

Payment for Environmental Services, « Avoided Deforestation » and Tropical Forest

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The role of tropical forests

- Deforestation is responsible for 18 to 25% of greenhouse gas annual emissions
- Very recent researches suggest a role even more important than expected of tropical forests as carbon sink (uptake of CO₂ from the atmosphere)
- Not an international public good (national sovereignty of governments), but contribute to the production of global public goods (biodiversity, climate change mitigation...)
- These functions (positive externalities) are not directly “rewarded” by the market, but sometimes indirectly (biodiversity maintenance through certification, for example)
- The quest for instruments able to reward these functions: Payment for environmental services (PES), “avoided deforestation” (AD) schemes...

The Clean Development Mechanism (CDM) in forestry

- A PES with precise rules, and a “Kyoto-instrument” for reducing emissions through project activities in developing countries
- General rules of CDM: assessment of additionality and leakage
 - Additionality: demonstrate that the project would not have been undertaken without the incentive of carbon credits → industrial plantation projects systematically rejected by CDM Executive Board
 - Leakage: demonstrate the project will not result in displacement of the emissions elsewhere
- Specific rules for “forestry CDM”, i.e. Afforestation/Reforestation (A/R) projects
 - Addressing “non permanence” issue: temporary credits
 - ‘Human-induced activities’ only: no project in degraded forest
 - Safeguard against “perverse incentives”: no project eligible if the land was covered by forest after 31/12/1989

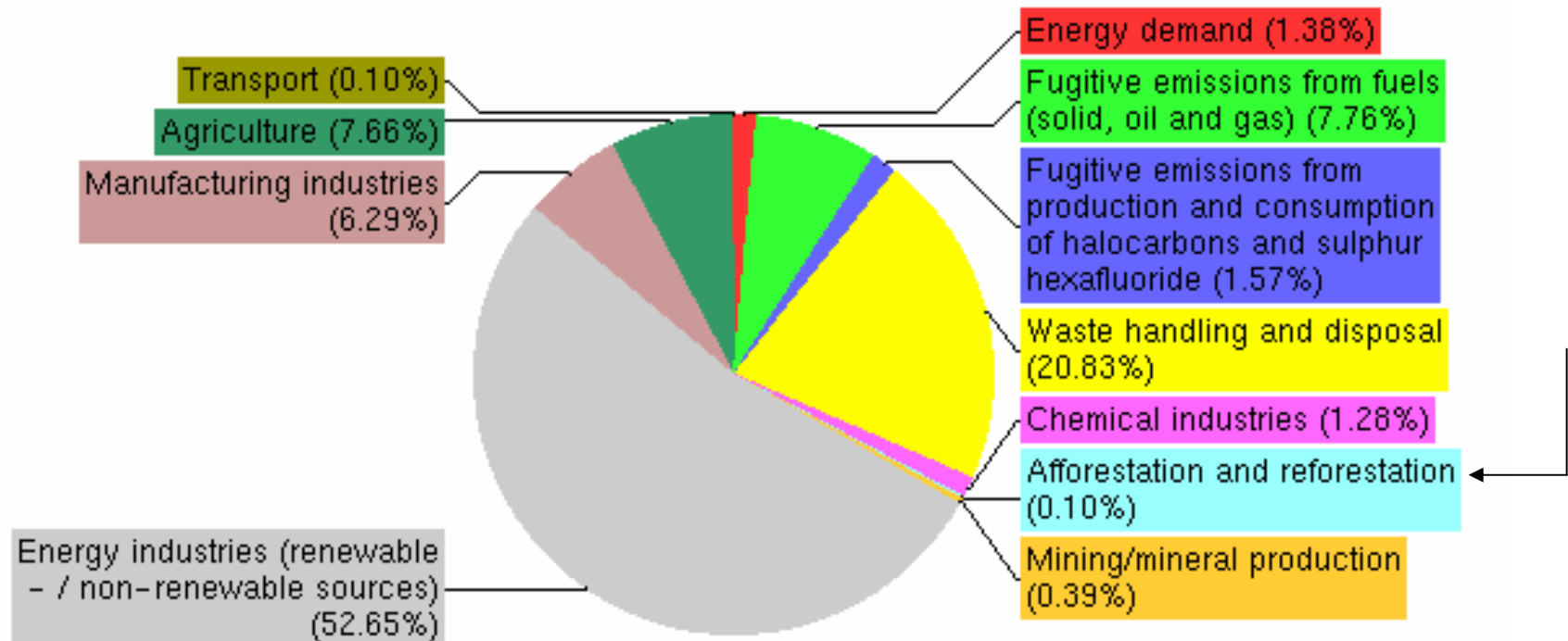
The difficulties faced by the CDM to promote afforestation / reforestation

- No private demand for « temporary credits » in a context of relative oversupply of « permanent credits » (the value of the ton of 'non-emitted' CO₂ ton was less than €1 early 2007)
- Decision if the EC to not allow European companies to use « A/D credits » to fulfill their objectives or emission reductions
- In most tropical countries, specific difficulties to mobilise land for plantations due to (i) the lack of clarity of land tenure rights, (ii) the bureaucratic process combined with low efficiency of the administration, (iii) the lack of confidence vis-à-vis the legal system and the often ill-functioning justice institutions
- Transaction costs (expertise, time of the whole process) are high, a real hurdle for small and community-based projects
- On-going discussions to decrease some transaction costs and allow more small projects to participate
- More potential with forest-related CDM projects « substitution of fossil fuels » in large timber companies, with the use of wood wastes for electricity production (i.e. Precious Wood company in Brazil ...)

So far, A/R CDM is a chess

Only one project registered (in China) on 789; only a couple in the pipe

Distribution of registered project activities by scope



A new instrument contemplated to reward forest conservation and tackle deforestation

- “Avoided deforestation”: generic expression for RED (Reduction of Emissions from Deforestation) or REDD (the second D was initially for “Developing countries” but more often used, now, for “Degradation”)
- ‘Avoided deforestation’ implementation will (very likely) be articulated with PES (and other field initiatives) to achieve its objectives

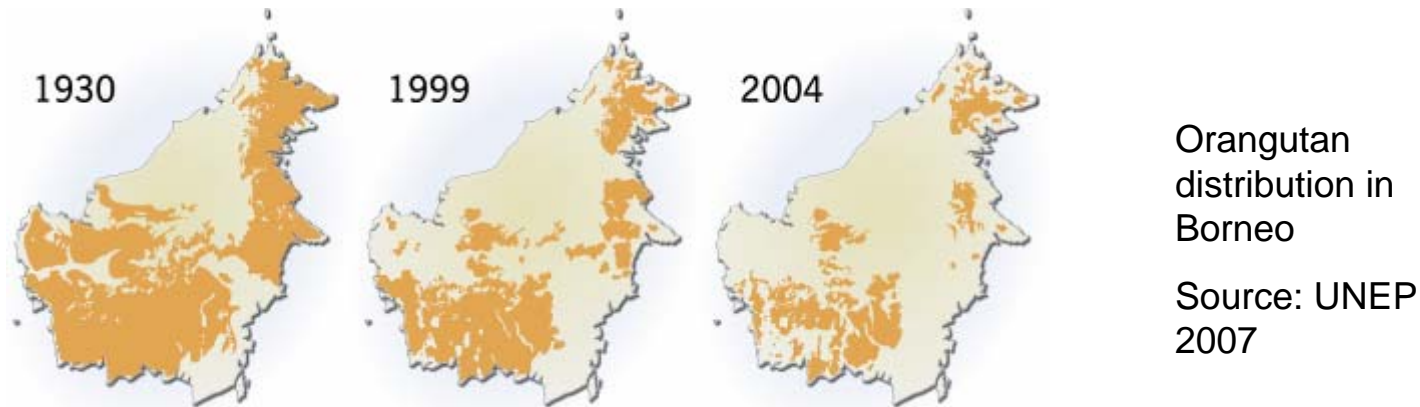
The principle

- A mechanism proposed by PNG, Brazil and other countries (i.e. Congo Basin's countries), but with different features
- Avoiding deforestation: would save carbon and biodiversity
- The bottom line: financial rewards for countries reducing their deforestation rate, with carbon credits (Kyoto assets) or money equivalent (special fund to be set up)
- Major difficulties in the current negotiation process:
 - How to choose and set up baselines?
 - Taking into account forest degradation (by logging)?
 - Included as a Kyoto instrument (fungible credits, second commitment period 2013-2017) or independent (special credits or money) ?

How to assess the (additional) reduction of deforestation?

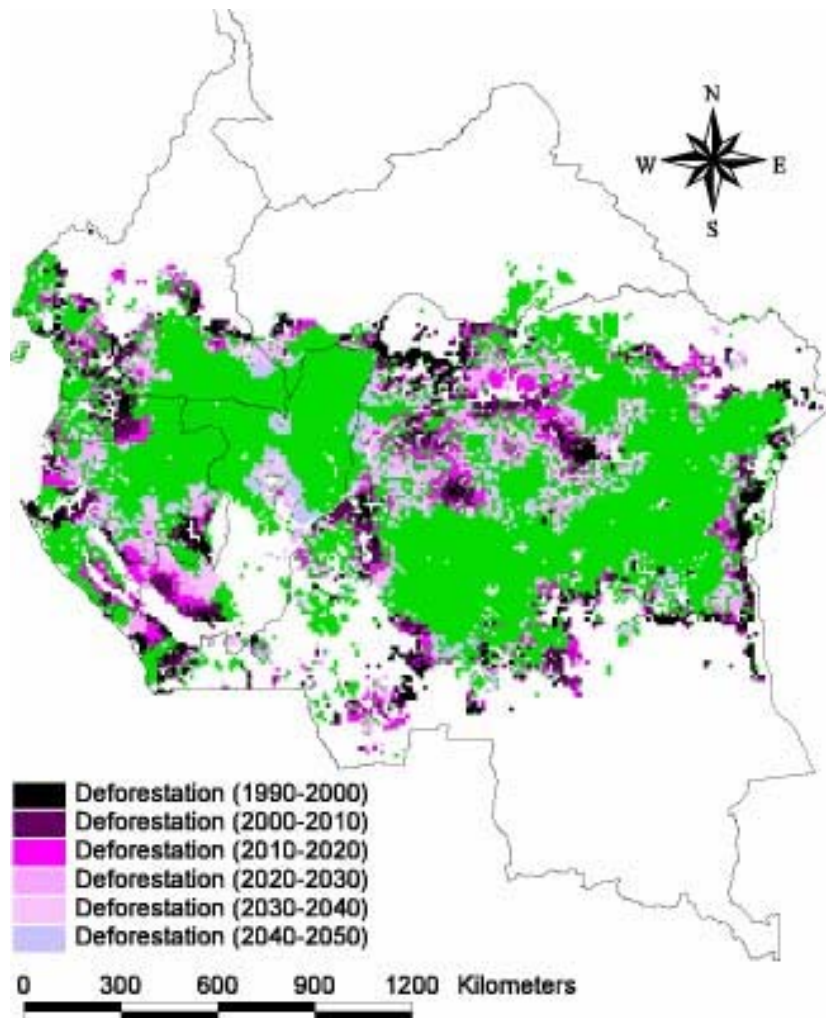
- Monitoring physical deforestation is difficult, but one can guess difficulties will be reduced over time
- More difficult will be to reach an agreement on the reference against which deforestation on the committed period is compared to
- Most proposals suggest deriving the baseline from an average of past trends of deforestation
- Some others (e.g. Congo Basin countries) claim an “adjustment factor” allowing them to increase their future deforestation, but keeping a possibility to be credited anyway
- Some researchers would prefer “predictive” baselines based on anticipated rates of deforestation country by country

Historical reference: winners and losers



- Indonesia and Malaysia have had and still have huge rates of deforestation in the 80 and 90's, but the forest cover tends (or will tend) now to concentrate on highlands: lower trend of deforestation expected for “mechanical” reasons
 - Future reductions likely to be “non additional”
 - Would it be “fair” to reward Indonesia and Malaysia with regard to their past policies vis-à-vis the forest in the past decades?
- Peru, Bolivia, Congo Basin countries likely to be the “losers” with such baseline reference: claim for adjusting the reference to anticipated trends of deforestation

Can we predict deforestation rates?



Modélisation de la déforestation en Afrique Centrale
Source: Laporte et Justice, 2000.

- An alternative solution would be to anticipate a likely “business as usual” deforestation rate on a future period
- Chomitz et al. (2007) suggest modeling land-use dynamics to calculate the baseline scenario.
 - But they also pointed out a correlation between deforestation rate in the Amazon and beef price at farm gate. They also see a correlation with rainfalls...
- A difference needs to be made between (quite) predictable variables (e.g. population growth) and guesses:
 - Who can predict often speculative prices for major agriculture commodities, such as soy, oil palm, beef....?
 - Who can predict the evolution of rainfall quantities and the risk of forest fires in the context of growing climate disorders?

An overestimation of governments' roles and capacities?

- Many (most of?) factors influencing deforestation rates are beyond the reach of the governments (i.e. cash crop commodities price changes, currencies rates...)
- In a complex system, it is a challenge measuring the impact of given public actions in terms of how many hectares are (not) deforested
 - Kaimowitz and Angelsen (1999) have shown the uncertain effects of single variables (such as agricultural progress) on deforestation
- If deforestation slows down, how to disentangle the effect of public policies and the other factors which occurred independently of the government action?



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Measurement and imputation of various factors influencing deforestation: a framework of analysis

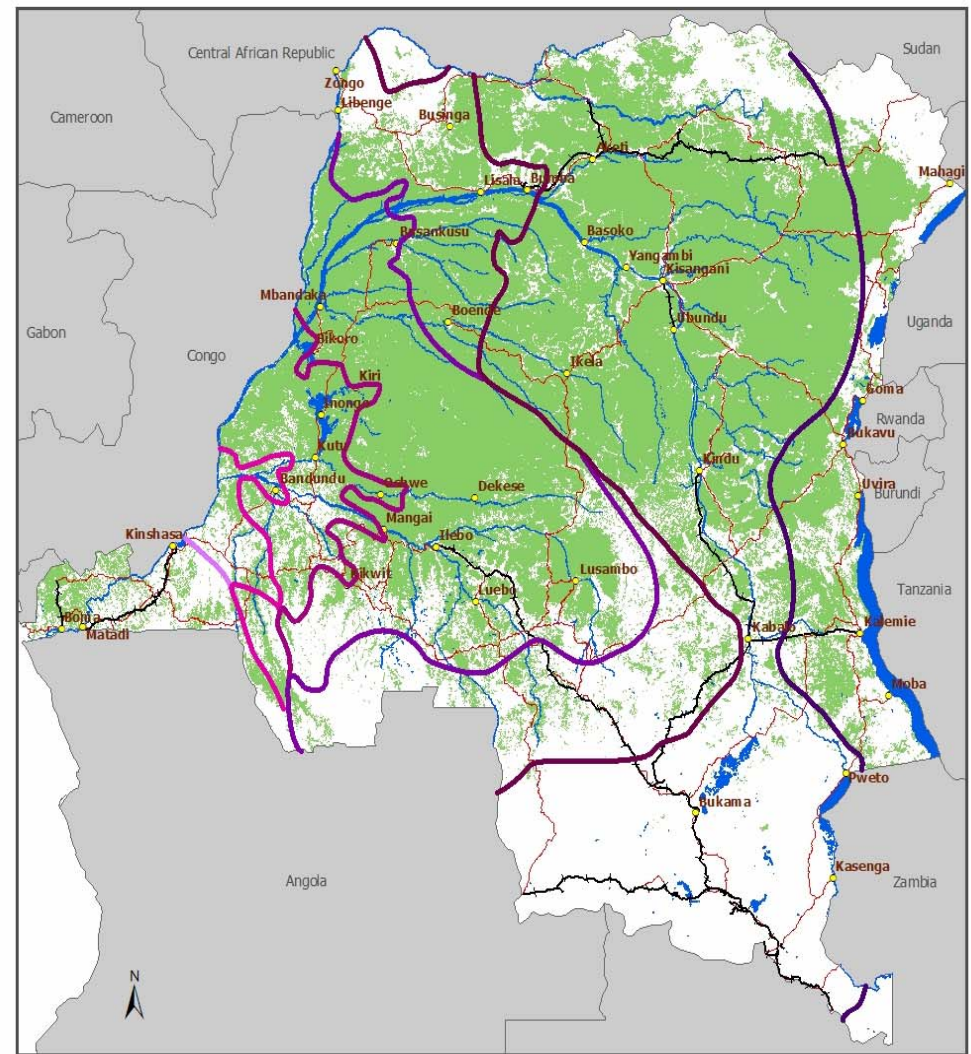
	Exogenous factors	Non intentional Endogenous factors	Intentional Endogenous factors
<i>Type of measures</i>	<i>Examples:</i> Change in Agricultural commodity prices; Extended climate disorders	<i>Examples:</i> Modification of the interest rate; Cut in fertilizers subsidies	<i>Examples:</i> Stringent enforcement of land-use change laws
<i>Possibility to impute the deforestation reduction to the public action</i>	Non imputable	Imputable	Imputable
<i>Possibility to quantify the net impact on deforestation</i>	(N.A.)	Difficult /Very difficult	Possible

Carbon credits or other financial incentives?

- From a “Kyoto-inside” perspective: fears that “AD” scheme would generate new huge quantities of “hot air” with a downward pressure on the price of the emission permits
 - Recent report from CDM executive board suggests 20% of carbon credits are “non additional”...
- An alternative:
 - “De-coupling” from Kyoto instruments: money instead of carbon credits through an international fund to tackle deforestation
 - Targeting, in priority, the field actors instead of the Governments
 - Using a range of PES to favor changes in farmers’ productive practices and reward genuine conservation efforts (case by case assessment)
 - Working with the governments to remove “perverse incentives” (inappropriate subsidies, fiscal system...) and overcome structural threats, such as land tenure insecurity, weakness and corruption within the controlling institutions and the justice...

The case for an International Fund for tackling deforestation

- Seeing “AD” as an umbrella for local PES, not as an international PES...
- No more risk of « hot air », but the additionality issue remains especially with the lowest opportunity cost areas



Cost of wood production (US\$/cubic-meter)

- 53
- 70
- 90
- 100
- 110
- 120
- 150
- 167

- Ports
 - Railroads (functional)
 - National roads
 - Major river networks
 - Country
 - Dense tropical rain forest
- 0 125 250 500 Km

Additionality v. Affordability

Opportunity
Cost

SOY EXPANSION
FRONT

Boundary will
depend on
financial means

Non affordable

« too costly »

Degraded forests

Affordable

CATTLE RANCHING

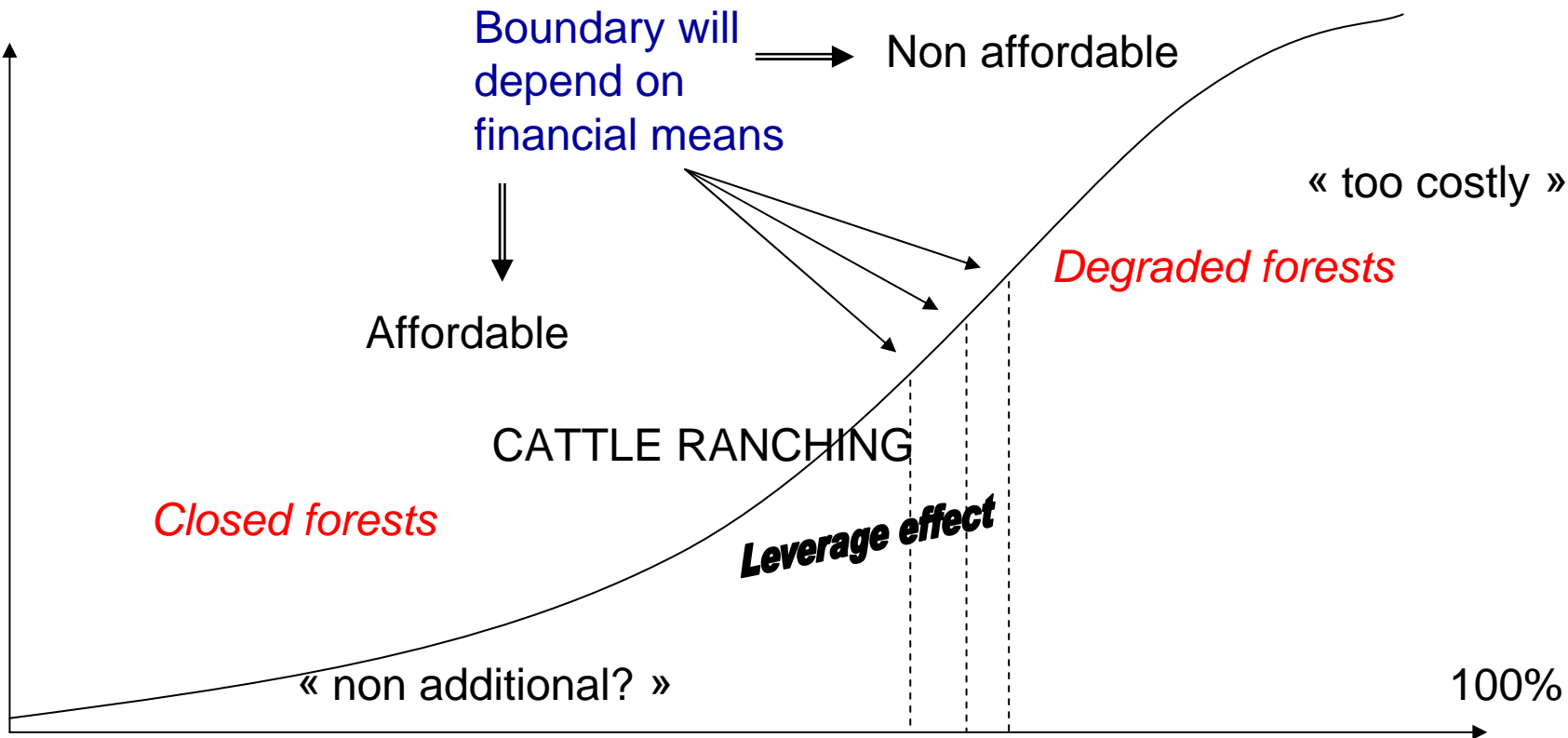
Closed forests

Leverage effect

« non additional? »

100%

*Proportion of non deforestation
or avoided deforestation*



Suitable PES instrument: Conservation Easements

- Conservation easements: a contract; against an annual payment, between the landlord (individual or communities) and an agency to conserve given lands
- Area targets or case-by-case negotiation?
 - Case by case (property level): fine tuning possible, but risks of diversion (moral hazard) if connivance with the agency
 - Area target: risk of non additionality for some properties but less moral hazard
 - Leakage possible (landlords with several properties)
 - Foreseeable difficulty: targets likely to be contested by “low-deforestation” areas’ actors who will claim being granted with more “pessimistic” baselines (to maximize their rent expectancy)
- Equity issue: how to avoid reinforcing the unequal wealth and land distribution (e.g. Brazil...)?
 - Latifundists with agricultural areas enough and huge forest reserve will capture most of the rents

Suitable PES instrument: Transferable Development/Deforestation Rights

- For a given area or region: “cap and trade” system of deforestation rights
 - The law gives the maximum amount of deforestation rights which can be distributed (Case of Brazil: 20% maximum of deforestation rights on private properties in forested areas within the legal Amazon)
 - A market can be set up, regulated by an agency. Outsiders could possibly buy back deforestation rights to raise their prices and make additional deforestation costly
- Difficulties:
 - Adjusting with the field situation (properties on which more than 20% have been deforested)
 - Additionality issue: the “rights sellers” might not have the opportunity to use their “deforestation rights” but they sell them anyway!
 - Control and sanctions: without stringent law enforcement, the system will be easily diverted: landlord will sell their rights, then deforest!

Suitable PES instruments and incentives on public forests

- **Conservation concessions** can be a suitable tool on public lands (Africa, SE Asia...): annual payment to governments and local stakeholders for the opportunity cost of not developing the land
 - The alternative baseline is often *selective logging* under legal management guidelines
 - “Leakage” possible
- Room for economic evaluation of the opportunity cost at multiple scale levels: *the larger the conservation concession, the more acute will be the fairness/equity issue*
- Sustainable forest management for timber is also a good alternative to land conversion and deforestation: incentives through *tax cuts for certified concessions?*

Combining economic instruments and law enforcement

- Detecting forest infractions (by satellite) is less difficult than enforcing law resulting in effective sanctions...
- How to avoid designing a scheme in which “law compliers” will be at a disadvantage compared to violators?
 - What conditions of eligibility?
 - Setting differential regimes for compliers and non-compliers?
- The minimum condition of success is strong signals of political will to enforce the law: do we want to pay for that?
 - **With the risk to be said : “if you don’t pay I let my forests being destroyed”**
- The ultimate condition is (still) the collective choices and collective/individual behaviors: forest are converted for feeding beef, producing biofuels, paper pulp... we are consuming more and more...