



CARBOSUR®

Climate Change, Agriculture and Trade on the Road to
Copenhagen

Ensuring Effective Adaptation and Mitigation and Food Security

Salzburg, Austria, 12 May 2009

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Increased population

Food Demand

Increased crop production

Technology, finance, infrastructure, governance

Decreased land productivity Increased land productivity

Deforestation



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CARBOSUR®

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Food Demand

Increased wealth

Demand of higher value food

Increased crop production
Increased meat/dairy production

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Deforestation

Decreased land productivity Increased land productivity



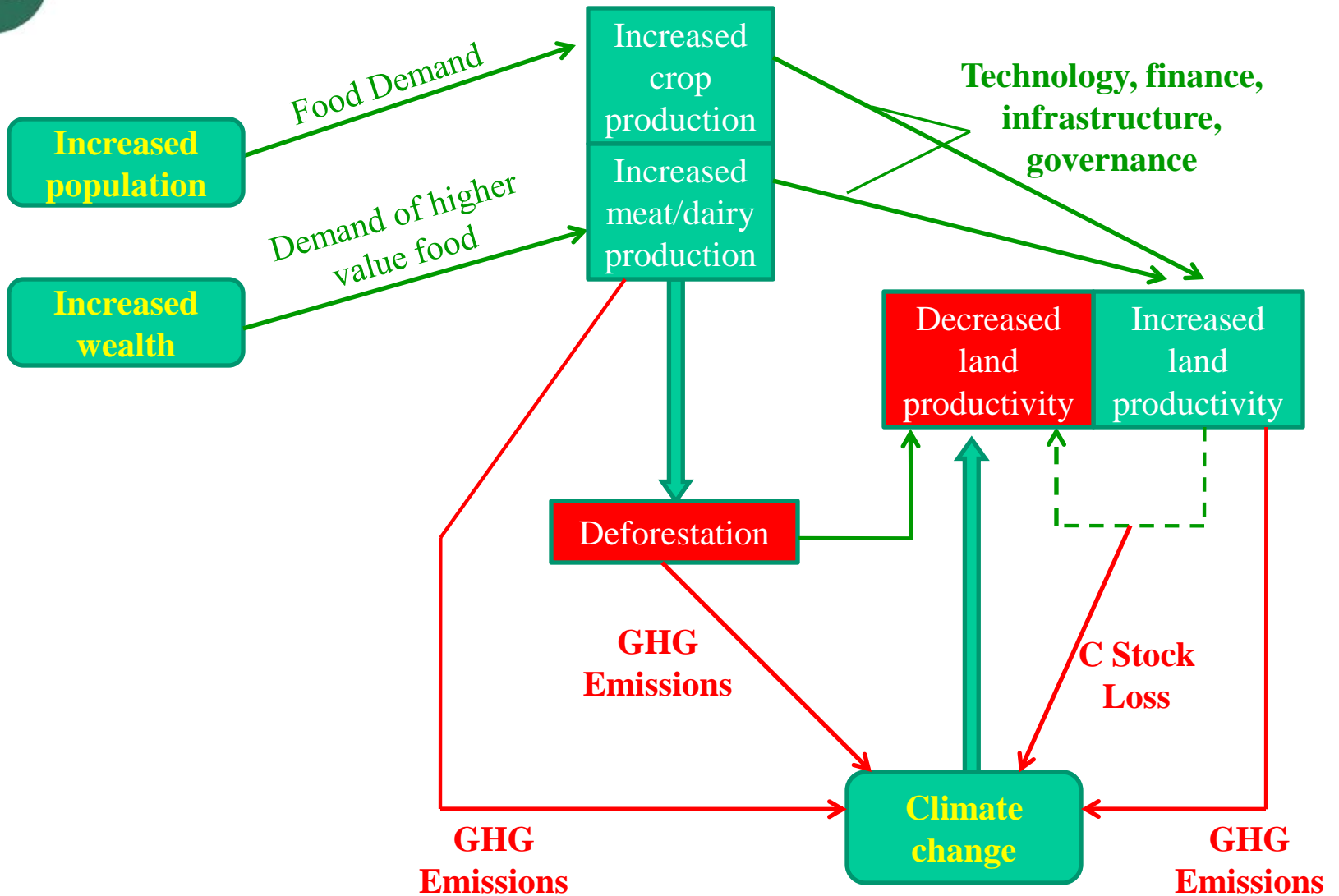
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GHG Emissions

C Stock Loss

GHG Emissions

Climate change

GHG Emissions

MITIGATION



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ADAPTATION



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FOOD SECURITY

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GHG Emissions

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GHG Emissions

GHG Emissions



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IPCC AR4: Economic Mitigation Potential in 2030

Carbon price (US\$/tCO ₂ -eq)	Mitigation Potential (Gt CO ₂ -eq/yr)
20	1.6 (0.3-2.4)
50	2.7 (1.5-3.9)
100	4.4 (2.3-6.4)
Emissions 2030	8.2

Mitigation practices in Agriculture

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



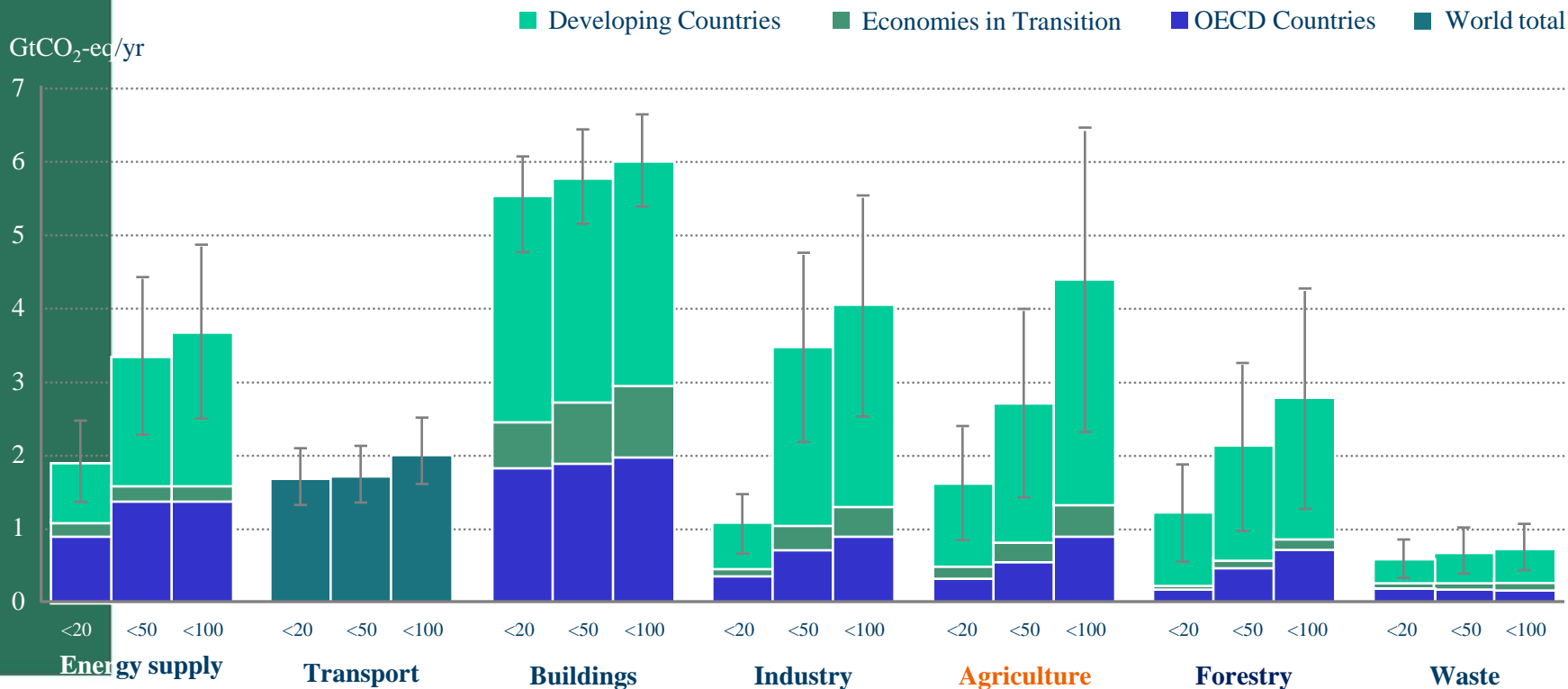
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Mitigation Potentials by Sector



Relative contribution of Agriculture to total mitigation potential

US\$ 20/tCO₂ – 12%

US\$ 50/tCO₂ – 14%

US\$ 100/tCO₂ – 19%



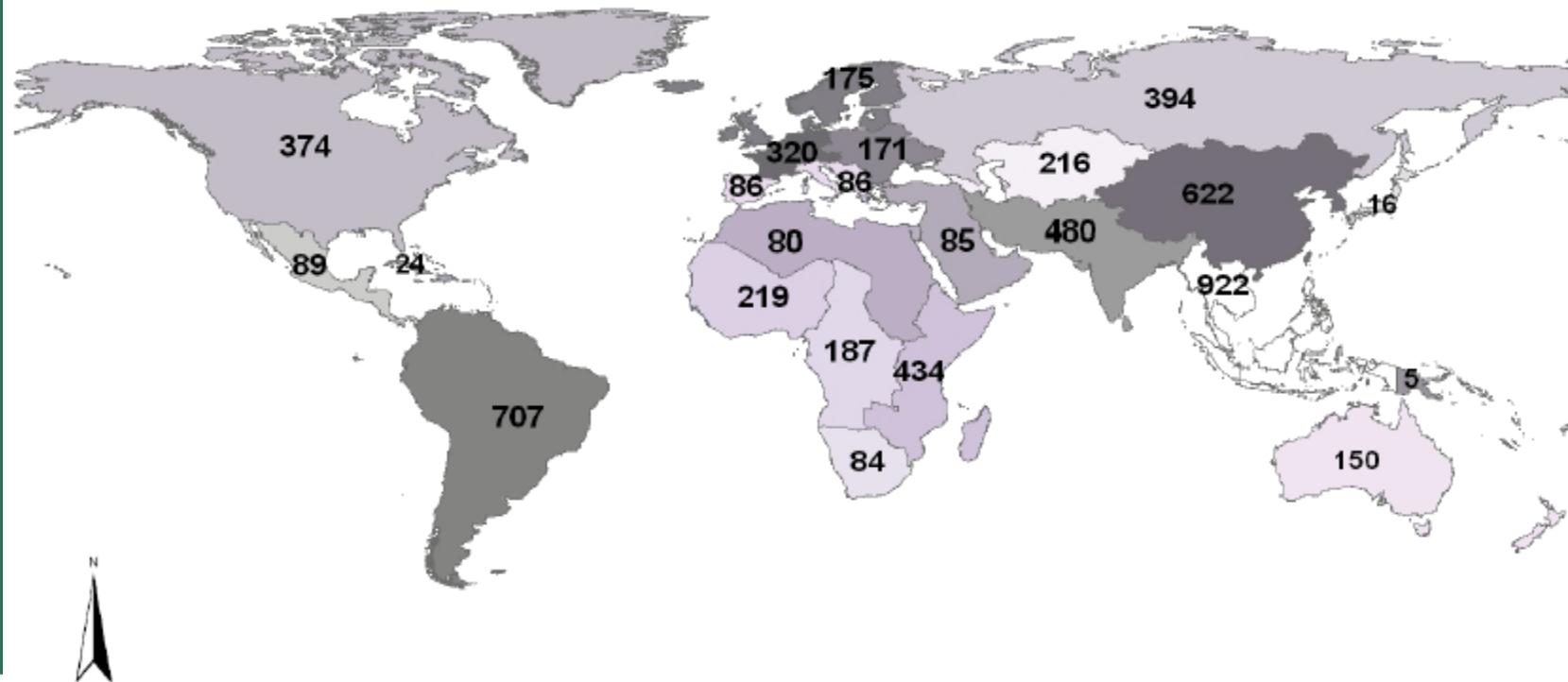
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Agriculture: Regional Distribution of Technical Potential



70% of technical potential is in developing regions

2/3 of potential not covered by Kyoto mechanisms



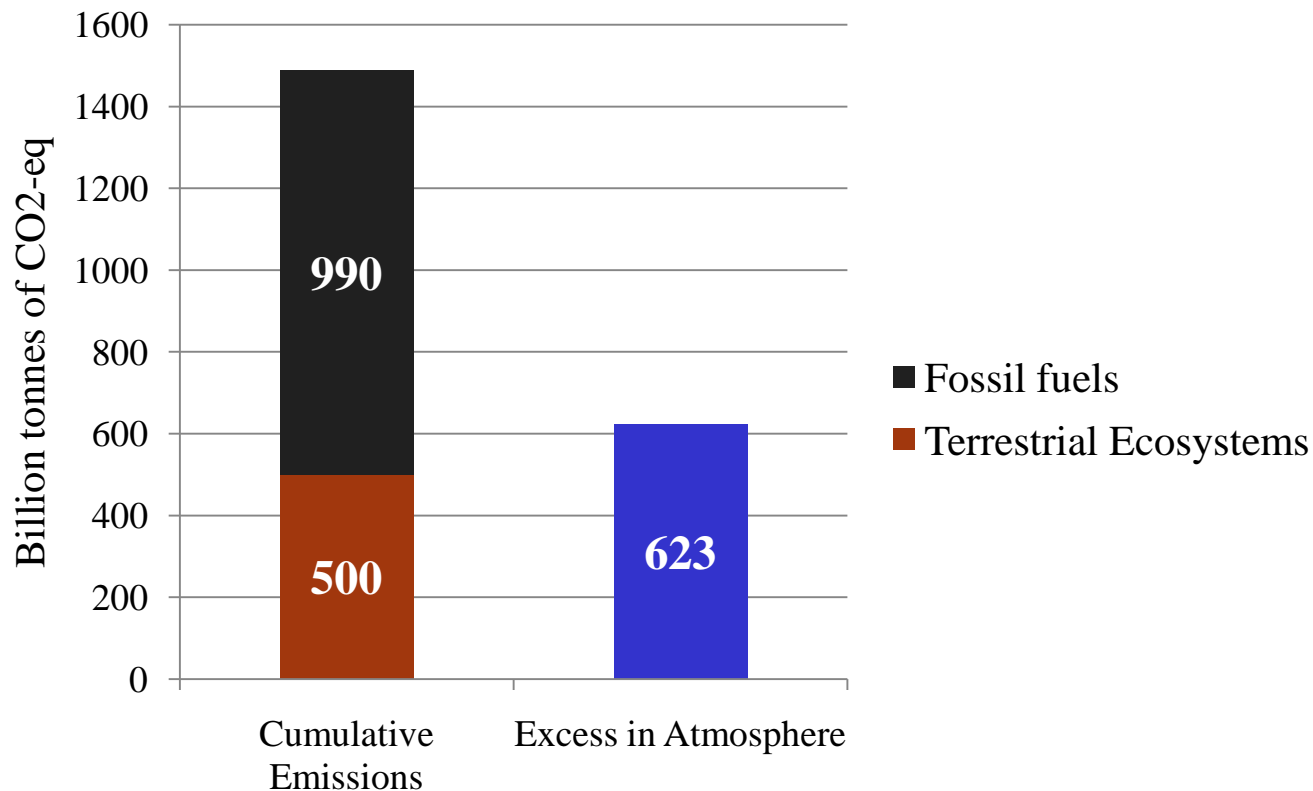
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Cumulative historical emissions of GHG



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Beef cattle: Emissions per unit product

System	GHG emissions (kg CO ₂ -eq/kg CW)
High-quality pasture (NZ)	12-18
Grain-fed, Medium-quality pasture	20-40
Poor quality pasture (tropical)	40-100
Tropical pasture + Deforestation	~1000
Global average	>40?

We need more beef from high quality pasture, and less from deforested land

Same concept applies generally to all products

Intensity targets highly compatible with food security



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Key Messages: Terrestrial C Sequestration

- Mitigation, adaptation and food security can all be tackled by C sequestration in soil (and biomass). Technologies currently available
 - Additional specific practices and measures are needed for mitigation and adaptation.
 - Generally speaking, food security will benefit from most mitigation and adaptation measures (except for those mitigation measures implying reduction of agriculture output)
- Implementation of C sequestration needs to look at:
 - Finance, infrastructure, R&D and technology deployment, education, governance and several related issues
 - MRV, risk of non-permanence, scale and barriers of several types
- Carbon finance independent from, and complementary of cap-and-trade regimes
 - Effective carbon price signal is needed for project activities or programs of activities to be implemented.
 - Carbon credits must be fungible with other types of C credits
 - Any restrictions to the trade of C credits will reduce the mitigation potentials



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Key Messages: non-CO₂ emissions

- Mitigation potential for non-CO₂ emissions from agriculture is very limited at present, and these are expected to increase sharply
- Reduction of production would impair food security, therefore it is not an option. Change in consumption patterns may help, but will not have a significant impact
- Future climate regime should be based on intensity targets rather than absolute caps
 - Food demand will not be affected by climate policy, therefore, reducing emissions per unit product would effectively result in reduced emissions as compared to the baseline
 - The easiest way to reduce emissions per unit product is to increase productivity, which would help ensuring food security
- Carbon finance is key for implementing the practices leading to emission reductions
 - Effective carbon price signal is needed for project activities or programs of activities to be implemented.
 - Carbon credits must be fungible with other types of C credits
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