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Perspectives on Carbon Sinks

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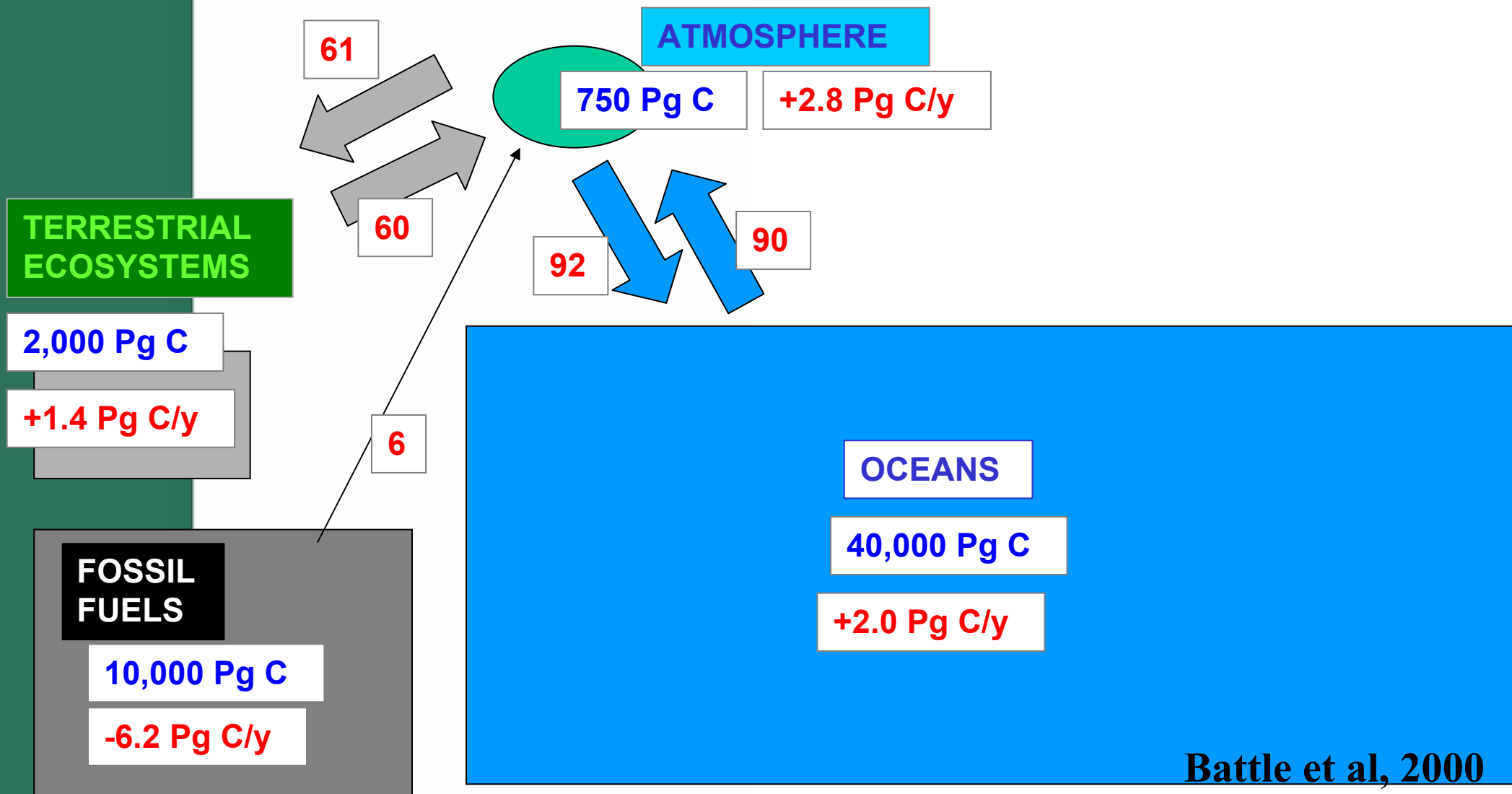
Outline

- **Role of Carbon Sinks**
- **Climate change mitigation options based on sinks**
- **Barriers for implementation**
- **The way forward**



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The Carbon Cycle

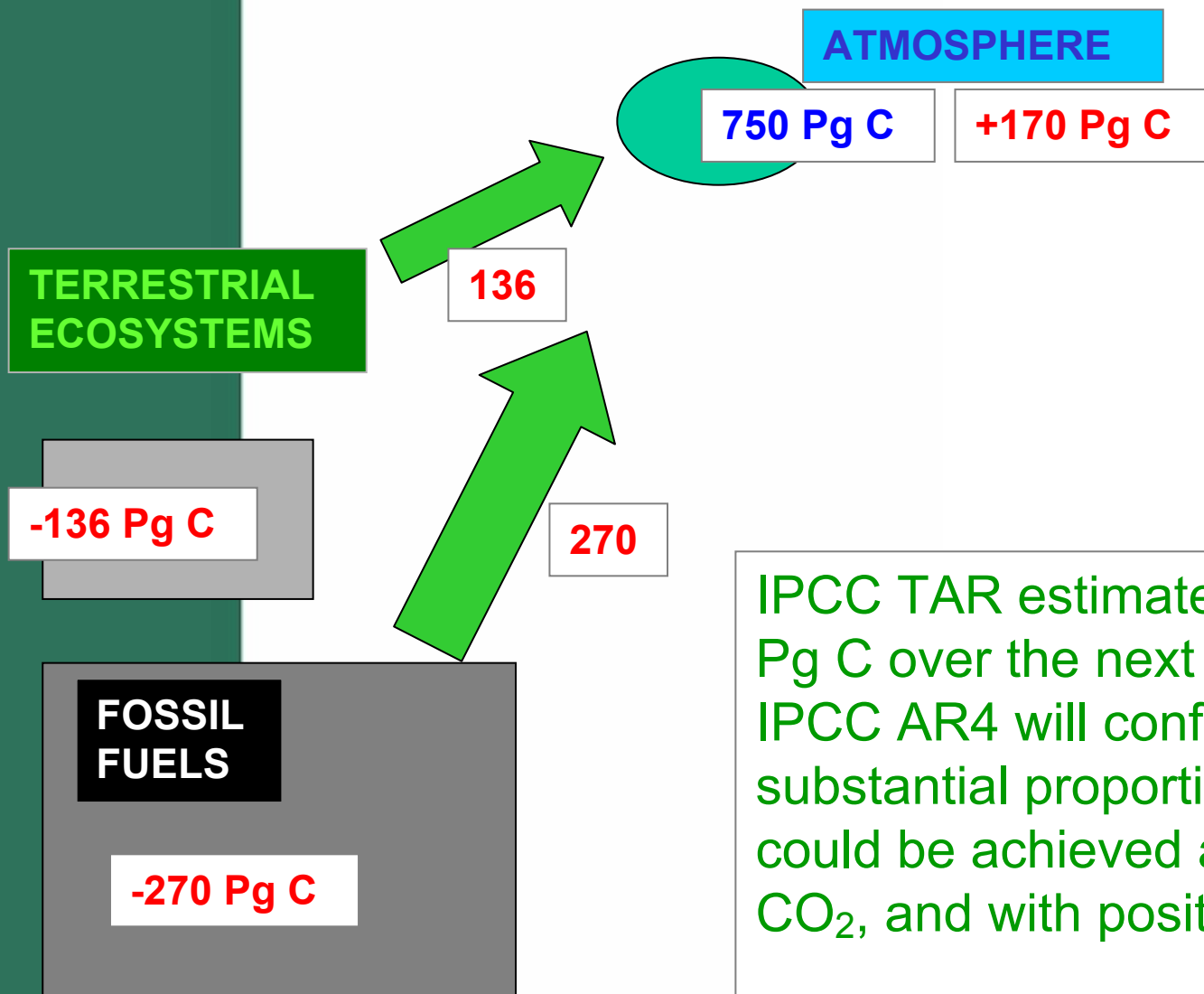


Battle et al, 2000



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The Carbon Cycle



**CUMULATIVE
EMISSIONS SINCE
THE START OF THE
INDUSTRIAL
REVOLUTION**

IPCC TAR estimated a mitigation potential of 100 Pg C over the next 50 years.
IPCC AR4 will confirm this, adding that a substantial proportion of the mitigation potential could be achieved at a cost lower than US\$ 20/t CO₂, and with positive SD implications



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Mitigation Options

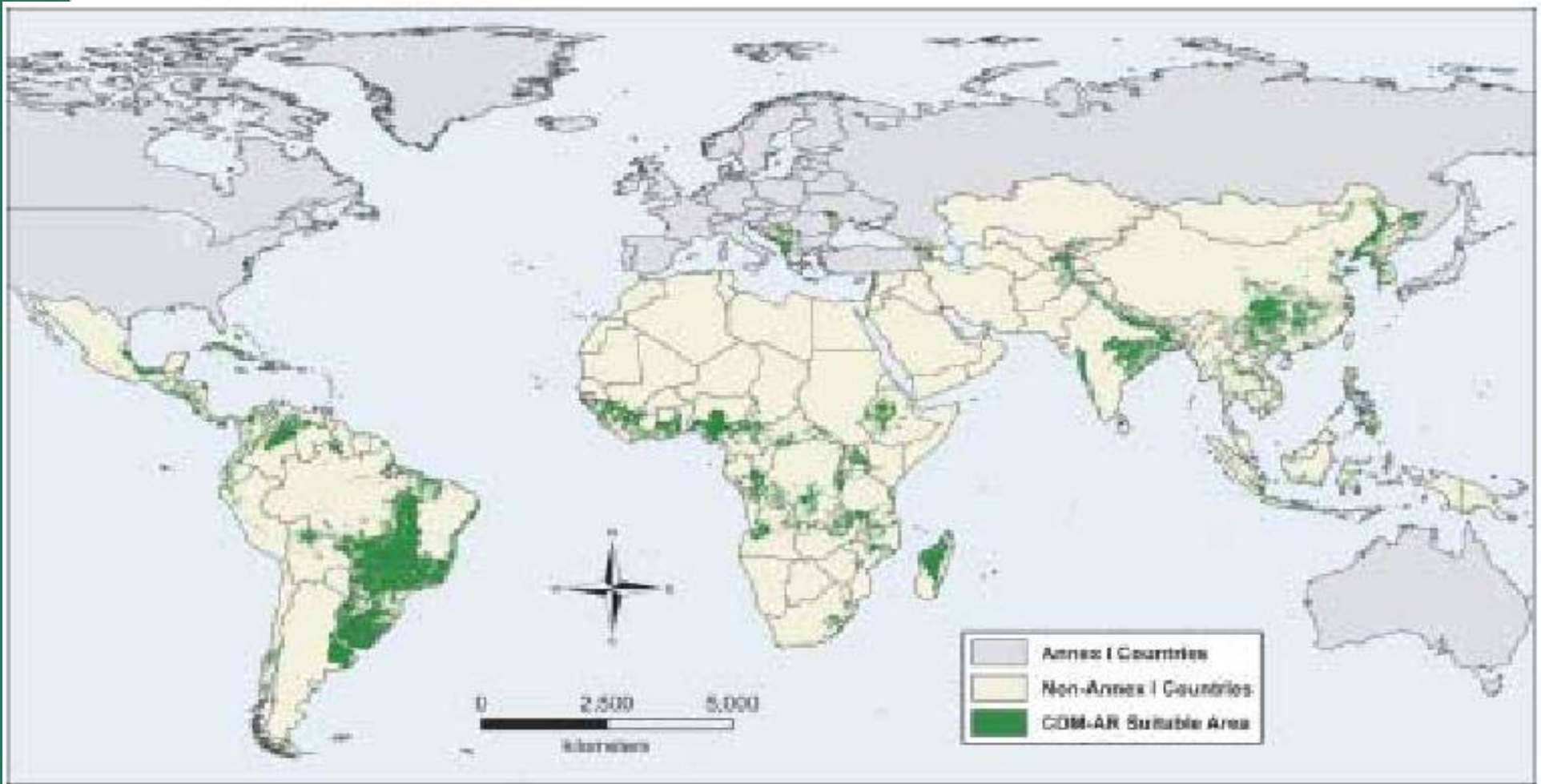
- **Afforestation/Reforestation**
- **Forest Management**
 - Conservation, RIL, etc.
- **Harvested wood products management**
 - Waste, paper recycling
- **Avoided deforestation**
 - Highest potential, methodological difficulties
- **Agricultural soils**
 - Reduced tillage

PROGRESS HAS BEEN EXTREMELY SLOW



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Suitability for AR-CDM



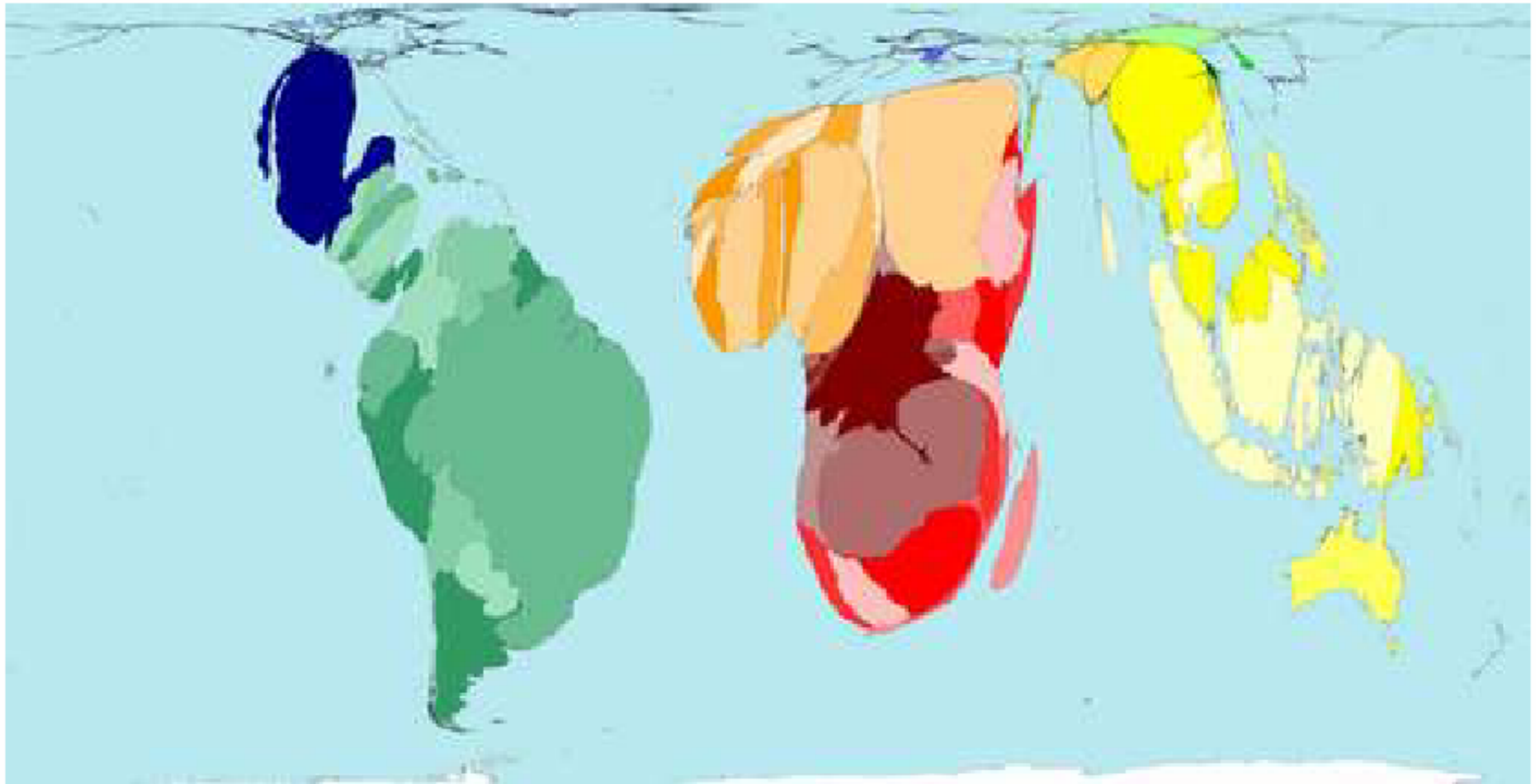
Zomer et al., 2006



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Deforestation

Credit: World Mapper



www.communitycarbonforestry.org



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Potential Contribution of Sinks

- It is generally agreed that **long-term** solution of climate change problem must rely on replacement of fossil fuels.
- Biological C sinks provide a window of opportunity with cost-effective solutions in the **short term**
 - A/R + Agric. Soils: potential of **3,000-6,000 Mt CO₂/year** (ca. 5-10 % of global annual GHG emissions) at **less than US\$ 20/t CO₂**. This potential is limited by sink saturation.
 - Avoided deforestation has an even higher potential. This option is difficult to include in current framework, but reductions are permanent.
 - Annex I countries: net sink of **1,200 Mt CO₂** in 2004.



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Barriers for Implementing Sinks

- **Annex I countries**
 - **Currently a net sink, but renewable energy policies imposes a pressure on forests**
 - **Cap on 3.4 activities under Kyoto**
 - **Banking of RMUs not allowed**
 - **Forest activities not included in ETS**
- **Developing countries**
 - **Avoidance of deforestation and agricultural soils not included in current framework**
 - **Cap on amount of AR CERs that can be purchased by Annex I countries**
 - **Threshold for small projects (8 kt CO₂/y) is too low**



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Barriers for Implementing Sinks

- **Industry factors**
 - **Forest products industry has been pessimistic about the potential contribution of sinks for creating new, sustainable sources of wood/fiber, and have acted very slowly and too cautiously.**
 - **Large-scale forest plantations face active opposition from certain ENGOs. Some investors may not want to be exposed to criticism.**
 - **Renewable energy industry needs high carbon prices, and is not interested in promoting sinks (which may reduce carbon prices).**



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Barriers for Implementing Sinks

- **Process barriers (AR-CDM)**
 - **Rules are too complex, general lack of understanding of process**
 - **Most approved methodologies are too project specific and not suitable for large scale projects**
 - **Lack of competence, highly conservative attitude of AR Working Group members**
 - **Treatment of permanence imposes liabilities related with expiry of certificates**
 - **A/R projects are typically longer than other CDM projects, and lack of definitions about post-Kyoto regime may cause uncertainties**
- **Lack of market signals for tCERs and ICERs**



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The Way Forward

- **Future regime should acknowledge the significant contributions of sinks to climate change mitigation and sustainable development**
- **Agricultural soils can be included in the system without any significant changes to the current cap and trade approach. Avoidance of deforestation would require a new architecture**
- **Expiry date of AR-CERs should be made contingent to the existence of the carbon stock, and not to a specific date.**
- **There should be no caps on the amounts of sink credits which can be used for compliance purposes.**
- **The threshold for small scale AR-CDM should be increased**



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Eskerrik Asko!

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