

WILTON PARK CONFERENCE WH06/45
FORESTRY: A SECTORAL RESPONSE TO
CLIMATE CHANGE

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The Forest Science/Policy Interface

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- Considerations on how to deal with the terrestrial biosphere in a future international climate change regime.
- The emphasis is on the policy aspects: therefore the numbers are only indicative, in order to illustrate the arguments.

- There is a dynamic equilibrium between carbon in the atmosphere and carbon in the terrestrial biosphere – photosynthesis and decomposition of organic matter transfer carbon in both directions.

- Therefore the long-term objective of the Convention – stabilizing the atmospheric concentration of greenhouse gases – can be read, in the case of carbon dioxide, as – stabilizing the concentration of carbon in the atmosphere / biosphere system.

- What causes the increase in the amount of carbon dioxide in the atmosphere / biosphere system is the input of fossil carbon minus the ocean or geological removal. This net input must therefore be stabilized in order to achieve the objective of the Convention.

- Forests can contribute because, as part of the terrestrial biosphere, they represent a stock of carbon that is removed from the atmosphere.
- Also, they can play a role as a means to convert solar energy into usable energy on a time scale much shorter than the geological time scale of fossil fuels.

- This is not happening today in the policy arena – United Nations Framework Convention on Climate Change or its Kyoto Protocol.
- There are a number of obstacles that must be removed at this stage as the international policy debate focuses on the negotiation of a mandate for a future international climate change regime.

- The UNFCCC is not clear in defining anthropogenic emissions by sources and anthropogenic removals by sinks.
- Countries therefore often claim credit for the removal of carbon dioxide from the atmosphere that happens in the portion of the terrestrial biosphere in their territory.

- If this practice continues, in the limit, countries would claim credit for the removal of carbon to the terrestrial biosphere, about 2 GtC/yr and, why not, for the removal into the oceans, another 2 GtC/yr. The emissions reduction targets would become meaningless.

- An attempt to solve this was made by COP6 by establishing that in the accounting of removals the following factors should be factored out: carbon dioxide fertilization, nitrogen deposition and the effect of age distribution from previous practices.
- Another alternative is the full carbon accounting.

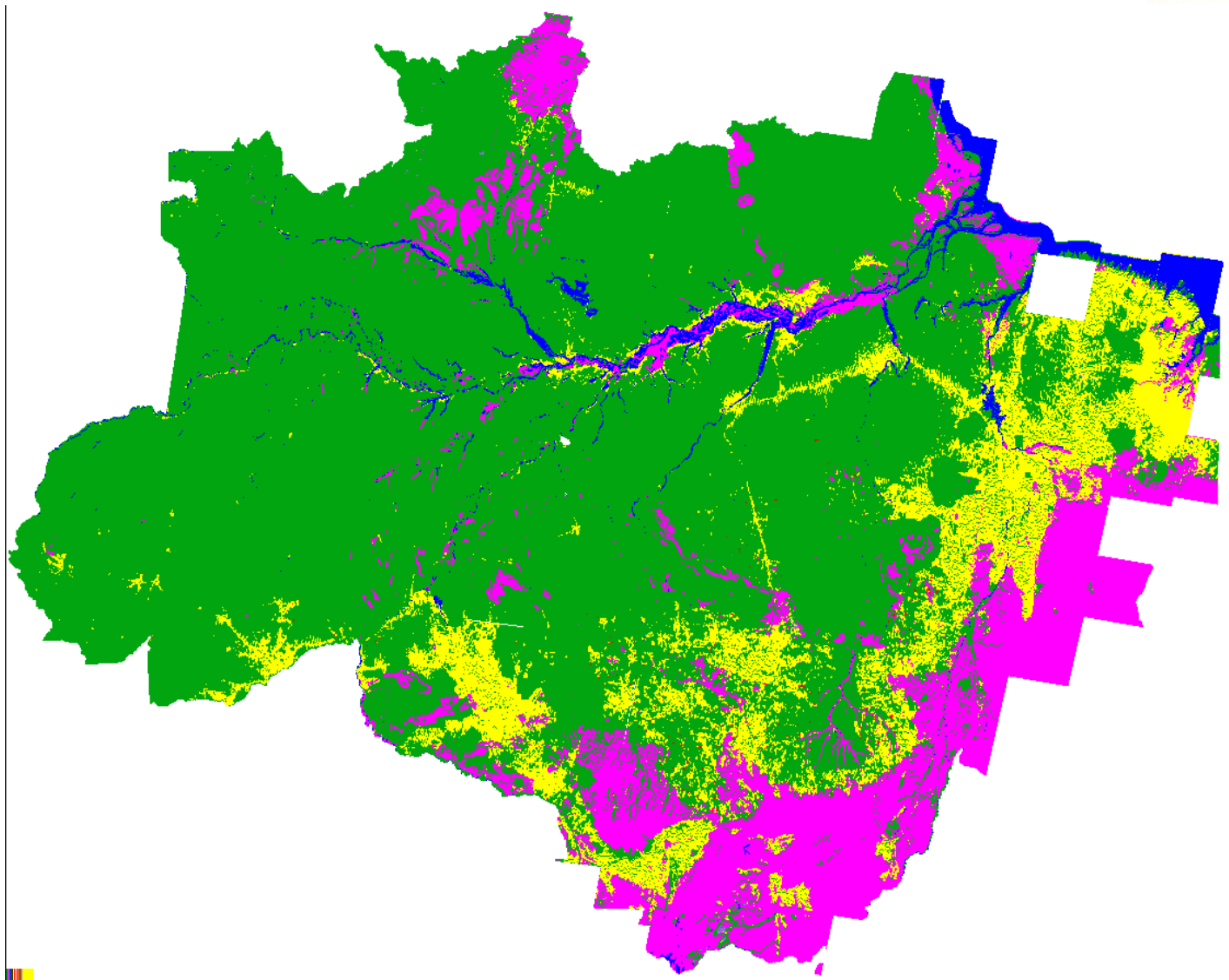
- The fact that the Kyoto Protocol was negotiated without full understanding of the terrestrial carbon cycle brought into focus to land use and land-use changes as a means to decrease the cost of meeting the emissions reductions targets already agreed because, under certain conditions, the cost would be zero by simply caliming credit for management of land.

- In the carbon cycle, we know relatively well, from direct measurements, the fossil emissions, the ocean uptake, the atmospheric increase. We have a very large error in the estimate of emissions from deforestation. Since the carbon budget must close, different values for emissions from deforestation imply different values for the terrestrial biosphere uptake.

- It follows that the effect of fossil emission reductions upon the atmospheric concentration of carbon dioxide is also not well known.
- The variable responsible for the largest share of uncertainty in emissions from deforestation is the area cleared per year.

- Satellite imagery can be used for a global monitoring effort of tropical deforestation.
- All present estimates are based on FAO statistics. However, the definition of forest used by FAO is not based on carbon content.

- Calibration of FAO derived emission estimates using the survey by Brazil points to tropical deforestation being responsible for 9% of global emissions.



- Estimates of the cost of avoiding emissions by protecting forest areas are based on the cost of opportunity of the land.
- They do not take into account the fact that the land may, in the future, generate revenues from agriculture.

- There is a difference between a country creating a protected area, which continues to be subject to national law and court, conceivably, have its use changed by another law.
- Creating a protected area by international treaty will be seen as infringing upon the sovereignty of the country.

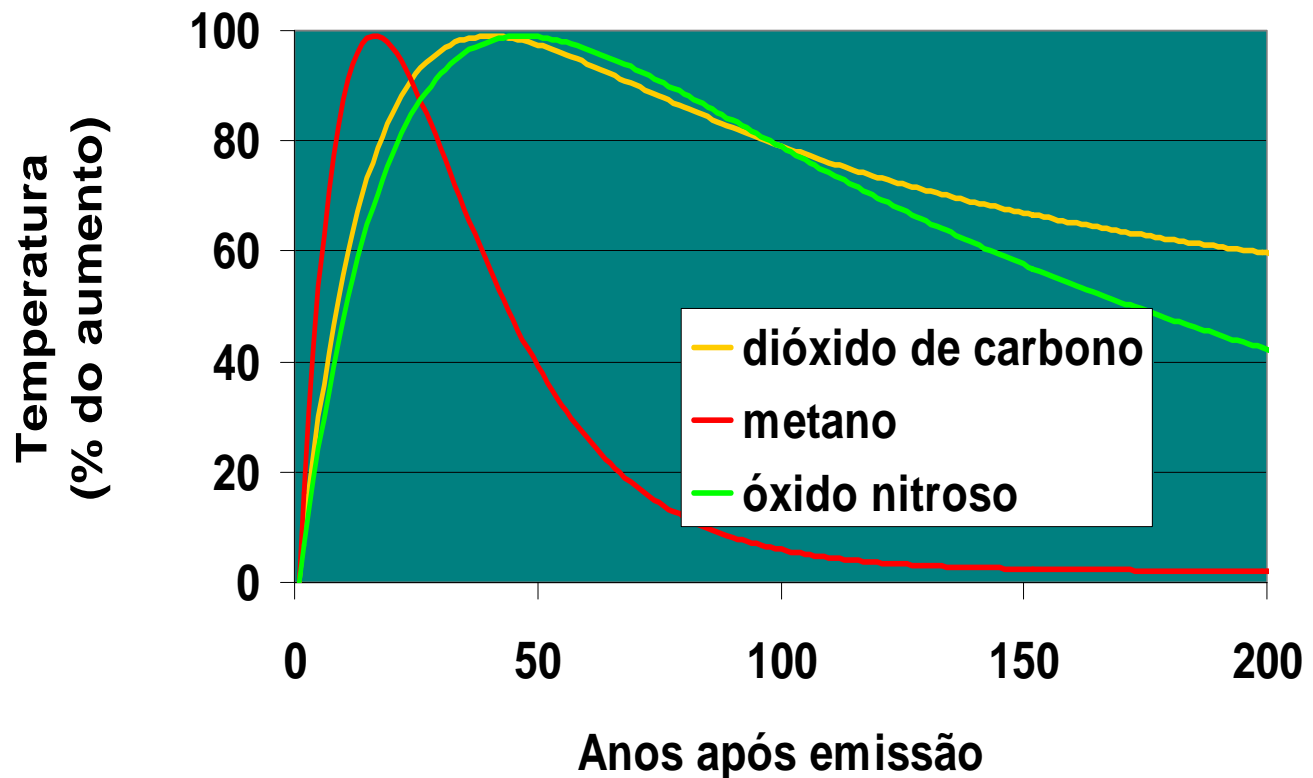
- Establishing by international treaty that a certain fraction of the territory of a given country must be left with forest cover, even without specifying exactly where should fraction should be is likely to be seen also as impacting upon the sovereignty of that country.

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- It may be possible, however, to invoke the Convention to establish that countries agree to care for the portion of the stock of carbon in the terrestrial biosphere that is under their jurisdiction, in a full carbon accounting regime.

- Methane is irrelevant over a few decades.

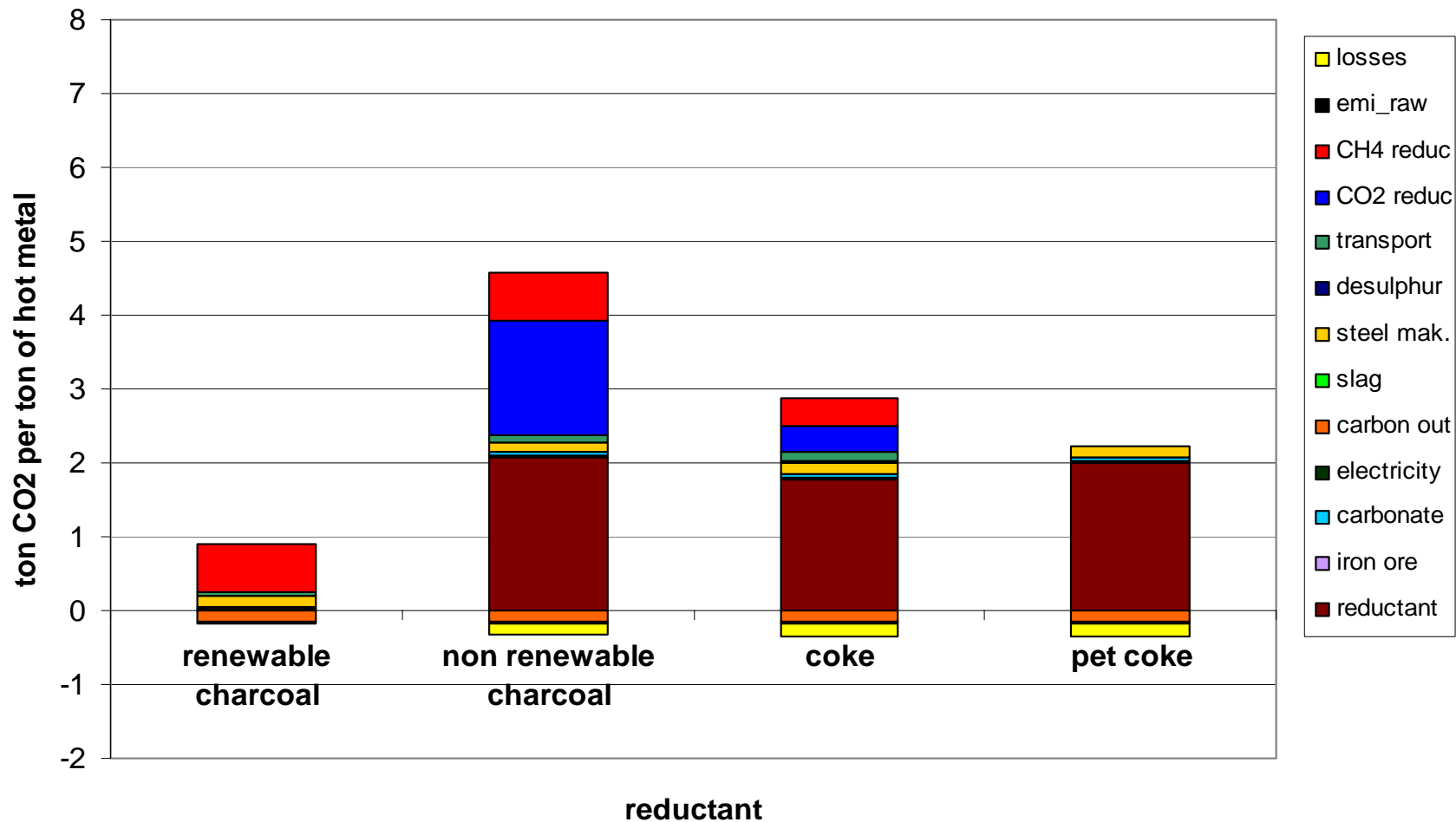
Máximo efeito sobre o clima ocorre décadas após a emissão

15% do gás carbônico permanece na atmosfera por mais de mil anos



- Use of renewable biomass from forests – or other vegetation – to displace non-renewable biomass or fossil to generate energy.
- In general non renewable biomass results in higher emissions than fossil.

specific emissions of carbon dioxide equivalent per ton of hot metal



- For Annex I (industrialized) countries, if renewable biomass is used, there are “credits” given to the country, in the sense that the national inventories will reflect the decrease in emissions.
- For non-Annex I countries, this is not so because the CDM regulations only allow this on a limited basis.

- Under the CDM, the replacement of non-renewable biomass with renewable biomass as a source of energy is not accepted because:
 - The replacement tends to contribute to avoiding deforestation and, since avoided deforestation cannot be credited, therefore the replacement is not acceptable as a CDM project.
 - Contributing to avoid deforestation should be seen as a positive side effect.

- In summary:
- Global accounting for carbon stocks in the terrestrial biosphere.
- No fungibility with fossil.
- Incentives for renewable biomass under the Kyoto mechanisms.