (2007)

As noted by Angelsen (2008), “An extrapolation of historical rates underestimates future BAU deforestation for counties at the early stages in the transition, while it overestimates BAU deforestation for countries at the later stages”. However, the transition curve is not predictive. The latest estimates of net deforestation from the UN’s Food and Agriculture Organisation (FAO) show that, after a dramatic drop in annual deforestation rates in 2000–2005 (compared with 1990–2000), deforestation surged during 2005–2010, as suggested by this table and the graph prepared by Mongabay.com:

Change in the annual rate of deforestation in Indonesia (negative number represents deforestation)

1990–2000	2000–2005	2005–2010
(-) 1,914,000 ha	(-) 310,000 ha	(-) 685,000 ha



Source: Mongabay.com

This reversal of the deforestation rates is probably due to the increasing profitability of palm oil, which has encouraged planters to clear forests and move forward the agricultural frontier, especially in the “outer islands” of the archipelago. Extrapolating from the difference between the periods 1990–2000 and 2000–2005 would have suggested that Indonesia had reached a “tipping point” and would prepare to enter gradually into the stabilisation period foreseen by the forest transition curve. This would have been without the “unexpected” market variations.

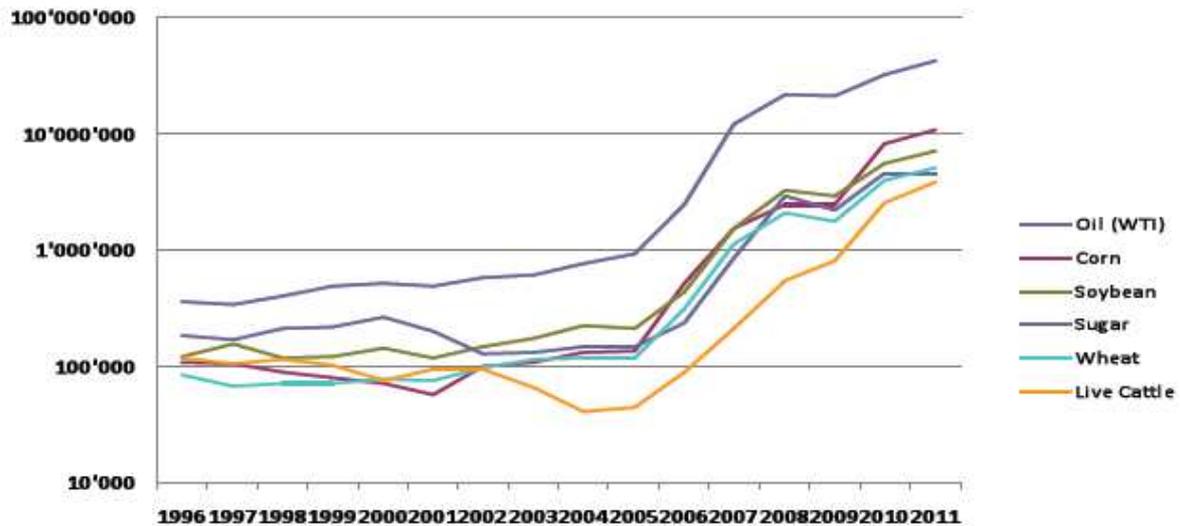
The historical baseline is not viewed favourably by countries which have vast expanses of forest and relatively low deforestation rates, and which are still waiting for a wave of development which is supposed to lift them out of widespread poverty. This is typical of the situation in Congo Basin countries, and also countries such as Bolivia, Paraguay and Guyana. Low deforestation is linked to poor transport infrastructure, high timber extraction costs, low population densities in rural forested areas and limited attractiveness for large agricultural investments (due to unclear property rights and obstacles to “smooth” business).

Several researchers have suggested a **reference level based on a baseline scenario**, i.e. predicting deforestation rates on a given period under a “business-as-usual” (BAU) scenario. Chomitz et al. (2007) suggest computing a *“normative reference level based on standardized estimate of the rate of increase of agricultural production, adjusted for an estimate of the rate of increase in agricultural productivity as well as the mean carbon content of forestland at the agricultural margin”* (p. 206). However, they also noticed significant correlations in the Brazilian Amazon between deforestation rates and the price of beef at the farm gate; and also with precipitation. Angelsen (2008) noted: *“The modelling approach raises several issues. First, for most countries the time series data needed are poor or nonexistent. Second, deforestation modeling history suggests that cross-country models are not robust, i.e. no clear answer can be expected. Third, it is questionable whether a ‘black box’ baseline figure will be acceptable to the parties [to the UNFCCC]”*.

The link between agricultural prices and deforestation rates in open economies of forested and developed countries is well known (Angelsen and Kaimowitz, 1999). As pointed out by Angelsen (2008): *“Unlike emissions from fossil fuels, which are closely linked to one variable (gross domestic product, or GDP), deforestation is ‘multicausal’ and can be highly variable from year to year”* (p. 55).

The large variability in rates of deforestation between periods reflects the sheer number of parameters involved in the deforestation – not only prices, but also real interest rate, currency exchange rates, etc. – and their complex interactions, as analysed by many researchers (Angelsen and Kaimowitz, 1999; Geist and Lambin, 2001; Kanninen et al., 2007). This also suggests that single parameters – such as the rate of increase of agricultural production coupled with productivity, as suggested by Chomitz et al. (2007) – are not valid proxies to predict deforestation in a given commitment period of a few years (currently five to eight years, under the Kyoto Protocol).

Number of annual trades by commodity, 1996–2011



Note: The y-axis is a logarithmic scale of base 10.

Source: Bicchetti & Maystre (2012) calculations based on Thomson Reuters Tick History database

Moreover, the prices of agricultural commodities are increasingly volatile since they are shaped by anticipation, high frequency trading and speculation, just like oil and many other primary resources (notably on the Chicago commodities market), as well as the economic growth in emerging economies. Such factors are not predictable, nor are they the outcome of the current debates (which are crucial to the fate of forests in many countries) about the importance to be given to the global use of biomass for energy. In brief, models can predict **where** the deforestation is likely to take place, but they are unable to say **when** those frontier forests will be cleared, since this depends on several factors often beyond the reach of national policies.

Dynamic/slipping baselines

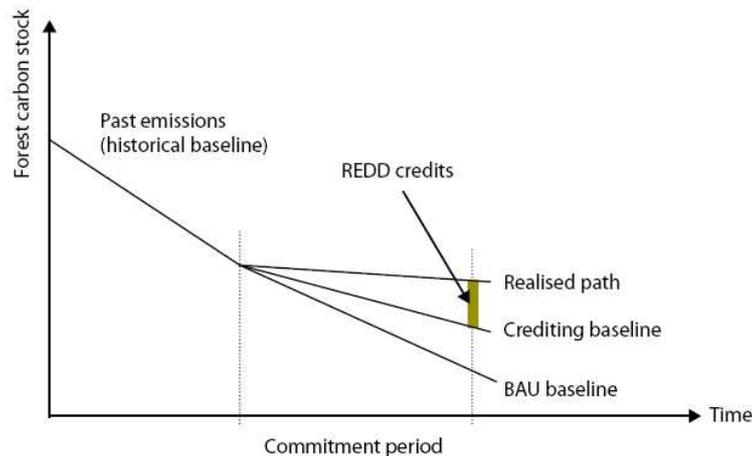
The idea behind this principle is to disentangle the outputs attributable to policies and to *force majeure* (forest fires, flooding, agricultural prices changes, etc.) through periodic readjustments of the baseline (slipping baseline).

The “slipping baseline” has many advantages, but will face serious political obstacles, as the countries would not know until the end of the commitment period how the baseline will be readjusted. One can imagine they would easily accept *force majeure* when it is favourable (e.g. taking forest fires into account), but would disagree when it turns unfavourable (e.g. drop in agricultural commodity prices which reduces deforestation pressure). This approach leads logically to ex-post evaluation, i.e. trying to quantify the **net effect** of public policies on reducing deforestation. A proposal on ex-post evaluation has been formulated by Motel-Combes et al. (2009), under the name of Compensated Successful Efforts, which will be discussed in the section on “performances” in the second part of this report.

Reference level and business-as-usual baseline

As Angelsen (2008) mentions, “One prominent proposal in the debate (e.g. by Coalition for Rainforest Nations) is to include a development adjustment factor (DAF). A practical application of this might be that countries with low levels of GDP per capita will get more generous baselines.” This option is retained in the Meridian Institute Report (Zarin et al., 2009), which recommends the adoption of a

“reference level” distinct from a business-as-usual baseline that would reflect the “*common but differentiated responsibilities*” of countries in the collective effort to mitigate climate change.



Source: Zarin et al., 2009

Such an approach does not overcome the difficulties associated with the Reference Level itself, since the reference level is derived from the BAU and is set **above** it, as suggested by the graph. In a carbon trading approach, it would allow for “legal hot air”, similar to the “hot air” granted to former USSR countries by the 1997 Kyoto Protocol. In a fund-based approach, it increases the cost of REDD+ and would not resolve the difficulties of the poorer countries: The “REDD+ rent” (Angelsen, 2008 – we will come back to this notion of “REDD+ rent” in the second part of this report) would be delivered at the end of commitment periods (since it is calculated against the “realised path”, i.e. the actual deforestation). Unfortunately the difficulty for such countries is that **currently** they do not have the financial means (or the technical capacity) to implement required (and often costly) measures that could **eventually** lead to the deforestation reduction. In other words, they need investment rather than the potential to collect “rents”. Finally, it opens the way for “reference levels” to be set by political negotiation, which is likely to lead to an uncontrolled inflation of REDD+ costs and would compromise further the credibility of forest mitigation.

The carbon stock approach as an alternative to baseline setting

The Centre for International Sustainable Development Law (CISDL) submitted a proposal to the UNFCCC (Prior et al., 2007), suggesting that tradable carbon credits could be issued to finance activities to protect forests in host countries. This proposal can be considered as a “cap-and-trade” approach which provides for both deforestation and degradation:

- the amount of carbon stocks that exist in a country’s forests is calculated prior to the crediting period;
- the forest area is divided into two parts: a “reserve” that must not be degraded, and the remaining area that is expected to be converted in the future for development needs;
- only forest conservation within the area outside the reserve can result in the issuance of tradable carbon credits; and
- the loss of carbon due to *force majeure* events (e.g. fires or flooding) should not result in fewer carbon credits being issued.

It has been acknowledged by Prior et al. (2007) that: “*Reserve will be difficult to agree upon and in effect is similar to a future baseline assessment at a future point in time*” (p. 9). They also specify that “*establishing the reserve will be a difficult issue. However, it is not expected to be any more difficult than establishing national baselines that must take into account historic as well as future deforestation rates, or Annex I Parties’ quantified emission limitation and reduction commitments*” (p. 16). In addition, monitoring the full carbon stocks over hundreds of millions of hectares of tropical

forests would require extended monitoring capacities, trained human resources, and vast amount of money to maintain the entire system.

B. The competing architectures

Although the concept of REDD+ was initially designed as a performance-based instrument for reductions **at the national level**, there is intense lobbying from conservation organisations and the private sector to allow REDD+ projects to be remunerated directly or to sell carbon credits on the global market.

Main potential architectures for REDD+

One can identify four main approaches, with possible combinations and variations in each option.

1. REDD+ as a **global market-based** (cap-and-trade type) mechanism rewarding national governments with (fully or partially) marketable “carbon credits” for the reduction of deforestation (and degradation, if monitoring proves to be possible) in a given commitment period post-2012;
 - Dual market: To protect the carbon market against possible “flooding” (over-supply) of carbon credits, REDD+ can be designed as a **specific** (forest-only or LULUCF-only) **market-based** mechanism, not fungible with Kyoto emission allowances. REDD+ countries would be rewarded with specific carbon assets for achieving national targets of deforestation reduction, with industrialised governments having agreed to purchase a specified amount of such assets.
2. REDD+ as a project-based scheme (extended CDM type), in which the reduction of emissions from projects will be certified and project-holders would have the possibility to sell their certified emission reductions on the global market.
 - In order to avoid loopholes and leakage risks associated with a full project-based approach, a “**nested approach**” has been proposed by Pedroni et al. (2007). In the nested approach, accounting and crediting takes place at both the subnational (project) and the national level. At the end of each accounting period, the country would have to deduct all credits issued and committed at the subnational level from national credits for country-wide emission reductions (Angelsen et al., 2008). A key question mark remains though: Should the national level fail to deliver carbon benefits, would independently validated and verified subnational activities still be credited, and if so, by whom?
3. REDD+ as a centralised funding scheme (backed by an international fund), rewarding the government for succeeding in curbing deforestation against an agreed target or baseline. This no-market approach is essentially the same as what was previously called the Brazilian proposal (Government of Brazil, 2007), even though the Brazilian government has considered the possibility of selling carbon credits on its domestic market if the industrialised countries first reduce their emissions. Many “innovative financing sources” have been proposed that could provide the income for such a fund without relying on government aid.
4. REDD+ as an investment instrument (backed by an international fund) for financing (sectoral and extra-sectoral) policies and measures. In such an approach there is no baseline, but agreements with governments to implement cross-sectoral and integrative strategies focusing on agriculture changes, land tenure and land-use incentives mainly for farmers. Performances will be assessed through policy implementation indicators rather than through changes in deforestation rates against a baseline.

C. Strengths and weaknesses of the various architecture proposals

Leaving aside the difficulties associated with the “performance-based” approaches (the first three options) which entail baselines settings, or to the issue of additionality and the associated risk of “hot air” (or uncontrolled inflation of the costs of REDD+ in a fund-based approach), we will explore other features of the proposals, and further explore option 4 which bypasses the problem of quantifying emissions reductions and baseline setting by basing performance on the achievement of agreed policies and measures.

1) *Non-fungibility in a market-based approach?*

One variant or “specific market-based mechanism” of proposal 1 is based on the non-fungibility of REDD+ credits in order to protect the carbon price on existing markets which are sensitive to the oversupply of credits. The assumed strength of proposals based on carbon markets would be potential to collect large amounts of money thanks to the private companies that will have to offset their emissions to fulfil their legal obligations (compliance market). Here, the expected demand would be created by voluntary commitments of Annex I governments in addition to their reductions targets in the non-forest sectors. There is a risk that Annex I governments could be reluctant to increase their reduction burden, or that they will implicitly balance (i.e. revise downward) their non-forest commitments with their anticipated REDD+ commitments.

A possible alternative would be to create a dual market for land based credits (fungibility between REDD+ and LULUCF credits only) and to set new, additional targets for these sectors. However, the potential demand for carbon credits that cannot be used widely to offset fossil emissions in a compliance market is quite uncertain. Furthermore, choosing such a government-based approach may no longer require a “market” on which to trade credits, since the Annex I governments are not doing their reductions “at home”, but are relying on the capacity to use flexibility mechanisms if they cannot meet their targets at reasonable costs (CAN International, 2007). In sum, this variant is not fundamentally different from the **centralised funding** approach, except that it makes it easier for bilateral cooperation between potential buyers (Annex I countries) and sellers (developing countries) of REDD+ carbon credits.

2) *The “nested approach”: solution, compromise or back to project-based?*

The nested approach attempts to reconcile carbon trading with crediting projects directly through project developers rather than via governments. Through this, it would meet the expectations of both the private sector looking for project-based carbon business opportunities and the “project developers” (notably conservation NGOs) who do not trust the governments to redistribute REDD+ monies or to financially support REDD+ projects in a national-based approach. The nested approach can be considered as the current “mainstream”, though it is hard to see how it actually differs from a mere project-based approach.

In a box entitled “How a nested approach could work”, Angelsen et al. (2008) indicate that:

“A project generates 1000 tonnes of carbon dioxide emission reductions during the accounting period. The country’s overall reduction (carbon credits) is 5000 tonnes during the period. The 1000 tonnes already credited to the project have to be deducted from the national balance. To allow for project-level leakage, monitoring, reporting and verification (MRV) costs, and the risk of non-permanence (higher emissions in the future), the government may retain a certain share of the carbon credits assigned to the project. Thus the government and the project might make a deal that the project keeps 70% of the credits while the government keeps 30%. In this scenario, the project would keep 700 credits and the government 4300 credits.”

In short, the projects are credited first (possibly with a discount to cope with the various risks) and the government takes the credits from reductions which are surplus to the aggregated reductions

from projects (provided that there is one). But what happens if a country sees an **increase** in national deforestation (i.e. deforestation above the agreed reference level), while all the projects are certified as having reduced deforestation in their areas of intervention? The nested approach seems to have been conceived with small countries in mind, where aggregated project areas would cover a significant share of the country's forest surface. But in large countries such as Brazil, the Democratic Republic of Congo (DRC) and Indonesia, it is most likely that "REDD+ projects" would cover only a fraction of the forested area nationwide. It is likely that a country would encourage, on the one hand, REDD+ projects in given areas, while on the other hand allocating large tracts of forest land to timber companies and agribusiness in other areas. Alternatively, leakage could take place from the areas under REDD+ projects, with a displacement of the pressure of deforestation in the other forested areas. As the nested approach is implicitly a market-based approach, **it would create hot air**, unless a safeguard would prevent crediting projects if there is no reduction of deforestation at national level. But Angelsen et al. (2008) specify: *"Should the national level fail to deliver carbon benefits, independently validated and verified subnational activities would still be credited."* This position is logical: the former option (no crediting) would prevent private actors to invest in carbon projects where they do not manage the outcome in terms of crediting. But it would be at the expense of environmental integrity.

In a real commodity market, the buyer and seller usually have opposite interests as regards the measurement of volumes exchanged. In an open forest carbon market, where uncertainty on MRV data, liabilities and origin could be very high, both the seller and the buyer could have an interest in overestimating volumes (the project to sell more, the company to offset more).

3) The fund-based approaches

Fund-based⁸ approaches in REDD+ are often disregarded for their alleged incapacity to collect enough money, compared to market-based approaches (Edf and IPAM, 2007; Swickard and Carnahan, 2010). There are also numerous issues associated with the governance of an international fund, regarding the balanced representation of donors and recipient countries, of civil society, and of international organisations such as the International Monetary Fund (IMF) and the World Bank; eligibility criteria; and disbursement procedures. Large funds could also generate an internal bureaucracy and cumbersome procedures that often undermine their efficiency and legitimacy in REDD+ Countries. Yet, the Durban Agreements encourage the operating entities of the financial mechanism of the Convention (i.e. the GEF and the emerging Green Climate Fund) to provide results-based finance for REDD+.

Funds allow for multiple objectives

One advantage with a fund-based approach is that it allows for multiple objectives. Biodiversity will more readily be taken into account in the REDD+ activities under a fund-based approach than under a market-based one which, in spite of all the safeguards and the guidelines that will be produced, will inevitably tend to focus on the only "marketable asset", carbon (Phelps et al., 2011) and on the safest, most profitable areas. For example dry forests – where many rural poor live, especially in Africa, and where there are high levels of biodiversity – are currently neglected as targets for REDD+ demonstration activities⁹. The market-based approach is criticised by NGOs and analysts who emphasize that REDD+ may disempower local people, through recentralisation (Phelps et al., 2010) and "land-grabbing" for carbon.

⁸ In this instance, "fund-based" refers to all options to raising finance which do not involve trading credits on a carbon market. This includes public monies, as well as potential taxes and levies (including on carbon markets) and private investment. The "fund" where monies are raised is not contractually bound to a project or emissions reduction, which allows different options to be explored for the distribution of financial incentives.

⁹ Emerging REDD+, A preliminary survey of demonstration and readiness activities
Sheila Wertz-Kanounnikoff; Metta Kongphan-apirak; CIFOR 2009

Collecting enough money for an international fund is technically feasible, but it is essentially a question of political will. In a draft paper entitled “Mobilizing Climate Finance – A Paper Prepared at the Request of G20 Finance Ministers” (September 2011), the international institutions in charge of its writing recall that *“Its starting point is the commitment made in the Copenhagen Accord and Cancun Agreements on the part of developed countries to provide new and additional resources for climate change activities in developing countries. This commitment approaches US \$30 billion for the period 2010–2012 and US \$100 billion per year by 2020, drawing on a wide range of resources, public and private, bilateral and multilateral, including innovative sources.”* Innovative sources include international taxation schemes. For Nordhaus (2009), such schemes are the only ones that could finance very large investments, which are predictable and sustainable. It could be a tax on international financial transactions and on financial exchanges, a national or European “carbon tax” with the proceeds of “border adjustment tax” (to protect against imports from countries without emissions constraints) to be poured in the Green Climate Fund, or it could be a levy on international aviation and maritime bunker fuels. It could be also a portion of the auctioning of emissions permits, as contemplated by the EU for the next commitment period of the European Trading Scheme (ETS).

Clearly many of these options are workable only if they are implemented by a critical mass of Countries, in order to avoid unfair competition and the displacement of industries and activities in tax-free countries, etc. It is difficult to predict how the global and European governance will evolve in the coming years.

An approach that avoids the thorny issue of baseline/reference setting

A fundamental difference between the architecture of options 3 and 4 is that the last one bypasses the difficulty (which many consider insoluble) of setting a reference level (prediction of future deforestation, possibly compounded by political negotiation) against which the “performance” of the country would be measured. Option 3 is about rewarding “performance” (with financial incentives), while option 4 is about investing, along with committed governments, to address the drivers of deforestation and to engage the country under a different development pathway, referred to as a “green economy” (UNEP, 2011) or “low emission rural development strategies”.

D. The limits of the theory of rational choices

“REDD+ countries have an incentive to reduce deforestation up to the point where the marginal cost of reductions (i.e. the national supply curve of REDD) is equal to the international compensation, for example, the market price for REDD+ credits” (Angelsen, 2008). Such a statement is typical of the “theory of rational choices”, an approach we will discuss now in relation to the issue of “fragile states”. The very notion of “fragile states”, albeit controversial, refers to the OECD (2007, p. 29) definition which characterises countries where there is a *“lack of political will and/or capacity to provide the basic functions needed for poverty reduction, development and to safeguard the security and human rights of their populations”*. Such a definition emphasises the two issues we want to address: the will and the capacity to implement public policies that would tackle vested interests for changing the existing trends favouring deforestation.

The “storyline” of REDD+ as an incentives-based system, inspired by the rational choices theory, can be stated as follows: *“Deforestation in developing countries is a problem of opportunity cost: the governments **decide** to deforest, or not, the countries chose to deforest as they earn more compared to conservation or SFM. The state can be assimilated to any other economic agent, making rational decisions by comparing the relative prices associated with the alternatives offered. Then, the government is acting by adopting the appropriate measures for reducing deforestation and modifying its development pathway.”* This storyline is consistent with the position of that describes REDD+ as *“not encroaching on the sovereign discretion of nations to design acceptable and adequate policies and measures nationally”* (Streck, 2010, p. 389).

Two assumptions underlying the REDD+ proposal are particularly arguable: (i) the idea that the governments of such states are in a position to **make a decision** for shifting its development pathway on the basis of a cost-benefits analysis anticipating financial rewards, and (ii) the idea that, once such a decision has been made, the financial rewards enable the “fragile” state to **implement and enforce the appropriate policies and measures** which could translate into reduced deforestation (Karsenty and Ongolo, 2012).

Are states rational and autonomous agents?

Can a state be regarded as having an economic objective function with a single set of preferences, able to adjust its behaviour on the basis of incentives? An economic agent is expected to have an ordered set of preferences (any option can be classified hierarchically according to its utility) and make decisions based on a calculation of value. It is easy to understand that any state is subject to conflicts of interest between government departments and public agencies, a situation that is exacerbated in countries where the state does not have sufficient autonomy to impose solutions of general interest on the different competing parties.

Moreover, public policies are characterised by legacies to be managed, and a high level of path-dependence vis-à-vis previous choices that prohibit “autonomy” of public decision-making similar to that envisaged for the theoretical agents who are capable of comparing relative prices and making decisions accordingly. It is difficult to believe that even Brazil (which is not a fragile state) could suddenly break with its development model, which is based on the development of agro-exports which, in turn, are based on national capitalism; it is also unlikely that Indonesia (which could be considered as relatively more fragile than Brazil) would be able to enforce a forest law in provinces that have been empowered since the late 1990s; it is also unlikely that the Democratic Republic of Congo (one of the most fragile states) would give up state ownership of forests that allow governments to enjoy monetary and political benefits through the allocation of forest concessions and lands.

Paradoxically, the “democratisation” and “decentralisation” that have marked changes in the last twenty years in countries of the South may have contributed to further complicating the decision-making process at the national level. National parliaments are more or less openly relaying the position of some economic pressure groups, and parliamentarians have become much more sensitive to the problem of maintaining jobs in their constituencies, especially when the need to increase revenue for central government leads to the elimination of a number of activities that generate revenue and employment in forested areas.

The assimilation of a government to an economic agent appears to be problematic in light of the theory of incentives. There is a second assumption underlying the “REDD+ proposal”, that a government can voluntarily (because encouraged to do so) reduce the levels of deforestation on its own territory. This assumption has become questionable since nation states have had to deal with liberalised global markets. Furthermore, the fact that many of the countries targeted under the REDD+ initiative are going through a period of crisis (as in the case of the DRC), the assumption becomes even more difficult to support.

Box 3: Lessons from Australia

It is not generally known that the Kyoto Protocol provides Australia with special treatment, very similar to the principle of REDD+. The special treatment was granted to persuade Australia to sign the protocol. Clause 3.7 (2), also known as the “Australia clause”, allows the countries in Annex I (industrialised countries) which recorded net deforestation by 1990 (deforestation outweighing reforestation and natural regeneration) to take into account emissions related to deforestation in 1990 as a baseline and

then to count the reduction in emissions related to reduced deforestation in the commitment period 2008–2012. Eight countries are covered by this clause, but only Australia benefits from it (Russia chose not to use it). As shown in an article by Macintosh (2010), this clause is a boon for Australia, whose emissions, if “avoided deforestation” had not been taken into account, would have increased by 26% between 1990 and 2007; with this clause they increased by only 9%, i.e. only slightly more than the Kyoto target of 8%. Macintosh provides useful information for reflection on the ability of states to reduce deforestation. He indicates that in 1990, deforestation was unusually high because of the conjunction of a number of factors (rainfall favourable to agriculture and thus to forest conversion, and high agricultural prices) that have not occurred since. The Australian government insisted that the 1990 level was taken as the reference scenario (baseline) knowing it had little chance of reproducing it – and indeed, deforestation decreased substantially in subsequent years.

Macintosh said that the initiatives which were taken by governments (federal and state) most likely reduced deforestation only by a “negligible” amount: *“Like many of the state programs, the Australian Government’s regulatory and non-regulatory initiatives since 1997 have struggled to curb deforestation. There is limited data on the environmental effectiveness of the government’s information and “beneficiary pays” programs, but what are available suggest that the impact on deforestation has been negligible. This is probably due to relative under-investment in deforestation control, lack of capacity in regional and rural areas, and poor design and administration”*. The Australian government’s projections for the future of deforestation in Australia have proved to be very inaccurate, and policy measures taken by the government to reduce deforestation have been largely ineffective, although recent progress, i.e. reductions actually attributable to measures taken and not to circumstances, can be observed. Macintosh concludes: *“The difficulty that Australia has experienced in controlling deforestation should serve as a warning about the potential obstacles that stand in the way of an environmentally effective international REDD scheme. If a country like Australia finds it hard to halt deforestation, what is the outlook for developing countries with less advanced institutional, governance, monitoring and economic systems?”* (p. 20).

Forest-related policies in fragile states

Since deforestation is a cross-sectoral issue, meeting REDD+ objectives will only be possible if significant changes occur **outside** the forest sector: agriculture, land tenure, transports, mines, energy and governance. Yet the agendas of the other stakeholders often differ from that of the ministry in charge of the forests and the “REDD+ community”. There are specific difficulties, particularly in fragile states, to ensure that the public interest (as opposed to vested interests) is adequately represented in the political system, especially if potential losers from REDD+ implementation (such as farmers, logging or agribusiness companies) are not guaranteed proper compensation.

To counter the influence of vested interests that will benefit from forest conversion, the “financial approach” based on the compensation of opportunity costs is unlikely to deliver. Other stakeholders’ interests will need to be heard to influence the decision process. But there is a significant risk that “improved” enforcement under REDD+ hits the most vulnerable citizens first, jeopardizing their livelihoods and silencing their claims. REDD+ implementation and incentives should therefore target the biggest players first, and with proportionate means.

For all these reasons – the consolidation of fragile states, the gradual promotion of the general interest over vested interests and the proportionate progress of the rule of law – are long but necessary detours for enabling REDD+ to work in these countries: and an appropriate REDD+ strategy can be a catalyst for these changes and contribute to their implementation.

III. Implementing REDD+

A. General agreement on the “three phases” approach

The three-phase approach, which has wide support within the UNFCCC negotiations on REDD+, has been clearly detailed in the Meridian Institute Report (Zarin et al., 2009) and is featured as “*a flexible, phased approach to implementation*”. This approach has been endorsed by the Cancun Agreements.

The Meridian Institute Report details the three phases as:

- **Phase 1**, focusing on “*National REDD+ strategy development, including national dialogue, institutional strengthening, and demonstration activities*”. This phase is intended to be funded by multilateral institutions with immediately available voluntary contributions, such as the Forest Carbon Partnership Facility (FCPF) and the United Nations collaborative initiative on Reduced Emissions from Deforestation and Forest Degradation (UN-REDD), and bilateral assistance.
- **Phase 2** is to allow “*implementation of policies and measures (PAMs) proposed in those national REDD+ strategies*”. The funding of this phase is supposed to be ensured by “*internationally binding finance instrument with enforceable commitments, such as assigned amount units (AAU) auctioning revenue*”. Zarin et al. (2009) suggest that “*eligibility for access to those funds should be based on a demonstrated national commitment to REDD+ strategy implementation, with continued access based on performance including proxy indicators of emission reductions and/or removal enhancements (e.g. reduction in area deforested)*”. Clearly, phase 2 is intended to be a transition between general support to reinforcement of institutions and a performance-based scheme. Here the “performance” notion is associated with demonstrated national commitment to implement a REDD+ strategy, albeit determined via indicators in terms of reduced deforestation.
- **Phase 3** focuses on “*Payment for performance on the basis of quantified forest emissions and removals against agreed reference levels*”. The Meridian Report leaves the financing option open, outlining the sale of REDD+ units within global compliance markets or a non-market compliance mechanism as two broad options.

B. Discussing the notion of performance

The notion of performance-based payments is critical in the three-phased approach as it is the basis for continuing disbursement of incentives in phase 2 and (especially so) in phase 3. The “performance” referred to by Zarin et al. (2009) is primarily based on measurable results in curbing deforestation, and only secondarily on the commitment of governments to policy implementation. With respect to efficiency, the emphasis on this specific dimension of performance leads back to the issue of the baseline, whether it is a BAU baseline or “crediting baseline” giving room for national circumstances. An “inappropriate” baseline (providing there is a possibility to do accurate predictions on the evolution of deforestation for a given commitment period, a point of contestation in the literature) would allow countries to claim “performance” that to a greater or lesser degree would have been created by the baseline design.

The notion of “performance” relies on the idea that all governments have an equal capacity to curb deforestation once they have taken the decision to enter the REDD+ scheme. The example of Brazil shows that a newly industrialised country, with a committed government and a high level of human and technical capacities, can succeed at reducing deforestation through better law enforcement and proactive measures (despite the overlooked leakage in terms of carbon emissions associated with the displacement of large-scale agriculture operations in the Cerrados (biodiversity and carbon-rich savannahs). However the situation in the majority of developing and forested countries is very different to that of Brazil. Indonesia, which is yet an emerging economy, whose government has not

succeeded in imposing a genuine moratorium in the face of the agriculture and pulp industry lobbies (even for a temporary two-year period) on natural forest conversion¹⁰, despite an incentive of US \$1 billion pledged by Norway, is an illustration of that difference. The majority of highly forested tropical countries are less advanced, and with a lower level of human and technical capacities. Many African countries lie in this category. **It is very unlikely that these countries will be in a position to significantly curb deforestation and degradation whatever the incentives they are offered.** It is not a mere issue of traditional “institutional building” programmes which are required under phase 2 to curb deforestation in these countries; it is about rehabilitating the state in countries described as “fragile” states. In this respect, there are two options:

- i. Disregard these countries participation in the REDD+ mechanism, which would limit REDD+ to a handful of countries that could in all likelihood reduce deforestation without external incentives;
- ii. Reconsider the notion of “performance”, moving from physical and measurable **results** in deforestation/degradation reductions to concrete evidences of effective and sustained **implementation** of political decisions that are explicitly designed to reduce deforestation.

This does not mean that donors should “dictate” the content of the policies and measures to be adopted, otherwise the appropriation of these policies is likely to be very formal with weak implementation. **This issue is discussed at length in the literature focusing of the effectiveness of aid.** For instance Collier et al. (1997), who advocate a performance-based approach for the delivery of Official Development Assistance (ODA), acknowledge that *“even where outcomes are fully observable, they are usually not fully under the control of the government”*, and that *“some of the outcomes in which donors are the most interested are slow changing, most notably poverty, and so conditioning aid upon these outcomes becomes problematic”*. If one replaces the term “poverty” by “deforestation”, the parallel between the two conversations becomes striking. Collier et al. (1997) further suggest *“performance would need to be evaluated over a longer period than the current tranche-based system”* and, in order to take into account “circumstances” and minimising the risk of *“punishing governments which are unfortunate and rewarding those which are fortunate”*, they suggest to undertake ex-post *“effective evaluation should therefore ... attempt to correct for circumstances outside the control of the governments”*.

Such a proposal has been reflected in the REDD+ debate on baselines settings by Motel et al. (2009) in the so-called “Compensated Successful Efforts” proposal. They propose applying ex-post econometric evaluation to the analysis of deforestation on a commitment period and disentangle what can be attributable to public policies and measures (“efforts”), which would be rewarded, and what is attributable to “circumstances” (such as drop in tradable crop prices) outside the control of the government. This is intellectually appealing: but in addition to the difficulty of getting reliable data for such equations, there are two major stumbling blocks: (i) the problem of untangling these complex interactions, leading inevitably to subjective assessments likely to be contested by the losers; and (ii) resistance from governments to accept any complex expert-led mechanism, with ex-post adjustments of credits over which they would have no influence.

To conclude, it seems extremely unlikely that performance could be reduced entirely, even during phase 3, to measurable results in terms of reduced emissions from deforestation and forest degradation. Without coming back to additionality (and its corollary, effectiveness) and the baseline-setting issue, the uneven capacities of governments to control the interacting factors that constitute the embedded causes of deforestation, call for a pragmatic and differentiated approach. In “fragile” states, the governance issue would have to be addressed well beyond the “capacity building”

¹⁰ Only the primary forests, already protected by law for the bulk of them, are covered by the promulgated moratorium (Murdiyarsa et al., 2011).

dimension of phase 2. “Performance” should be understood in a broad sense, with a mix of indicators based on the effective and sustained implementation of policies and measures and some elements of performance that can be considered as correct “proxies” for reduced deforestation and the resultant emission reductions. It is not technically difficult, for example, for even a weak government to cancel the forest concessions which are not properly implementing a compulsory management plan (for which quantitative indicators can be easily derived). Overall, it is crucial for donors to understand that most of these “performances” will require “sustained investments” in various sectoral activities, which in the less-developed countries, should be the priority for foreign donors anyway.

C. Policies and measures to address the drivers of deforestation and forest degradation

1) *The main drivers of deforestation*

Deforestation often involves several interacting factors. Therefore, it is quite challenging to attribute a precise percentage to each direct cause, knowing that, for instance, logging can open roads into the forest that favours subsequent agriculture encroachment and fire wood collection. Geist and Lambin (2001) were referring to “tandems” rather than single factors as drivers of deforestation. Nevertheless, some publications such a weighing derived from a synthesis of various publications. The graph below is proposed by the Prince’s Rainforest Project:



Source: www.rainforestsos.org/about-rainforests/whats-happening-to-them/drivers-of-deforestation/

The drivers of deforestation differ from one continent to another, with further differences within the sub-regions and countries themselves. We can summarise these differences as follows.

The Amazon basin: large-scale ranching, often associated with land speculation intentions (Carrero and Fearnside, 2011), dominates in Brazil. Industrial-scale agriculture is expanding rapidly, even though in the recent years it has moved to some extent from the Amazon forest to the Cerrados (biodiversity-rich savannah with significant amounts of carbon stored in the soils). Small-scale agriculture is far from being negligible. New pressures are emerging in the form of infrastructure, roads, mining and oil extraction. In Peru, mining concessions now cover 19.5 million hectares, or about 15% of the national territory. If one adds the oil extraction concessions, this figure rises to 48% of the Amazon forest located in Peru and could further rise to 72% if the government allows for the new concessions demand.

South East Asia: oil palm expansion is currently the main driver, but tree plantations for pulp are also a major driver of natural forest conversion. Small-scale agriculture is an important driver in Cambodia, Lao, Thailand and Burma. Unregulated logging of relatively high intensity (frequently beyond 50m³ of commercial volume extracted in average per hectare) has a huge impact on

degradation; it triggers forest fires and is often the first step before industrial conversion (logging companies and oil palm or pulp and paper enterprises are often part of the same conglomerates).

Congo Basin: small-scale permanent agriculture is by far the main driver of deforestation, along with the collection of firewood, which are often done at the same time. Logging has much less direct impact than in Asia, due to the very selective exploitation of the most valuable species. Agribusiness (oil palm, rubberwood and sugar cane) is still relatively modest but surfaces converted are growing rapidly. As elsewhere, the pressures for opening new mines and undertaking oil extraction are mounting. In the Republic of Congo, for instance, the opening of a new iron mine is planned, featured as “the largest in Africa”, which will lead directly to the destruction of thousands of hectares of forest.

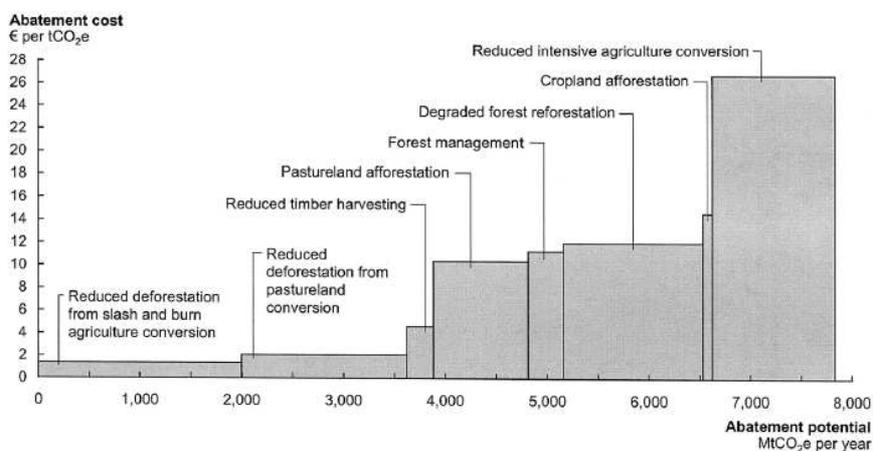
In **West and East Africa**, the forest resource is severely depleted (except in a few countries such as Liberia and Mozambique), and small-scale agriculture and firewood collection are important drivers. Industrial plantations for oil palm and rubberwood are quickly expanding at the expense of the remaining natural forests.

2) Incentives or regulation?

Would REDD+ incentives be sufficient to prevent deforestation in the areas where the profits expected from forest land conversion are very high? The literature suggests that only a fraction of deforestation can be addressed through REDD+ incentives, mainly small-scale agriculture and extensive ranching. The McKinsey abatement cost curve for the forestry sector (2009) provides a visual demonstration of this.

Global GHG abatement cost curve for the Forestry sector

Societal perspective; 2030



Source: McKinsey (2009)

The 2006 Stern Review cited an annual cost of US \$5 billion to cover the opportunity costs of almost 50% of the global deforestation. In 2008, the International Institute for Environment and Development (IIED), which was a lead author on the forestry chapter of the Stern report, revised this estimate to US \$6.5 billion (+30%), to take into account the rise of opportunity costs linked to the increase of many agricultural commodities. The Eliasch Review (2008) suggested that it would cost US \$17–33 billion per year to halve the rate of deforestation by 2030, based on economic models of the opportunity cost to forego agricultural/energy/infrastructure alternatives.

As Persson and Azar (2010) put it:

“The question is whether the increased cost for forest clearing, through the price on carbon emissions, will be enough to counter-balance the increased profitability of deforestation through the escalating value of agricultural land. ... We estimate that deforesting for palm oil bioenergy production is likely to remain highly profitable, even in the face of a price on the carbon emissions from forest clearing.”

This raises the issue of the use of incentives **within the recipient countries** as a key component of their policies to curb deforestation. If a government wanted to implement carbon payments to economic agents proportional to the opportunity costs of each driver of deforestation, it would have to focus on small-scale agriculture only. In South-East Asia, the industrial agriculture (especially for oil palm) yields a gross margin of around US \$2000–5000 per hectare. There are comparable figures for soy bean in Brazil, and mining and oil extraction obviously holds greater economic potential. This suggests that, in the range of instruments that should be used in countries as part of REDD+ policies, incentives (in the form of payments for environmental services, or PES) could cover only some activities where the opportunity costs are not so high, while regulation, law enforcement and strong political decisions are needed to stop the development of the more industrial drivers to deforestation.

Using incentives to prevent highly lucrative activities could not only prove to be ineffective: it could also generate opportunistic behaviours and raises issues of equity. A report endorsed by the DRC government (MECNT, 2009) but prepared by McKinsey, proposed using opportunity costs for compensating powerful economic agents, such as potential oil palm developers (likely to be foreign investors) and forest concessionaires for not doing what they could potentially do under the baseline scenario proposed by the consulting firm. For the 1.6–3 million hectares of forested lands in the DRC that **could** be converted in the near future to industrial oil palm production, the report suggests that the cost of this “mitigation option” would be the difference between the net economic margin from the oil palm plantations if they were established on primary forest (baseline adopted) and the lower margin resulting from the “diversion” of future plantations to savannah areas, less suitable for such plantations (a notion of incremental cost). As pointed out by Gregersen et al. (2010), using incentives systematically within such a REDD+ framework would encourage potential oil palm developers to ask for plantation permits in the primary forests (turning the baseline scenario into a self-fulfilling prophecy), with the expectation of receiving financial compensation to develop lands elsewhere. A regulation prohibiting the development of large-scale agricultural plantations on densely forested land would be much less costly than using incentives, and would prevent “rent-seeking behaviours” of powerful players.

The IWG-IFR (2009) report states that *“average or marginal private opportunity cost does not necessarily reflect the incentive required to the country to reach the emission reductions target. For instance, in some countries significant results could be achieved through improved law enforcement, which could be achieved with relatively low investment, much lower than would be needed for REDD+ to compete with illegal activities”* (p. 23). In the context of Brazil, Boerner and Wunder (2008) noted: *“Brazilian forest retention standards require 50–80% of private property in the Amazon region to remain under forest. Although few farmers de facto comply with this requirement, REDD+ in these areas would legally not be additional. Conversely, restricting payments exclusively to legally convertible forests on private properties would dramatically reduce the scope for REDD. Some combination of improved command-and-control tools and incentives is probably necessary* (p. 508).” Effective combinations between regulation and incentives will need to be designed in order to avoid important drifting of the costs and capture of the bulk of the funds by opportunistic and powerful players.

3) *A case for a win-win situation in small-scale agriculture?*

For countries and regions where small-scale agriculture is a significant driver of deforestation, REDD+ policies will have to harness the potential of convergence between the climate and the food security agenda. Many see that REDD+ provides an opportunity to graft a green agenda onto agricultural policies. This “greening” is featured by some authors as a “doubly green revolution”: intensifying while paying special attention to the quality of environment; and as “ecological intensification”: optimal use of the dynamic of ecosystem services for increasing production.

The Borlaug hypothesis on land sparing

Minimising the need for new cropland areas by increasing yields from existing cropland is known as the Borlaug hypothesis (land sparing), from the name of one of the fathers of the “green revolution”. Better yields allowed by the increase in land productivity result in lower prices and less conversion of forests. In reality, the Borlaug hypothesis has not really been verified, for several reasons. As Pirard and Treyer (2010) point out, demand is elastic: *“the simple interpretation of the Borlaug hypothesis is based on demand that is fixed at the outset ... demand depends on prices and increases when prices fall. This is known as a “rebound effect”* (see also Angelsen and Kaimowitz, 1999). Another important factor is the diversification of production with the growing cultivation of non-essential food products, and now biofuels, that are consumed in addition to daily food requirements and require additional lands.

This rebound effect is well described at the local level by Fearnside (1997) for Indonesia, regarding the Alternatives to Slash-and-Burn (ASB) programme. The underlying theory of ASB was that farmers would refrain from clearing more forest if their subsistence needs were satisfied from a smaller area. As Fearnside pointed out, *“The fundamental assumption is that farmers are satisfied with their level of existence and would not clear more if the opportunity presented itself”*. The limitation of such an approach has been recognised by the ASB programme itself: *“Instead of food production insecurity and poverty driving deforestation in the transmigration areas under study, the main causes are the profits and establishment of land claims that can be achieved by planting tree crops such as rubber”* (Alternatives to Slash-and-Burn 1995, p. 131, cited by Fearnside).

Rudel et al. (2009) tried to test the Borlaug hypothesis on a multinational scale. They conclude: *“In most countries yields increased, but cultivated areas did not decline. ... Agricultural intensification was not generally accompanied by decline or stasis in cropland area at a national scale during this time period, except in countries with grain imports and conservation set-aside programs. Future projections of cropland abandonment and ensuing environmental services cannot be assumed without explicit policy intervention.”* In their conclusion, the authors state that: *“This link between yield increases and cultivated area declines emerged during a historical period marked by agricultural surpluses and declining prices for agricultural commodities.”* In the present-day situation of soaring commodity prices and demand, this situation has significantly changed.

According to Kaimowitz and Angelsen (1999):

“Agricultural research and technology transfer will tend to encourage forest conversion when it promotes innovations that are: a) capital intensive, b) applicable to agricultural frontier situations, c) for export products, and d) used by farmers who face few labour or capital constraints. Labour intensive technologies that are poorly suited to agricultural frontier conditions have the greatest potential for reducing pressure on forests, while similar technologies suited for frontier conditions have ambiguous effects”.

Nevertheless, no one would pretend that increasing yields through a form of intensification is not a necessary part of the solution, even if it is not sufficient for the objectives of REDD+. Rudel et al. (2009) noted:

“Both reducing emissions from deforestation and degradation and PES on abandoned agricultural lands only become politically palatable policy options when crop yields rise on the remaining lands and temper commodity price increases.”

Prospective exercises, such as Agrimonde (by CIRAD and INRA), suggest that ensuring food security of a growing world population while conserving the remaining forests through ecological intensification is not out of reach, but would need, beyond optimising numerous production processes, also a “food transition” in both developed and developing countries. In particular this would require that developing countries do not reach the same very high total calorie intake per person as exists now in industrialised countries, or the same share of animal products in the daily diet (Chaumet et al., 2009).

One way or the other, achieving REDD+ objectives will need investment in sustainable agricultural intensification, especially in places where deforestation is driven by small-scale, subsistence agriculture and a growing population. This is particularly the case in Africa, where the “demographic transition” has not yet started in many countries. In DRC, for example, which harbours the second largest tropical forest area in the world; the annual demographic growth is still around 3.1% (DSRP of the DRC, 2006). Food and water security will dominate the agenda in such countries in the coming decades.

4) Using payments for environmental services to combine intensification and forest conservation?

One of the most commonly used definitions of PES is that of Sven Wunder (2005): *“a voluntary transaction in which a well defined environmental service (ES) or a form of land use likely to secure that service is bought by at least one ES buyer from a minimum of one ES provider, if and only if the provider continues to supply that service (conditionality).”* PES therefore result from a voluntary agreement between parties, in other words they are based on contracts that are explicit or implicit (verbal agreements), and which set out the service expected and the corresponding payments, as well as for how long the service must be provided. Despite the use of terms such as “buyers” and “sellers”, PES are not an inherently trade-based mechanism, but rather a contract-based option for distributing incentives, which can be financed through a variety of sources.

In spite of their name, PES are not about *selling* environmental services but are, in most cases, a compensation for the freezing or easement of some local use rights (e.g. customary rights to clear the land) (Wunder, 2007). The amount does not depend on the monetary evaluation of natural assets. It is determined by negotiation, which may or may not be balanced, and should in principle cover at least the net cost of giving up an activity (the opportunity cost) linked to the usage restrictions or changes. This amount of payment generally ranges from the so-called “ES value” (the maximum the beneficiaries are willing to pay) and the **opportunity cost** of the providers of the service (minimum amount they are willing to receive). Ecosystem restoration and plantations that could be entailed in a PES contract also include a labour cost dimension for the time allocated to the task. However, adopting the opportunity cost as a basis for compensation does not prepare for the long term: compensating for the loss of income from giving up certain subsistence activities may free up working time but does not release any new resources to acquire the capital needed to implement new agricultural or agroforestry technologies. It only works if job and commodity markets are available, i.e. if alternative livelihood strategies can be provided.

Investment-oriented PES

Many authors are considering using, **within appropriate rural development and public policy frameworks**, a particular form of PES generally described as “assets-building” or “activity-enhancing” (Wunder, 2007). These are designed to be able to combine ecological intensification of agriculture and forest conservation at the local level (including sustainable use of the various forest goods and services). As Pirard and Treyer (2010) explain: “*PES would consist in measures aimed at conditioning support for the adoption of sound agricultural technologies [or alternative livelihood strategies] in the absence of excessive forest clearing on nearby land. Farmers and landowners would thus benefit from the possibility of using technologies capable of increasing their production and income, and at the same time the adverse consequences of forest clearing could be minimized*”. PES are conditional payments, and the conditionality dimension was absent from many of the former development–conservation programmes aimed at increasing land productivity for conserving forest cover. Specific PES, aimed at investment in new agricultural practices or ecotourism for instance, may combine direct incentives with conditionality that was previously lacking.

“In addition to compensation for opportunity costs, PES must include a one-off, time-limited investment subsidy. This subsidy will serve to develop areas that have already been cleared and to grow permanent crops there using new sustainable agricultural technologies. It will only make sense if it is part of a mechanism proposing viable alternative agricultural technologies, rural credit programmes and land tenure security procedures through the registration and mapping of local rights. A mechanism of this kind must be accompanied by an integrated programme of support and agricultural training, in order to assist farmers and to reduce the risk of failure” (Karsenty, 2010).

We will refer to this type of PES as “**investment-oriented PES programmes**”.

Such a perspective would modify the traditional view on PES costs, hence on a significant part of REDD+ costs, which usually focus on opportunity and transaction costs. In addition to these costs, PES must also include an investment subsidy. The total cost of the PES would therefore be divided into three components.

- (i) The **opportunity cost** remains a basic reference, especially to account for the conditional link between the direct payments and the environmental service (it is the payment of this part that could be suspended to sanction any breach of contract).
- (ii) The **investment costs** of changes in practices are linked to the whole of the PES contract and must be understood as such by recipients.
- (iii) Finally, it is also important to include the **operating costs** linked to the establishment of these integrative programmes including the **transaction costs** that occur when drawing up contracts and monitoring the application of agreements, in order to verify their effectiveness and any undesirable effects (social and environmental safeguards or standards).

Investment-oriented PES programmes as key REDD+ instruments to incentivise small-scale farmers

Amongst the various policies and measures aimed at achieving REDD+ objectives the prospect for large-scale PES programs in and around forest margins is high. Such large-scale forest-oriented PES already exist in some Latin American countries. In such public schemes, the state acts as the “buyer” on behalf of service users by collecting taxes and grants and paying alleged service providers—sometimes with earmarked contributions from selected service buyers (Wunder, 2007). Costa Rica is one of the pioneers in this respect, and has funded its programme through a levy on oil distribution. In Costa Rica the national PSA programme for water, biodiversity and carbon sequestration has mobilised a total of more than US \$100 million since 2000 (Pagiola, 2008).

Brazil has two prominent PES programmes, undertaken as part as the national REDD+ strategy: the ProAmbiente (see box 4?) and the Bolsa Floresta programme which values and compensates traditional populations and indigenous peoples for their role in conservation. In 2009, the programme had reached fourteen protected areas, and 6050 families were registered in the Bolsa Floresta programme.

Box 4: PES as part of the national REDD+ strategies in Brazil and Ecuador

In Brazil, the ProAmbiente Transamazonica Pole is funded by the Amazon Fund and is implemented in collaboration with IPAM to provide incentives to communities of small-scale producers to keep their forests. Stella Martins et al. (2009) detailed the two dimensions of the costs:

“- Payment for the Opportunity Cost: each family will receive financial resources at the same proportion of the value of the area that won't be deforested. The Project considers a mix of 85% of cattle and 15% of agriculture in this new areas, with an average of R\$ 182,50/ha/year. The deforestation rate (4.8% year) was calculated by the average of deforestation from 1998 to 2008. The interest rate used is 10%. At the end of 10 years, the lost of profit per property will be R\$ 37.495,85, that multiplied by 350 families will be R\$ 13.123.437.

- Transition Investments: will be designated R\$ 15.734.206 during 10 years and is more important than the opportunity cost, because it must change the region development. Take care of best agricultural practices, monitoring of areas and infrastructure expansion. The total amount of investments, plus administrative cost, will be R\$ R\$ 33.940.498 in 10 years.”

In Ecuador, according to de Koning et al. (2011), *“The Socio Bosque program is a national conservation agreement scheme of the government of Ecuador. Socio Bosque consists of the transfer of a direct monetary incentive per hectare of native forest and other native ecosystems to individual landowners and local and indigenous communities who protect these ecosystems, through voluntary conservation agreements that are monitored on a regular basis for compliance. Two years after its creation, the program now includes more than half a million hectares of natural ecosystems and has over 60,000 beneficiaries. ... It is part of a clear government policy, combines ecosystem conservation with poverty alleviation, incentivizes and monitors local socio-economic investment, is transparent and straightforward, and has generated nation-wide participation of local and indigenous communities and farmer households. Socio Bosque furthermore sheds light on how benefit sharing mechanisms for national REDD+ strategies could work in practice”.*

Mexico started the development of its national PES programmes, initially focused on forest protection for water quality, in the 2000s. The legal basis is in the country's general Law for Sustainable Forest Development (February 2003) which creates the Mexican Forestry Fund and a modification of Article 223 in Mexico's Law of Rights establishing that a small levy of national water tax payments is channeled to the Forestry Fund to support the PSA-H.

Efficiency and equity trade-offs in PES

Conserving forests in agricultural frontiers in the Amazon instead of cultivating soybean, or in South Asia instead of planting oil palm, would generate too high opportunity costs since these crops are very lucrative. PES programmes would therefore concentrate on forests that are under less threat, at the risk of paying actors who have nothing to lose by avoiding deforestation (zero opportunity cost).

PES are caught in a contradiction: where the opportunity costs are high, the sums available are often not enough; but where the opportunity cost is low, the risk of paying for environmental services that are not endangered (lack of additionality) is high. Verifying additionality would require significant means in order to analyze local situations, which would imply higher transaction costs. Costa Rica's PSA scheme is often considered to be a model, but it has been criticized for not being efficient (lack of additionality); Pfaff et al. (2007) found that the PSA scheme had a very low impact on

deforestation (less than 1% of the designated land), since most of the payments went to landholders who would not have deforested even without payments. Arriagada et al. (2009) reported that the lack of alternative uses for contracted land appears to have the greatest influence on decisions to participate in PSA.

PES programmes have been criticized for making fixed payments on a per hectare basis. The OECD (2010) pointed out that individual landholders are likely to have different opportunity costs of ecosystem service provision, and it suggested taking these differences into account. But this option brings other challenges. A major problem is that compensation based on the opportunity cost is inequitable for the poorest populations. Freezing user rights such as clearing, hunting or even the prospect of working in a forestry company deprives people of opportunities to lift themselves out of poverty. Moreover, within communities it is often the poorest that depend on natural resources. By giving up certain activities, they lose vital access rights that are not generally offset by the payments, which are based on the average opportunity cost for the whole community. Nor is it unusual for these payments to be monopolized by the elites. Simply compensating the opportunity cost for very poor farmers therefore raises ethical objections and is enough to justify finding another basis for payments. As the McKinsey report (2009) put it:

*“Practical, political and ethical reasons are likely to disconnect compensation to potential deforesters from the opportunity cost. For example, transfers to forest people (sic) or the landless poor might need to exceed opportunity costs substantially. ... A ‘payment for ecosystems services’ approach ... could have very high inefficiencies; i.e. compensation is likely to go to some who would have not deforested in any case, **increasing payment by a factor of between 2 times and 100 times.**”*

In addition, inasmuch as PES implementation necessarily entails clearer property rights on the land on which these programmes will be implemented (Kaimowitz, 2008), the situation of *de facto* open access for the extraction of certain resources will have to end. For landless poor living from environmentally degrading activities (firewood collectors, charcoal makers, bushmeat hunters), PES are likely to entail the loss of a means of survival for these players. As suggested by Wunder (2007), *“in some cases it will be necessary to compensate these losers to make PES implementation politically feasible”*.

Two different perspectives on equity in PES payments

As acknowledged by economists, PES programmes offer few gains if the compensated services are not additional (Pattanayak et al., 2010). Therefore the “economic rationality” suggests that PES should reward effective provision of services, which means either a change in practices or continuation of conservation/sustainable forest management practices, while opportunities for conversion become more and more tangible (as suggested by a baseline scenario and analysis of opportunity costs of sustainable forestry in the area). Payments concentrated only on “objectively threatened forests” in the name of efficiency is recommended in such an approach. It makes sense for changing the behaviour of migrant farmers. As Wunder (2007) put it:

“PES payments need to be applied strategically so that additionality can be demonstrated clearly. Only in this manner can users’ willingness to pay over time be enhanced. Yet this also means people already living in approximate harmony with nature without any credible internal or external threat to service provision will generally not qualify as PES recipients.”

But such a recommendation is challenged from an equity perspective. Many consider that those who conserve their forests, and therefore deliver an environmental service, should be paid regardless of their opportunity cost to conserve this forest. This is considered to be especially applicable to

indigenous and forest-dependent peoples, the “forest guardians”. Indeed, there is a risk that PES based on opportunity cost simply rewards potential destroyers who threaten the ecosystems. Such a perspective is reflected in the emphasis put recently on “carbon rights” in the REDD+ debate by authors such as Cotula and Mayers (2009) and Schwarte and Mohammed (2011) (see section C in relation to REDD+ benefits and carbon rights).

Wunder (2007) argued that although this is an issue, it could prepare the ground for general environmental blackmailing:

“To reward, in the name of fairness, anybody who delivers an environmental service seems a dangerous avenue. ... Across-the-board entitlements to PES could endorse blackmail by anybody owning an unthreatened environmental asset, from Scandinavian forest owners menacing to cut down their trees for receiving carbon credits, to upland settlers threatening to deliberately pollute a river to receive watershed payments. It seems crucial not to take the PES-underlying victim pays principle to such absurd extremes.”

This debate should also take into account the “imperfection” of the existing REDD+ schemes, where asymmetry of information about the true opportunity cost is borne by the PES candidate. When political interferences influence the design of PES schemes and the priority areas where programmes are to be implemented, such as in Mexico (Munoz-Pinha, personal communication), an “adverse selection” process can lead to the opening of profitable opportunities to large landowners (who can more easily hide information on their intentions, with some implicit blackmailing, and opportunity costs) while disempowered smallholders and communities would simply be excluded. The conditionality and the sanctions are not implemented in the way that the PES theory recommends. As noted by Bond et al. (2009):

“Although conditionality and sanctions are important design features, there is very little evidence in our case studies of them being fully applied outside of the Pimampiro Scheme [Ecuador], where some families were excluded from the programme due to non-compliance (Wunder and Alban 2008). Elsewhere, the use of conditionality has been deficient – either because the rules are too flexible and ad hoc, and the programme is too new (Bolsa Floresta), or because programme monitoring is inadequate, making exclusion and non-payment difficult when contract breaches are discovered (Mexico PSA-H)”.

D. The prerequisite of land tenure clarification

Land tenure issues will be critical for the implementation of activities to successfully reduce deforestation and, in particular, REDD/PES strategies (Brown and Peskett, 2007; Johns et al., 2008; Kaimowitz 2008; Peskett et al., 2008). They are needed to identify beneficiaries, to allocate liabilities and to prevent conflicts and resource rushes. In Brazil, the lack of clarity related to tenure rights compounds the deforestation trend and allows for land speculation strategies leading to forest clearing even if the economic activity (livestock in this case) is not profitable on its own (Carrero and Fearnside, 2011). For Kaimowitz and Angelsen (1999), the issue goes beyond the traditional recommendation of bringing land tenure security to land users. With Brazil and a few other Latin American countries in mind, they argue that

“Uneven land distribution associated with production systems that provide limited employment may encourage poor rural families to migrate to forested areas. Under these circumstances, providing tenure security will only lock in existing inequalities.”

For le Tourneau and Bursztyn (2011), the way that agrarian reform has been designed and implemented in Brazil has led to deforestation in the Amazon, since it has avoided modifying the land

tenure structure in traditional agricultural regions, shrinking from a confrontation with agrarian elites. The agrarian reform lots have been allocated mostly in the Amazon, and the authors suggest a continuation in this policy between successive governments, including Lula da Silva's.

Incentives for land clearing under "modern" land tenure regimes

Outside Brazil, tropical forests are generally under one form or other of state property. Access to the forest is through forest concessions, for timber exploitation, or various kinds of land concessions when the purpose is to clear the land for agricultural development. In the majority of countries, private ownership of land (with partial or full property rights) is conditional upon developing the land, i.e. deforesting it to establish crops. In francophone African countries, this is the clause of "*mise en valeur*" that can be found in almost all land tenure codes. Reforming such land tenure codes to allow individuals, families and communities to claim property or collective tenure rights on the land they use, without being pushed to deforest in support of such claims, will be an important policy shift to encourage in national REDD+ strategies (Karsenty and Assembé, 2010).

More broadly, national REDD+ strategies will have to create greater coherence and continuity in land use and forest laws by lifting the various legal and regulatory barriers that prevent communities from obtaining **land concessions** (i.e. property rights) in wooded areas, and then gaining **ownership of natural or planted forests contained in those concession areas** as a way to create incentives for landscape restoration, agroforestry and sylvopastoralism.

The debate over community-based management and ownership

Chhatre and Agrawal (2009) analysed eighty community-managed forest areas in ten tropical countries across Asia, Africa and Latin America, and found the larger the area and the greater the rule-making autonomy at the local level, the higher the amount of carbon stored and greater the benefits to local livelihoods. They also examined the effect of collective ownership and found that when communities "owned" the forest (use and exclusion rights) they tended to defer use, diminishing their own livelihood benefits and increasing carbon storage. On the other hand there was a higher probability of overuse and less carbon storage on state-owned land. There are exceptions, said Chhatre in an interview to the *New Scientist* in 2009, "*our findings show that we can increase carbon sequestration simply by transferring ownership of forests from governments to communities*".

Nelson and Chomitz (2011) analysed remote sensing imagery across the entire tropical biome and compared effectiveness of protected areas against that of multiple use and indigenous areas, using forest fires as the best proxy available for deforestation. Their results showed that multiple-use areas generally provide greater deforestation reductions than protected areas, and indigenous areas have an even higher positive impact.

However, some authors have reservations about the all-purpose "community" notion. For Burnham (2000), an anthropologist with extensive experience of Africa,

"a word like 'community', as presently used in notions of 'traditional' or 'indigenous' communities or 'community-based conservation' or 'community forest management' serves a myth-like legitimating function in constructing idealised (and often idealistic), de-historicised scenarios that underpin policy conceptions and discourses. Embodied in these notions of 'community' is an image of small-scale, culturally uniform community, governed by an integrated code of customs or traditions which provides effective mechanisms of sustainable resource allocation and dispute regulation. Absent from this conceptualisation are all the elements of cultural or class difference, of legal pluralism, of articulations with the state ... that would call into question the putative autonomy of this idealised 'community' or render it problematic for cooption to the project of forest conservation and management" (p. 54).

In the same vein, under the provocative title *Why Forest Dwellers Prefer Loggers to Conservationists*, Novotny (2010) noted:

“In Papua New Guinea, the fate of forests is governed by forest-dwelling tribal societies. A rapidly increasing pace of logging compels us to ask why tribal communities prefer logging to conservation. In the absence of feasible development opportunities, remote communities become quickly enthusiastic about conservation projects, but once an area is opened up to logging few such projects survive.”

For Indonesia, Feintrenie et al. (2010) state that:

“When the national and international contexts clearly influence farmers’ decisions, local people appear very responsive to economic opportunities. They do not hesitate to change their livelihood system if it can increase their income. Their cultural or sentimental attachment to the forest is not sufficient to prevent forest conversion.”

One could multiply the examples of once-protected community forests that have been converted with the assent of a majority of the community members. Clearly, if indigenous and tribal peoples have a different relationship with nature than other local people – notably migrants – might have, opening tangible new economic opportunities is likely to modify their preference matrix. Compounding the issue, there are also the difficulties many communities have vis-à-vis the collective action, which is the capacity to enforce rules of behaviour to all the members of the “community”, especially when social heterogeneity has increased with the growing inclusion of market economy and closer relationships between various public authorities and vested interests, and the community. Lack of accountability (when it is not simple corruption), of some “traditional chiefs” cannot be overlooked.

Above all, transferring ownership rights to communities is not straightforward. Many governments are still reluctant to do so, and even when they agree on the necessity to transfer tenure rights (often not the full ownership) to communities, various obstacles arise, starting from the lack of judicial personality of the “communities”, and the embedded array of land (and resource) rights between lineages and communities, leading to contradictory claims and strategic behaviour of some “traditional chiefs” who try to privatise the land for their own profit.

However, there is general agreement on the need to support policies aimed at transferring both individual and collective tenure rights as property rights to local communities and indigenous peoples. The perspective of large-scale, investment-type, PES schemes as part of national REDD+ strategies calls for such an evolution. The implementation of PES schemes would necessitate the recognition of local property rights, but whether it results in increased security of collective land tenure regimes and benefits to the most vulnerable depends to a large extent on the design and implementation of PES schemes.

Recognition of forest land rights in PES schemes

Clarifying effective **management and exclusion rights** is a precondition for contracting and foreseeing possible PES for forest keeping (Wunder, 2007; Kaimowitz 2008). Protecting a forest needs effective and, eventually, legal capacity to exclude outsiders (such as encroachers and illegal loggers) and to manage a given piece of forest land to ensure liability (fulfilment of contractual commitments). Contracting for PES on well identified territories with local dwellers will lead to *de facto* recognition of some property rights on the forest land and effective management and exclusion rights, the minimum basis for enforcing such contractual agreements. *De facto* recognition of key property rights will exacerbate the tension between customary rights and *de jure* public ownership and will call for land tenure reforms in those countries where the forests remain under state ownership.

As suggested by Karsenty and Assembé (2011) for Congo Basin countries, two key policy instruments can be used to allow for such an evolution: participatory mapping – an operation already undertaken

by conservation programmes, NGOs and even logging companies in many countries – and registration of forest tenure rights. The purpose would be to (i) identify and map out the various customary territories as they are recognized by community members and their neighbors, and (ii) to clarify and register the overlapping rights exercised over those spaces by the various stakeholder groups/actors using them. The purpose of the clarification and registering process is to understand **who** (families, lineages, village community, indigenous peoples) **hold effective property and tenure rights over which area, where and over what conflicts might occur as well as where collective areas are**, and finally to allow for **land rights protection of minorities** (for instance migrants). This work could be undertaken by up scaled administrations, delegated to local authorities, private companies or civil society organizations using a set of specifications detailing the methods to be employed and the categories to be used.

This has already been tested (with more or less satisfactory outcomes between countries) in operations called “Rural land tenure plans”, supported by the World Bank, among others, in some African countries in the two last decades, but still needs to be adopted in law. Such operations, however, were designed for agricultural land rather than for forest areas. The information found could be used in national zoning plans, to inform the **land-use planning exercises** that are essential for a designing and implementing effective national REDD+ strategies.

E. What role for the private sector?

In this section we examine the role of the private sector except as regards investing in or implementing REDD+ projects for carbon trading (which have already been extensively documented elsewhere).

Private companies can play a pivotal role in a national REDD+ strategy supported by public funding, as expected under phase 2. In particular we examine the prospect for (i) public-private partnerships, (ii) contract farming for plantations, (iii) the potential opportunities for enhancing forest management on timber concessions.

Public-private partnerships

Public–private partnerships could be required for implementing large-scale PES programmes under national guidelines. In Latin American countries, there is generally a specialised government body in charge of PES implementation. In countries where governments do not yet have the capacity to implement and monitor such schemes, these operations may be delegated to private entities or specialised NGOs.

In addition, new investment models involving public–private partnerships offer examples of how less speculative, more investment-oriented capital could be attracted to REDD+ projects. These projects would be developed in time-frames which match longer-term investment patterns with the time-frame of REDD+ projects in a model which would entail a community-centred approach to forest conservation which recognises the need to enforce and reward performance. Placing communities at the centre of the project, engaged in all levels of decision-making and planning, creates what is called a “knowledge economy”, as it enables the superior knowledge of those who live in the forest to be drawn upon, while respecting rights and implementing safeguards becomes central aspects of the project, rather than a second-thought conditionality. This could attract investment opportunities in projects that use resources more efficiently, have a lower risk in the operating environment, and are more cost-effective and time-efficient. These kinds of approaches will produce better results in terms of performance, over a range of forest benefits, including carbon, which can be fed back into commodity markets and donor investments as appropriate. Making sure the supply chain of land based industries gradually meets greener and more sustainable standards (eco-certification) also falls into this category.

Contract farming for tree plantings

Tree planting on non-forested lands is eligible under current CDM rules. So far, this has had a limited impact on reforestation, due to a variety of reasons, including the lack of additionality of large-scale industrial plantations and the difficulty of mobilising lands for planting trees in the context of unclear (and sometimes conflicting) land and tenure rights. There is little reason to think this situation would change in the near future if there is no significant evolution in the land tenure arrangements that could provide local land-holders with more secure tenure rights. On the other hand, better land tenure security for local communities could unlock the potential for contract farming. If communities and lineages are granted legal management and exclusion rights, it would allow for the development of **out-grower tree plantation schemes** under contract farming on communal lands that could be subsidised by a national REDD+ fund, in particular **enrichment plantations in degraded forests** (a.k.a. landscape restoration, an activity currently not eligible under CDM rules). Relying on community tenure and management certainly entails significant transaction costs for private companies, which would probably prefer to be granted a secure land title in their name; but in places where private ownership of forest is not generalised, such an option would prevent accusations of “REDD+ land-grabbing”, a situation which is feared by a number of analysts and NGOs (see Grainger and Geary, 2011, for cases in Africa).

In addition, if REDD+ entails massive investment to transform agriculture practices to limit deforestation, and more generally to reduce emissions from land-use activities, it will open new opportunities to provide rural services (including training, storage, credit, reproductive material and marketing).

The EU FLEGT Action Plan as a model to address demand-side drivers

Illegal logging is a major contributor to deforestation and forest degradation, and in many countries it outstrips the legal felling of timber (World Bank, 2006, p. xi). The World Bank (1999, p. 40) states that “*illegal extraction makes it pointless to invest in improved logging practices. This is a classic case of concurrent government and market failure.*” Growing recognition of the role that consumer countries play in fuelling demand for illegal products led to the launch of the EU Forest Law Enforcement Governance and Trade (FLEGT) Action Plan in 2003, which aims to reduce illegal logging by creating increasing transparency in the timber sector in producer countries, and legislating against the import of illegal timber into the EU. Here we suggest that this approach serves as a model to address the demand for other commodities which drive deforestation (such as soy, palm oil and timber), and the extension of the concept from illegality to sustainability.

Central to the FLEGT Action Plan is the Voluntary Partnership Agreement (VPA), a legally binding trade agreement between the EU and producer countries. VPAs set out the commitments and actions of both parties to tackle illegal logging, including measures to increase the participation of non-state stakeholders and rights-holders, to recognise the rights of communities to land, and to address corruption. This includes defining what constitutes illegality, but in many countries the existing legislation lacks clarity and legal certainty. In many cases, this means revising forestry laws, taking into account local peoples’ traditional and user rights and the underlying issues of the clarity and fairness of the legal framework in each country, as well as emphasising the importance of political commitment to implementing and enforcing such rules.

FLEGT is limited to addressing illegal logging, but this could be built upon in other sectors. The agriculture sector is already investigating ways to tackle the agricultural drivers to deforestation in

relation to REDD.¹¹ There is also a case for expanding considerations to sustainability through building a business case for private sector engagement in REDD+ activities, especially as regards diminishing risks and enhancing returns for investments in sustainable land use that address the drivers of deforestation and forest degradation.

Potential opportunities for enhancing forest management on timber concessions

The issue of forest concessions in REDD+ is a thorny one, since there are very different views on the potential of timber concessions to achieve sustainable management of forests (SMoF) and their role in deforestation and forest degradation. Since SMoF has been established as an eligible activity, it is necessary to examine which options can be foreseen. In this section we will not discuss the potential for “conservation concessions”, which consists of turning an allocated or an about-to-be allocated concession into conservation against annual financial compensations (to the concessionaire and the government in the former case, or to the government in the latter). Using civil society organisations and local communities as whistle blowers¹² (provided they are given the rights, legal protection and means to do so) could be a promising and efficient manner to provide a backstop mechanism (instead of costly ground surveys to assess actual degradation).

Reduced Impact Logging

Putz et al. (2008) suggest supporting the introduction of Reduced Impact Logging (RIL) on timber exploitation, as a degradation reduction option. Such an option is foreseeable essentially in South-East Asia, where logging intensity is quite high per surface unit (up to 15–20 trees removed per hectare) and in some Latin American forests, but less workable in the Congo Basin where harvest intensity is significantly low (1–2 trees per hectare on average). The option for RIL will be either:

- To calculate the emissions reduced on average and to deliver carbon credit (only workable under a market-based approach). One of the difficulties of working “on average” would be the high variability of emission reductions since RIL does not deliver the same results in all sites (because of differences in silviculture, topography, forest composition, etc.). In addition, the risk of non-permanence can be addressed only if the management plan and the felling cycle (rotation) are fully implemented and verified by the forest administration or by a third party (certification): re-entry in forest plots closed for regeneration by the company itself or by outside illegal loggers is a frequent occurrence when control and sanctioning capacities are weak.
- To pay the “incremental cost” corresponding to the up-front investment needed to train the company’s team and to reorganise the exploitation process. This is an approach taken by the French Fund for the Environment (FFEM), and can be accompanied by conditionalities on the effective implementation of the improved process. The same issues regarding the risk of non-permanence would apply.

Reduced exploitation

Karsenty (2010) has suggested a compensation mechanism for voluntary reductions of the “exploitation effort”. This reduction can be either by voluntary increase of the felling cycle length (rotation), or by an increase of the minimum diameter of cutting, or alternatively by a limitation on the number of trees allowed for felling by surface area (Mazzei et al., 2010).

¹¹ “For many forested nations, particularly those with active and growing agricultural sectors, this means finding ways to expand agricultural output expansion through: (1) sustainable intensification; (2) expansion of production onto degraded land and (3) reducing waste along the supply chain. However, the incentives must be provided in the context of a system that simultaneously prevents expansion into primary forest.” <http://www.pcfisu.org/wp-content/uploads/2011/10/15th-16th-September-outcomes.pdf>

¹² <http://rdc.moabi.org/terms>

Such options seem preferable to what is currently contemplated in some “REDD+ projects” (voluntary market oriented), in which concessionaires decide to establish or to increase the surfaces devoted to conservation within the boundaries of their concession; the difficulty here lies in the verification of additionality (Ministry of Forest and Soil Conservation of Nepal, 2010), since the areas that are proposed for being turned into conservation are often technically and/or economically non-exploitable anyway. In the “reduced exploitation” option, financial compensation would have to be provided not only to the concessionaires but also to the national and local governments (foregone taxes) and to the workers who will be made redundant as a consequence of lower activity.

Tax interventions

Another mechanism proposed by Karsenty (2008) is about promoting forest certification through tax cuts. To foster and make more attractive sustainable forest management, and then contribute to prevent forest land conversion into more lucrative non-forest activity, financial rewards could be given to concessionaires who comply with the law and commit themselves to independent auditing based on performance, such as forest management certification. One could consider that a concessionaire who invests in independent auditing to obtain certification places himself under scrutiny and invests in his “reputation”. This is certainly a long and difficult process, and it can be lost very easily. Compliance with the law is the first requirement for internationally recognised certification schemes, which then work to assist the forest service with respect to law enforcement.

One way of encouraging independent forest certification for its various positive impacts would consist of *reducing forest taxation for certified concessions*. Governments may be reluctant to adopt such a measure, however, since their revenues would fall as the total area of certified forest land will increase, unless these losses are fully compensated by international transfers. As national REDD+ funds will rely largely on international finance, an international REDD+ fund could be the vehicle for compensating the government’s budget.

Given the controversies surrounding tropical logging, it seems critical to avoid – much more than in other activities – deadweight/windfall effects. In weighing up policy options, it will be essential to question whether a more direct regulatory measure would not provide the same result at lower cost, providing that the regulation is realistic from an economic perspective and enforceable.

F. Governance and risks of corruption¹³

1) Financial risks

Misappropriation and embezzlement

Theft and misappropriation of REDD+ funds, including by high-level government officials and organised crime, is a very real risk if REDD+ is not designed properly. Poor law enforcement and high levels of illegality in the timber industry indicate that many REDD+ countries may be unprepared to deal with these challenges.

If REDD+ funding is designed to channel funds on a project-by-project basis (the model most commonly associated with a market-based approach) the risk of misappropriation of REDD+ funds is maximised due to fragmentation and lack of control. Tying REDD+ funding to investments designed to support the national implementation of REDD+, including reform of institutions and the legal regime at the national level (such as investing in new land tenure regimes and reform of land-use strategies), can reduce this risk to levels associated with traditional ODA. However, as seen with

¹³ (Section F is based on a contribution from Global Witness)

other national-level forest programmes in the past, these are also vulnerable to misappropriation. For example, a 1999 audit found that Indonesia's reforestation fund was defrauded of US \$600 million between 1994 and 1998 (Barr et al., 2010).

The risk of theft is increased if funds become "stagnant" – left in an inactive account. This can be the result of the REDD+ recipient country lacking the institutional capacity to absorb, process and disburse REDD+ funds effectively. These inefficiencies may impede the effective flow of finances and present opportunities for misappropriation, or contribute to misrepresentation of financial flows. Such inefficiencies in REDD+ financial flows may result from poor organisational structures, high transaction costs, overlaps and gaps in funding, poor quality of information for policy-making and inadequate human resources.

The risk of theft is also increased by poor supervision and accountability of the management of the funds.

Corruption

Corruption is widespread in the forestry sectors of many REDD+ candidate countries, with over 80% of countries currently receiving REDD+-related funds falling in the bottom half of countries as assessed for corruption by the World Bank (Global Witness, 2011). These governance weaknesses could allow powerful elites within REDD+ countries to control or influence the government agencies responsible for channelling REDD+ funding into certain activities over others.

If REDD+ funding is designed to channel funds on a project-by-project basis there is a significant risk those same powerful elites will look to control or influence government decisions for selecting and implementing REDD+ projects. Their ability to influence the validation process for REDD+ could allow certain private interests to channel REDD+ payments to their own favoured projects over other, perhaps more worthy, projects. A project-based approach is anticipated to be more business-driven than government-driven, and so is therefore more likely to be subject to diversion compared to a national-based approach. Symmetrically, powerful economic players could lobby decision makers in developed Countries to tweak the rules in favour of their business interests.

At a lower level, small-scale corruption may interfere with the proper functioning of a REDD+ mechanism, if civil servants are allowed to demand small bribes to facilitate projects or falsify monitoring results.

Many of these financial risks would be compounded if a market-based approach to REDD+ is adopted, due to increased complexity, asymmetric access to information and lower accountability. The increased number of intermediaries or middle-men in the form of carbon brokers, along with the global nature of the market across multiple jurisdictions reduces transparency and increases opportunities for fraud. Carbon markets are a cross-border issue, making law enforcement efforts outside a country's own domestic legal jurisdiction more complicated and difficult. Carbon credits may be generated in one country, sold to persons in other countries and moved through several carbon exchanges before reaching the hands of the final owner. The owners of the forest land, the carbon traders and brokers, and the companies that own and sell the carbon credits, may be based in different countries. In addition, engaging the private sector to generate revenue and investment in the forest sector puts REDD+ funds into private hands and beyond the jurisdictional control of the REDD+ countries and the major donor governments. In particular it could allow profits accruing from REDD+ activities to be invested in tax havens or channelled into other enterprises.

2) Ways to address these risks: preconditions and benchmarks

Governance reform

Identifying the need for reform: A comprehensive and independent assessment of a country's current laws, regulations and governance should identify loopholes and determine where legal and policy reforms are necessary, and where institutional capacity needs bolstering. A number of existing initiatives – including the World Bank's Governance Indicators and the Participatory Governance Assessment of the United Nations Development Programme (UNDP), or the EU FLEGT Action plan approach to national level legal reform – can be used or built on to undertake the governance assessment.

The World Bank's Governance Indicators provide a good basis for assessing the strength of governance and identifying areas in need of reform. The six "dimensions of governance" identified comprise the following.¹⁴

- *Voice and accountability* reflects the perceptions of extent to which citizens are able to participate in selecting government, and their enjoyment of various freedoms (of expression, association, and of the press).
- *Political stability/absence of violence* measures the perceptions of the likelihood that the government will be destabilised or overthrown by unconstitutional or violent means, including domestic violence and terrorism.
- *Government effectiveness* refers to perceptions of the quality of public services, the civil service and the degree of its independence from political pressure, the quality of policy formulation and implementation, and the government's commitment to these policies.
- *Regulatory quality* is concerned with perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.
- *Rule of law* refers to perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence.
- *Control of corruption* is the extent to which public power is used to achieve private gain. It includes both petty and grand corruption, as well as "elite capture" of the state (Peskett et al., 2008).

Capacity-building

Successful REDD+ programmes would also require a concerted effort to strengthen government institutions, including building capacity to ensure proper oversight and effective management of forests, tenure, enforcement finances and to monitor, report and verify forest carbon (Johns et al., 2008).

Capacity-building should begin with an assessment of the human resources allocated to those entities receiving REDD+ funds. This should be followed by support for adequate training and education programmes, where necessary, and for institutional reform that provides government officials with opportunities to receive remuneration based on merit. An essential element of governance reform also relates to the participation of non-state actors in decision-making. The risk of corruption and state capture will be minimised, and the effective implementation of REDD+ will be strengthened through institutional reform which recognises the rights of stakeholders, in particular indigenous peoples and local communities, and ensures greater stakeholder participation, such as

¹⁴ World Bank Governance Indicators. Available at <http://info.worldbank.org/governance/wgi/resources.htm>

formal positions on any decision-making body, freedom of access to information, opportunity to provide input and to give or withhold consent.

Support for the design and implementation of a UN-led capacity building programme focused on anti-corruption measures for REDD+ financial transactions will assist the efforts to reduce corruption risks.

G. Equity issues and “carbon rights”

The distribution issue, often referred to as “equitable sharing of REDD+ benefits”, is complex since it cannot be addressed without referring to the various architectures of REDD+ – not yet decided – and some clarifications on the prospect for both “REDD+ rent” and “REDD+ benefits”. The Meridian Institute report (Zarin et al., 2009) proposed the following equation:

$\text{Total REDD+ finance} = \text{net benefits to REDD+ countries (REDD+ rent)} + \text{real costs of REDD+ (opportunity + transaction costs)}.$
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In such a case, the prospect for the apparition of a “REDD+ rent” depends on:

- If REDD+ is included in the carbon market, a REDD+ rent is possible if the price of the carbon credits a country could sell exceeds the “production cost” of REDD+ (opportunity and transaction costs, but probably also other costs, such as implementation and investment, as we have already suggested in the chapter on PES)
- If REDD+ is not included in the carbon market and is fund-based, the prospect for a REDD+ rent is lesser, unless donor countries decide consciously to pay more than the “production cost” of REDD+ emission reductions, in order to maximise the chance that a given country joins the scheme.
- In both architectures, the prospect of a REDD+ rent depends on the reference level (baseline) that will be agreed upon.

1) Will REDD+ create “rentiers”?

REDD+ is an incentive-based instrument, based on the idea that both public and private agents are self-interested and are able to calculate the full costs and benefits associated with various options. The basic idea is that developing countries have an opportunity cost if they choose to conserve (in a broad sense) their forests rather than degrading or converting them to another land-use. REDD+ is intended to provide sufficient financial incentives to change the public and private decisions that would otherwise lead to forest conversion. **This means that the amount of transfers – either through the carbon market or through an international fund – should compare to the opportunity cost**, which would differ widely amongst countries that do not enjoy the same attracting capacity for foreign and domestic investments (for example agribusiness). Persson and Azar (2010) noted: “*We estimate that deforesting for palm oil bioenergy production is likely to remain highly profitable, even in the face of a price on the carbon emissions from forest clearing*”.

The story is not so different if transfers are made through an international fund instead of the carbon market: normally, the transfers (REDD+ payments) should equal, or slightly exceed, the opportunity cost of conserving forests.¹⁵ In such cases, there are no “rents” but financial compensations in a zero-sum like game.

Given the gloomy perspective for a high carbon price before 2020, **the prospect for “rents” in REDD+ appears limited**. This does not mean that countries having succeeded at curbing deforestation under

¹⁵ Except if for political reasons, payments are deliberately set above the “production cost” (of reducing deforestation). This can be legitimised through a “reference level” distinct from a business-as-usual baseline, which would reflect the “common but differentiated responsibilities” of countries in the common effort to mitigate climate change (Angelsen 2008).

REDD+ will not derive **benefits** – which should be conceptually distinguished from an “economic rent”¹⁶ – from a successful REDD+ strategy once their opportunity costs have been compensated: sustainable use of forests can generate huge direct and indirect benefits, ranging from the enhanced and sustained provision of forest goods to ecotourism, as well as better water quality, reduced erosion, etc. At the local level, compensating a farmer for the revenues he would have expected from clearing a new plot of forestland, allows him to reallocate working time to another activity (if other activities are made available), creating a potential to increase his net revenues.

Difference between rent and benefits under REDD+

Conditions allowing for a “rent”	Potential benefits (once the opportunity costs are compensated) for the resources users
“Inflated” baseline (overstatement of deforestation threats) allowing for non-additional carbon crediting	Potential reallocation of working force (deforestation activities are dropped) into alternative activities or leisure
Low forest users’ opportunity costs (for conserving the forest) combined with (i) carbon-rich threatened forest (ii) high carbon prices	Maintenance of provisioning and regulation services depending on forests (bushmeat, NTFPs, water quality, reduced erosion...)
	Allow for employment opportunities in restoration of degraded ecosystems and trees planting

2) *Carbon rights as an easement?*

A case for “carbon rights”?

Surprisingly, carbon rights seem to be an issue only in forestry and land-use mitigation activities; they are rarely used in the energy-related mitigation activities. The government of Western Australia enacted a “Carbon Rights Act” in 2003. Carbon rights are defined as “an interest in land”. In an analysis of the legal framework in which the Australian states have framed these carbon rights, Hepburn (2009) suggests that:

“the state legislative initiatives which have articulated the forestry carbon right as a land interest have adopted fundamentally different approaches. ... Some states ... have statutorily endorsed the carbon right as a profit à prendre, thereby aligning it with the pre-established common law form. By contrast, other states, such as South Australia and Western Australia have accepted the independent validity of carbon rights as a statutory creation” (p. 6).

In Western Australia carbon rights are registered under the land title as a separate interest in the land after a carbon agreement is concluded between an investor and a landowner. This transforms

¹⁶ Economic rent is defined as the fraction of profits above what would be strictly necessary for the capital to remain invested in a given economic activity. *“The difference between the return derived from a factor of production and the remuneration needed to keep this factor in its same use”* (Bannock et al., 2003).

“a bare contractual right into a statutory land interest” (p. 9). The owners of a carbon right *“will retain the legal and commercial benefits and risks which may arise from carbon sequestration on the land”* (p. 15). In practical terms, a carbon right derives from an agreement by which the owner accepts, against remuneration, not to develop a forested piece of land, or authorizes an investor to create a plantation on its land and to sell the corresponding carbon credits.

Beyond the differences in the legal framing vis-à-vis the Common Law of carbon rights among Australian states, Hepburn (2009) acknowledges that carbon rights can be categorized as *“conservation easements”* (p. 23), a category already utilized in recognition of natural resource interest in Canada and the United States. Easements are a limitation (consented by agreement and imposed by law) of the ownership right, *“the right to use the land of another for a specified purpose, as distinguished from the right to possess that land”* (Columbia Encyclopedia). Conservation easements have also been emphasised by Rice et al. (2001) as a direct incentive for conservation and an alternative to the land purchasing by *“conservation investors”*. Ferraro and Kiss (2002) refer to easements as instruments that can be used for *“direct payments for biodiversity”*, another name for PES. The amount of payments required to reach an agreement about such easements is a negotiated price around the opportunity cost entailed by the easement.

In sum, carbon rights in Australia are nothing more than specific easements, and there is no question about their ownership: they belong to those who invest and compensate the landowner. Could it be different in developing countries? Clearly, the main difference seems to be land ownership. In most developing countries, the forests are public property (Sunderlin et al., 2008) even though rural communities and indigenous peoples exercise their customary rights of access, extraction, inheritance and, more and more often, land transfer through various transaction types (leasing or *“sales”*).¹⁷ This duality is deemed to be creating tenure insecurity by many analysts and could favor land-grabbing, if a government decided to allocate forest lands to agro-industrial investors over local communities in the name of its landlord capacity. In a report devoted to *“tenure in REDD”*, Cotula and Mayers (2009) claim that *“Clarity on who owns carbon is ... key”* (p. 9), and they recommend ensuring that carbon rights

“are effectively established in national regulations. Initial evidence suggests that dangers lurk for local tenure security where carbon rights are separated from land tenure. Rather than allowing unclear situations to be potentially exploited at the expense of local benefit as REDD+ develops, it is likely to be increasingly important for carbon rights to be defined in national regulations.”

The concern here is that governments may decide to retain ownership on carbon credits at the expense of those who Cotula and Mayers deem to be the legitimate owners (the forest villagers and indigenous peoples), as was allegedly the case in New Zealand before this policy was eventually reversed in 2007 (Peskett and Harkin, 2007). But such a recommendation does not clarify the nature of *“carbon rights”*: if they should not be separated from land tenure (i.e. customary rights here), they cannot compare to easements, the characteristic of which is to be distinguished from land ownership (in the sense of the effective property rights exercised by the local users). *“Carbon rights”* cannot compare to a right embodied in the land, in the sense they are *generated* by an investment (or a payment) that can be made either by the landholder or a third party.

¹⁷ Even though such forest land sales are not true sales, in the sense that there is a (voluntary) ambiguity about the property rights transferred to the buyer. In Côte d’Ivoire, forest peoples who sold pieces of forests to migrants pretended having simply transferred non-heritable usufructs rights, given that in African traditions the land is reputedly *“inalienable”*.

3) *Carbon rights as a new component of the “land rent”?*

The difficulty with Cotula and Mayers’ policy recommendation, and also with other documents such as the one by the Norton Rose corporation,¹⁸ is that it could pave the way for an assimilation of “carbon rights” to a “rent” in the sense discussed above. Indeed, if carbon rights should follow land tenure rights, the issue of its *generation* (through changes against a business-as-usual situation), which makes all the difference with the “rent”, risk being overlooked. Apparently Argentina has also decided to link carbon rights with land ownership: *“Argentina’s carbon rights regime recognizes the right to receive compensation for forest protection, including that the entitlement to carbon benefits rests with the owners of the land or rights holders to the forest resources [Readiness Preparation Proposal – Argentina (submitted June 2010) p 48, parag. 2].”*

It is important to state that “carbon rights” cannot compare with “land rent”, as conceptualised by David Ricardo (1817), the origin of which was the difference of potential productivity between the most fertile lands and the marginal ones cultivated to respond to increasing needs.¹⁹ In such a scheme, the landowner has no role in setting land rents: he simply appropriates the additional production the more advantageous site makes possible, compared to marginal sites. REDD+ is designed in a very different way: it requires an *active contribution*²⁰ to the production of a public good, mitigation, and cannot be seen as a “right” to a “carbon rent” that would be proportional to the standing carbon stock on a given property.

To conclude this section on “carbon rights”, we suggest that this is an issue of concern primarily for those who see, for whatever reason, REDD+ as a “rent” rather than a compensation of an effort (opportunity cost). Within this framework, the “carbon rights” issue can be interpreted in two ways:

- It could be a claim of forest landowners (*“Those who own the land own the carbon”*) for being paid for a carbon stock without a real “active contribution” to the maintenance of this stock (or without regards to the policies implemented, if we extrapolate this at the national level). This can be seen as a “rent-oriented” claim.
- It could be a “detour” in the name of social justice for an agenda of reform of the forest tenure: *“those who own the carbon [i.e. the communities] should become the lawful owners of the forests”* in countries where the forest is state ownership.

Both approaches have shortcomings. From an effectiveness perspective, the first one entails a risk of “windfall effects”. The second misuses the notion of “carbon rights” for a legitimate land tenure reform agenda and therefore, does not clarify the debate about “who to pay for what?”.

H. The governance of REDD+ funds

It is likely that national REDD+ funds, separated or not from the national budget, will be created to receive money earmarked for policies and measures. This money could come from a variety of

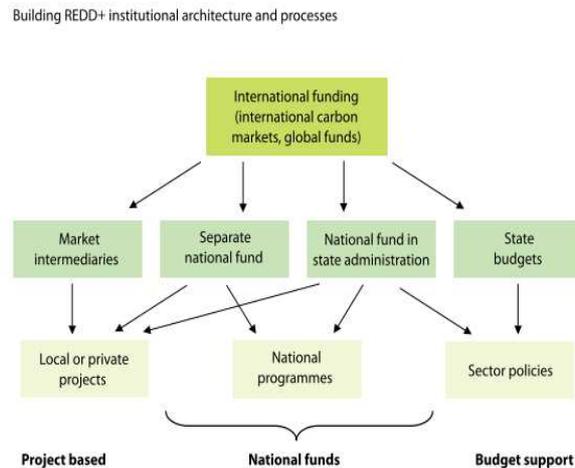
¹⁸ “... we consider that an approach that links carbon sequestration rights with forest ownership or control is more appropriate so long as requisite reforms or additional measures are included to address any inequalities in existing forest ownership or control regimes vis-à-vis local communities and indigenous peoples.”

¹⁹ The Law of Rent states that the rent of a land site is equal to the economic advantage obtained by using the site in its most productive use, relative to the advantage obtained by using marginal (i.e. the best rent-free) land for the same purpose, given the same inputs of labour and capital. www.econlib.org/library/Ricardo/ricP1a.html#2.3 “On the Principles of Political Economy and Taxation” – David Ricardo, Chapter 2.

²⁰ Such an “active contribution” can include refraining from converting land from forests to other use in a context where there are new opportunities opened by changes in the environments (e.g. new roads, tangible demand for land, etc.)

sources including but not limited to bilateral grants, Green Climate Fund, direct international taxation schemes or as a share of the proceeds of emissions permit auctions, by the national budget or taxation...

The figure below sums up the possible options:



From Angelsen, A. with Brockhaus, M., Kanninen, M., Sills, E., Sunderlin, W. D. and Wertz-Kanounnikoff, S. (eds) 2009 *Realising REDD+: National strategy and policy options*. CIFOR.

What governance needs can be foreseen? Experiences with funds have shown there is generally a trade-off:

- Funds embedded in national budget procedures to align it with national priorities risk being diverted to other priorities (to say nothing of corruption risk).
- Funds managed by an independent body reduce the ownership of the process and are quite often plagued by cumbersome disbursement procedures. For instance, the Congo Basin Forest Fund (CBFF), located at the African Development Bank, has been unable to make timely disbursements, which seriously impacts on expected objectives.

One should mention also the reluctance of international organisations such as the World Bank and the International Monetary Fund to create new institutions, such as separate funds, in addition to the existing ones.

1) *The Amazon fund model*

In response to continuing deforestation in the Amazon, President Lula has launched the Plan of Action for Protecting and Control of Deforestation in the Legal Amazon for the period 2008–2011. The Brazilian authorities will allocate US \$500 million towards the implementation of this plan, but estimate that a further US \$1 billion per year is needed to implement it fully. The Amazon Fund was created by the presidential decree on 1 August 2008 as a means of obtaining additional resources towards implementation of the plan. The Fund is owned and managed by Brazilian bodies with restricted intervention from the donor countries.

Box 5: Key characteristics of the Amazon Fund

Objective

The Fund aims at raising donations for investments to prevent, monitor and combat deforestation, as well as to promote the preservation and sustainable use of forests in the Amazon Biome.

Management

The Brazilian Development Bank (BNDES) is authorised to raise donations for the Fund, to facilitate and monitor projects and to issue certificates corresponding to the amount of financial contribution. The Fund has two committees: (i) The Guidance Committee (COFA) is in charge of setting the guidelines and monitoring the results attained. The committee comprises the federal government, state government and civil society; (ii) the Technical Committee (CTFA) is appointed by the Ministry of Environment (MMA) and is responsible for verifying the estimation of emissions from deforestation, which is calculated by the MMA.

Assets and income

The assets of the Fund come from donations (non-reimbursable investment) and net return from cash investments. Donors should deposit funds in a bank account held by the BNDES. Donation has been made by the Government of Norway and Germany. For every donation, the BNDES issues a certificate identifying the corresponding amount of greenhouse gas emissions reduced (tCO₂e and tons of carbon). Payments to the Fund are to be linked directly to results. If emissions in a particular year are higher than the reference level, no payment will be made to the Fund in the subsequent year.

More information

Amazon Fund at <http://www.amazonfund.gov.br/>

Norway and the Amazon Fund at <http://www.regjeringen.no/en/dep/md/Selected-topics/climate/the-government-of-norways-international-/norway-amazon-fund.html?id=593978>

The Amazon Fund, however, is not focused on supporting the large-scale strategic programmes that would be expected from such an institution:

“The Amazon Fund was ... launched as a REDD+ fund, in advance of Brazil developing a REDD+ strategy. The criteria developed provides basic guidance as to the themes and activities that should be funded including requirement for coherence with national and state plans, and an aim to target 50% of funding towards scientific research and innovation in sustainable economic activity in the Amazon. However, in its early operations BNDES has tended to apply its criteria as a filter, rather than as a set of strategic priorities. To date, the Amazon Fund has not met its ambition to target over half of funding towards innovation, but has tended to fund traditional command and control measures” (Zadek et al., 2010).

2) The difficulties experienced by the Congo Basin Forest Funds (CBFF)

The Congo Basin Forest Fund (CBFF) is a multi-donor fund set up in June 2008 to take early action to protect the forests in the Congo Basin region. It is administered by the African Development Bank.

“It aims to complement existing activities; and to support transformative and innovative proposals which will develop the capacity of the people and institutions of the Congo Basin to enable them to manage their forests, help local communities find livelihoods that are consistent with the conservation of forests and reduce the rate of deforestation. It will provide a source of accessible funding, and encourage governments, civil society, NGOs and the private sector to work together. The CBFF is initially being financed by a grant of £100 million from the British and Norwegian Government”.

(<http://www.climatefundsupdate.org/listing/congo-basin-forest-fund>).

The CBFF seems to be plagued by cumbersome procedures for approval and disbursement, and has so far (November 2011) been able to disburse only US\$15.7 million for 13 projects. There are high

levels of complaint amongst stakeholders regarding the slowness of the evaluations and delayed disbursement, with several funded projects having been put on hold or abandoned altogether. The lack of human resources capable to deal with these forest-related issues within the African Development Bank (AfDB) seems to be the main source of such difficulties. The relatively limited amount of money allocated to each project and the nature of these projects tend to indicate that the CBFF is more oriented toward “money sprinkling” and is not able to support a consistent time-framed set of policies and measure aiming at shifting development pathways.

So far, one would agree with this statement from the Prince’s Rainforests Project (2011):

“Annex 1 governments are insufficiently focused on supporting large scale strategic programmes linked to emerging national and sub-national REDD+ strategies, including addressing the drivers of deforestation. Much support is geared to enabling specific, smaller scale forest-based projects based on existing relationships with a variety of ministries in rainforest countries which do not influence national policy.”

The “project-based-driven” traditional approach adopted both by the Amazon Fund and the CBFF for disbursing monies is unlikely to provide the integrated and cross-sectoral policies that are needed for curbing deforestation. Their location with national or regional development banks has some rational with respect to the aim of preventing money diversion and for benefiting the already existing procedures for disbursement; but, on the other hand, such institutions cannot conceive, design and implement policies and measures that only governments – and, to a certain extent, sub-regional organisations – can deliver. They also slow down the emergence of critical mass of expertise in the institutions of targeted countries/organisations.

3) *The case for a global fund protecting tropical forests*

The 2010 IIED Review

From the review of the 16 main funds that target at least partially both forest protection and climate change, Macqueen (2010) makes this interesting comment:

*“By mid 2010 a total of USD 21.786 billion had been pledged across all these funds. But the capacity both to disperse funds and absorb funds has substantially lagged behind these pledges with only USD 6.239 billion disbursed – the vast majority of this in the technology-purchasing grants of the Japanese [Hatoyama Initiative] which states disbursement of USD 5.32 billion. While vast pledges of this sort have usefully focused the attention of government agencies on deforestation – huge funds with pressing deadlines often swamp the government agencies involved. In many countries, **part of the reason for slow disbursement lies in the lack of obvious ‘investible entities’ at the forest frontier in terms of rightholders institutions with clear tenure and forest rights to whom payment could be made in return for avoided deforestation.** To the extent that this is true, **the lack of a clear strategy to address the fundamental issues is all the more puzzling.**”*

This statement raise a critical issue that is often overlooked, the limited **absorption capacities** of less developed countries, especially the so-called “fragile states”. Due to their lack of trained human resources, the recurring dysfunctions of their administrations or their unclear and often discriminatory legal systems, those countries are unable to utilise the full amount of funding that they could receive, whether it is budgetary aid, loans or subsidies for project activities. The forestry sector, in which conditionalities and all type of safeguards are widely used by donors, is frequently a bottleneck for ODA.

Box 6: The absorption capacity of budgetary aid by Central African countries: insights from the 20-year experience of the French Development Agency

The French Development Agency (AFD – *Agence Française pour le Développement*) recently published an evaluation of its financial support to the forest sector in Central African countries – Gabon, Cameroon, Central African Republic and Congo (Samyn et al. 2011). The financial support of the AFD encompasses three types of instruments: subventions, budgetary aid and loans. Subventions are the funding of technical projects that involve private and non-private actors, both national and international. Subventions therefore include some kind of budgetary aid; pure budgetary aid is a direct transfer of financial resources to the Ministry of Forests budget in order to strengthen their capacity to overcome structural reforms; loans involve giving liquidity to national banks or direct credits to private actors, without strong state intervention.

From a total amount of €75 million engaged during the last 20 years, 39% are subventions, 48% loans and 13% budgetary aid. Nevertheless, more than €20 million has been cancelled and a lot more is under threat of disengagement due to sectorial difficulties. For example, loans allocated by the AFD to Central African national banks account for the cancellation of €15 million. Samyn et al. (2011) indicate that national banks consider the funding of middle and small forest enterprises as too risky and did not commit to any funding. Only large international companies – which already had no credit shortage – were eligible to this line of credit. Subventions have had to cancel €4 million due to governance constraints in the Central African Republic (CAR), Cameroon, Congo and Gabon. Direct budgetary aid – an instrument broadly endorsed by the AFD only since 2006 – has had similar problems in Cameroon, where the AFD is supporting a sectoral programme since 2006 (the *Programme Sectoriel Forêt et Environnement*, or PSFE). So far, of the €10 million engaged, only €4.5 million has been disbursed, due to (i) the weakness of the Cameroonian government to assure the conditions for the correct steering and investment of the aid; (ii) disagreement among the different financial backers on how to govern the fund. In summary, from the total amount of money engaged by the AFD to support the forestry sector in Central African countries, the proportions that the forest sector or the government have not been able to effectively invest have been: 13% for subventions, 50% for loans and 55% for direct budgetary aid.

Macqueen concludes his review by stating that a new approach is needed for designing a global forest fund which could address both forest protection and poverty issues:

“this report concludes that there is space and demand for a substantial new forest-climate-poverty fund that will go to scale in much the same way that the Global Fund to fight Aids, Tuberculosis and Malaria has gone to scale in the health arena. Engaging with both governments and poorly represented forest right-holders scattered across huge geographical areas where land and resource rights are weakly defined is no small task. It requires a fund with an appropriate scale of ambition that would directly target climate change mitigation by providing the foundations of secure resource rights and strong investible institutional entities of forest right-holders – in return for appropriately financed improved agricultural and forest practices that would provide a win-win for poverty reduction and the environment. It will also require active government participation to reform governance and law enforcement in ways that are socially just.”

The report brings also an interesting comparison between the characteristics of existing funds that target forest protection and the attributes that could be those of a new global fund, inspired by lessons learned from the Global Fund to fight AIDS, tuberculosis and malaria (GFATM):

Existing funds	Attributes of a new approach (based on GFATM experience)
Sector-driven	Rights-based, performance driven, with transparency and accountability in decision making and resource allocation
Government-channelled	Right-holders channeled, with government involvement and reform
Bank, UN, government controlled	Overseen by elected representatives of rights-holder groups, governments and donors
Massive funding pledges, with rapid start-up deadlines to encourage compliance	Funding that starts small and increases over time in response to successful adoption and performance measures
Viewing transaction costs as something to be minimised – hence centralised control	Willing to bear transaction costs in order to ensure real local penetration and control
Oriented to the development of finance/markets and monitoring systems (e.g. payments for ecosystem services)	Oriented to securing rights and building federations and institutions of those with broader non-market value sets
Adopting a “compensation” approach for financial opportunity costs of keeping the forest standing	Adopting a positive “investment” approach towards socially and environmentally sustainable businesses of rights-holders
Using current political architecture and decision-making	Transparent reporting, decision making and resource allocation of the Fund from international to local level; also measures in place to challenge corrupt practices in areas of investment
Information directed towards (competitive) advertisement of success of that particular mechanism	Information and country-country exchanges in order to learn from and spread innovation from whatever source
Self-monitored	Independently monitored

In this comparison, the author considers "payment-oriented" PES as finance/market-based instruments, which is a partial view of multiple ways the instrument can be used, as we have tried to clarify with the notion of “investment-oriented PES”.

Applying the GFATM model to a Global Rainforest Fund: the Soros/Global Witness proposal

Worth mentioning is the “Soros Proposal”, made at a small expert meeting co-hosted by Global Witness in London in November 2010. Drawing from lessons learned from the GFATM fund, George Soros has suggested that a cluster of countries could move forward by introducing or reinforcing a small tax on air travel tickets to fill a fund allowing financing of REDD+ measures.

Global Witness (2010) derives from the GFATM model a set of principles that could be used for the design of a Global Rainforest Fund (or a REDD+ window under the Green Climate Fund), a proposal initiated jointly with George Soros and his Open Society Foundations. These would be the key aspects to consider:

- 1) It has a demand-driven release model which is performance-based, using a rigorous technical focus which had not been used before on such a scale. Specifically, countries make proposals to the Global Fund which are then assessed by independent expert review, rather than special pleading or putting politics at the centre of the process.*
- 2) There is explicit involvement and oversight by civil society to help direct and oversee operations and to act as a counterweight to vested institutional interests.*
- 3) Government reforms are rewarded and moral hazard removed by requiring monitoring and oversight and by tailoring disbursements to performance. Also, governments have to apply to fund for support rather than be handed a “windfall”, and those commitments are public and shaped by civil society actors in the country. There are minimum criteria for credible*

participation which help direct funds to genuine reformers who then have ownership of those commitments.

4) The scale of the operation. The GFATM is now operating at scale across 16 countries, providing anti-retroviral therapy to 2 million people, shifting finance flows of around \$3.5 billion per year. In addition, the GFATM has played a significant role in moving the world from a situation of severe resource scarcity to much greater resource availability to address a global challenge (although the economic crisis is now acting as a brake on further investment). Aggregating lots of small amounts of bilateral money allows interventions to be scaled up to achieve critical mass.

5) Industry involvement is “contained”. The private sector does not have a seat at the table in order to avoid the skewing of fund objectives. Only donor governments, recipient governments and civil society representatives have voting seats, with observer roles allocated to selected international agencies and UN bodies. The private sector was not entitled to give “in kind” donations, but instead asked to donate to the fund through the normal channels.

4) Challenges with multilateral funding

Unlike many previous initiatives, REDD+ is conceived as a multilateral initiative, a situation that might have impacts on the nature of the activities supported and the definition of “performances”. Within bilateral agreements, the donor country can decide in agreement with the recipient country exactly what to pay for, what kind of activities will be supported and which are the conditions and safeguards to be put on disbursements. In a fund-based REDD+ architecture the multilateral perspective makes this approach more challenging, especially when the content of national policies is at stake. The notion of “performance” might be differently addressed; even though many observers acknowledge that reducing performance to “emissions reduction against a reference level” is full of risk (see Chapter II), due to the unresolved issue of the setting of the reference level (and difficulties in monitoring), it could be that this narrow definition will constitute the lowest common denominator acceptable in a multilateral scheme for the so-called phase 3.

A broader and more effective approach would require agreed governance principles. A global fund for tropical forests will need a set of commonly shared principles such as *“adopting a positive ‘investment’ approach towards socially and environmentally sustainable businesses of rights-holders”* as suggested by the IIED review and independent expert reviewing, as established in the GFATM. **Under such a set of principles, it can be foreseen that recipient governments will have to make proposals on strategies they intend to implement to achieve the REDD+ objectives.** Independent expert reviewing will provide the basis for the decision of funding or not the proposed strategies through national REDD+ funds or national REDD+ programmes (for instance to establish large-scale investment-oriented PES programmes or to secure land tenure rights).

IV. Concluding remarks and recommendations

These recommendations deliberately avoid the fund vs market debate and do not suggest which precise REDD+ architecture would be the most appropriate. Since there is seemingly a consensus that, whatever the architecture ultimately decided for REDD+, there is a need of public funding for supporting policies and measures, we will concentrate on recommendations that are consistent with this dimension of REDD+. However, inasmuch REDD+ is a “performance-based” mechanism, the authors would like to clarify what we consider to be a critical point: the theory of rational choices that underlies REDD+ suggests rewarding “performance”, leaving the choice of the means to governments. This approach has several shortcomings.

- “Performance”, narrowly limited to mitigation risks being fraught by convenient, overinflated baselines and/or monitoring uncertainty. In a fund-based system, it would create windfall opportunities to some governments and divert financial resources from an efficient use to tackle some of the key drivers of deforestation. As an offset system, it would also inevitably wipe out the efforts made within the EU ETS to maintain a high carbon price on compliance markets.
- A majority of the countries that is potentially eligible for REDD+ benefits can be classified as “fragile states”. Even if governments of such states commit themselves to change their development pathways, they have very limited capacity to implement the measures requested for obtaining the “performance” that determines future payments.

The main recommendations put “sustained investments” at the forefront and redefine performance

- It is likely that incentives will be generally inadequate to address the main drivers of deforestation, the removal of which would represent huge opportunity costs for governments and the concerned economic agents. Oil extraction in forest areas, mining, large-scale industrial agriculture entailing forest conversion have little chance to be addressed at a significant scale to make a difference in global emissions if only financial incentives are used. Regulation, and engaged civil society actions, are likely to be more effective than financial incentives in that respect.
- As a significant share of deforestation comes from small-scale agriculture and firewood collection, there is a rare opportunity for building a common agenda for REDD+ and food/energy security in developing countries and to lever important and additional funds for this coupled and potentially win–win objective. Relationships between agricultural intensification and reduced deforestation are not straightforward, but there is enough knowledge available to design a new generation of integrated public policies on forest and agriculture aimed at fulfilling the two objectives. Other new goals (like biodiversity and adaptation) could also be within reach.
- Incentivising government investment into clarifying and securing local forest land tenure rights (through mapping and rights registration) and removing the legal perverse incentives to deforest for securing land tenure, appears an unavoidable prerequisite for unlocking the potential of agroforestry, sylvopastoralism and landscape restoration, enabling sustainable community forestry, preventing land-grabbing and preparing for implementing incentives through PES programmes. Such activities need important financial investments given the context of tropical forests and countries. Of particular concern is that such policies are likely to generate losers, especially within poor populations whose livelihoods depend on some form of open/illegal access to natural resources. In these cases, financial provisions for compensation and building of alternatives will be needed.
- Supporting national “investment-oriented” (as opposed to trade-oriented) PES programmes allowing for building sustainable economic alternatives to households and communities living

in and at the margins of the forests. Beyond the simple compensation of opportunity costs for not deforesting, such PES schemes would attempt to combine through contractual *quid pro quo* agreements, on one hand, the necessary improvement of livelihoods derived from the investment in new agricultural practices and diversification of economic assets and, on the other hand, a conditional payment for forest conservation and sustainable use.

- There is room to curb emissions from forest degradation in logging concessions either through Reduced Impact Logging or through voluntary reduction of exploitation. However, given the controversy surrounding industrial tropical logging, it seems crucial to avoid deadweight/windfall effects. It would be essential to question at each stage whether tightening regulations would not provide the same result at lower cost, providing the regulation is realistic from an economic perspective and enforceable.
- Governance will certainly be a key issue for REDD+, not only for institutional reforms as suggested above, but also for the management of national REDD+ funds that could be created to support the efforts and programmes needed to tackle deforestation. Brazil's Amazon Fund, held by the national development bank and managed jointly with civil society organisations, could create a standard of good practice. However, risks of fund diversion are real in many countries, especially in fragile states where the justice and enforcement sectors and civil society lack means and capacities for monitoring the use of funds. The rehabilitation of the judiciary system in such fragile states, the support of various institutions (such as accounting courts) that could perform independent auditing and monitoring, would be an indirect but extremely useful investment for securing the use of REDD+ funds.
- In a fund-based approach, public–private partnerships could be required for implementing large-scale PES programmes under national guidelines. If communities are granted legal management and exclusion rights, it would allow for the development of out-grower tree plantations schemes under contract farming on communal lands that could qualify under CDM and/or be subsidised by a national REDD+ fund if the plantation does not qualify under some CDM criteria, in particular enrichment plantations in degraded forests.
- If we disregard the case of overinflated baselines, there is little prospect for a “REDD+ rent” at the national level (in the sense of remunerations that exceed the cost of implementing a successful REDD+ policy), whether in a market-based or in a fund-based approach. However, there are potential REDD+ benefits that countries and local populations would derive from maintaining the forest ecosystems once their opportunity costs have been compensated.
- “Performance” should be understood in a broad sense, with a mix of indicators based on the effective and sustained implementation of forest-related policies (all national policies that impact forests) measures and some elements of performance that can be considered as correct “proxies” for reduced emissions and on which governments can act (like fragmentation or the area of intact/natural forests).
- Before being able to deliver on performance, there is a need for investment to design and implement the concrete instruments that are needed to curb deforestation. The first requirement for this is a credible and functioning state that can deliver on implementation of policies and enforcement of law. It entails strengthening institutions and civil society that are needed to shape more democratically expressed collective choices. Except Brazil and a handful of countries, this is not generally the case with most of the potential REDD+ countries. The cost of REDD+ will be, above all, indexed on the investment needed to create the institutional and structural reform required to enable governments and institutions which can deliver on policies to reduce deforestation.
- Citizens, especially those of industrialised countries, must be aware that appropriate economic instruments can contribute to solving the problem but will not be sufficient to save the rainforests without fundamental changes in patterns of consumption. As pointed out in a

2010 report for the European Commission; *“future policy decisions in various policy fields as well as future consumption and production patterns will directly or indirectly impact deforestation levels across the world (...) all regions are closely inter-linked and consumption and production patterns in one region can influence to a large extent deforestation rates in another region of the world. Thus, the more developed and transition economies should pay close attention to how their domestic policies potentially outsource deforestation to other parts of the world.”*(Rademaekers et al., 2010) The ultimate solution still lies with our collective choices and individual behaviour. Forests are not only depleted for their timber and cleared for the food crops that we rely on; they also continue to be converted for cattle ranch expansion, and for the production of biofuels, pulp and paper. The underlying issue, in other words, is ever-increasing consumerism (Robbins, 2010).

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