Environmental Monitoring and Control (Emissions and Carbon Management) for Commercial Agriculture in the Tropics

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Background

- Climate Change (CC) and Global Warming (GW).
- Kyoto Protocol/Clean Development Mechanism (CDM) and Joint Implementation (JI) Projects.
- Annex B Countries and Developing Countries to achieve sustainable development and emission reductions commitments.

The Way Forward

- Environmental monitoring and control of emissions.
- Stock taking emissions trends in tropical countries.
- Technology: establishing effective and efficient monitoring systems.
- Emissions Standards: setting limits to amounts of pollutants released into the environment and achieving them.

Way Forward Continued

- Capacity Building: appropriate capacity for implementation.
- Regulation: appropriate regulatory and implementation framework.
- Sustainable use of tropical forests, agricultural soils and other potential carbon sinks.

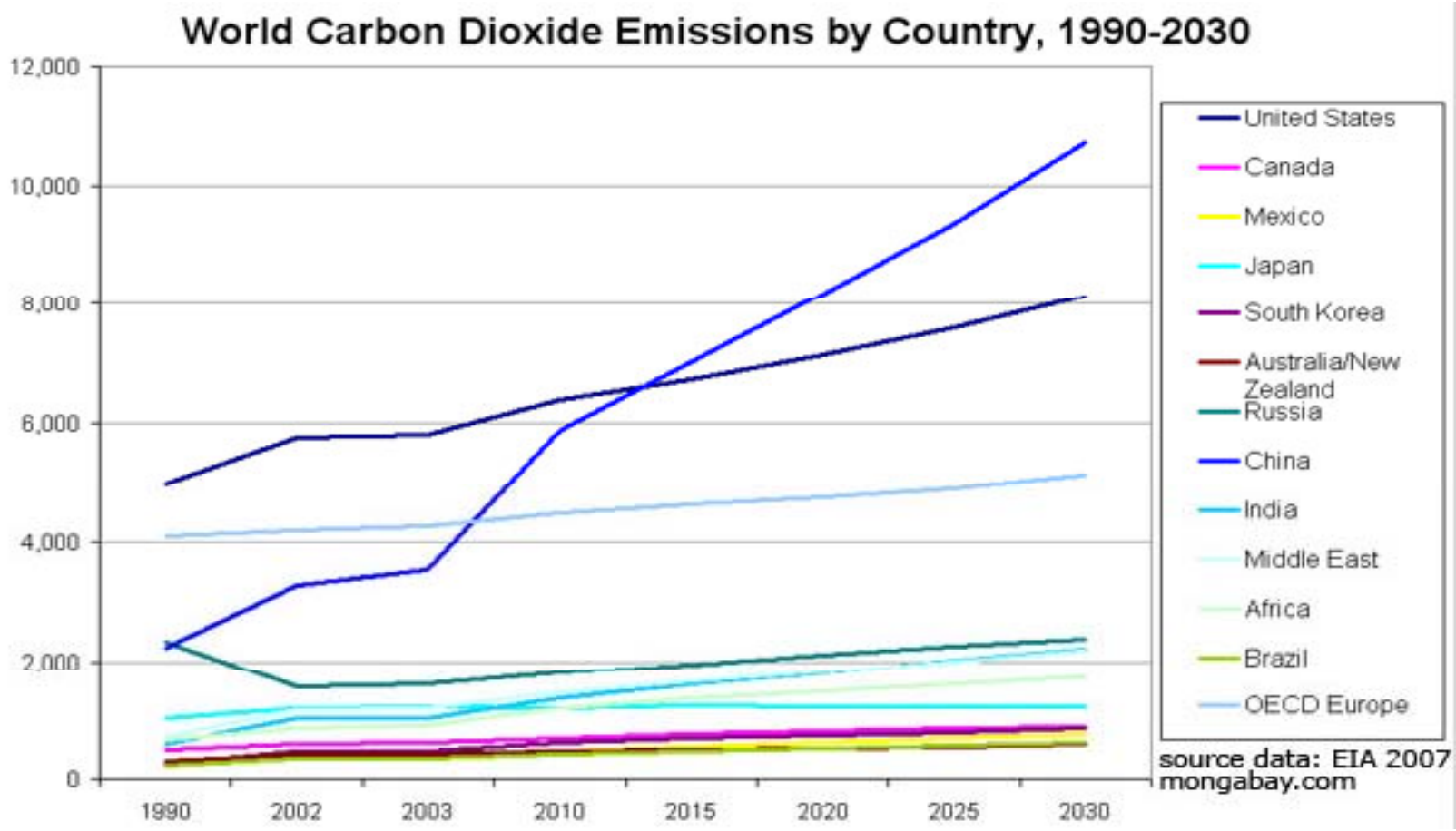
Way Forward Continue

- Monetization of sequestered carbon stocks in ecosystems and renewable energy and energy efficiency projects through carbon credits or emissions trading and payments for ecosystems services programmes (PES) – thus commercializing agriculture and other natural resources sectors.

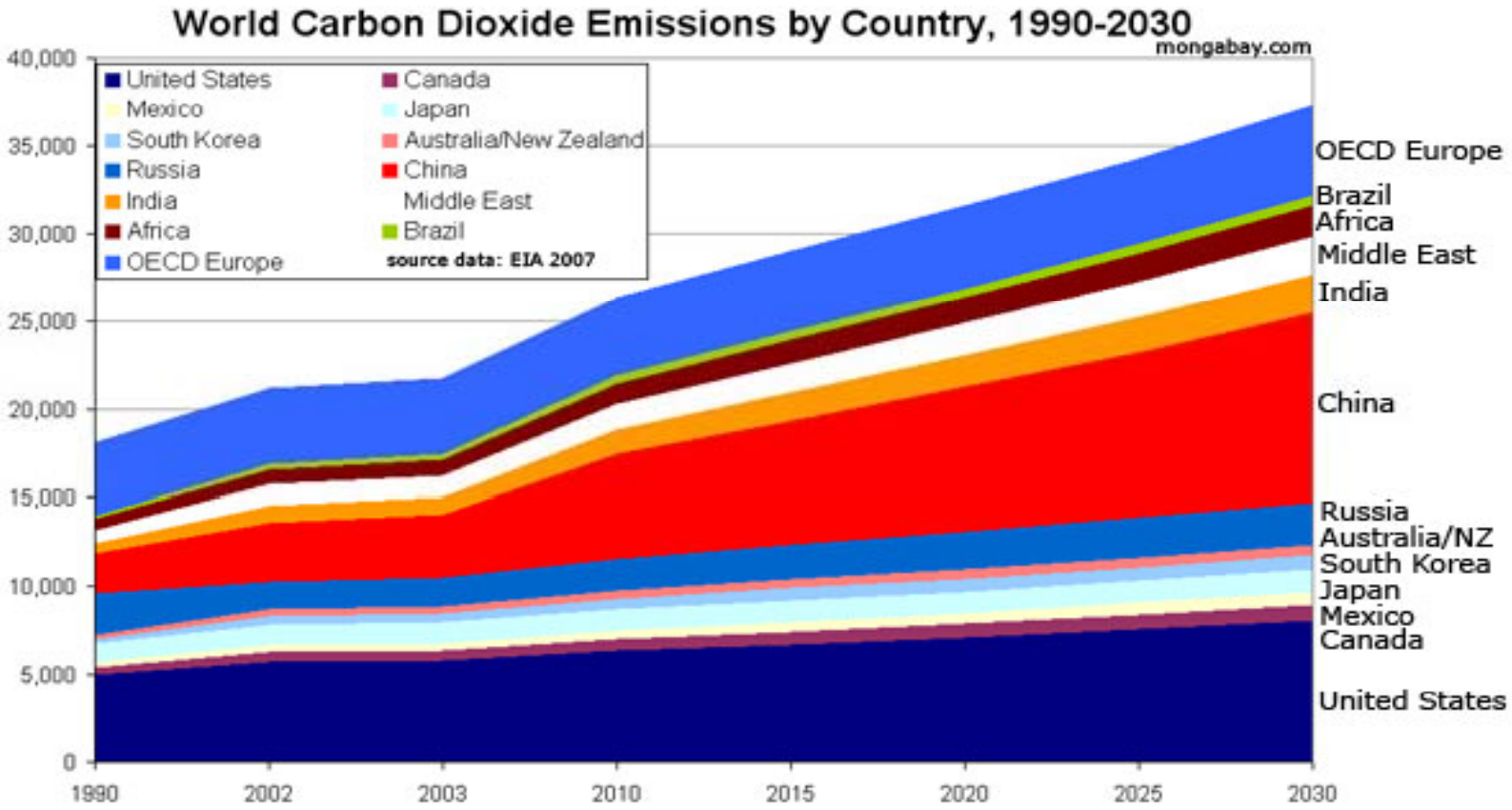
Way Forward Continued

- Implementation of Avoided Deforestation (AD) or Reduced Emissions from Deforestation and Degradation (REDD) and REDD Plus, which includes forest and land degradation and other forest related activities.
- Implementation of PES to capture the full economic, social and cultural benefits of REDD and REDD+.

Emissions Trends



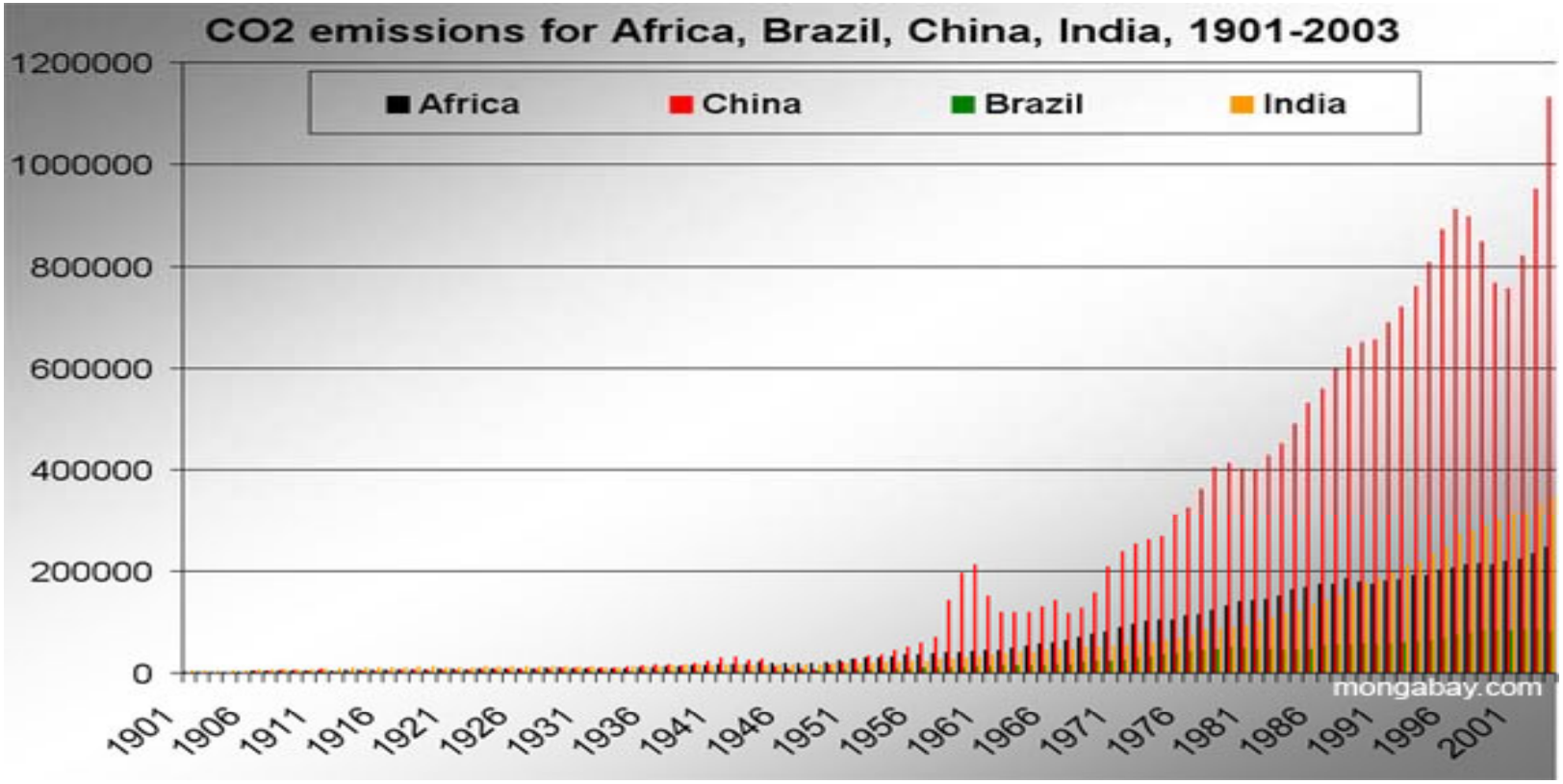
Emissions Trends



Emissions Trends (Continued)

1. China and India represent the largest emitters in the tropics with China poised to overtake the USA in 2009 or 2010 and beyond, according to current reports.
2. Tropical regions release relatively lower emissions (Africa, Brazil, Mexico, Middle East) but aggregated emissions (for the tropics) from deforestation is likely to change this scenario.

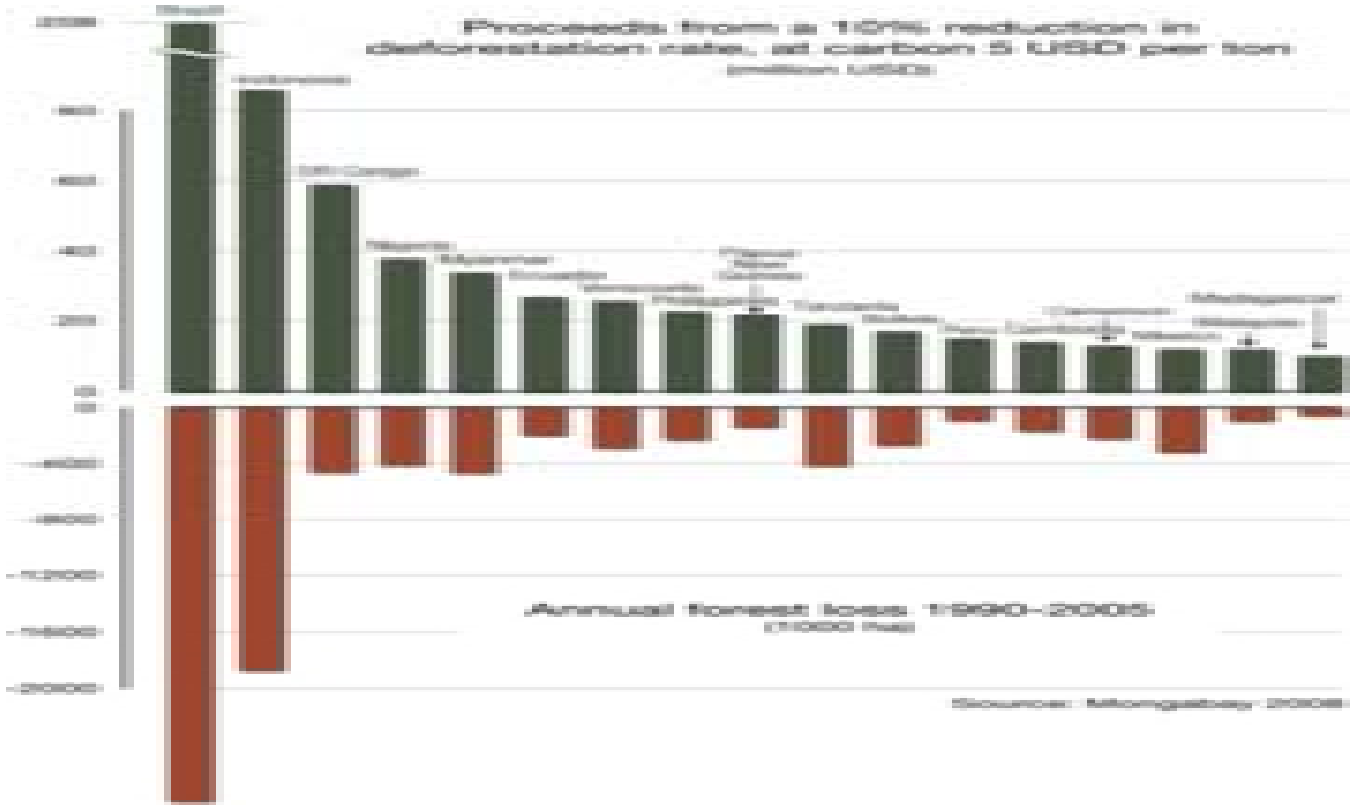
Emissions Trends in the Tropics



Challenges

- Lack of capacity to control or manage GHG emissions and implement the convention on Climate Change within the framework adopted in 2001 by the UNFCCC.
- Deforestation – The biggest threat in the tropics; it accounts for almost 6 billion tons of GHG released into the atmosphere (globally).

Challenges: Deforestation



Estimate of C storage for 17 tropical countries in the previous figure

- 10% reduction in annual deforestation gives more than US $600 million/year (assuming C prices @ US $5/ton) to these 17 countries.
- @ US $30/ton of CO2 e = US $2,500 million/year in income for these countries, according to Mongabay (2008).

Challenges: Deforestation

- High deforestation rates in low income tropical countries is due to a “poverty mentality”.
- 45,000 Km^2 of forest lost in low income tropical countries between 1990 and 2005 - an annual deforestation rate (ADR) of 0.5%.
- 38,000 Km^2 lost in lower middle income trop. countries - an ADR of 0.16%.

Challenges: Deforestation

- Accounts for 20% of anthropogenic GHG emissions.
- Globally important C sinks are destroyed (IPCC, 2007).
- Released 1.5 billion metric tons of C to the atmosphere annually in the 1990s (Gullison et al., 2007; Noughton-Treves, 2004).
- Current rate unknown but predicted to be increasing (Baruani Mshale, 2009).

Challenges

- Disturbance of Peat soils (in Indonesia lately)
- Unsustainable agricultural production systems and practices.
- High emissions in China (up 88%) and India (up 73%) – thus causing CO_2 emissions to lag behind 2012 targets.
- Lack of Annex 1 countries' commitment to provide adequate funding for the implementation of REDD, REDD+, PES and Non-REDD Carbon programmes in tropical countries, especially in Rain Forest Nations (RFNs).

Challenges Continued

- Inadequate technical, business, legal, policy and institutional development framework for implementation of all forms of Carbon programmes in tropical countries that are well endowed with rich forests and agricultural soils.
- Governance Issues
- Inadequate forest/ecosystems law enforcement programmes and logistics. E.g. Forest Law Enforcement, Governance and Trade (FLEGT) programmes.

Challenges Continued

- Higher demand for food and timber, energy, minerals and other resources.
- Damage caused to biodiversity and leading to imbalances in our ecosystems.
- Lack of effective trade regulations and access to markets for non-timber forest products.

Challenges Continued

- Lack of effective environmental monitoring programmes and emissions control technology, capacity and regulatory framework.
- Lack of effective benefit sharing schemes.

Opportunities

- Monetization of C stocks sequestered in tropical forests, soils, watershed catchments, marine resources, etc.
- Implementation of emissions or carbon credits trading and PES programmes through AD or REDD – now recognized as a component of the Kyoto Protocol.

Opportunities Continued

- Yield of billions of foreign currency for tropical countries.
- Reduced rural poverty.
- Forest and other related ecosystems protected and sustainably managed.

Opportunities Continued

- Cap in carbon emissions of 1.5 billion metric tons per annum (according to Houghton et al, 1983) because tropical forests and agricultural soils, especially peat soils, have the largest amount of carbon stored in them.
- AD/REDD = Colossal reduction in GHG emissions + preservation of globally important C sinks.

Opportunities Continued

- REDD + REDD Plus + Soil Carbon (Agricultural Carbon Trading) + Watershed Catchments Carbon = Ecosystems working for the Global Climate and the benefit of Mankind

Need for effective Management of C Sinks

- Undisturbed tropical forest absorb 1/5 of CO2 released annually from the burning of fossil fuels into the environment.
- Undisturbed tropical soils, especially peat soils, absorb an equally significant amount.
- Sustainable management of forests and agric. soils enhances C storage.

Need for effective Management of C Sinks (Cont.)

- Tropical forests sequester almost 4.25 billion tons of the 8.5 billion tons of CO_2 sequestered in terrestrial sources each year.
- The remaining 4.25 billion tons of CO_2 is sequestered in tropical soils and other forms of vegetation.
- Oceans sequester 8.5 billion tons of CO_2.
- Atmosphere – 15 billion tons released into it.
- Total human related emissions = 32 billion tons/yr
- Source: Mongabay, 2008.

Types of Carbon Payments

- Avoided deforestation
- Reforestation/afforestation (of degraded primary /secondary forests, arable cropland and tree crops farms)
- Transformation of forest reserves – a payment to increase the forest frontier by encouraging farmers and other land users to deploy elsewhere – outside the forest reserves – an incentive to keep them out of forest zones.

Types of Carbon Payments (Cont.)

- Rehabilitation of abandoned arable crops and tree-crops farmlands.
- In Ghana, cocoa farmers are encouraged to replant shaded trees with cocoa trees under this payment scheme, which can also be practiced in other tropical countries to help our tree-crops and arable land farmers generate more income.

Carbon Assets in Sierra Leone

- Forest Reserves (Protected Areas)
- Tree Crops Plantations (Coffee, Cacao, Cashew, Oil Palm, etc.)
- Fruit Trees Plantations (Mango, Orange, Exotic Fruits, etc).
- Entire Biodiversity, including Farm Bush vegetation, Secondary Forests/Woodlands.

Carbon Assets in Sierra Leone (Cont)

- Wetlands/Mangrove swamps – our most significant assets that are currently overlooked and unprotected.
- Soils – especially Peat Soils, Marshes, Bolilands, IVS, Riverain and Coastal Zones.
- Marine/Ocean.
- Renewable and energy efficient projects: Biofuels, Hydro-electric Power stations

THANKS FOR YOUR AUDIENCE

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