

# Second Informal Dialogue on the Role of LULUCF in the Climate Change Response

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## Presentation Outline

- Mitigation Potential
- Differences in the LULUCF sector between AI and NAI
- Challenges/barriers to the realisation of the potential
- How can those challenges/barriers be overcome
  - Technical solutions
  - Architecture of a future CCM regime
  - Political solutions



# Mitigation Options

1. Forestry: afforestation; bio-energy; change in forest management; reducing emissions from deforestation (biggest mitigation potential), particularly in the tropics, including introduction of SFM, product substitution.
2. Agriculture: reduce C and N<sub>2</sub>O loss from ag.soils, biomass burning, use of lime; increase pool of long-lived ag.products and non-soil pools in agroforestry; biomass as feed-stock for energy; manure m'tment; energy efficiency; m'tment of wetlands for rice



## Mitigation Potential 1

1. AR 4 WG III is in the make: beginning of July the SOD will be out for expert and government review. \*\*\* do not cite or quote \*\*\* .....
2. Sneak preview from paper on agriculture in prep by Smith et al: technical potential estimated to be +/- 7300 Mt CO<sub>2</sub> eq per yr for all gases. Only as little as 3% of the total biophysical potential might be achieved by 2025 due to barriers. (not in TAR; SAR estimated 1400-2900)
3. There are many regional differences but sequestration in the 1st commitment period is likely to be negligible in the agricultural sector.



# Mitigation Potential 2

1. Agriculture accounts for approx. 15% of the total global anthropogenic CO<sub>2</sub> emissions, 49% of all CH<sub>4</sub> and 66% of all N<sub>2</sub>O emissions. Towards 2030 CO<sub>2</sub> emissions from land use overall (incl.D) are likely to stabilise or go decline, but both emissions from CH<sub>4</sub> and N<sub>2</sub>O will continue to go up. (FAO)
2. If food demand continues to rise and diets shift, emissions in the agriculture sector may escalate further.
3. Wrt forestry it is too early to give a similar projection as the latest modelling results are not available yet. However, it is clear that the market potential will be a small fraction of the overall potential due to similar barriers.

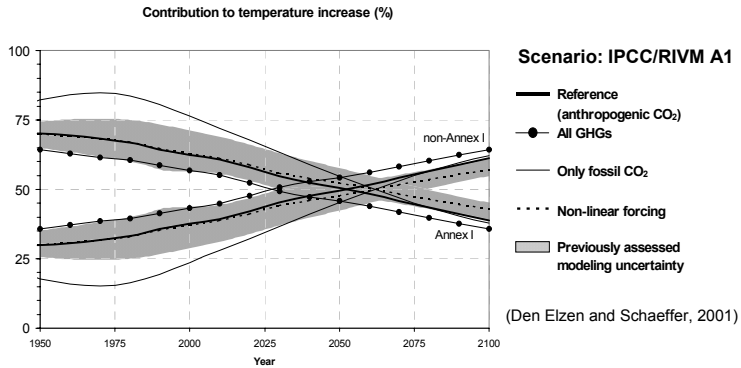


## Why are sinks important?

1. Many reasons but when just concentrating on CCM....
2. If we ever want to achieve Art.2 of the UNFCCC (stabilise.... avoid dangerous anthr. interference with....) we need to include sinks under a regime. Why?
3. Because since the industrial revolution approximately 270 Gt C has been emitted as CO<sub>2</sub> into the atmosphere through fossil fuel burning and cement production, and about 136 Gt C as a result of land-use change, predominantly from forest ecosystems (IPCC, 2000).
4. Tropical deforestation accounts for a significant amount of the global carbon emissions.



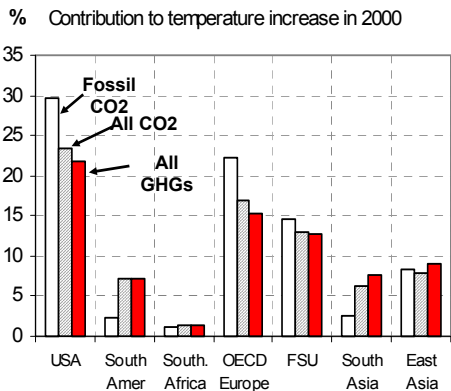
# Annex I and non-Annex I contribution to future temperature increase



Including land use emissions / all GHGs results in earlier equal contribution Annex I and Non-Annex I to temperature increase



## Implications of including land use emissions in indicators of contribution to CC



Den Elzen et al, 2004  
(MATCH exercise UNFCCC)



# What does that mean?

1. Relative contribution of NAI countries increases
2. Hence, some must increase their level of participation in a CCM regime
3. Looking at historic emissions or PC emissions shows they are still remote from current AI, however.
4. Therefore, the best chance for success is a future CCM regime that is inviting/tempting (access to technology, participate in trade, protect natural resources, etc.)



## Barriers

1. Permanence
2. Additionality
3. Uncertainty
4. Leakage
5. Transaction costs
6. Measurement and monitoring costs
7. Property rights

But also other influencing factors...

1. Oil prices..... (bio-energy)
2. Averse to change of traditional practices

Barriers greater than would have been necessary due to complicated CCM system



## Some causes for the complex system (RMGs)

1. Targets for non-sinks were set before the RMG for sinks were known so the RMG became an instrument to manipulate the magnitude of the sector
2. The limited understanding of ARD numbers needed a fix of the "Art.3.3 debit" through Art.3.4 Forest Management
3. "Confusing" accounting regime with different approaches for different sources and sinks (gross-net vs. net-net)
4. Limitation of the use of particular activities: e.g. FM for AI by a cap and only A/R for NAI
5. Large discount on FM to deal with uncertainty and factoring out natural and indirect effects
6. Exclusion of D under Art.12 to deal with the scale and additionality issues



## Overcoming barriers would require changes to or another system

1. To overcome barriers a better/other CCM regime needs to be designed.
2. To determine what that system needs to do, criteria need to be set (see also misc.5, e.g. submission by Bolivia, Costa Rica, Nigaragua and PNG!)
3. New designs can then be assessed against those criteria



# Examples of Criteria

1. Scientifically sound rules: GPG 2003?
  - a) Numbers/data; what is the potential?
  - b) Comprehensiveness: are (should?) all sinks and sources (be?) included?
  - c) Etc.
2. Equity/fairness: can all benefit or some more than others? “Common but differentiated commitments”
3. Environmental effectiveness: are credits reflecting environmental benefits (proportionate CCM)? Does it help to achieve Art.2?
4. Etc.



## Types of solutions

1. Technical solutions: e.g. t/ICERs to address permanence (accounting fix to deal with permanency), or (economic) models to quantify leakage
2. Architecture of the future climate change regime: e.g. a separate sinks target or multi-stage regime
3. Political solutions: caps, timing of base year/period, fungibility of sinks and non-sinks credits, etc.



# Technical Solutions: take stock

1. Permanence; is this always an issue? E.g. in case of a sectoral target? Will t/ICER do?
2. Additionality; have we got enough experience to rely on methodologies to determine additionality or the BAU scenario?
3. Uncertainty; did we move forward or are we still mitigating in the margins of uncertainty ranges?
4. Leakage; do we have new models or quantification methodologies that are acceptable?
5. Measurement and monitoring costs; do we have more cost effective methodologies?

But how to all of these differ in the various climate change architectures?



## COVERAGE and SCOPE

1. Spatial coverage (the area included): limited under KP but less problems occur if all lands are included or hardly any.
  - o In case of full coverage, no system boundary problems occur that need to be monitored – in case of partial coverage, many boundary issues arise.
  - o In all cases natural (eco) systems and natural phenomena (e.g. fire) should be recorded separately (ideally) in inventory and monitoring activities...
2. The same goes for the scope: the activities and the carbon pools
  - o Factoring out particular effects remains an obstacle.
  - o Symmetry in accounting is important to keep a balance between base year/period and commitment period





# BASE YEAR or PERIOD

- o The base period determines the potential for credits (choice is critical!)
- o The accuracy of the base data is very important as it not only determines the potential but also the possible occurrence of loopholes
- o A base period is always required but can it be different for different countries? How do we award low emitters or those taking early action?
- o It is difficult to set the previous year or the previous CP as the base period because possible targets must be set before the next CP. But a more recent base period enhances the chances of reliable data.
- o The level of emissions/removals in the base period determines the physical offset potential of the option but political decisions determine the final offset capacity allowed (e.g. through a cap)
- o Relative high emissions in the base period means high targets can be negotiated (depending on the political will)



## Architectures for Future Climate Regimes

1. UNFCCC? KP? PAMs?
2. Should be compatible with 'old' regime to some extent (time series consistency, definitions, etc.)
3. The accounting system should be agreed before targets are set to avoid strange fixes



# Some options for Future Climate Regimes

1. 2nd CP under the KP
2. Separate sink target (sectoral target)
3. Multi Stage Regime
4. Etc.

Most barriers work differently under these different options at different scales. Pros and Cons need to be assessed of all options.



## Separate Sinks Target

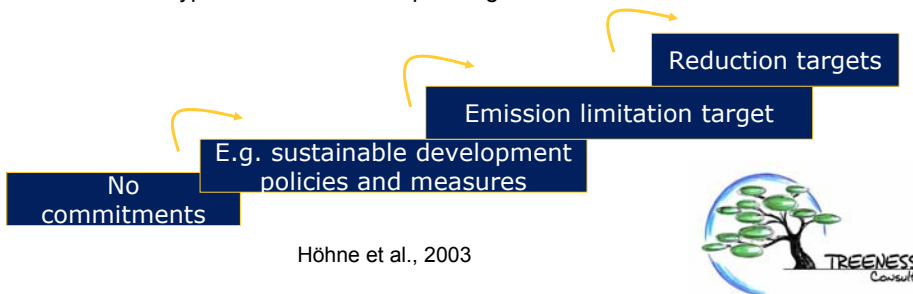
- One target for non-LULUCF sectors and one target for LULUCF
- “Fungibility” between sectors and between countries optional

<i>Fungibility</i>		Sector to sector	
		Yes	No
Country to country	Yes	--	++
	No	+	--



# Multi-stage approach

- Basic ideas behind approach:
  - Systematic approach to extend commitments beyond Annex I providing predictability about participation
  - Accounting for different equity principles of capability, responsibility and need (for development)
  - Stringency of commitments increasing by each stage over time
- Pre-defined criteria and thresholds for participation in various stages: countries “graduate” to a next stage, if a threshold is passed (possible triggers are: per capita income (capability); emissions levels (responsibility); or a combination)
- Different types of commitments per stage



## Concluding remarks regarding the options

- A second CP without major revisit of the RMG doesn't seem to be a favoured route for most Parties
- The separate sinks target and multi-stage regime both facilitate differences or changes in scope
- The Multi-stage approach and the Separate Sinks Target (or sectoral target) can be combined
- Under both regimes activities on the ground can take the shape of “projects” but result under the national umbrella. This means that some barriers will be hard to solve but it has been made the responsibility of the “host country”.



# What's next?

- Amongst other things.....
- Determine the guiding Principles or Criteria of a new CCM regime;
- Revisit all barriers;
- Assess how they perform/behave on different scales: project level, sub-national level, national level, regional level;
- For each of the policy framework options; and
- Make a choice!
- That's all!

