Food Security and Agricultural Mitigation in Developing Countries: Options for Capturing Synergies
Panel speakers

- Leslie Lipper, Senior Environmental Economist, FAO
- Li Yu’e, Professor, Chinese Academy of Agricultural Sciences
- José Manuel Bulas Montoro, Chief Staff of Senator Alberto Cardenas, Chair President of the Agriculture Commission in the Mexican Senate
- Elwyn Granger-Jones, Executive Coordinator Global Environment and Climate Change, IFAD
Key findings

- Agriculture: at the center of two global crises
- Responding to one crisis (early action mitigation) can also help solve the other (food security)
- Mitigation financing – potential for big gains by capturing synergies
- MRV for agriculture – new approaches exist, costs and capacity still a major barrier
Agriculture: at the center of two global crises

- Over 1 billion people currently undernourished
- By 2050 need to feed an additional 3 billion people
- 70% growth in agriculture supply needed by 2050
- Smallholder farming (food, income) key to improving food security
- Areas of highest food insecurity also most vulnerable to climate change
Agriculture: at the center of two global crises
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Economic mitigation potential

Mt CO2-eq. yr-1 @ 0-20 USD tCO-eq.-1

Activity

- Cropland management
- Grazing land management
- Restore cultivated organic soils
- Restore degraded lands

(Non-Annex I)
(Annex I)

(Smith et al 2008)
Responding to two crises

- Soil carbon sequestration
  - 89% of technical agricultural mitigation potential

- Builds soil organic matter which results in:
  - Improved fertility
  - Increased water holding capacity (resilience)
  - CO$_2$ removals (storing CO$_2$ in the soil)
Responding to two crises

http://www.fao.org/ag/agL/agll/carbonsequestration/background.stm
Responding to two crises: Synergies and Trade-Off Matrix

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<td><strong>Food Security Potential: High</strong></td>
<td>• Expand cropping on marginal lands</td>
<td><strong>Food Security Potential: High</strong></td>
<td>• Restore degraded land</td>
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<tr>
<td><strong>Carbon Sequestration Potential: Low</strong></td>
<td>• Expand energy-intensive irrigation</td>
<td><strong>Carbon Sequestration Potential: High</strong></td>
<td>• Expand low energy-intensive irrigation</td>
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<td>• Expand energy-intensive mechanized systems</td>
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<td>• Agroforestry options that increase food or incomes</td>
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<td><strong>Food Security Potential: Low</strong></td>
<td>• Bare fallow</td>
<td><strong>Food Security Potential: Low</strong></td>
<td>• Reforestation/afforestation</td>
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<td><strong>Carbon Sequestration Potential: Low</strong></td>
<td>• Continuous cropping without use of organic or inorganic fertilization</td>
<td><strong>Carbon Sequestration Potential: High</strong></td>
<td>• Restore/maintain organic soils</td>
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<td></td>
<td>• Slope ploughing</td>
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<td>• Expand biofuel production</td>
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<td>• Overgrazing</td>
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<td>• Agroforestry options that yield limited food or income benefits</td>
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Carbon Sequestration Potential
Mitigation financing

B. Investment Barrier to Adoption

New management practices introduced

Time ==> Baseline net income  Current net income

Temporary net loss to farmer
Mitigation financing

- Annual gross investment requirements for agriculture to 2050
  - $210 billion

- Total annual financial flows from 4 top IPCC agricultural options @$20/tCO2 equivalent
  - $30 billion

- Financial “muscle” of mitigation finance implies that...

Linking and leveraging is key
MRV for agriculture

- Progress on combining modeling with measurements
  Activity based monitoring using robust carbon estimation model vs. direct measures

- Development of new tools/data
  EX-ACT tool
  Integrated land use management planning data

- Aggregation for crediting
  Value chain approaches
  Landscape/watershed based approaches

- Pilot projects
  Kenya coffee
  Rangeland restoration
MRV for agriculture
Main recommendations

- Holistic vision is required for global policy
- Sectoral policies on food security and climate change need to be integrated and harmonized
- Capturing synergies requires innovative mitigation finance
- Beyond Copenhagen:
  - SBSTA programme of work
  - Confidence building and readiness (pilots)
Options for financing phased implementation approach:
- Integrating into REDD + financing mechanism
- Separate fund
- Adding climate component into existing agricultural development programmes

Country-led actions:
- National baseline and MRV system development for subsequent sectoral mitigation (top-down approach)
- Suite of project type mitigation activities exploring different mitigation actions and aggregation models (bottom-up approach)

Long-term work program:
- Early action land-based mitigation
- Long-term research on new mitigation technologies
Thank you for your attention

For the report please see: