

The interface between climate change, agriculture and international trade: Potential conflicts and opportunities

Africa Trade and Climate Change Dialogue

7th – 8th May 2009

Organised by the International Centre for Trade and Sustainable Development (ICTSD),
the South African Institute of International Affairs (SAIIA),
and the International Institute for Sustainable Development (IISD)



International Centre for Trade
and Sustainable Development

Presentation by Christophe Bellmann,
Programmes Director, ICTSD

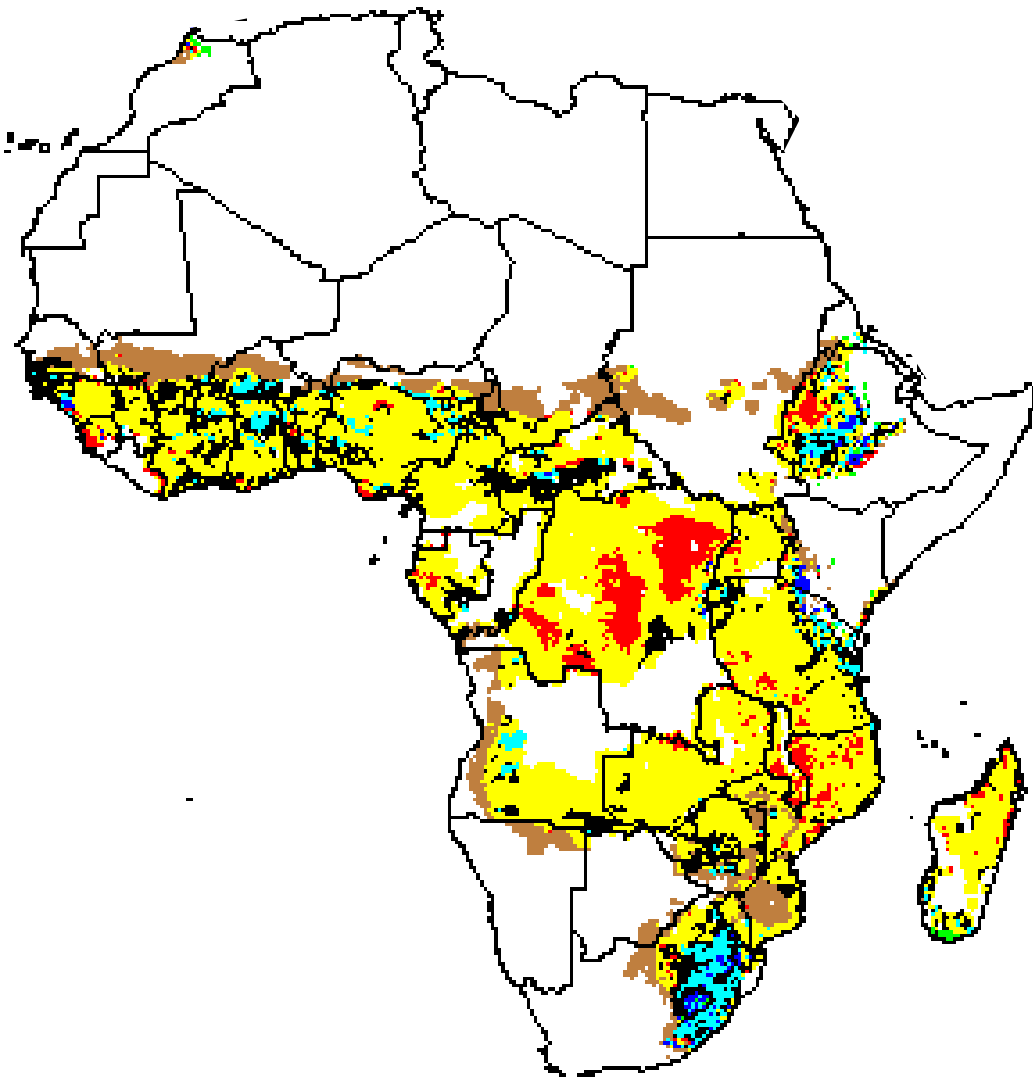
The Likely impact of climate change on agricultural production/productivity

- Overall potential for food production might increase with changes in temperature from 1 to 3 degrees but decrease at higher temperature.
- Averages hide large gains and losses
- African countries likely to be affected more severely
- Climate Change will add to crop water use demands
- Frequency and severity of extreme weather events
- Potential for CO₂ fertilisation overestimated

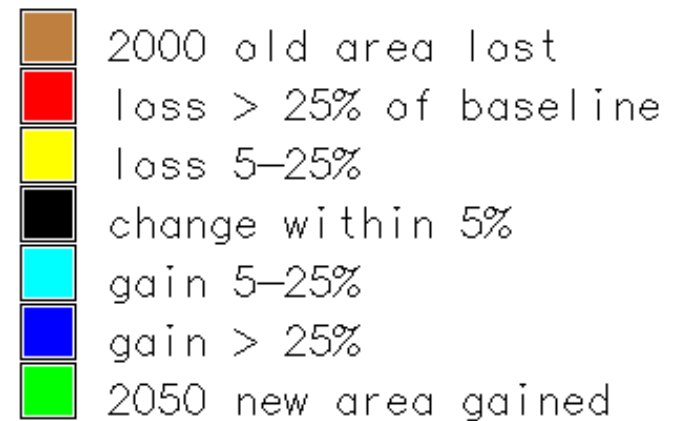
Climate Change Effects on Agriculture

What do we think in 2009?

Rainfed maize yields decline 17% worldwide by 2050



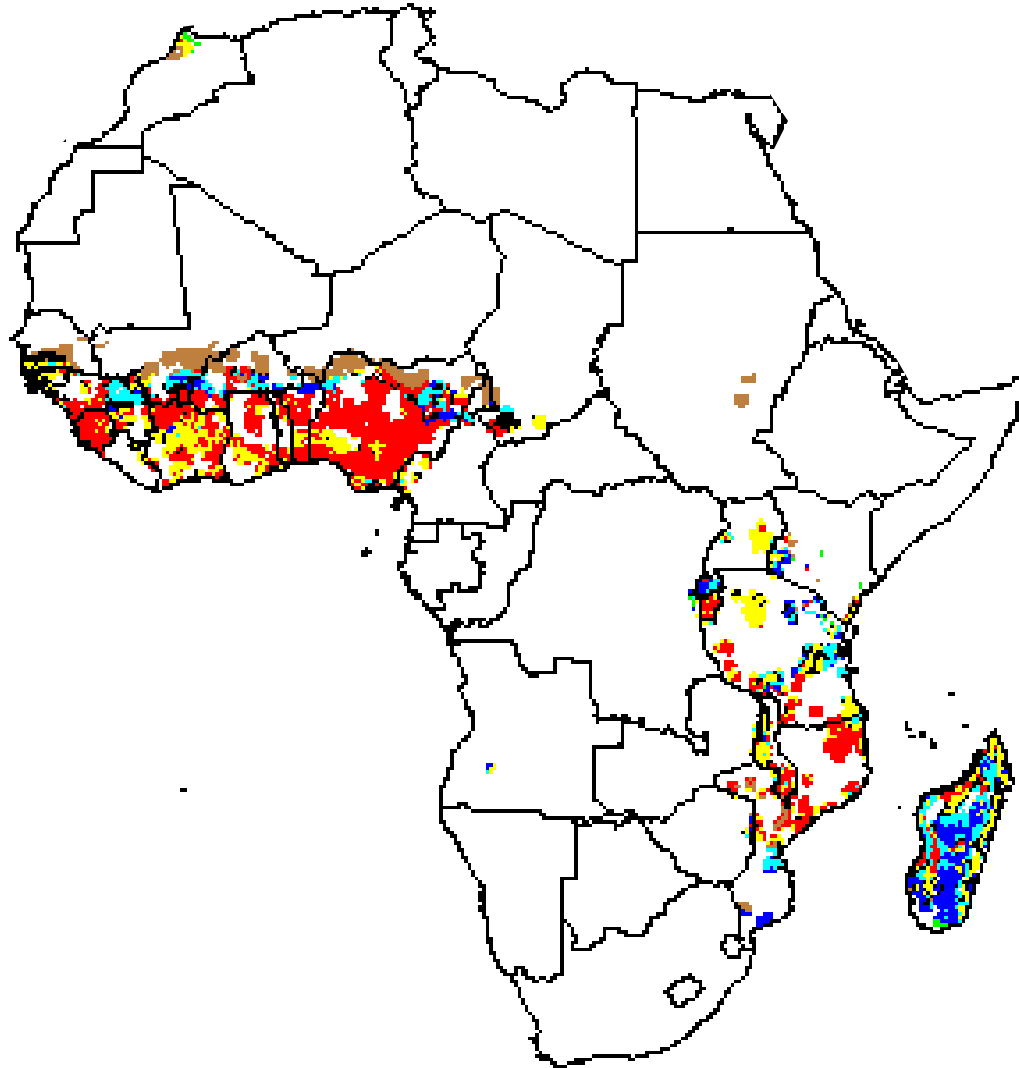
Preliminary results



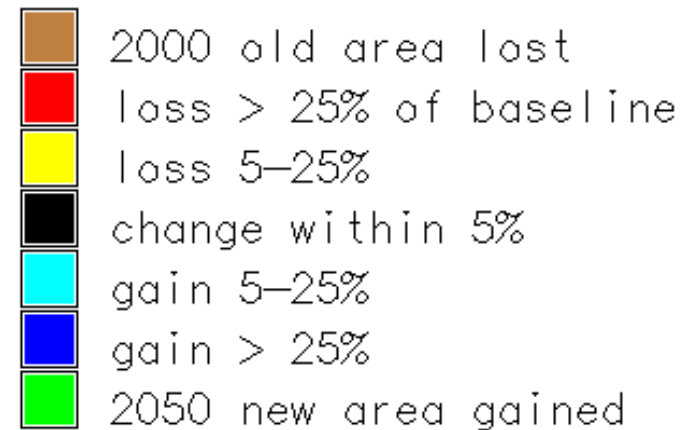
Climate Change Effects on Agriculture

What do we think in 2009?

Irrigated rice yields decline 20% worldwide by 2050



Preliminary results



Possible impacts on rural livelihood and food security

Number of undernourished, incorporating climate change effects (in millions)

	1990	2020	2050	2080	2080/1990 Ratio
Developing countries	885	772	579	554	0.6
Asia, Developing	659	390	123	73	0.1
Sub-Saharan Developing	138	273	359	410	3.0
Latin America	54	53	40	23	0.4
Middle East & North Africa	33	55	56	48	1.5

Source, Joachim von Braun, IFPRI. Impact of Climate Change on Food Security in Times of High Energy Prices, Background Paper prepared for the International Centre for Trade and Sustainable Development (ICTSD)

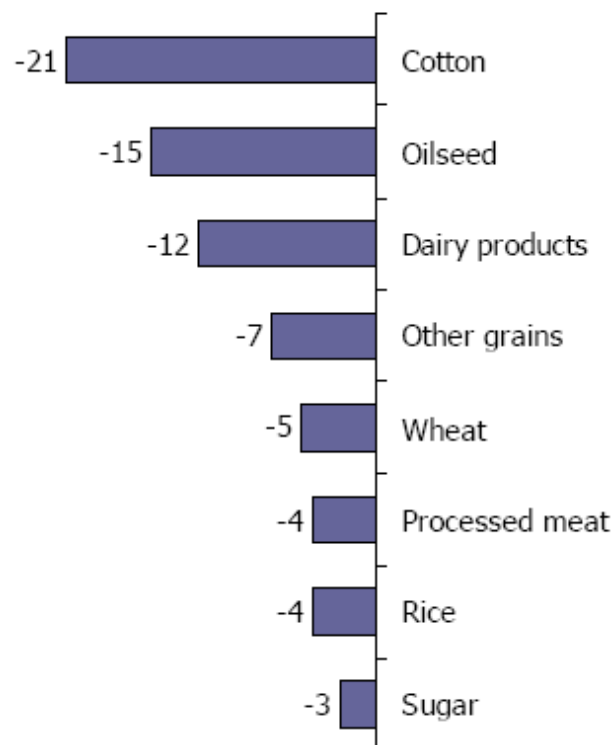
Implications for Agriculture Trade

- Shift in comparative advantages is expected to result in higher trade flows, including from mid/high latitudes (cereals and livestock) to low-latitude countries (10-40%)
- Importance of trade liberalisation
 - Remove export restrictions
 - Careful tariff liberalisation (balancing market openness with protecting livelihood and promoting rural development)
 - Price Volatility (the need for a new type of safeguard)

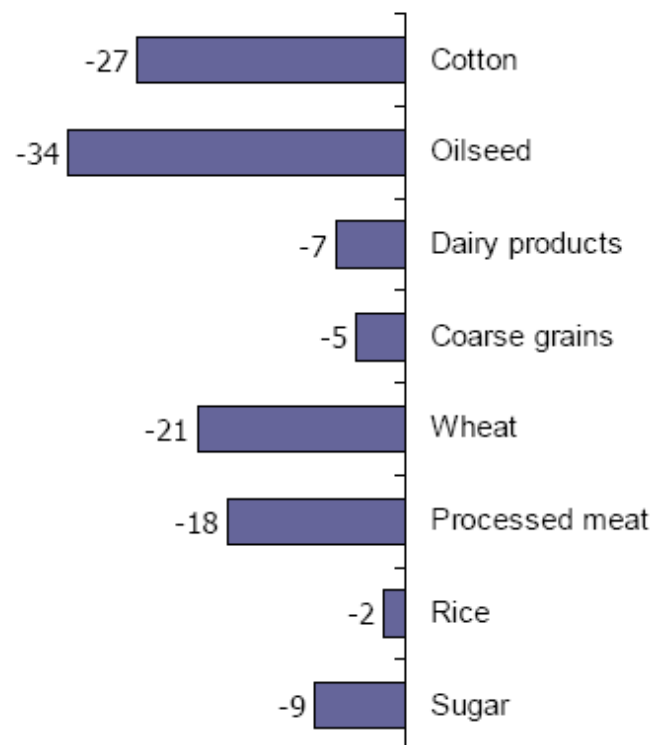
Implications for Agriculture Trade (cont.)

The Need to remove trade barriers and trade distorting subsidies

Real international commodity prices have been suppressed by current global trade policies (% of price)

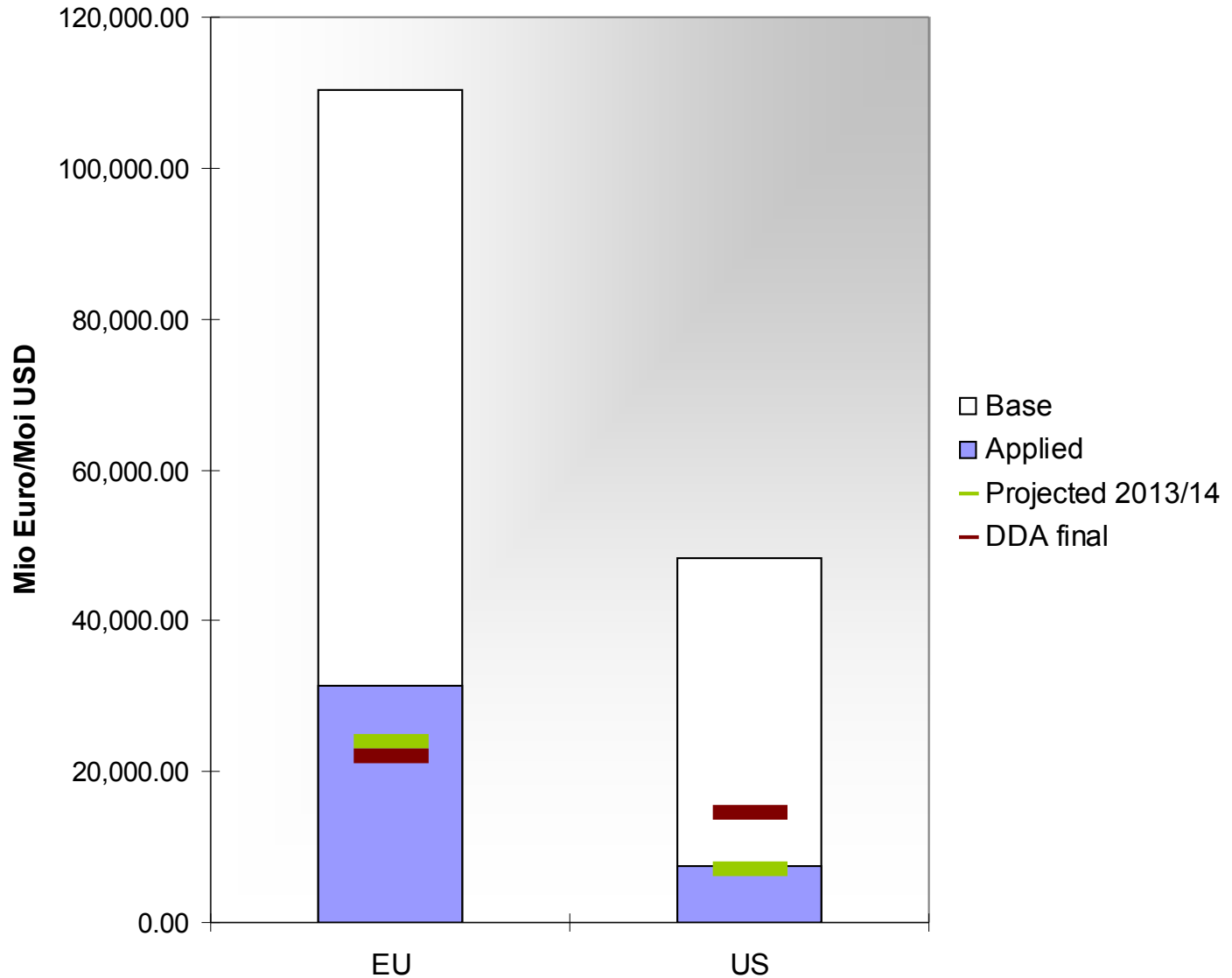


Trade share losses to developing countries due to current global trade policies (% point loss to developing country trade shares)

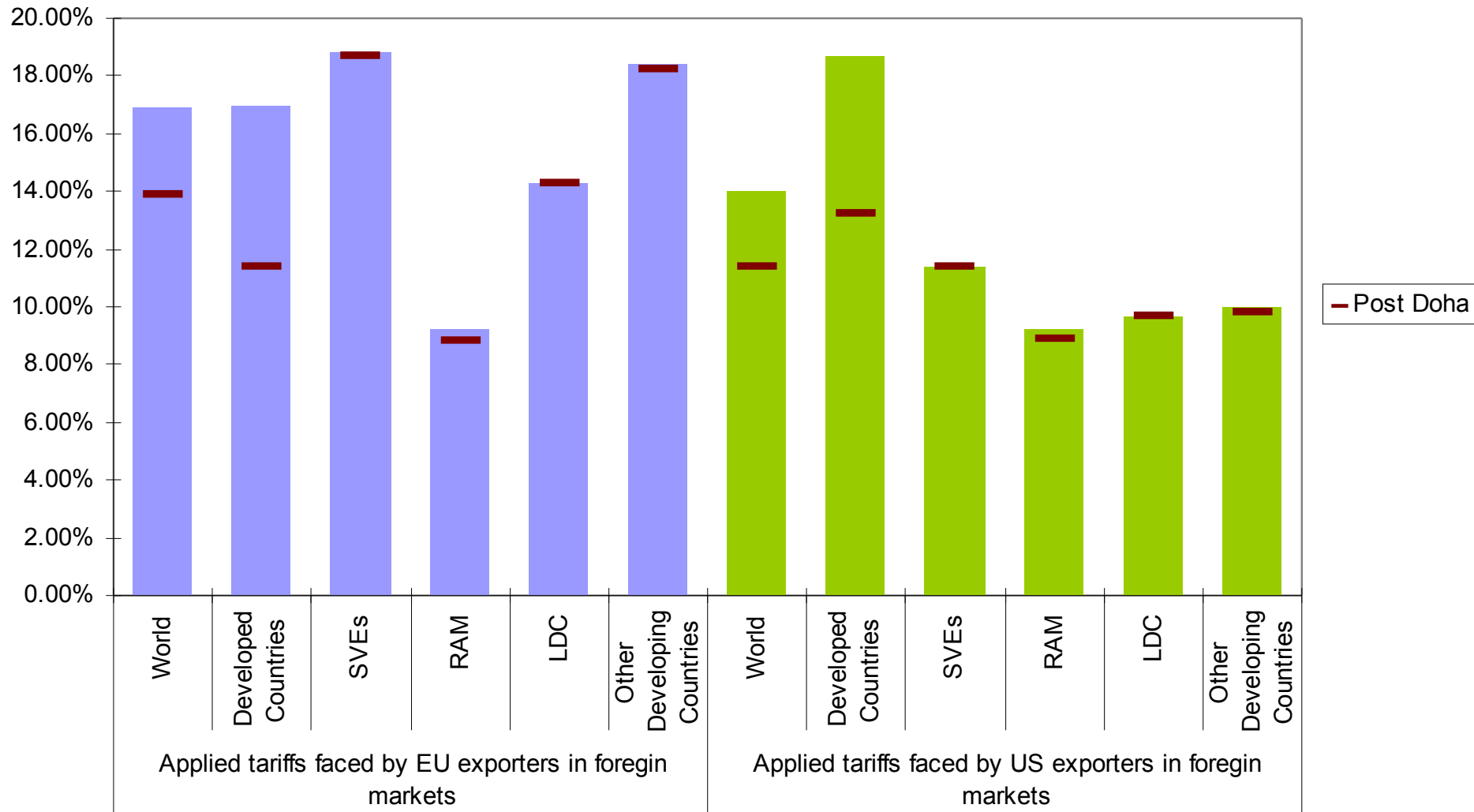


Likely Results from the Doha Round on Agricultural Subsidies

Overall Trade Distorting Support in the EU and US



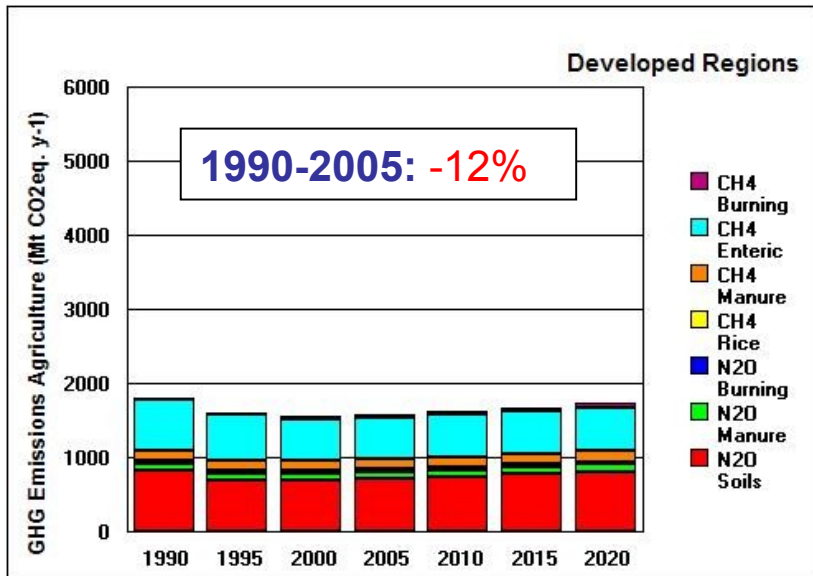
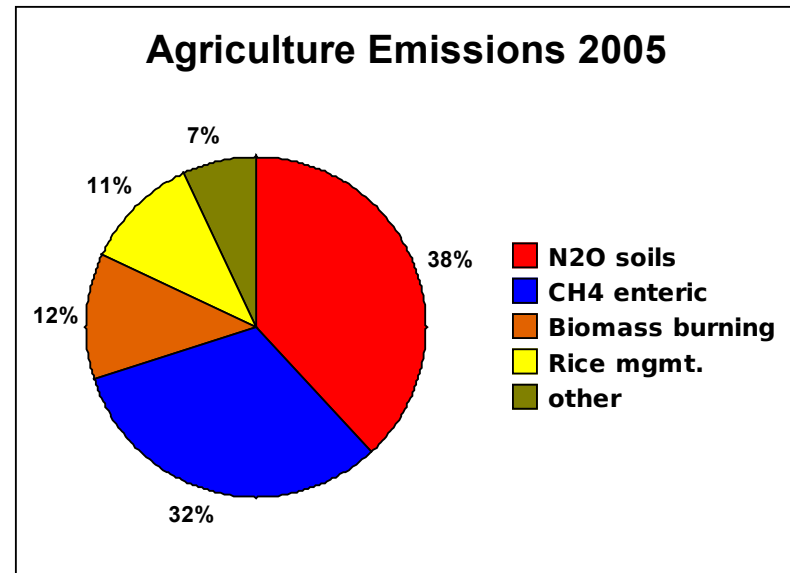
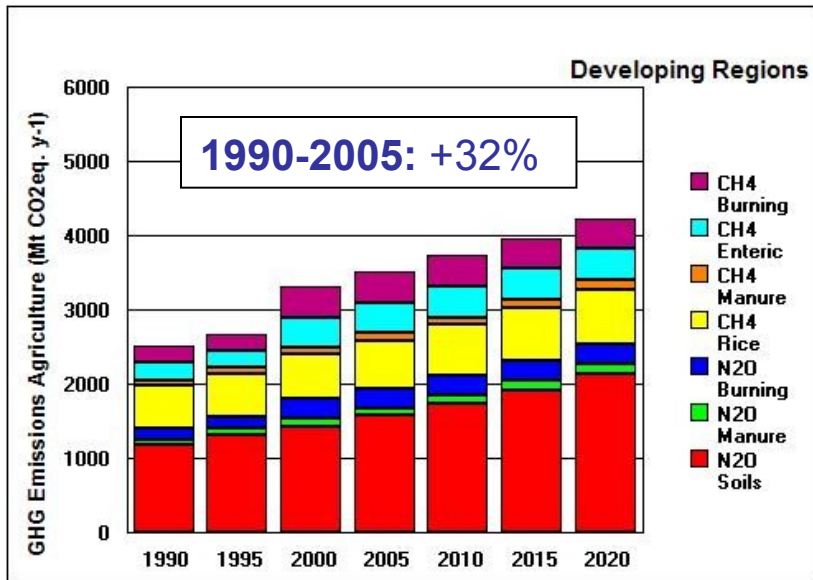
Average Applied Agriculture Tariffs Faced by the EU and US Before and After the Doah Round



Climate Change Mitigation: the Role of Agriculture

- Agriculture accounts for 14% of global GHG emissions
 - Emissions to increase 30-40% by 2030
 - Food demand to increase 50% by 2030 – meat 90%
 - Energy demand increase unknown
- 74% of these originate in developing countries
- Very high potential for mitigation (89% through soil C sequestration)
- 70% of mitigation potential in developing countries
- Abatement costs particularly attractive (cost neutral, co-benefit)

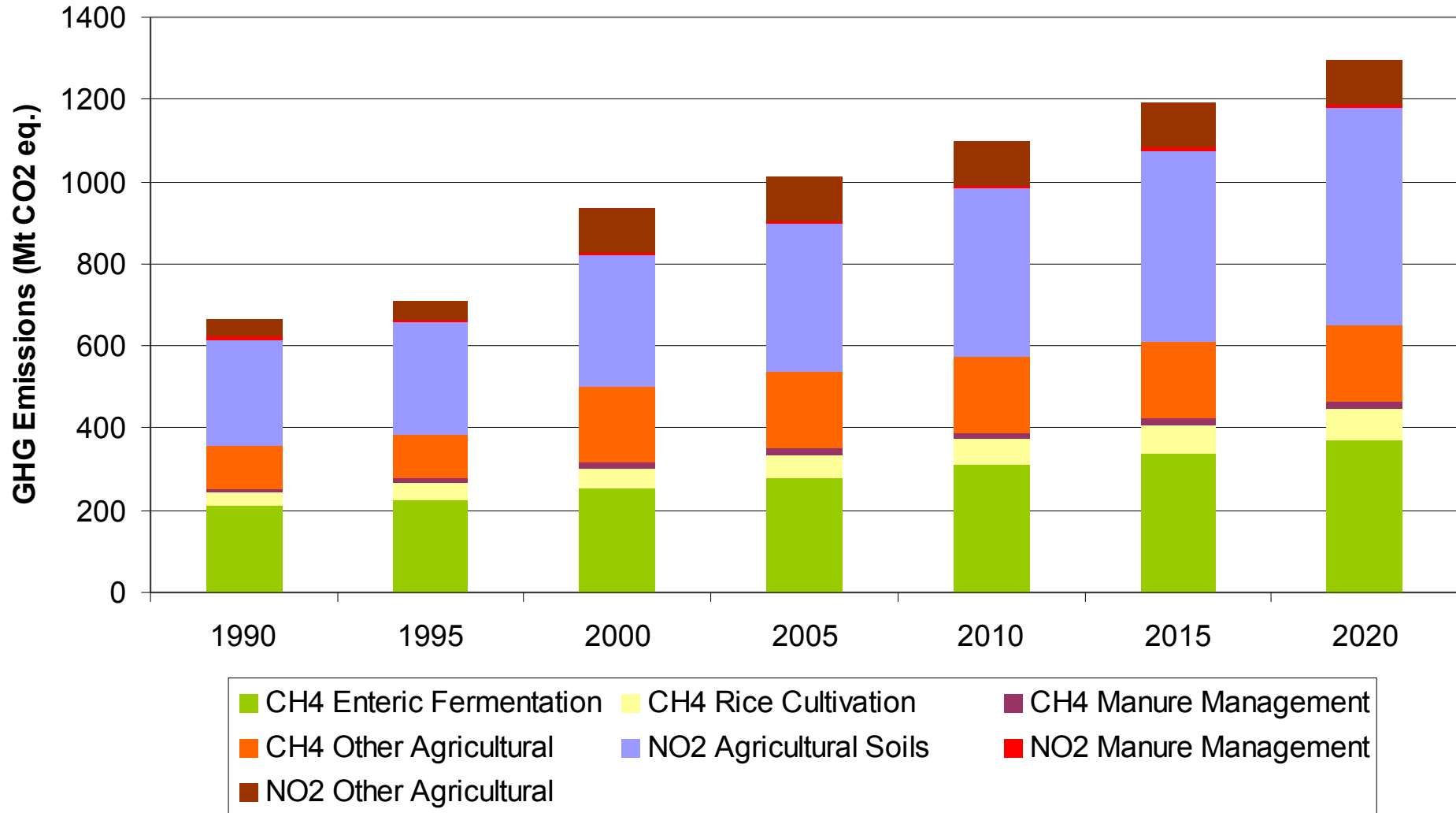
Baseline emissions: Agriculture



Main drivers for trends

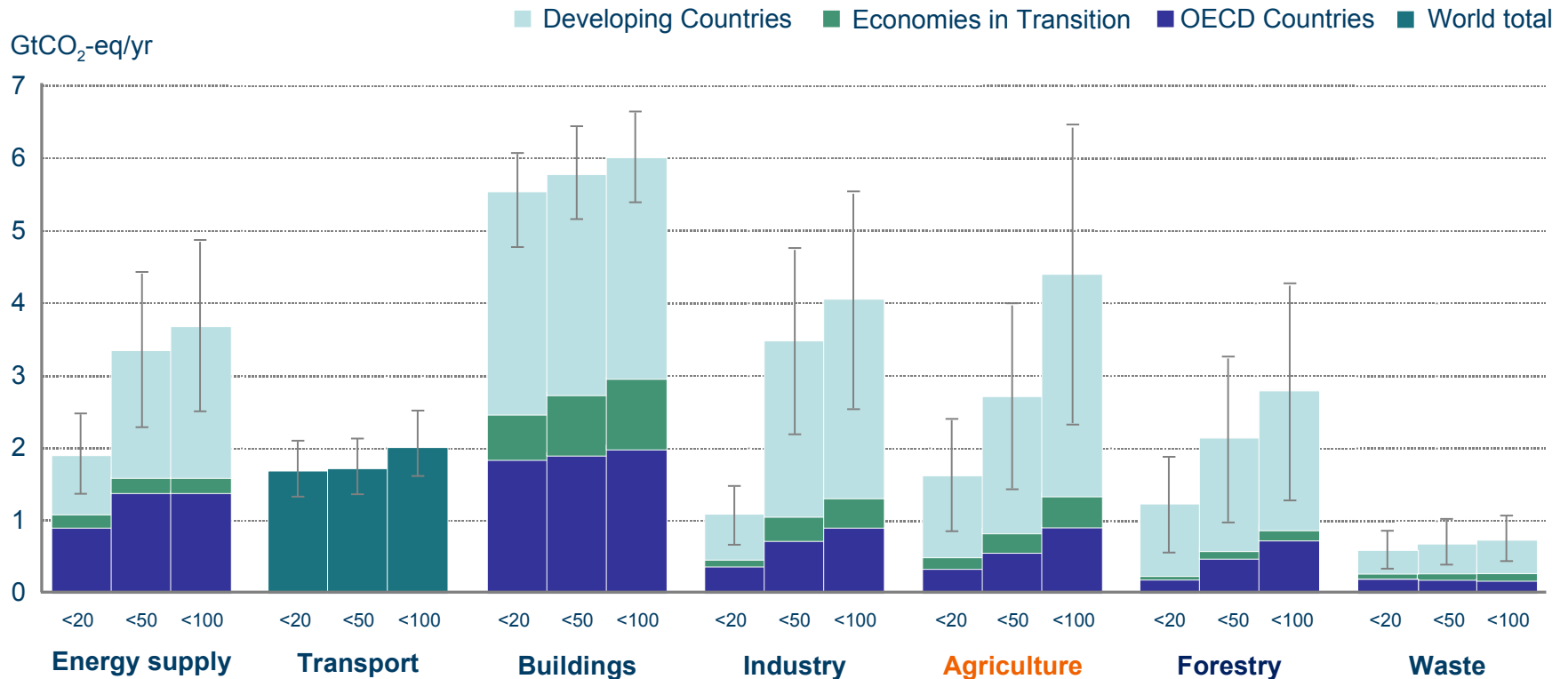
- Increase in GHGs: population pressure, income increase, diet changes, technological changes
- Decrease in GHGs: increased land productivity, conservation tillage, non-climate policies

Non CO2 Emissions from Agriculture in Africa: Actual and Projected 1990 - 2020



Source: Author's calculations based on United States Environment Protection Agency, 2006.
Global Anthropogenic Non-CO2 Greenhouse Gases Emissions 1990 - 2020

Mitigation Potentials by Sector



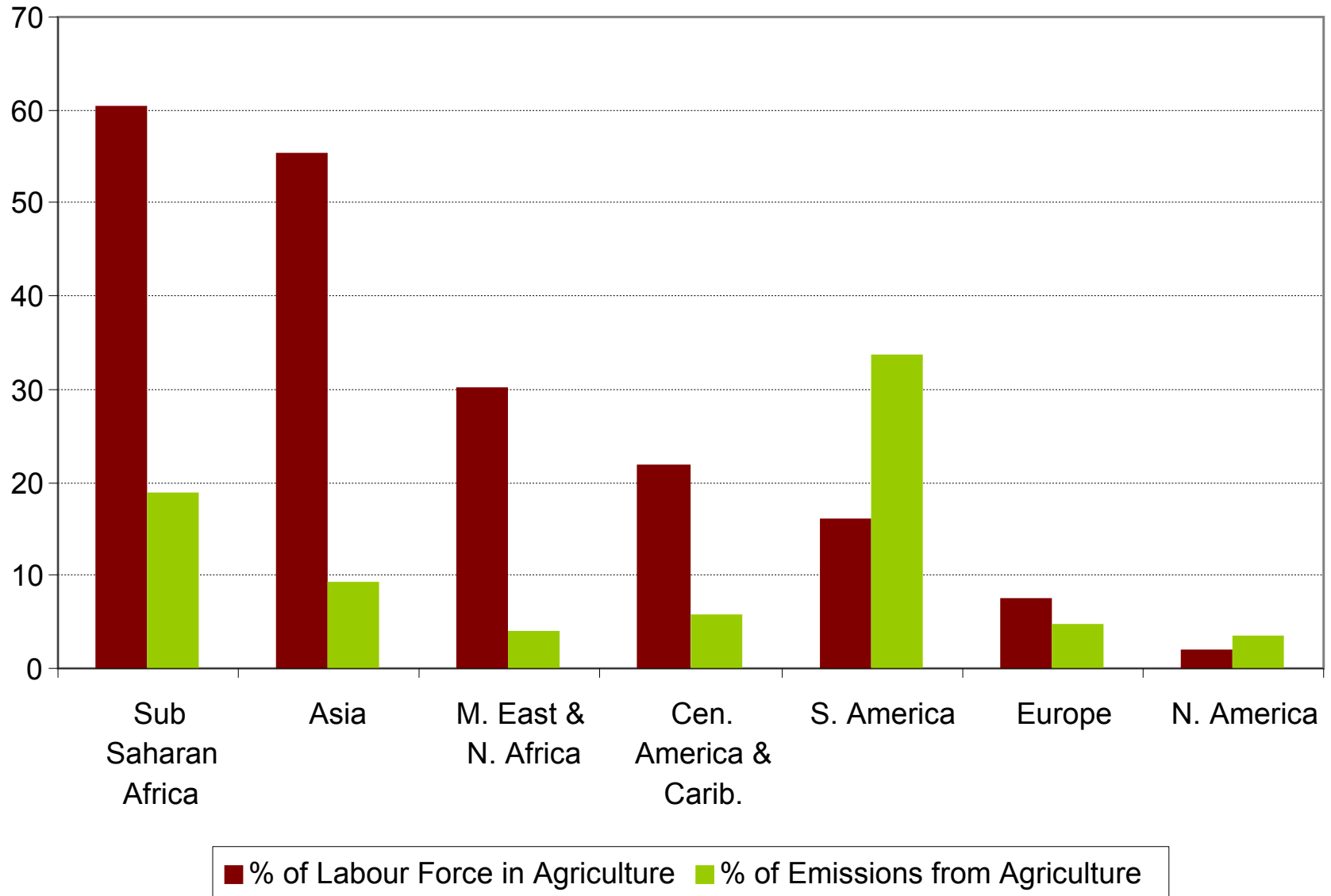
Relative contribution of Agriculture to total mitigation potential

US\$ 20/tCO₂ – 12%

US\$ 50/tCO₂ – 14%




US\$ 100/tCO₂ – 19%

Percentage of Labour Force in Agriculture and Share of Total Emissions Generated by Agriculture



The potential for Synergies

The link between good agriculture practices, productivity, livelihood security and environmental benefits

- Cropland management (nutrient, tillage, residues)  • Improve water ground quality, soil quality and ecosystems
- Yield improvements (appropriate use of fertilisers)  • Enhance food security by enhancing productivity, and generate higher income
- Soil carbon sequestration  • Climate change mitigation and adaptation in vulnerable small holding farming systems, sustainable land management and reducing poverty

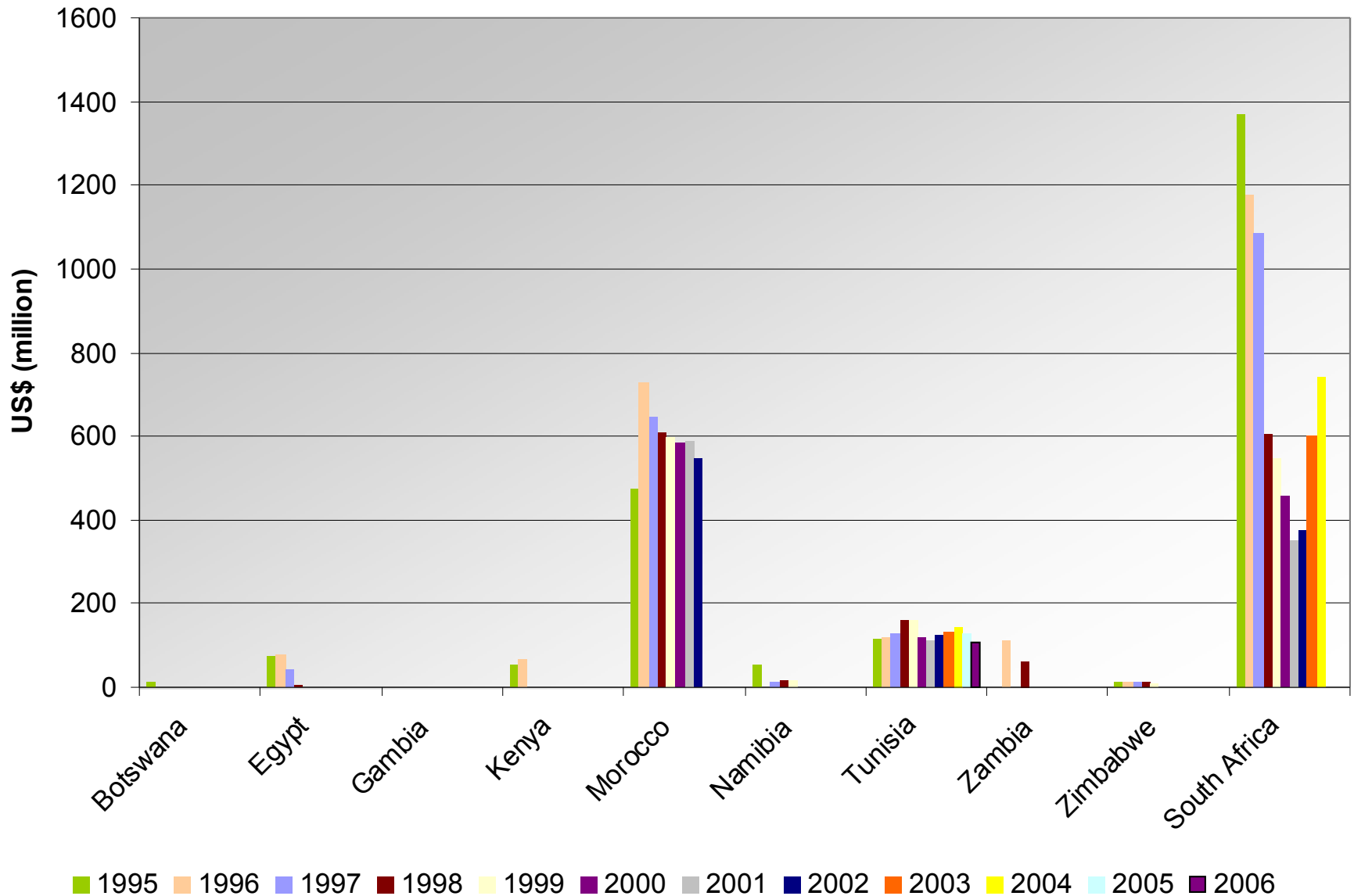
The Role of Trade Measures

- Avoid unilateral or arbitrary trade restrictions
 - Border Tax Adjustment
 - Food miles: “good intent but bad science”
- Providing the right incentives
 - E.g. Subsidising the bad biofuels and taxing the good ➡ agriculture, climate, environment , food security and trade can all lose
 - Focus on measures generating co-benefits

Achieving co-benefits: the Role of Domestic Subsidies

- As a ratio of agriculture gross domestic product, agriculture spending declined from 7.4% in 1980 to 6.7 % in 2002. (This declining trend in ag. spending is occurring within the context of rising total public sector spending in many African countries.)
- Overall, Africa has enough policy space to address supply side constraints through WTO compatible subsidies
- Non trade distorting measure form a substantial proportion of total domestic support (100% in Kenya, Zimbabwe, Zambia and South Africa since 2001)
- Spending on extension service, research and training are the most frequently reported spendings followed by disaster relief, and regional assistance programmes.

Total Amount of Domestic Support Reported to the WTO by African Countries



International Financing: Requirements for and Availability of Financial Resources

Funding Area	Current Estimates of Financial Resources Needed in Developing Countries by 2030	What is Currently Estimated to be Available under the GEF as an Operating Entity for the UNFCCC's Financial Mechanism
Mitigation	US\$86 billion a year by 2015 (0.2% of OECD GDP = 1/10 of OECD military expenditures) (UNDP, HDR 2007/08, p. 194)	US\$ 990 million from the GEF 4 th Replenishment for the period 2006-2010, with co-financing to amount to US\$ 1.6518 billion (see FCCC/SBI/2007/21 , Table 1)
Adaptation	US\$ 28-67 billion (FCCC/SBI/2007/21 , Table 3 and para. 51)	US\$ 20.4 million – GEF Trust Fund: Strategic Priority for on Adaptation US\$ 23.5 million – Special Climate Change Fund (GEF administered) US\$ 147.0 million – Least Developed Countries Fund (GEF administered) US\$ 80–300 million per year for the period 2008-2012 from the 2% share of the proceeds of annual sales of certified emissions reductions from CDM projects – Adaptation Fund (see FCCC/SBI/2007/21 , Table 2 and para. 62)
Technology transfer Emissions reduction-related technology deployment Deployment of renewables, biofuels, and nuclear energy technologies Public energy R&D	US\$720 billion (an average of US\$24-26 billion per year) – (FCCC/SBI/2007/21 , para. 93 – no breakdown for developing countries; figures based on IEA estimates) US\$33 billion per year (FCCC/SBI/2007/21 , para. 94 – no breakdown for developing countries; figures based on Stern Review) US\$20 billion (FCCC/SBI/2007/21 , para. 94 – no breakdown for developing countries; figures based on Stern Review)	The GEF estimates that 80-100 per cent of GEF climate change mitigation funding fits the technology transfer definitions used by the Convention (see FCCC/SBI/2007/21 , Table 2 and para. 62) As at April 2007, US\$ 10.7 million were available from the SCCF for the programme for transfer of technology (FCCC/SBI/2007/21 , para. 90)

The Role of International Financing Mechanism

- The re-labelling of financial resources.
- The risk of atomisation.
- The need for coherence among existing and new schemes (A4T, EDF, GEF, UNFCCC).
- Focusing on win-win-win.