



# Bioenergy: Opportunities, Risks and the Way Ahead

GBEP side event  
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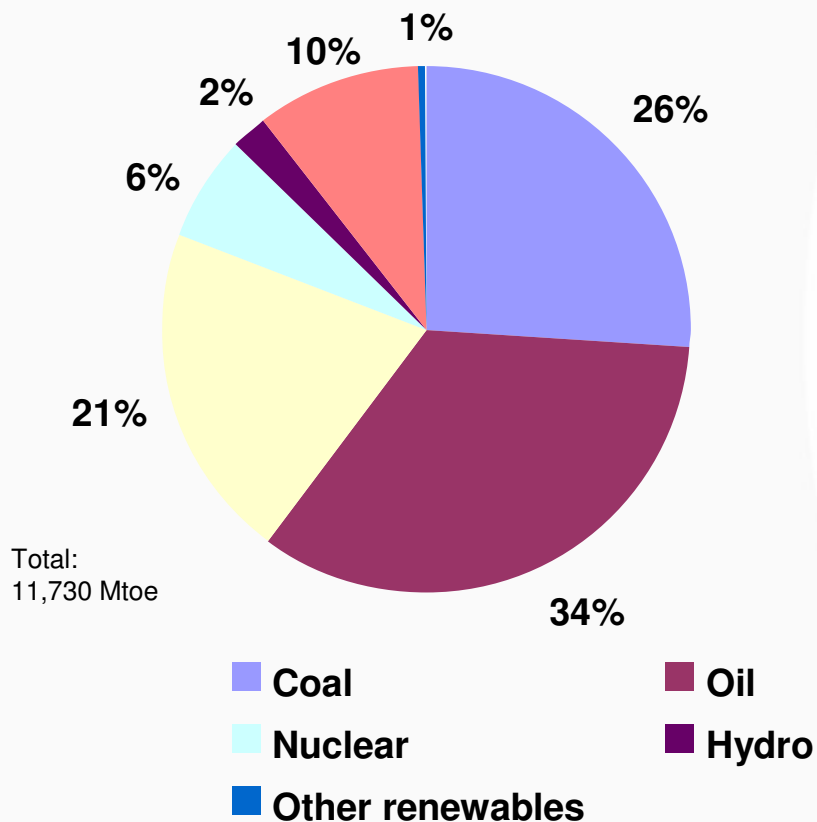
Natural Resources Management & Environment, FAO

# Outline

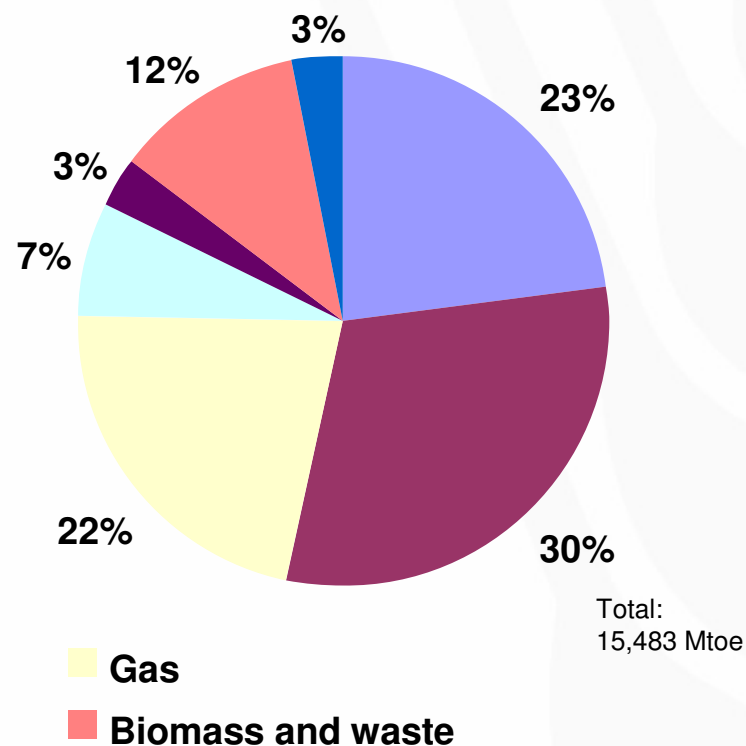
- Contribution to a low carbon energy future
- Emission reduction performance
- Impacts on agricultural markets
- Effects on Food Security
- Working towards sustainable bioenergy

# Modest contribution to world energy supply

World primary energy demand 2006

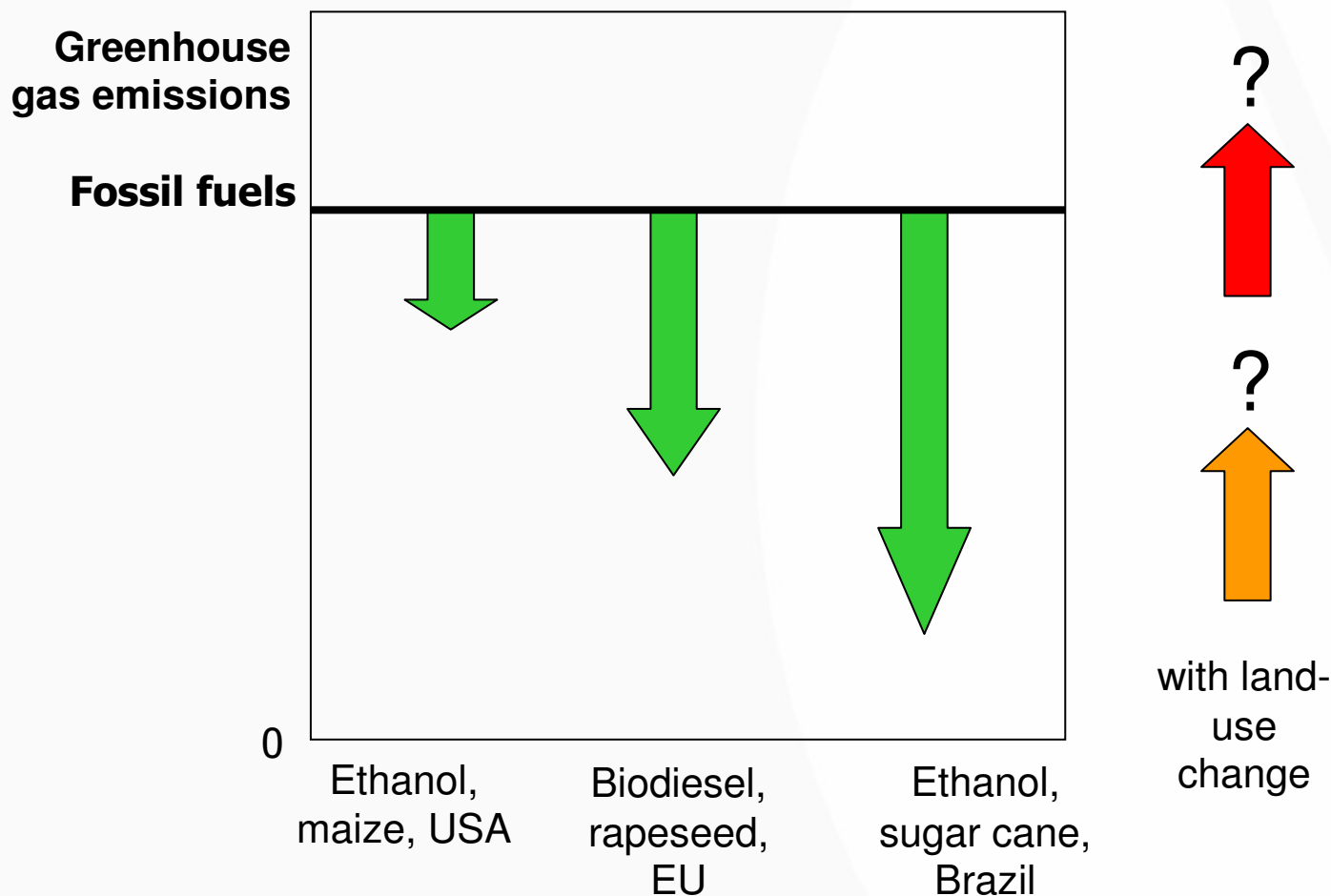


Projected world primary energy demand in 2030 (IEA, WEO 2008 - 550ppm policy scenario)

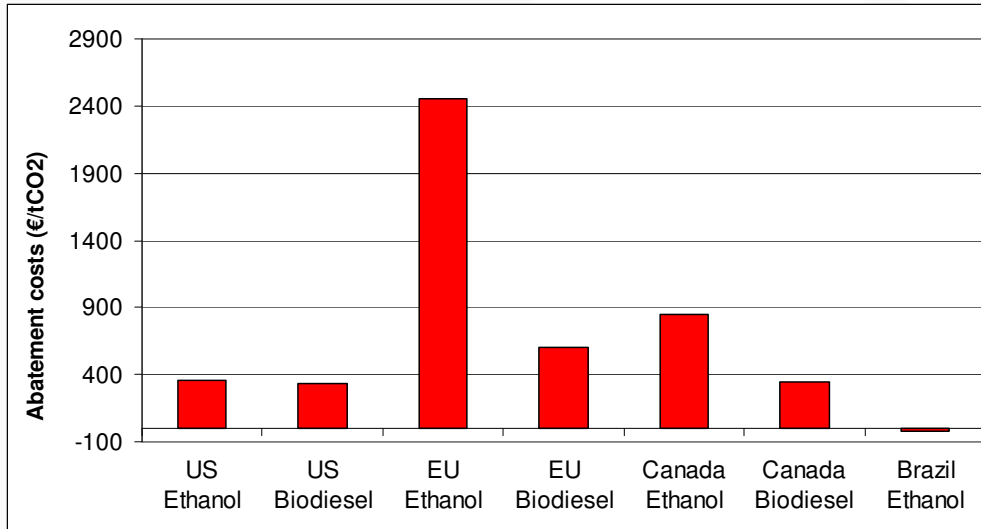


Source of data:  
OECD/IEA, World  
Energy Outlook 2008

# Diverse impacts on climate change



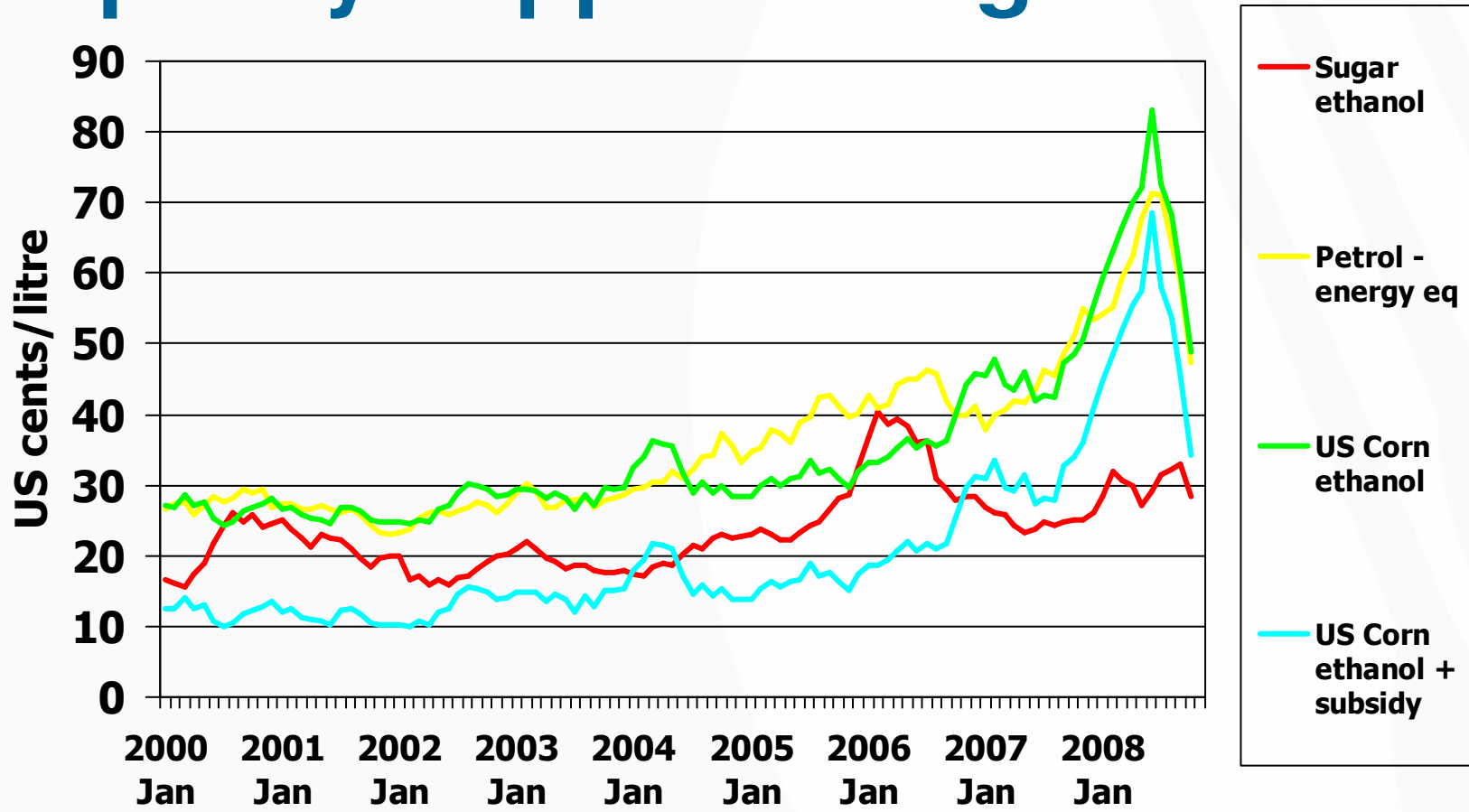
# Costs of emission reductions from biofuels



Source: GSI (2007); Schmitz (2006)

- Many studies do not take into account impact on land use change
- Apart from sugarcane ethanol, very high costs in comparison to estimated social cost of €10/tCO<sub>2</sub> emitted & other CO<sub>2</sub>e offsets on the market (Adger et al (2007) for IPCC report)
- Cost of lowering GHGs through policy support to biofuels in OECD countries amounts to US\$ 960 and 1700/tCO<sub>2</sub>e avoided (OECD (2008): Economic Assessment of Biofuel Support Policies)

# Profitability remains a challenge – policy support is significant

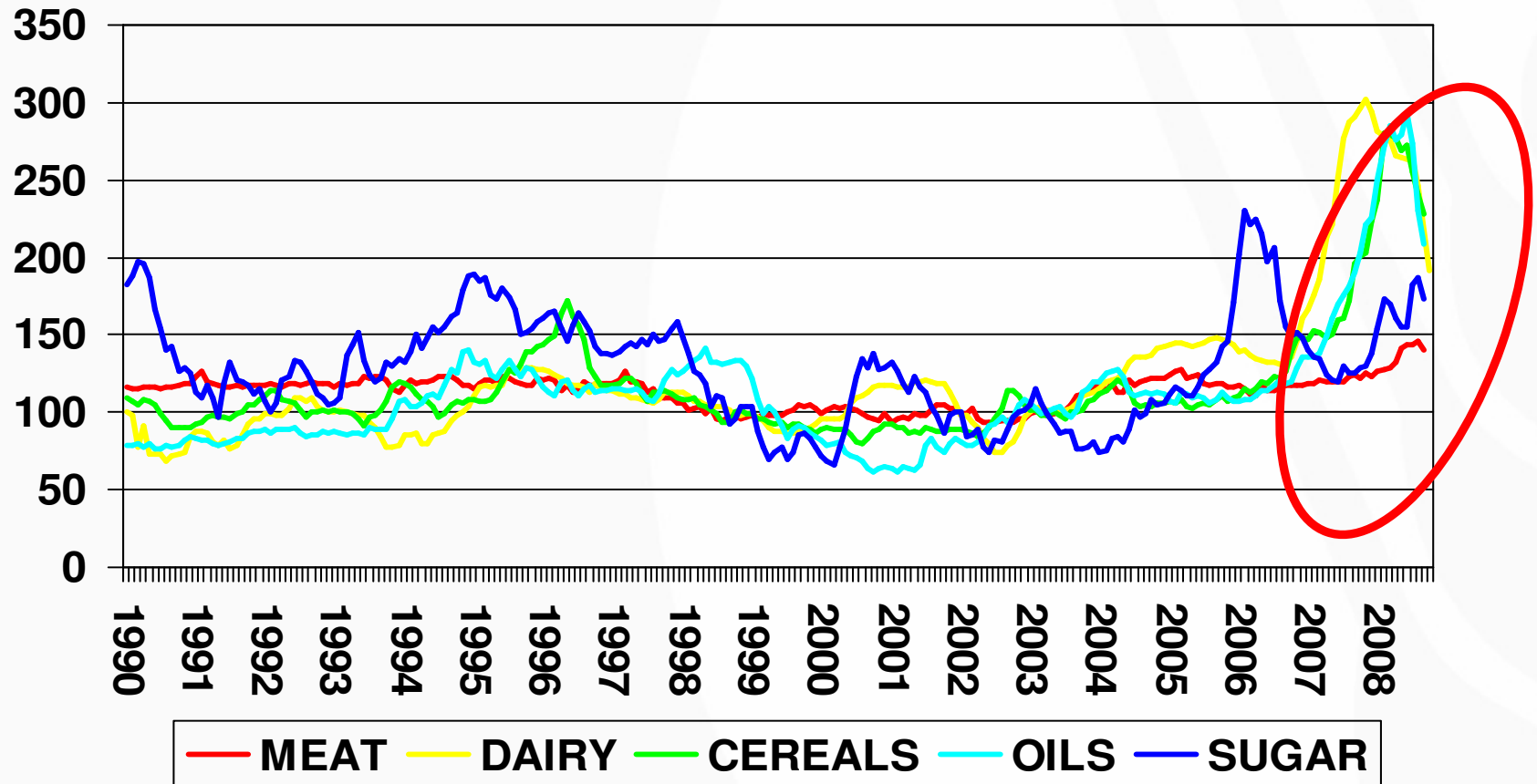


# Impacts on agriculture and food security

Significant and growing share of agricultural land and commodities used for biofuels

	Brazil	US	EU	World
Croplands for biofuels	5% → 10%	2% → 5-10%	1% → 12-16%	1% → 3-4%
Output	50% of sugarcane → 65%	30% of corn → 40%	60% of rapeseed → ?	5% of cereals, 9% of vegetable oils, but <u>over half of the increase</u> in 2005-2007

# Prices rose significantly over the past two years then fell dramatically in late 2008



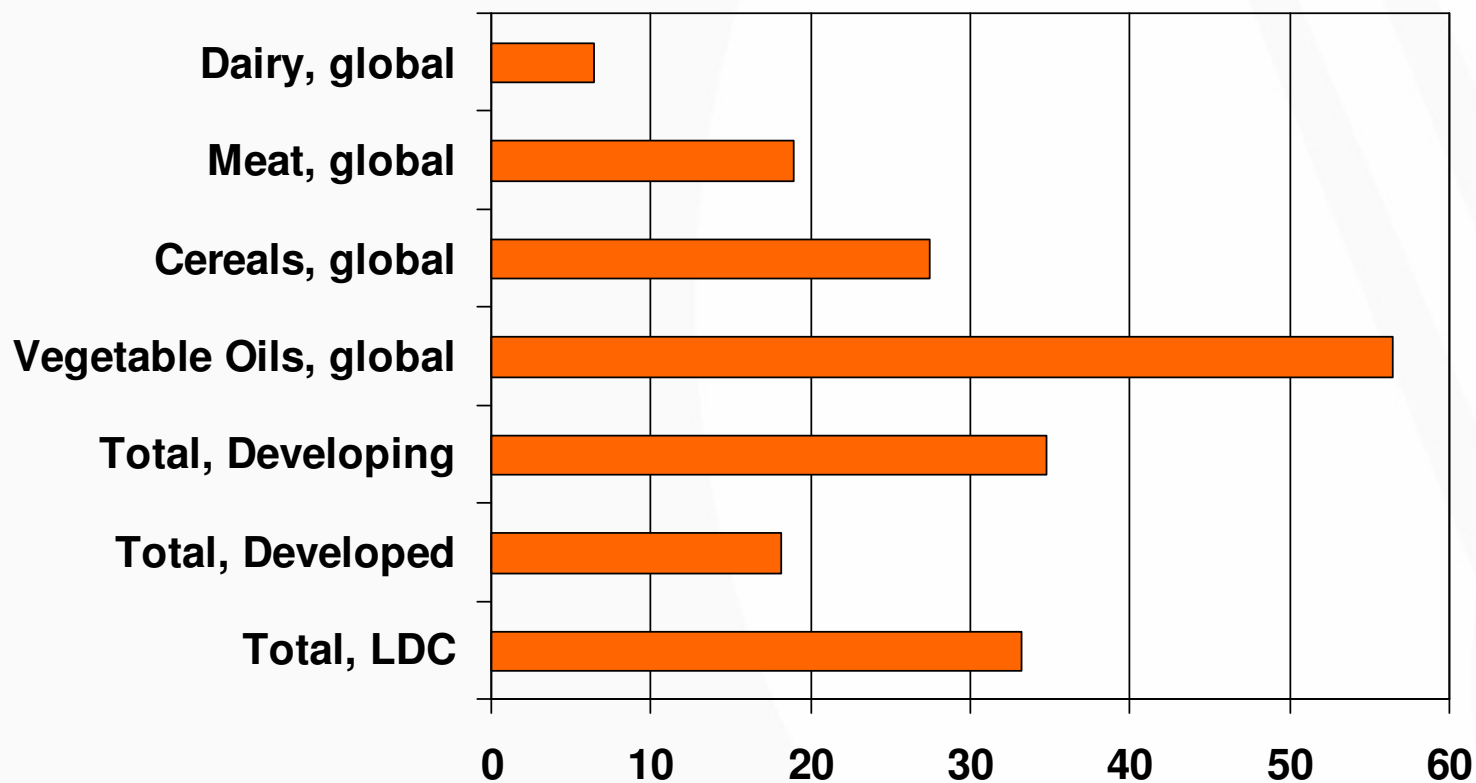


# Biofuels only one driver of high food prices

- economic growth, growing populations and changes in diet
- declining investment in agriculture
- declining cereal stocks and reserves
- **climate change**-related production shortfalls (e.g. extreme weather events)
- **high oil prices**
- **exchange rates and trade restrictions**

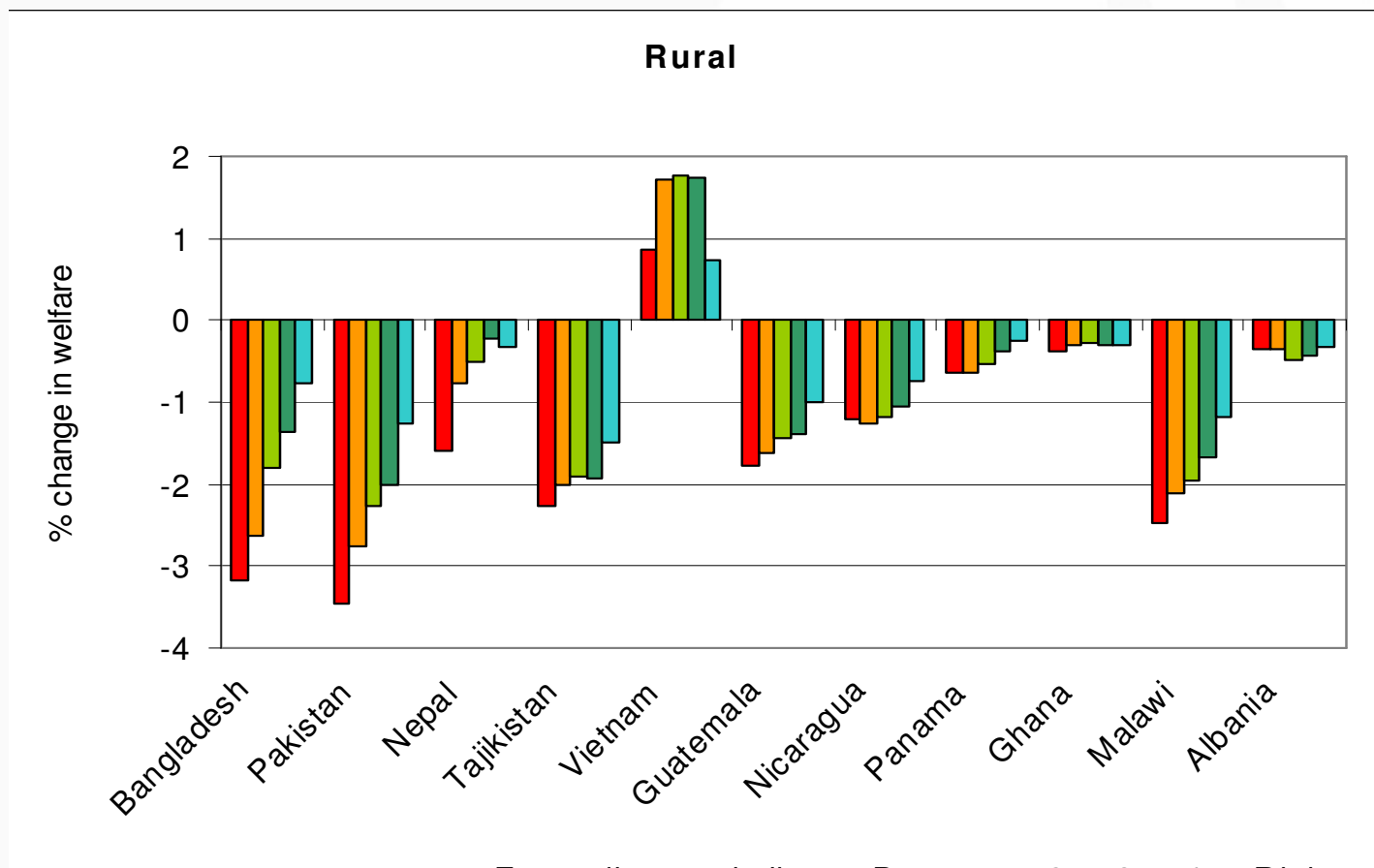
# Food import bills up – LDCs suffer

% increase, 2008 over 2007



# Price impacts on rural households

## of 10% increase in price of main staples



Expenditure quintiles: ■ Poorest ■ 2 ■ 3 ■ 4 ■ Richest

**Source: FAO/RIGA**

Zeza et al (2008): The Impact of Rising Food Prices on the Poor

(<http://ftp.fao.org/docrep/fao/011/aj284e/aj284e00.pdf>)



# FAO support: sustainable bioenergy

## Analysis – Tools - Assistance

- **SOFA 2008** – Biofuels: prospects, risks and opportunities
- Bioenergy Environmental Impact Analysis (**BIAS**)
- Decision Support for Bioenergy Investments (with UNEP/**UN Energy**)
- **Criteria and Indicators**: woodfuel and charcoal (with IEA)
- **Country Assistance**
- **BEFS** – Bioenergy and Food Security Project
- **GBEP** - Global Bioenergy Partnership

# GBEP Task Force on Sustainability

## Scope of the GBEP work on criteria and indicators:

- to provide relevant, practical, science-based, voluntary sustainability criteria and indicators to guide any analysis undertaken of bioenergy at the domestic level;
- to be used with a view to informing decision making and facilitating the sustainable development of bioenergy;
- not to be applied so as to limit trade in bioenergy in a manner inconsistent with multilateral trade obligations.



# GBEP TF on Sustainability: latest draft criteria

Environment Basket	Economic Basket	Social Basket
Greenhouse gas emissions [from bio-energy compared to fossil fuels]	Resource availability and resource use efficiencies in bio-energy production, conversion, distribution and end-use	[Direct and indirect impacts of trade policies]
Productive capacity of the land		[Food security]
Direct and indirect impacts arising from bio-energy related land-use change	Economic development and balance of trade or payments	Land and water rights
		Human and labour rights
Air quality	[Policy and regulatory support framework]	Rural and social development
Water availability, use efficiency and quality		Equity of access to energy at the local level
Biological diversity, ecosystems and landscapes	Technological capability and access, including RD&D and innovation	Human health [and safety]
		Institutional, policy and legal framework

NOT YET DISCUSSED IN DETAIL

Additional criterion: **Energy Security**. There will also be discussion of possible cross-cutting recommendations



# GBEP TF on Sustainability: next steps

- The Task Force will agree draft criteria and then move onto defining indicators in early 2009.
- Further develop methodologies for the measurement of indicators.
- Progress report to be published in April 2009.
- This report will be merged with report on GBEP Task Force on GHG Methodologies and submitted to the G8 Summit 2009.



**Bioenergy can play an important role in a sustainable low carbon energy future**

**BUT**

**sustainability challenges require concerted action at national and international level**