

Post-2012 Eligibility of Land Use and Bioenergy Activities in the CDM

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General Issues

General

- *Difficult to discuss post-2012 CDM eligibility isolated from the broader post-2012 discussion*
- *Presentation based on the framework of the 1st CP, with improved knowledge from CDM implementation*
 - *Methodological complexities, cost, regional distribution, data needs*

Mitigation: terrestrial ecosystem and land management

- *Mitigation options (IPCC, TAR):*
 - *Forest carbon conservation (conservation of existing carbon pools)*
 - *Sequestration by increasing the size of the carbon pools*
 - *Afforestation and reforestation*
 - *Substitution by sustainably produced biological products (e.g., fossil fuels by biomass fuels)*

Mitigation through terrestrial ecosystem and land management

- Options have different temporal patterns*
- Forests, agricultural lands, and other terrestrial ecosystems offer significant, if often temporary, mitigation potential*
 - Reversibility due to vulnerability of carbon reservoirs*
 - Risk for higher CO₂ emissions in the future, if the C-conserving practices are discontinued (e.g. abandoning fire control practices in forests; reverting to intensive tillage in agriculture)*
- Using biomass as fuel, or wood to displace more energy-intensive materials, can provide permanent carbon mitigation benefits*

Mitigation through terrestrial ecosystem and land management

*Soil carbon is by far the largest carbon pool
in terrestrial ecosystems*

- *More than five times more carbon stored in soils than in the living biomass on land*
- *Land-use change (cultivation/disturbance) is the major driver of carbon losses in the soil*

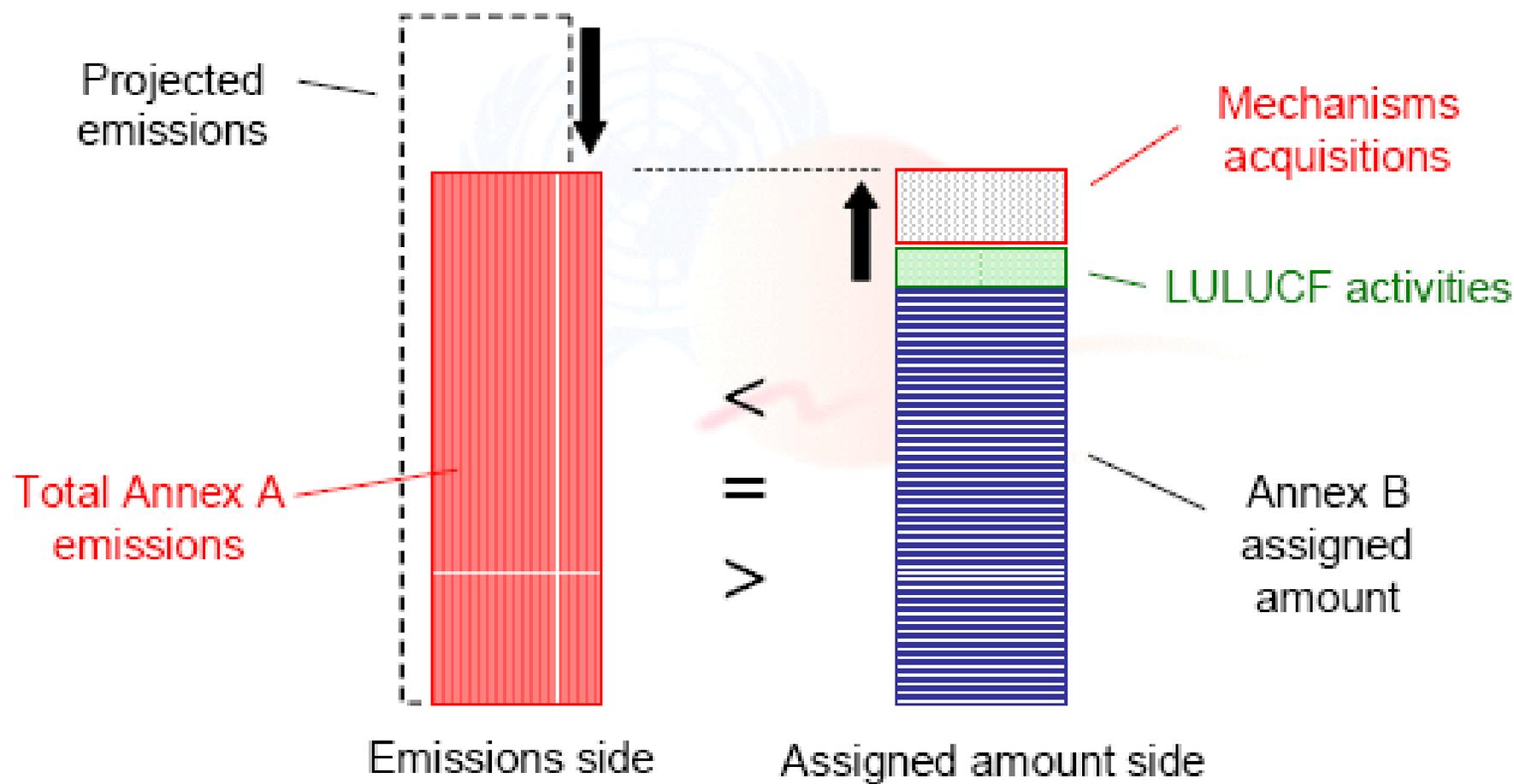
So, what happened in the first commitment period of the KP?

1st Commitment Period Considerations

- *What were the issues with CDM, in particular Land Use CDM?*
 - *Compensation of Annex I countries emissions*
 - *Assurance of the environmental integrity of the KP*
 - *Uncertainties (baseline, leakage, carbon accounting)*
 - *Factoring-out*
 - *Permanence (temporary creditation)*
 - *Sovereignty*
 - *Fungibility (diversion from “real” problem)*

Figure 2: Determination of compliance with Article 3, paragraph 1

Compliance with Article 3.1 commitments



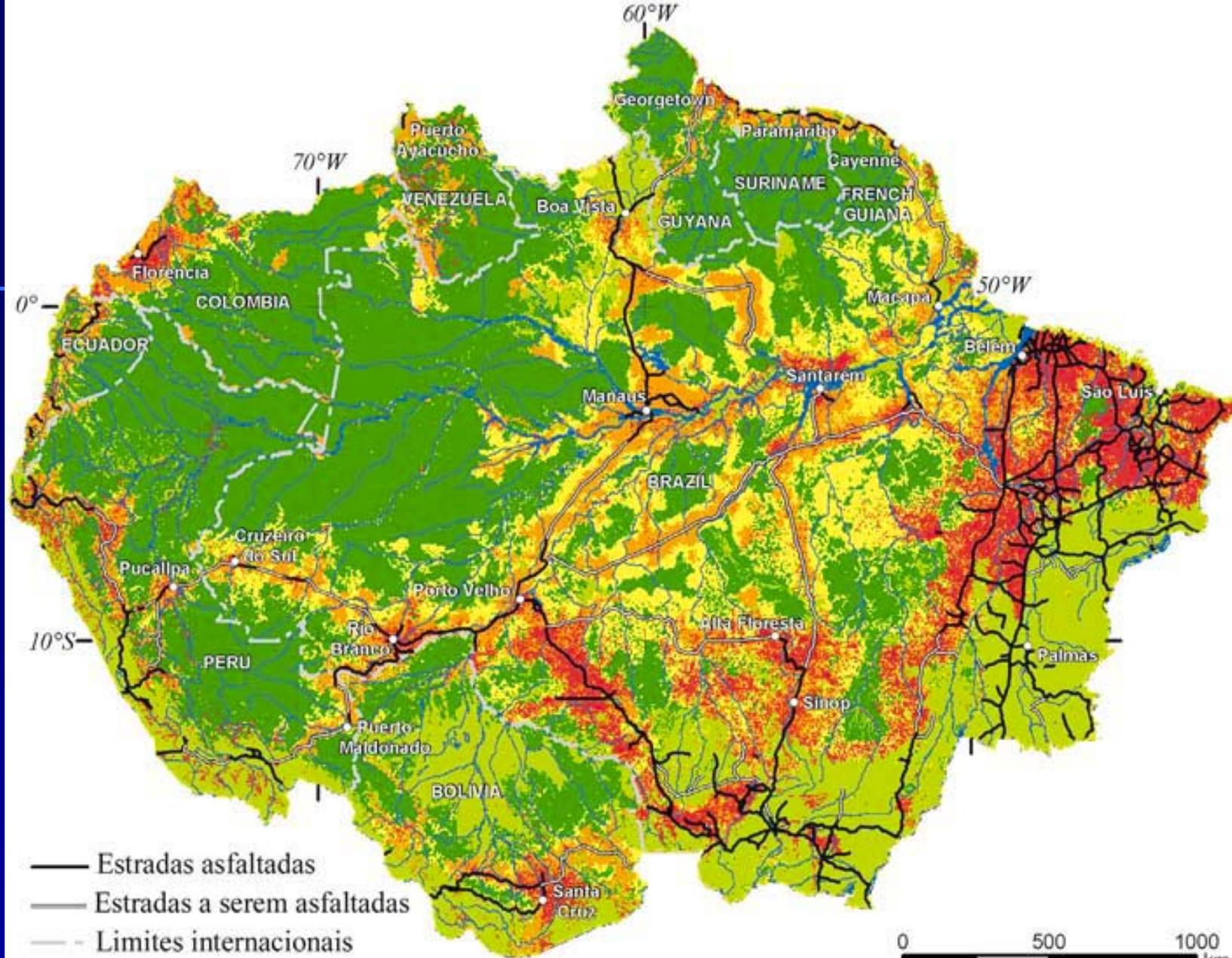
Why not conservation?

1st Commitment Period Considerations

- *Conservation (Avoided deforestation)*
 - *most contentious issue in the debate*
 - *project scale*
 - *inclusion permeated with difficulties (still)*
- *Baseline : Large uncertainties in future emissions from deforestation*
 - *large overestimates of future emissions ('tropical hot air')*
 - *underestimation of future emissions (political unattractiveness)*

Modeling future emissions from LUCF

- *Types of models:*
 - *Future land-use patterns mimic historical patterns*
 - *Econometric analysis*
 - *Limited by data availability, lack of explanatory mechanisms*
 - *Spatially explicit models responsive to policy intervention scenarios*



— Estradas asfaltadas

— Estradas a serem asfaltadas

- - Limites internacionais

~~~ Grandes rios

■ Desmatado até 2003

■ Floresta

■ Desmatado até 2050 no cenário de Governança

■ Campo/Cerrado

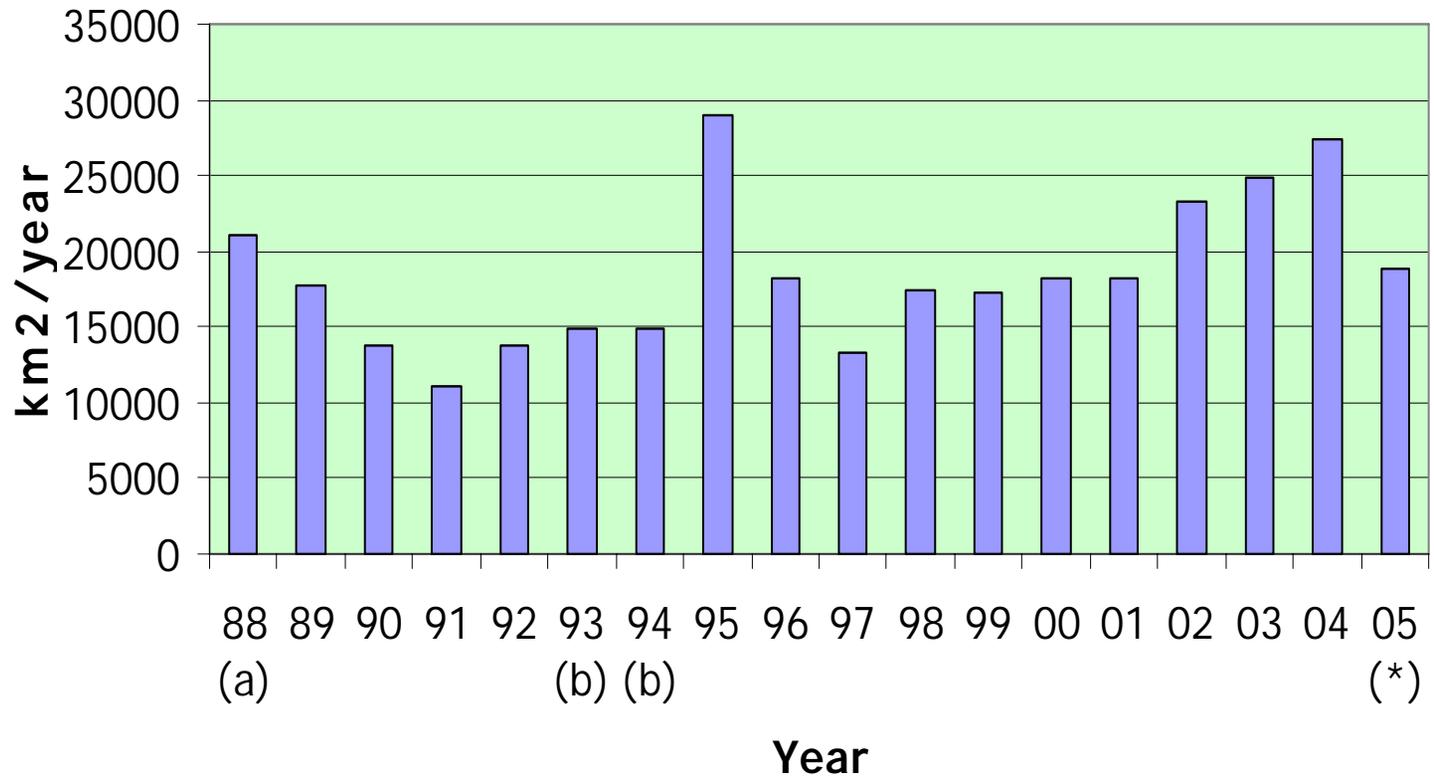
■ Desmatado até 2050 no cenário o mesmo de sempre

*Is it different now?*

# *Is it different now?*

- *Same issues remain largely unresolved*
  - *Baseline is possibly the largest constraint*
    - *Real, measurable, verifiable*
  - *Leakage is also an issue*
    - *Project-based / national approach*
- *Premise that the countries know the deforestation driving forces and can effectively control them*
  - *Knowledge of the driving forces*
  - *Tools to act upon them*
    - *National policies and measures*
    - *Effective legislation*
    - *Reliable monitoring of changes*

## Annual Rate of Gross Deforestation in Legal Amazonia



*Will post-2012 remain the same?*

# *Changing Approach Post-2012?*

- *Reducing emissions from deforestation instead of avoided deforestation*
  - *Looking at the past, not at the future*
  - *National, not project-based*
    - *Historical emissions reference rate*
      - *Time series*
        - *Starting point*
        - *Gross x net*
        - *CO<sub>2</sub> x non-CO<sub>2</sub>*
      - *Dynamic or static reference rate*

# *Data needs*

- *Historical deforestation emission reference rate*
  - *Definitional issues (degradation?)*
  - *Carbon reservoirs included*
    - *Living biomass*
    - *Dead organic matter, SOC : (?)*
  - *If net reductions considered, much larger data needs*
    - *Secondary vegetation*
    - *A/R*

*But data do not seem to be readily available...*

# *Methods for Forest Area Change Estimates: FAO*

- *National Monitoring System*
  - 6 (NAI) ; 8 (AI)
- *Unrelated/Independent Assessments*
  - 62 (NAI) ; 10 (AI)
- *Expert Estimates*
  - 57 (NAI) ; 7 (AI)
- *Management Plans/Cadastres*
  - 14 (NAI) ; 12 (AI)

# *Example: Sudam (FAO)*

- *Information sources*
  - *1970's World Bank study using Landsat from 1972*
  - *FAO AFRICOVER project (1995-2002)*
- *The sources have used*
  - *different types of remote sensing data*
  - *different methodologies, definitions and classifications*
  - *different levels of detail*
- *Direct comparison*
  - *Net change = 1 Million ha/year*
- *Expert assumptions to harmonize datasets*
  - *Net change = 589 000 ha/year.*
- *Result very sensitive to the assumptions*

# *FAO presentation in Rome (2006): conclusions*

- *Considerable differences between Annex I and non-Annex I countries:*
  - *scale and rate of deforestation*
  - *availability and quality of data*
  - *existence of National Monitoring Systems*
  - *capacity for forest monitoring*

# *Regional Equity?*

- *Possibly not!*
  - *Big share would possibly lie with the countries with largest forest cover, not with:*
    - *Countries with low emissions from deforestation*
    - *Countries with small forest cover*
  - *Countries with increasing forest cover left out, but...*
    - *CDM partially covers with A/R*

# *General: FRA 2005 (FAO)*

## ■ *Total forest area in 2005*

- Approximately 4 billion hectares
- 10 most forest-rich countries account for 2/3 of total forest area (hectares)
- Russia (809)    Brazil (478)    Canada (310)
- USA (303)    China (197)    Australia (164)
- Congo (134)    Indonesia (88)    Peru (69)
- India (68)    Others ( 1333)

# *Regional Mean Annual Deforestation Rate (2000-2005)*

|                    |                      |               |
|--------------------|----------------------|---------------|
| ■ <i>Argentina</i> | <i>-150,000 ha</i>   | <i>- 0.4%</i> |
| ■ <i>Bolivia</i>   | <i>-270,000 ha</i>   | <i>- 0.5%</i> |
| ■ <i>Chile</i>     | <i>+ 57,000 ha</i>   | <i>+0.4%</i>  |
| ■ <i>Colombia</i>  | <i>- 47,000 ha</i>   | <i>- 0.1%</i> |
| ■ <i>Ecuador</i>   | <i>-198,000 ha</i>   | <i>- 1.7%</i> |
| ■ <i>Paraguay</i>  | <i>-179,000 ha</i>   | <i>- 0.9%</i> |
| ■ <i>Peru</i>      | <i>- 94,000 ha</i>   | <i>- 0.1%</i> |
| ■ <i>Uruguay</i>   | <i>+ 19,000 ha</i>   | <i>+1,3%</i>  |
| ■ <i>Venezuela</i> | <i>-288,000 ha</i>   | <i>- 0.6%</i> |
| ■ <i>BRAZIL</i>    | <i>-3,103,000 ha</i> | <i>- 0.6%</i> |

# *Additional opportunities*

- *Other opportunities under the CDM*
  - *Plantations for the production of biofuels*
    - *Substitution mitigation option*
  - *Some cropland management practices*
    - *E.g., direct planting (reduced tillage)*
  - *Replacement of non-renewable biomass by renewable biomass*
    - *E.g., replacement of non-renewable charcoal by renewable charcoal*
      - *Avoided deforestation linkage*

## *And to conclude...*

- *Need to create different arrangements under the UNFCCC to provide incentives for reducing emissions from land use, agriculture and forestry activities outside the framework of the CDM (or a similar scheme) (e.g., reducing emissions from deforestation)*