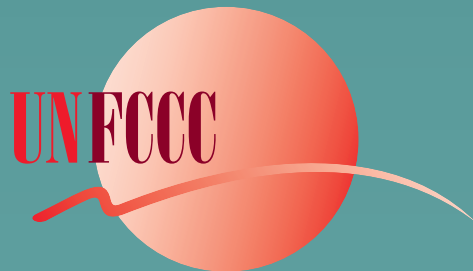


# Challenges and opportunities for mitigation in the agricultural sector

A technical paper



UNFCCC



# Mandate

- ◆ Requested by the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA), at its second session
- ◆ Technical paper to focus on challenges and opportunities for mitigation in the agriculture sector.



# Inputs

- ◆ The paper draws on information from:
  - Fourth Assessment Report of the Intergovernmental Panel on Climate Change
  - National greenhouse gas inventories and national communications submitted by Parties to the Convention, and
  - Other relevant publications.



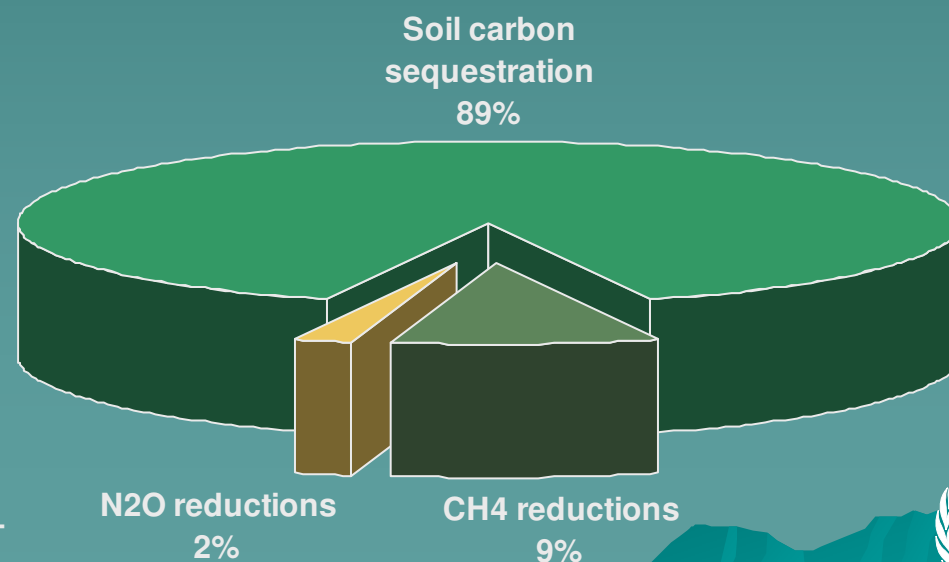
# Context

- ◆ Agriculture represents a primary source of livelihood for more than one third of the world's total workforce.
- ◆ High emissions
  - 10–12 % of the total global anthropogenic GHG emissions or about 6.8 Gt of CO<sub>2</sub> eq per year.
- ◆ High emissions growth rates
  - About 17 per cent between 1990 and 2005
  - Projected to increase further in the coming decades



# Mitigation potential

- ◆ High technical mitigation potential (5.5–6 Gt CO<sub>2</sub> eq per year by 2030), but significantly lower economic potential (depending on C price)
  - **Soil carbon sequestration:** cropland and grazing land management, restoration of organic soils and degraded lands, bioenergy and water management
  - **CH<sub>4</sub> reductions:** improvements in rice management, and in livestock and manure management
  - **N<sub>2</sub>O reductions** from soils (mainly crop management)



Source: IPCC AR4



# Contents of the paper

- ◆ Global mitigation potential and costs
- ◆ Mitigation practices for livestock and manure management (present and future) and case studies
- ◆ Mitigation practices for crops and soils (present and future) and case studies
- ◆ Policies and measures
- ◆ Recommendations for future work and possible issues for further consideration



# Mitigation areas addressed

- ◆ CH<sub>4</sub> emissions from enteric fermentation
- ◆ CH<sub>4</sub> and N<sub>2</sub>O emissions from manure management
- ◆ Pasture management (improved grazing land management and agroforestry)
- ◆ Reduced or no tillage, use of nitrification inhibitors and optimum amount and timing of fertilizer application
- ◆ CH<sub>4</sub> emissions from rice cultivation
- ◆ Emissions associated with conversion of land



# Key challenges

- ◆ Limit or maximum capacity of soils to store C
- ◆ Risk of losing C stored (e.g. because of a change in soil C management)
- ◆ Difficulties in establishing a baseline
- ◆ High level of uncertainty in emissions estimates and lack of information for their assessment
- ◆ Other barriers:
  - high transaction costs,
  - competitiveness,
  - high costs for measurement and monitoring of emission reductions,
  - availability of investment capital,
  - technological needs,
  - traditional practices





# Opportunities

- ◆ Although not one-size-fits-all, there are synergetic effects of climate-related action
  - Alleviating poverty
  - Sustainable development
  - Food security
  - Energy security and
  - Improvement of environmental quality



# Further work/consideration

- ◆ Priority mitigation activities
- ◆ Links between national, regional and global actions
- ◆ Resources and mechanisms required for 'greening' agricultural production
- ◆ Arrangements to ensure delivery of expected emission reductions and promote implementation of best practices
- ◆ Enhancing existing (or create new) instruments and mechanisms based on market approaches
- ◆ Opportunities for technology deployment and enhancement of technology research and development
- ◆ Challenges in measuring, reporting and verifying emissions
- ◆ Technical vs. economic mitigation potential



# Next steps

- ◆ The technical paper is available at this session and can provide input to Parties on mitigation under the AWG-LCA here in Poznan
- ◆ Input to the workshop on agriculture in March 2009 session of AWG-LCA



# Thank you

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For more information visit the UNFCCC web  
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Technical paper available on-line:  
<http://unfccc.int/resource/docs/2008/tp/08.pdf>

