

# 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

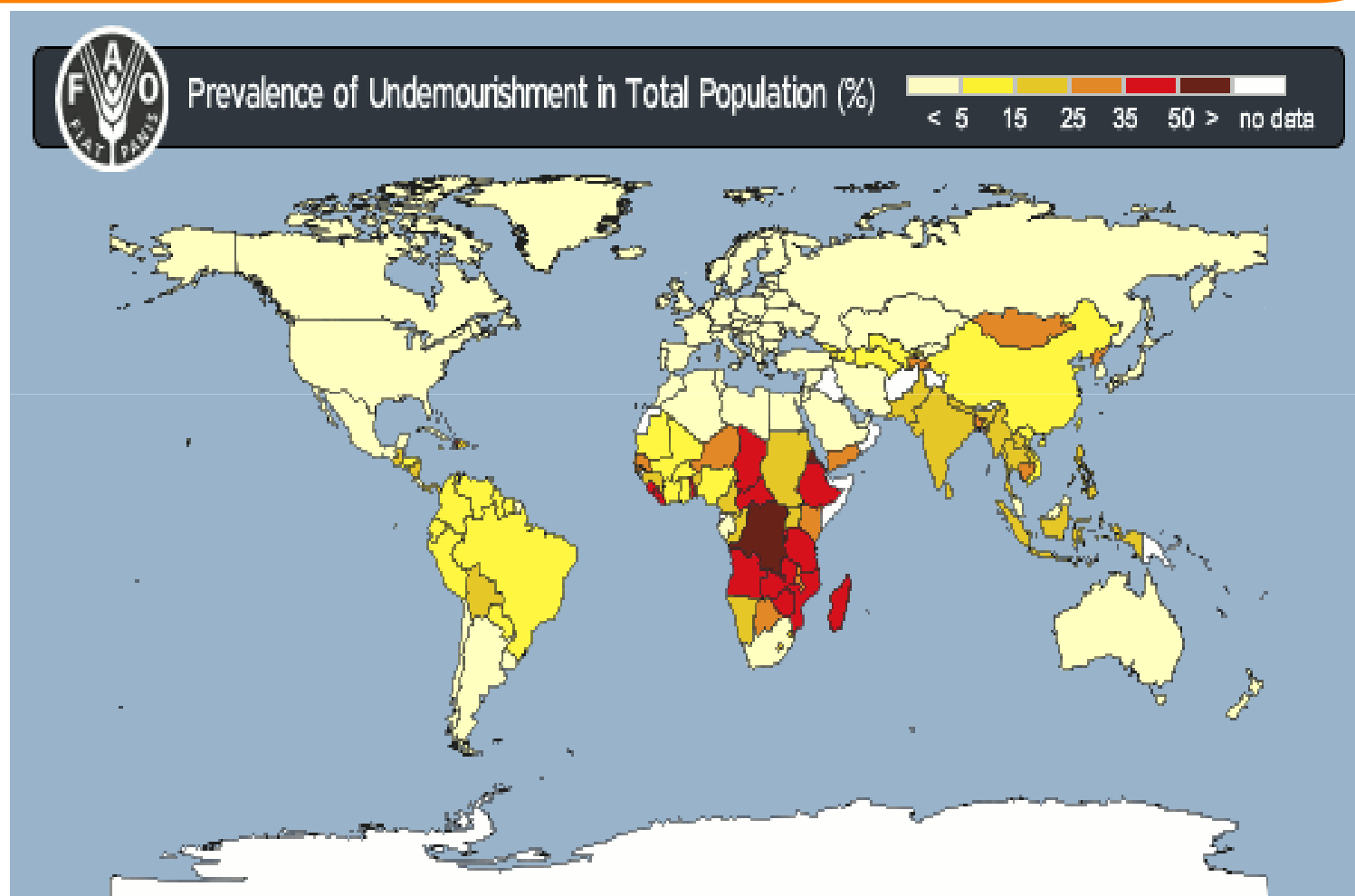


## Agriculture: at the center of two global crises

- 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

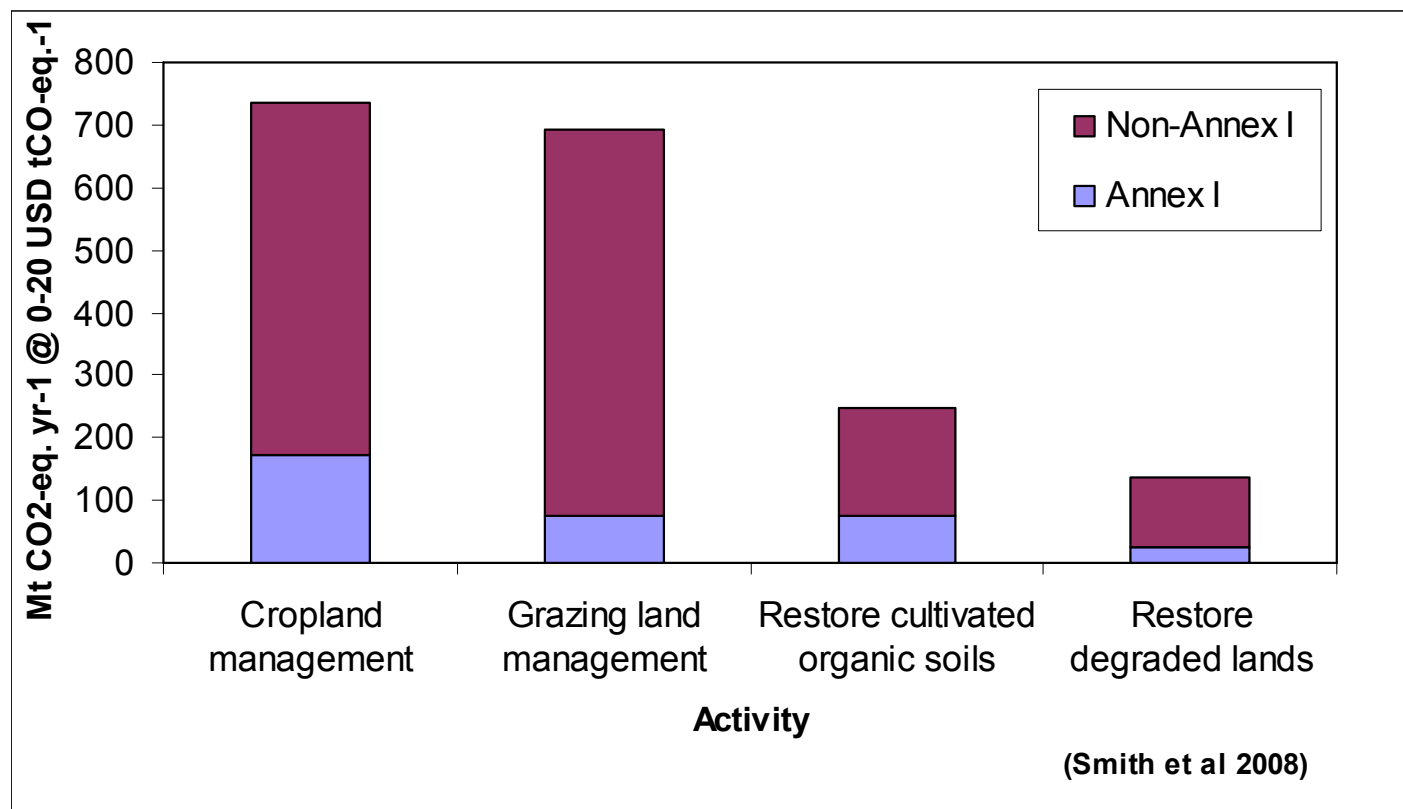


# Agriculture: at the center of two global crises



# Agriculture: at the centre of two global crisis

## Economic mitigation potential

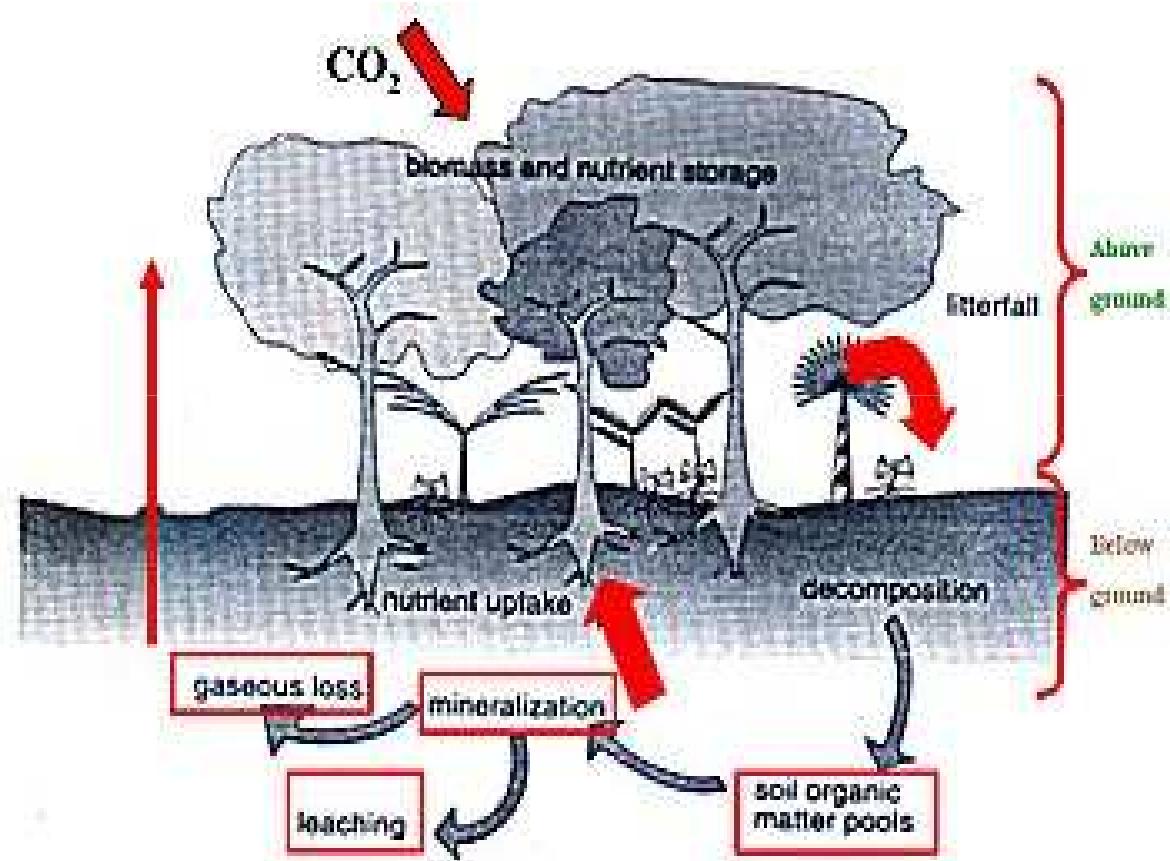


## Responding to two crises

- Soil carbon sequestration
  - 89% of technical agricultural mitigation potential
- Builds soil organic matter which results in:
  - Improved fertility
  - Increased water holding capacity (resilience)
  - CO<sub>2</sub> removals (storing CO<sub>2</sub> in the soil)



# Responding to two crises



<http://www.fao.org/ag/agL/agll/carbonsequestration/background.stm>

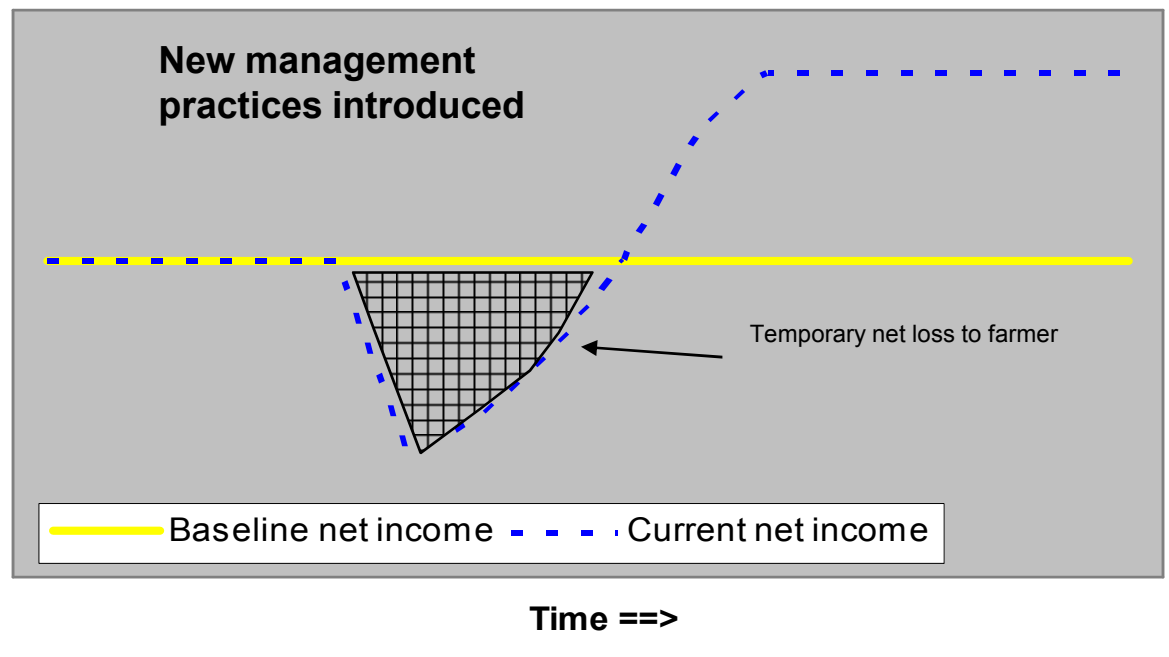
# Responding to two crises: Synergies and Trade-Off Matrix

<b>Food Security Potential</b>	<p><b>Food Security Potential: High</b> <b>Carbon Sequestration Potential: Low</b></p> <ul style="list-style-type: none"> <li>• Expand cropping on marginal lands</li> <li>• Expand energy-intensive irrigation</li> <li>• Expand energy-intensive mechanized systems</li> </ul>	<p><b>Food Security Potential: High</b> <b>Carbon Sequestration Potential: High</b></p> <ul style="list-style-type: none"> <li>• Restore degraded land</li> <li>• Expand low energy-intensive irrigation</li> <li>• Change from bare to improved fallow</li> <li>• Agroforestry options that increase food or incomes</li> </ul>
	<p><b>Food Security Potential: Low</b> <b>Carbon Sequestration Potential: Low</b></p> <ul style="list-style-type: none"> <li>• Bare fallow</li> <li>• Continuous cropping without use of organic or inorganic fertilization</li> <li>• Slope ploughing</li> <li>• Overgrazing</li> </ul>	<p><b>Food Security Potential: Low</b> <b>Carbon Sequestration Potential: High</b></p> <ul style="list-style-type: none"> <li>• Reforestation/afforestation</li> <li>• Restore/maintain organic soils</li> <li>• Expand biofuel production</li> <li>• Agroforestry options that yield limited food or income benefits</li> </ul>
		<b>Carbon Sequestration Potential</b>



# Mitigation financing

## B. Investment Barrier to Adoption



## Mitigation financing

- Annual gross investment requirements for agriculture to 2050

**\$210 billion**

- Total annual financial flows from 4 top IPCC agricultural options @\$20/tCO<sub>2</sub> equivalent

**\$30 billion**

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



**Linking and leveraging is key**

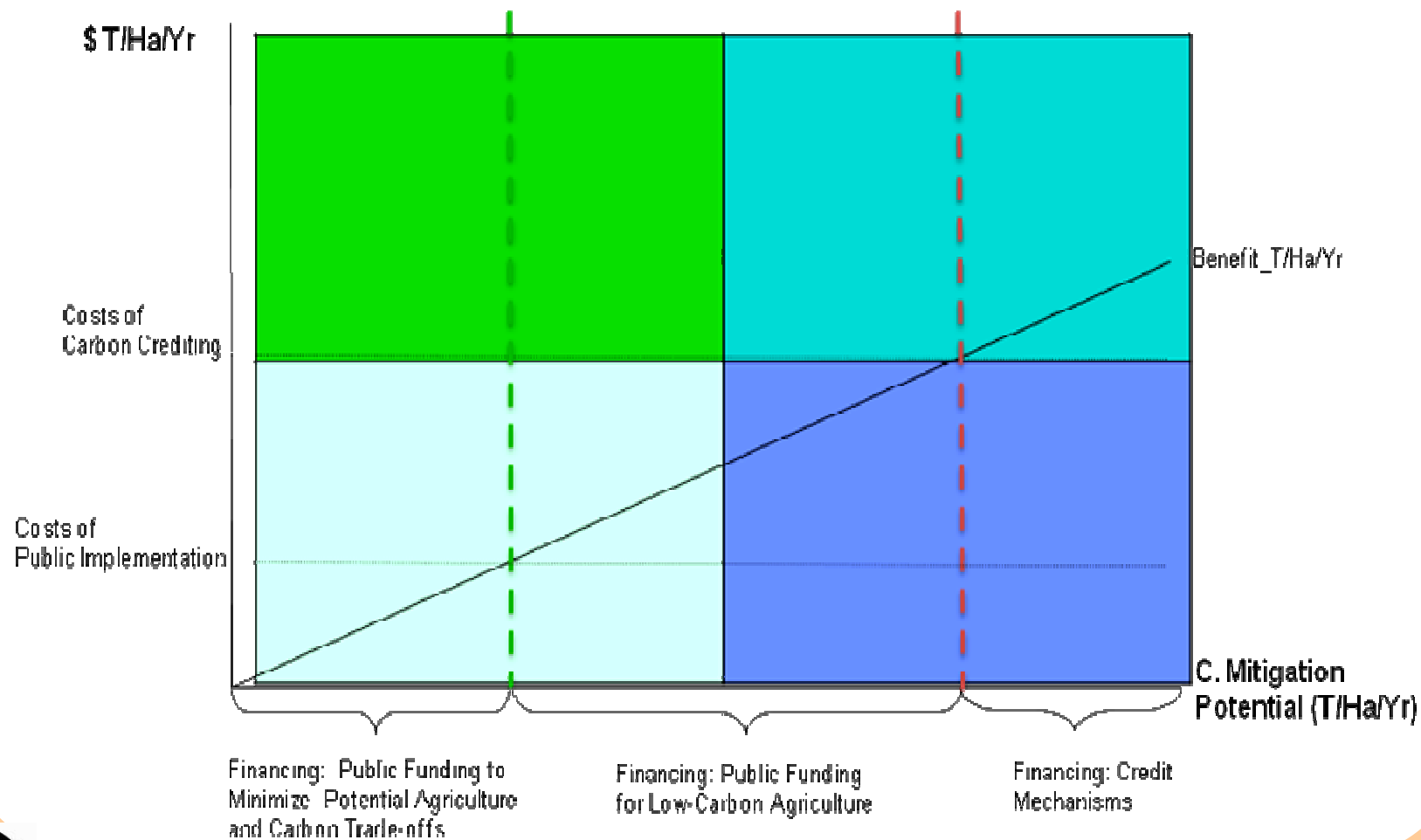


# MRV for agriculture

- **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)



# Food for Thought, Carbon for Thought

- 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 sub-sequent 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:

<ftp://ftp.fao.org/docrep/fao/012/ak596e/ak596e00.pdf>

