

Mitigation Potential and Costs

Land-Use Options

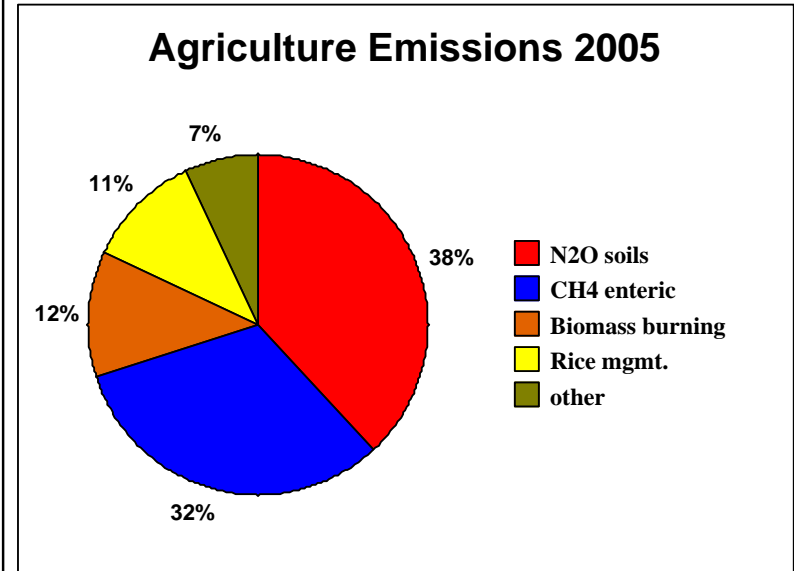
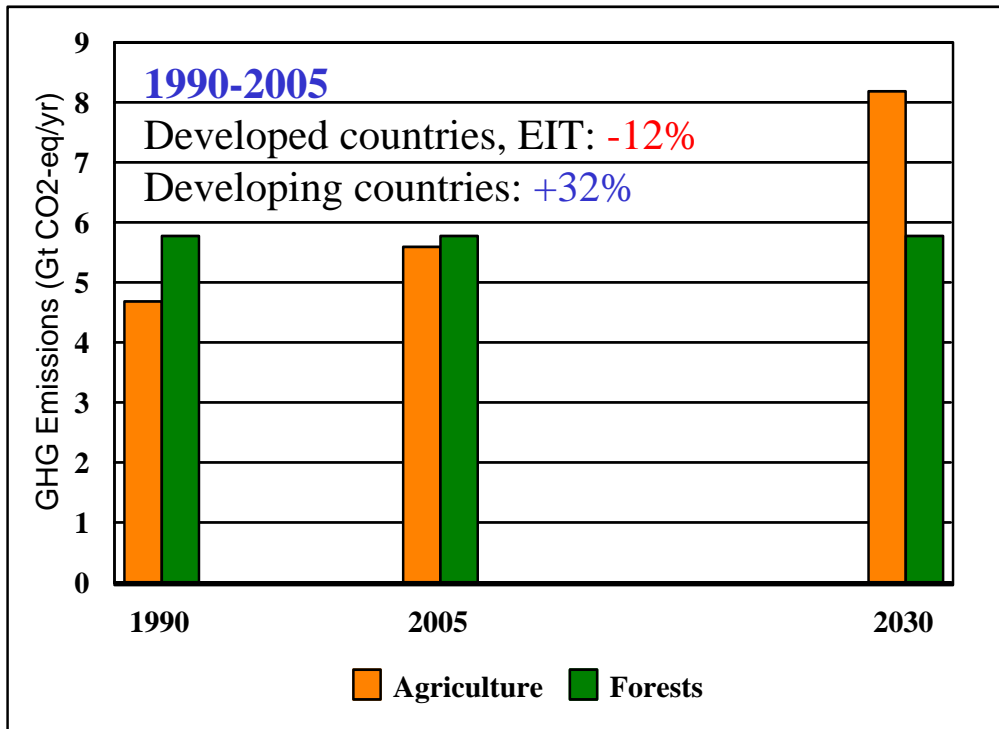
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CLA, Chapter 8 (Agriculture), WGIII

Bonn, 12 May 2007

Baseline emissions

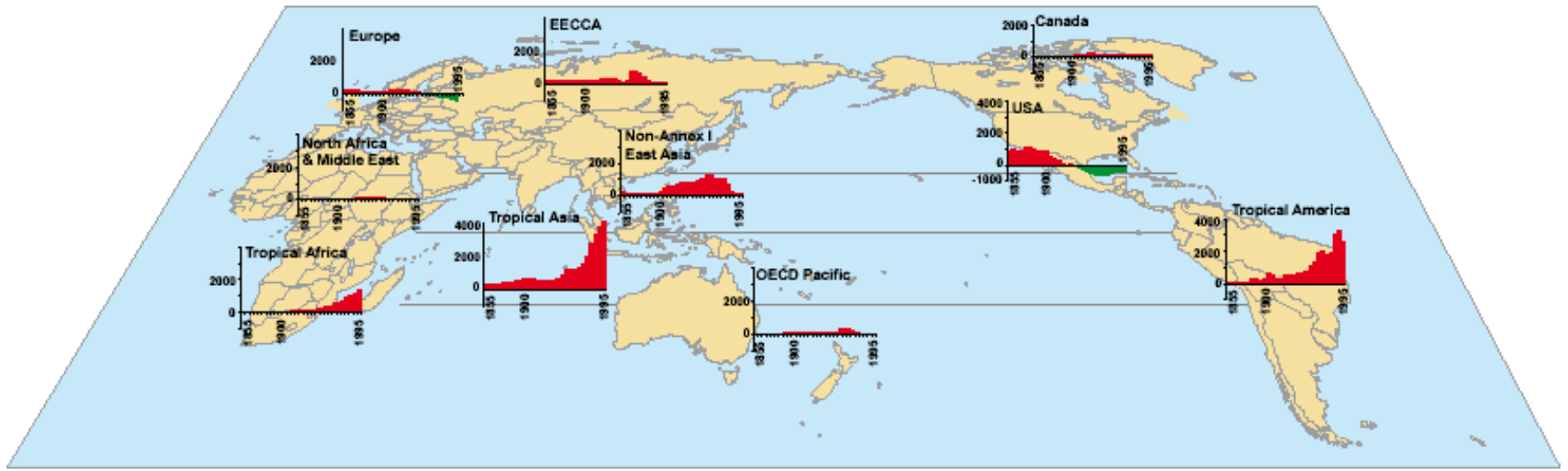


Forest and agriculture sinks not included in graph

Main drivers

- Increase in GHGs: population pressure, income increase, diet changes, technological changes
- Decrease in GHGs: increased land productivity, conservation tillage, non-climate policies (AI), forest sinks (temperate/boreal)

Baseline emissions: Forests



Economic Mitigation Potential

	Economic Potential 2030 (GtCO₂-eq/yr)	
Carbon price (US\$/tCO₂-eq)	Agriculture	Forests
20	1.6 (0.3-2.4)	1.2 (0.5-1.8)
50	2.7 (1.5-3.9)	2.1 (0.9-3.2)
100	4.4 (2.3-6.4)	2.7 (1.3-4.2)
Emissions 2030	8.2	5.8

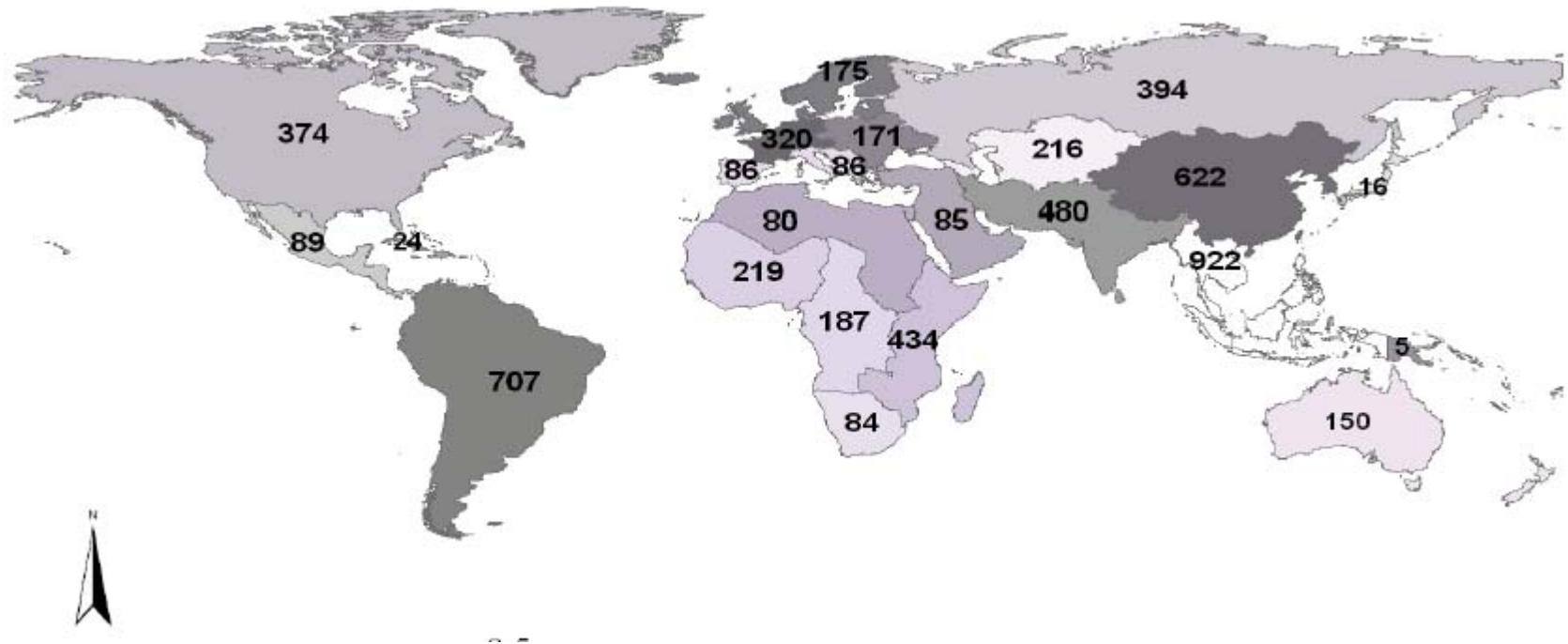
Mitigation practices in Agriculture

Cropland management; Restoration of organic soils; Rice management; Grazing land management – **90% of potential is carbon sequestration**

Mitigation practices in Forests

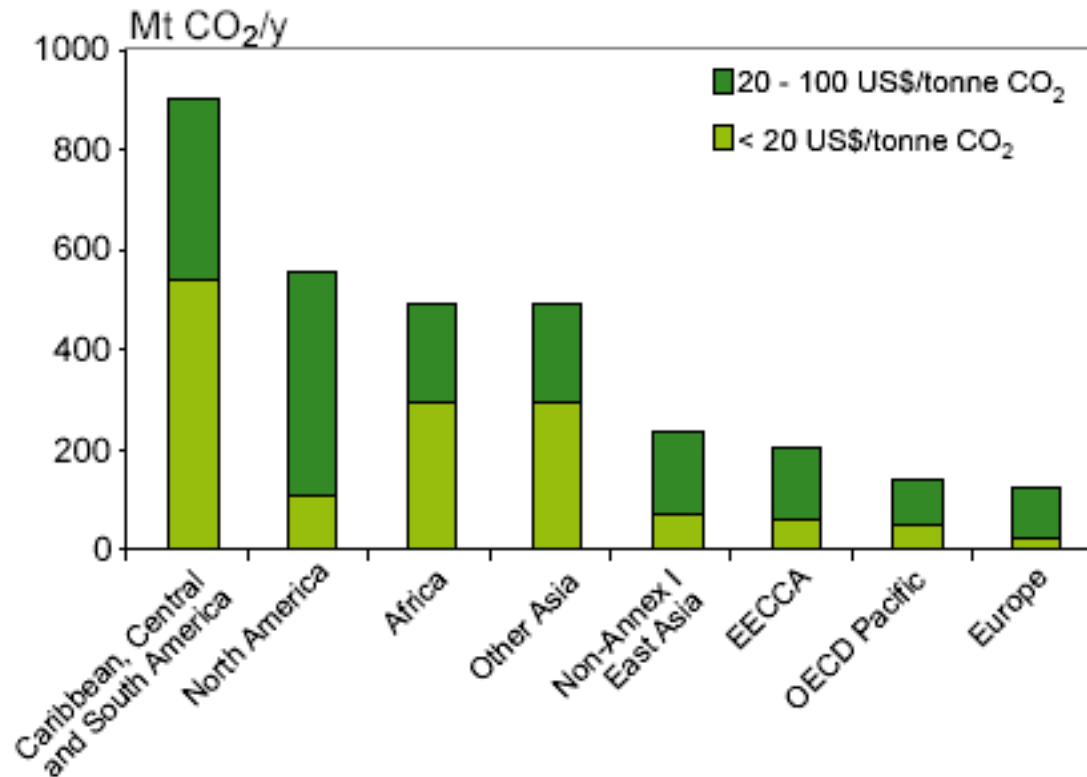
Reduced emissions from deforestation; afforestation; forest management

Agriculture: Regional Distribution of Economic Potential (US\$ 100/tCO₂-eq)



70% of potential is in developing regions

Forests: Regional Distribution of Economic Potential (US\$ 100/tCO₂-eq)



65% of potential is in developing regions

Developing countries: reduced deforestation 40% of potential

Developed countries, EIT: forest management 63-72% of potential

Biomass as Feedstock for Energy

- Agriculture:
 - Biomass for energy produced in agricultural land may cause indirect emissions reductions of **70-1,260 Mt CO₂-eq./yr** (at US\$ 20/tCO₂) by 2030.
 - In addition, emissions reductions of 770 Mt CO₂-eq./yr can be achieved through energy efficiency
- Forests:
 - Indirect emissions reductions of **40-4,000 Mt CO₂-eq./yr** (at US\$ 20/tCO₂) can be achieved by 2030.
 - Increasing stocks of harvested wood products can also contribute (not estimated in the report).

Final Remarks (1)

- Developing regions:
 - where most emissions occur (both in agriculture and forests)
 - where emissions tend to increase (agriculture)
 - where ca. 2/3 of economic mitigation potential can be achieved.
- Developed regions, EIT:
 - agriculture emissions tend to decrease
 - forest sector is a net sink
 - large potential for carbon sequestration through forest management and carbon sequestration in soils in some areas

Final Remarks (2)

- C sequestration represents 90% of potential in agriculture, and 60% in forests
 - high uncertainty of estimates (baseline and potentials)
 - uncertainty on long-term effects (about sink enhancement or reversal due to climate change)
- Agriculture and forests may also contribute to mitigation in energy sector through production of biomass feedstocks and energy efficiency measures
 - Competition with other land uses, positive or negative environmental impacts, implications for food security
- Most mitigation practices in agriculture and forests have synergies with sustainable development and interactions with adaptation.