

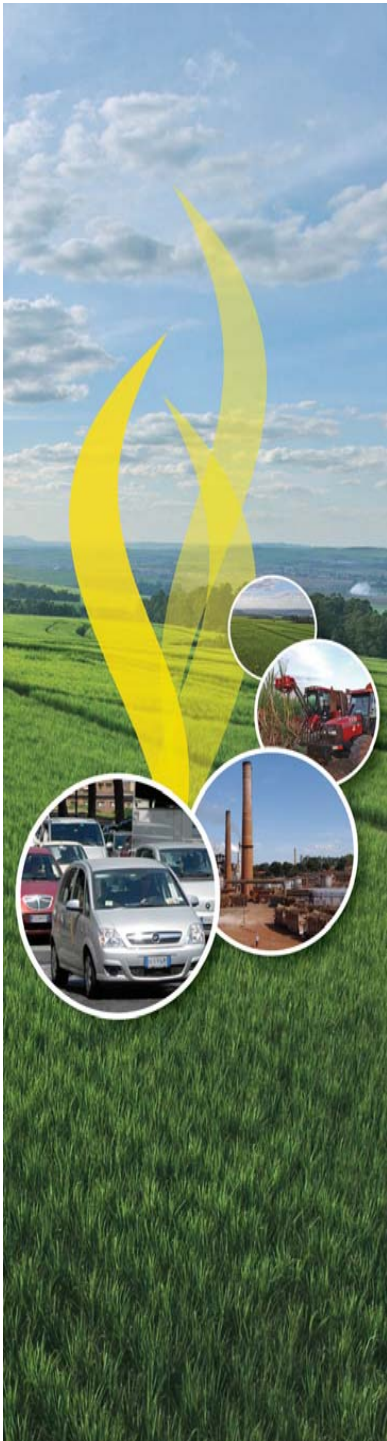
The State of Food and Agriculture 2008

Biofuels: prospects, risks and opportunities for markets and food security

Keith Wiebe

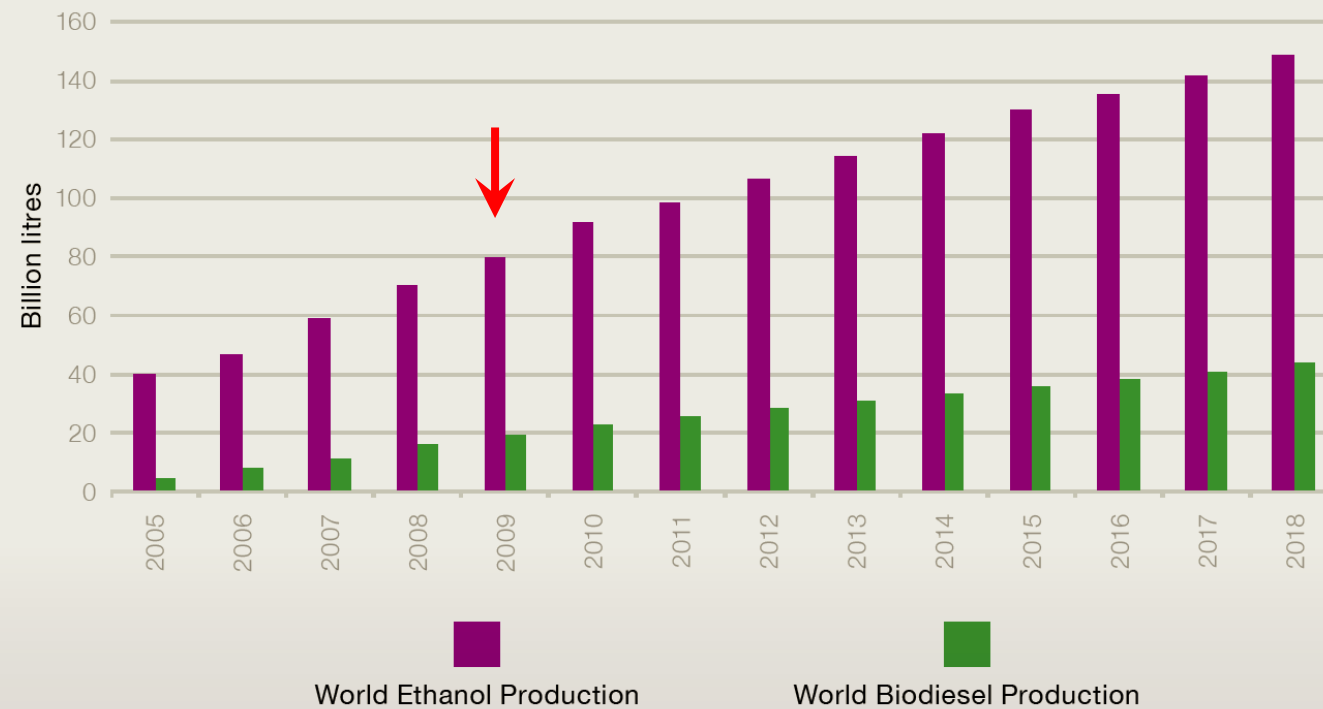
Deputy Director, Agricultural Development Economics Division
Food and Agriculture Organization of the United Nations

Seminar on the Bioethics of Bioenergy
The Finnish Parliament, Helsinki
17 November 2009



World ethanol and biodiesel production, 2005-2018

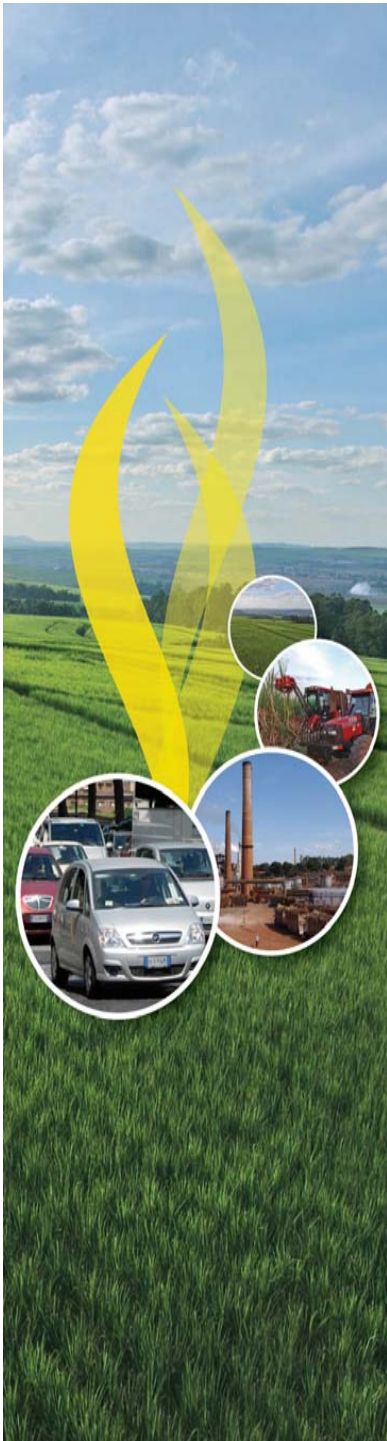
Figure 2. World ethanol and biodiesel projections, 2005-2018



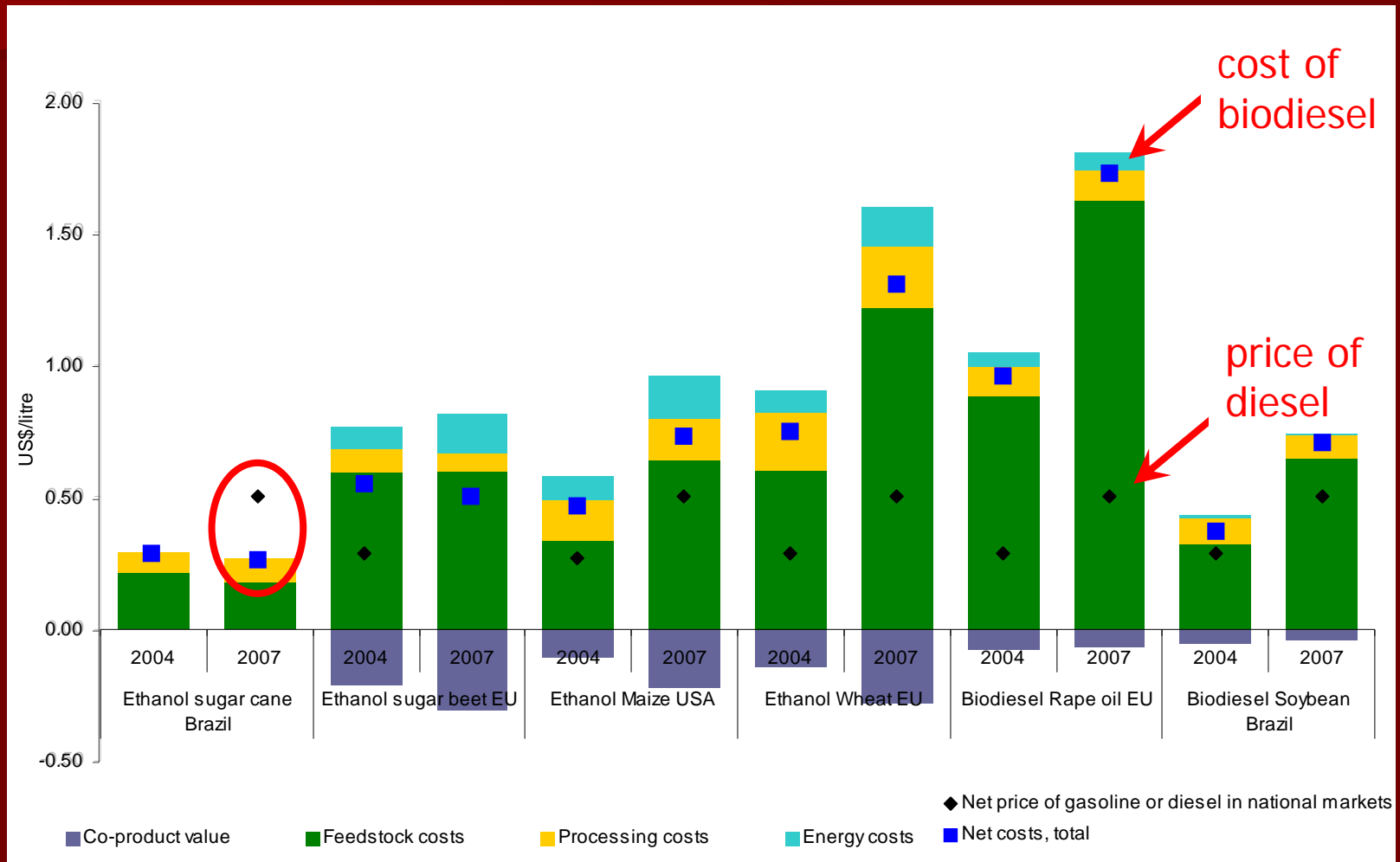
Source: OECD-FAO Agricultural Outlook 2009-2018

Key messages

- Short-term risks, longer-term opportunities
- Distribution depends on policies



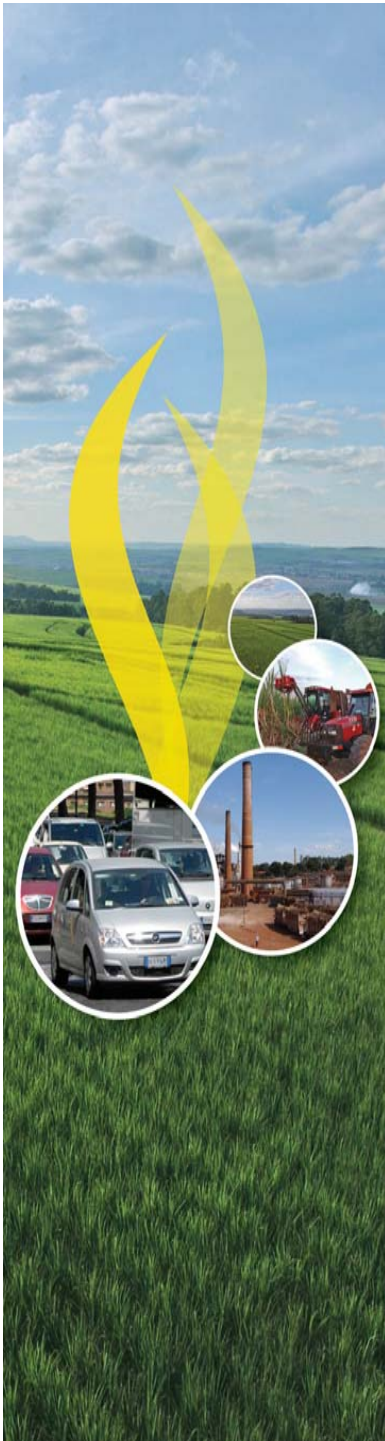
Production costs exceed net fossil fuel prices for most major biofuels



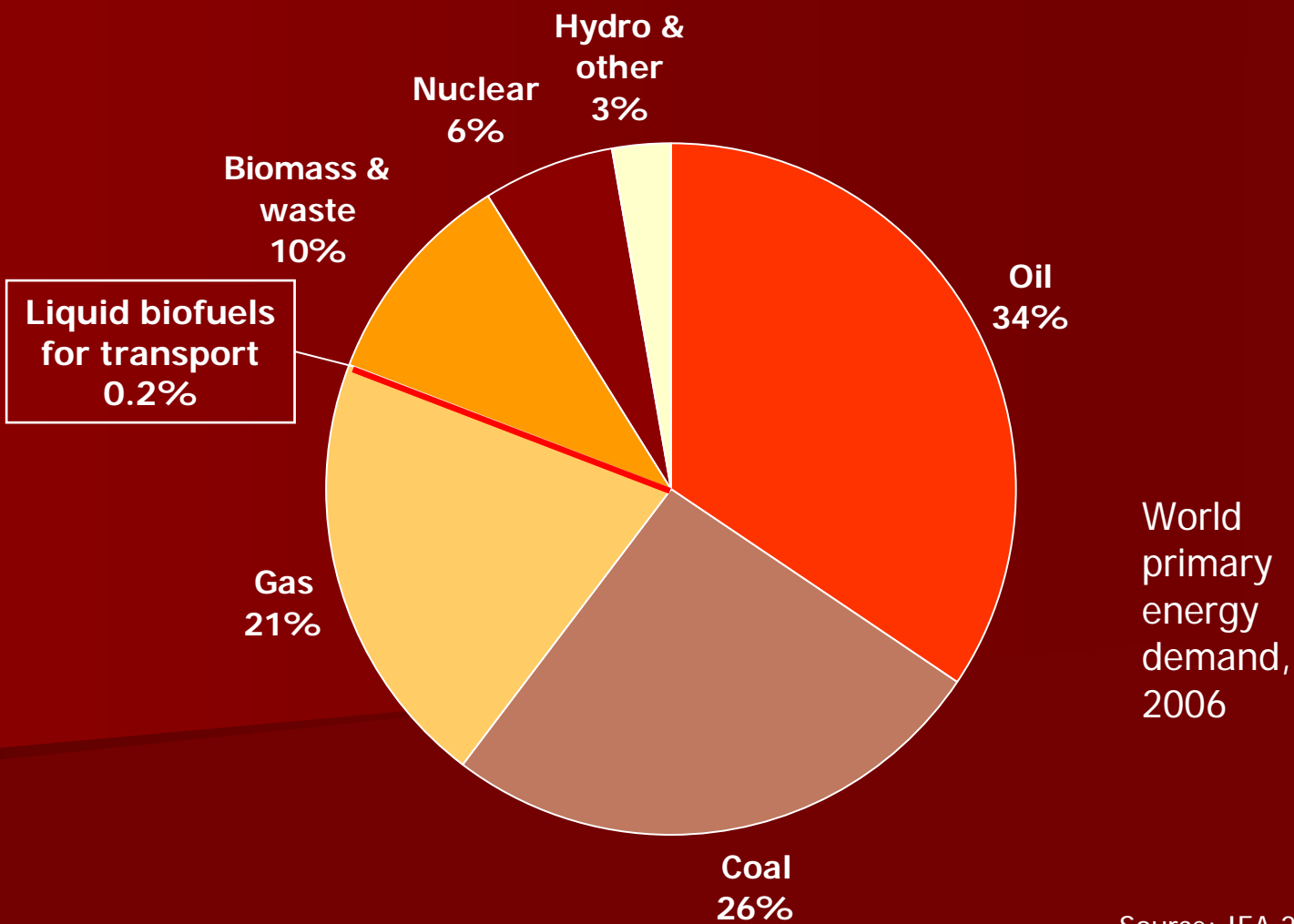
Source: OECD-FAO 2008

Key messages

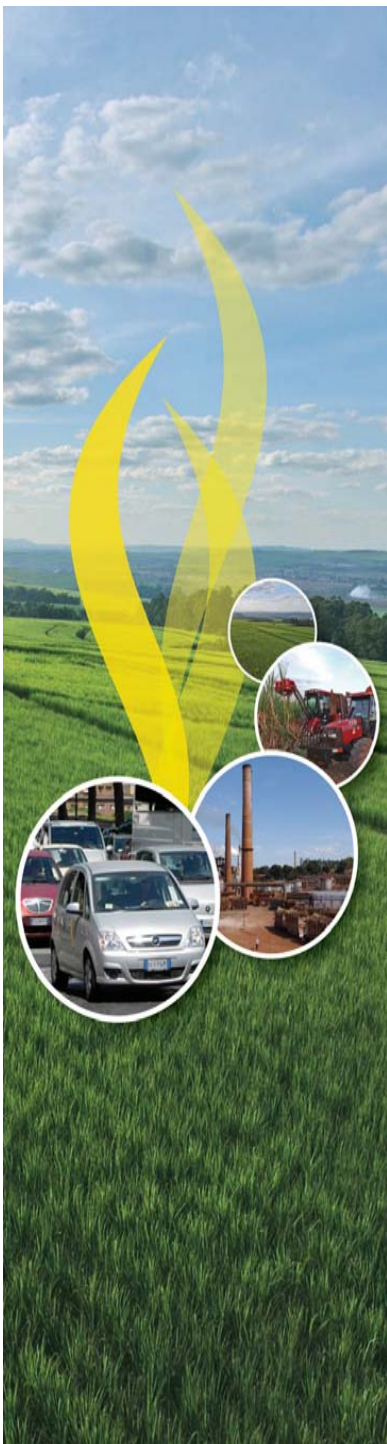
- Short-term risks, longer-term opportunities
- Distribution depends on policies
- Current policies seek to
 - enhance energy security
 - mitigate climate change
 - support agriculture and rural development



Modest impacts on energy security



Source: IEA 2008



Diverse and uncertain impacts on climate change

Greenhouse gas emissions

Fossil fuels

0

Ethanol,
maize,
USA

Biodiesel,
rapeseed,
EU

Ethanol,
sugar cane,
Brazil

?

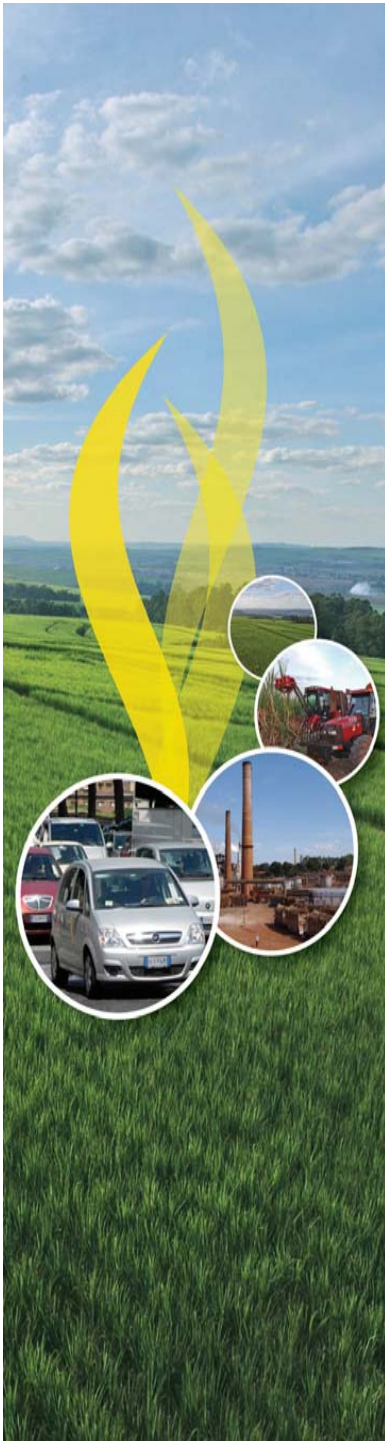


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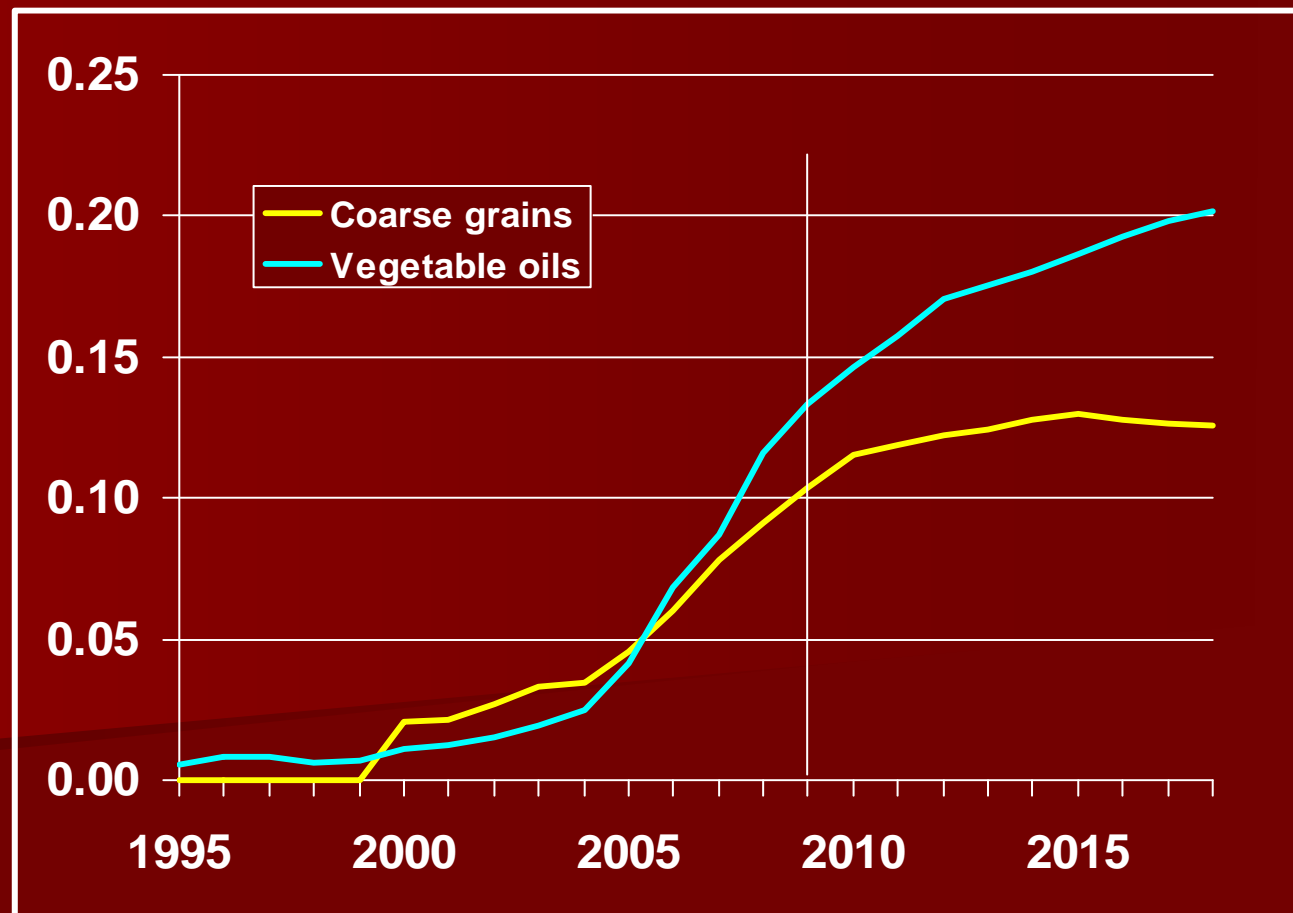
with land-
use change

Source: IEA and FAO

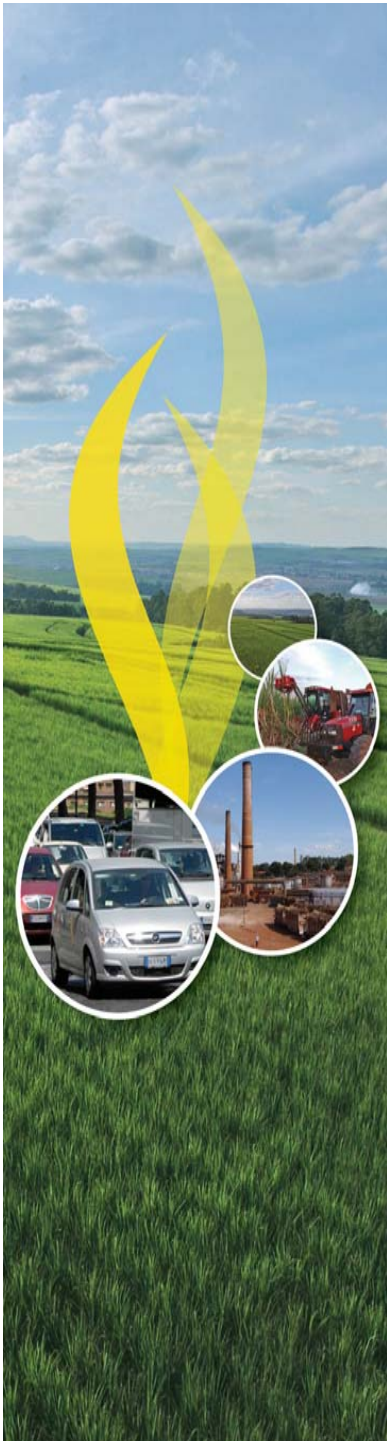


Significant impacts on agriculture & food security

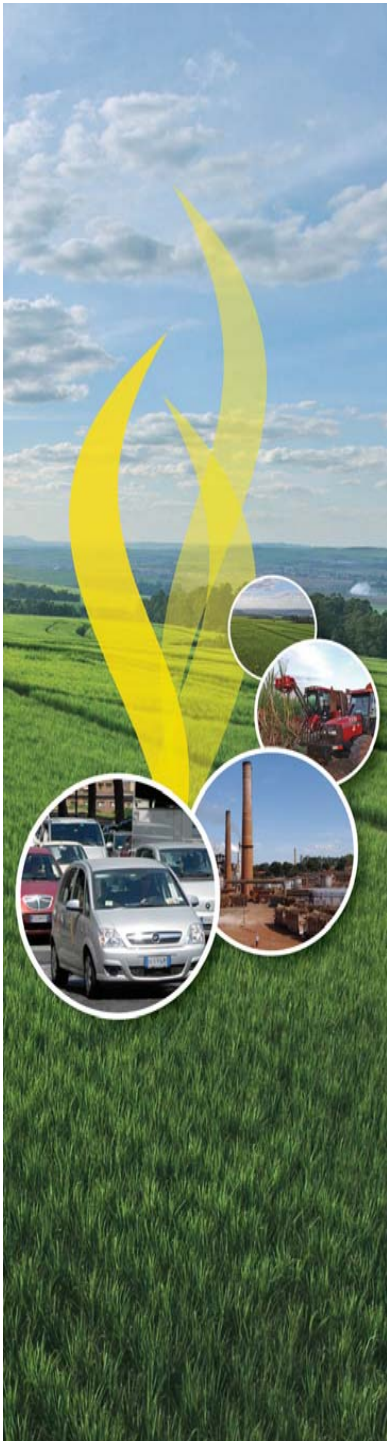
Share of global production used for biofuels



Source: OECD and FAO

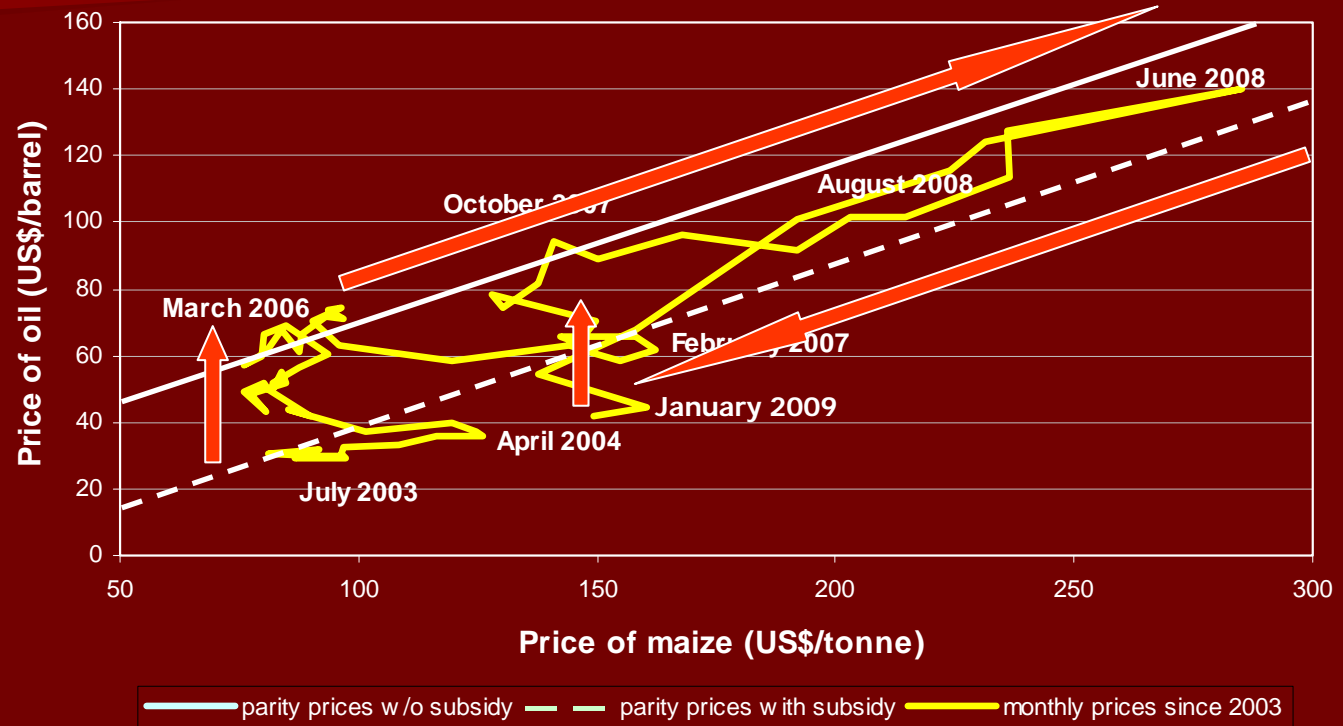


Significant impacts on agriculture & food security



	Share of crop to biofuels
Brazil	50% of sugarcane
USA	30% of maize
EU	60% of rapeseed
World	5% of cereals, 10% of coarse grains, 13% of vegetable oils, but <u>over half of the increase</u> since 2005

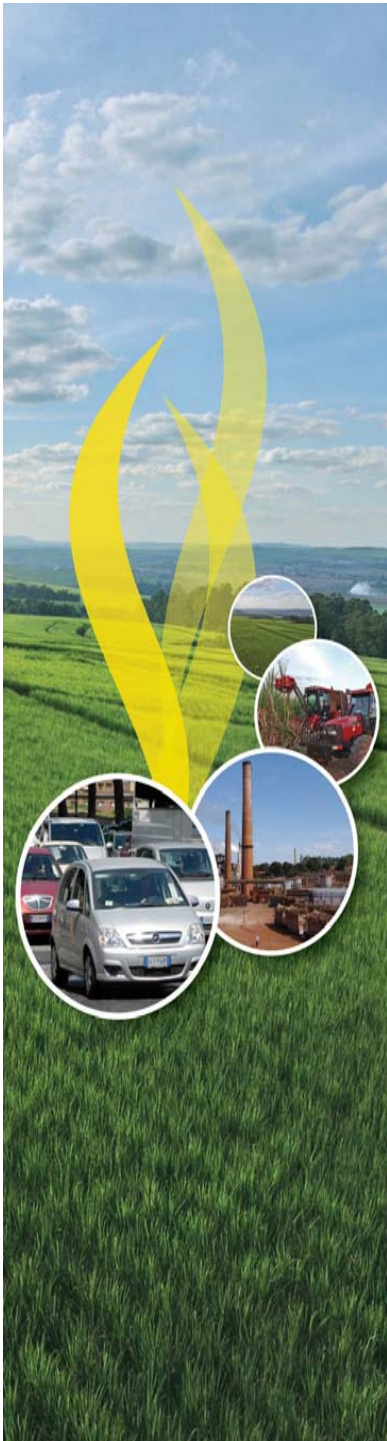
Prices of crude oil and maize, 2003-2009



Monthly prices are from the Commodity Research Bureau (www.crbtrader.com). Parity price lines for US ethanol are from Tyner and Taheripour 2007.

Multiple drivers of high food prices

- economic growth and changes in diet
- declining investment in agriculture
- declining cereal stocks
- weather-related production shortfalls
- rising energy costs
- rapid growth in biofuels
- exchange rates and export restrictions



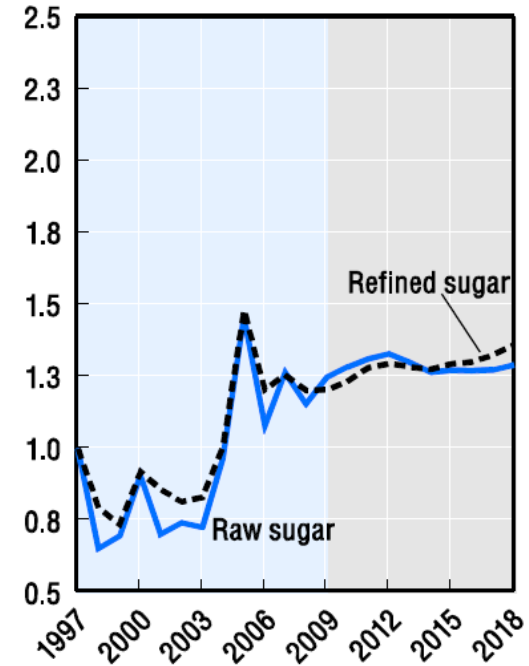
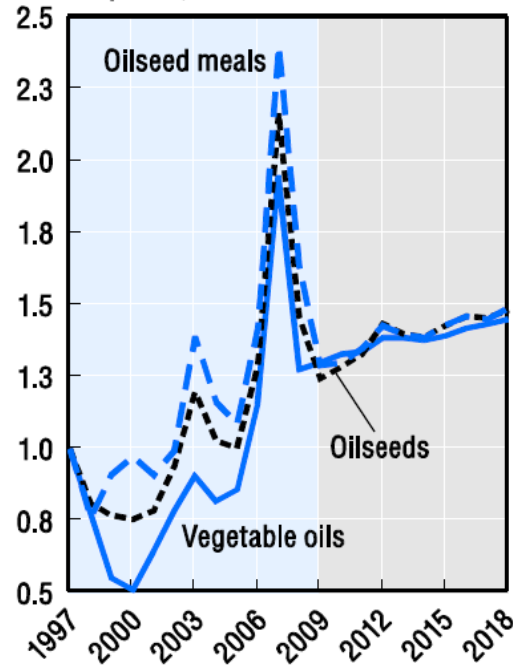
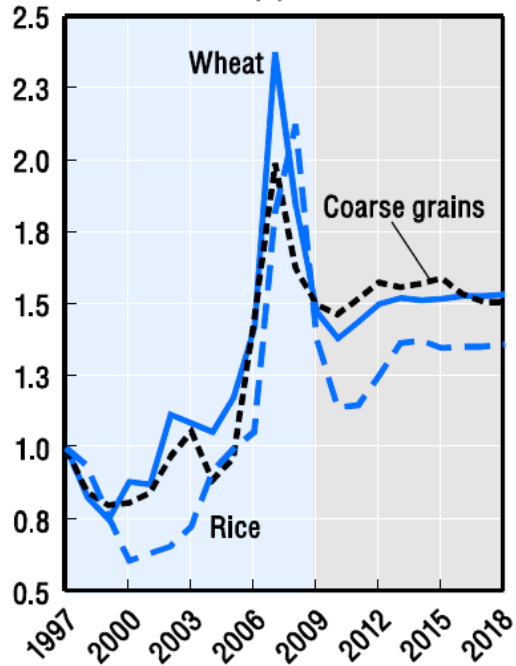
How much of the increase in food prices was due to biofuels?

Source	Estimate	Commodity	Time period
World Bank (April 2008)	75 %	global food index	January 2002 – February 2008
IFPRI (May 2008)	39 %	maize	2000 – 2007
	21-22 %	rice & wheat	2000 – 2007
OECD-FAO (May 2008)	42 %	coarse grains	2008 – 2017
	34 %	vegetable oils	2008 – 2017
	24 %	wheat	2008 – 2017
Collins (June 2008)	25-60 %	maize	2006 – 2008
	19-26 %	US retail food	2006 – 2008
Glauber (June 2008)	23-31 %	commodities	April 2007 – April 2008
	10 %	global food index	April 2007 – April 2008
	4-5 %	US retail food	January – April 2008
US CEA (May 2008)	55 %	maize	March 2007 – March 2008
	3 %	global food index	March 2007 – March 2008

Crop price projections to 2018

Figure 1.6. Outlook for world crop prices to 2018

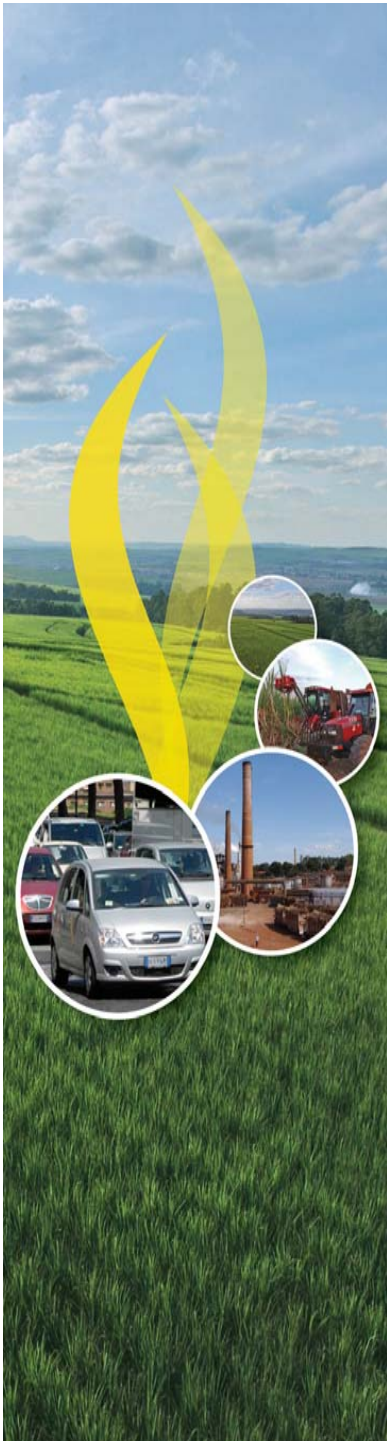
Outlook for world crop prices to 2018 Index of nominal prices, 1997 = 1



Source: OECD and FAO 2009

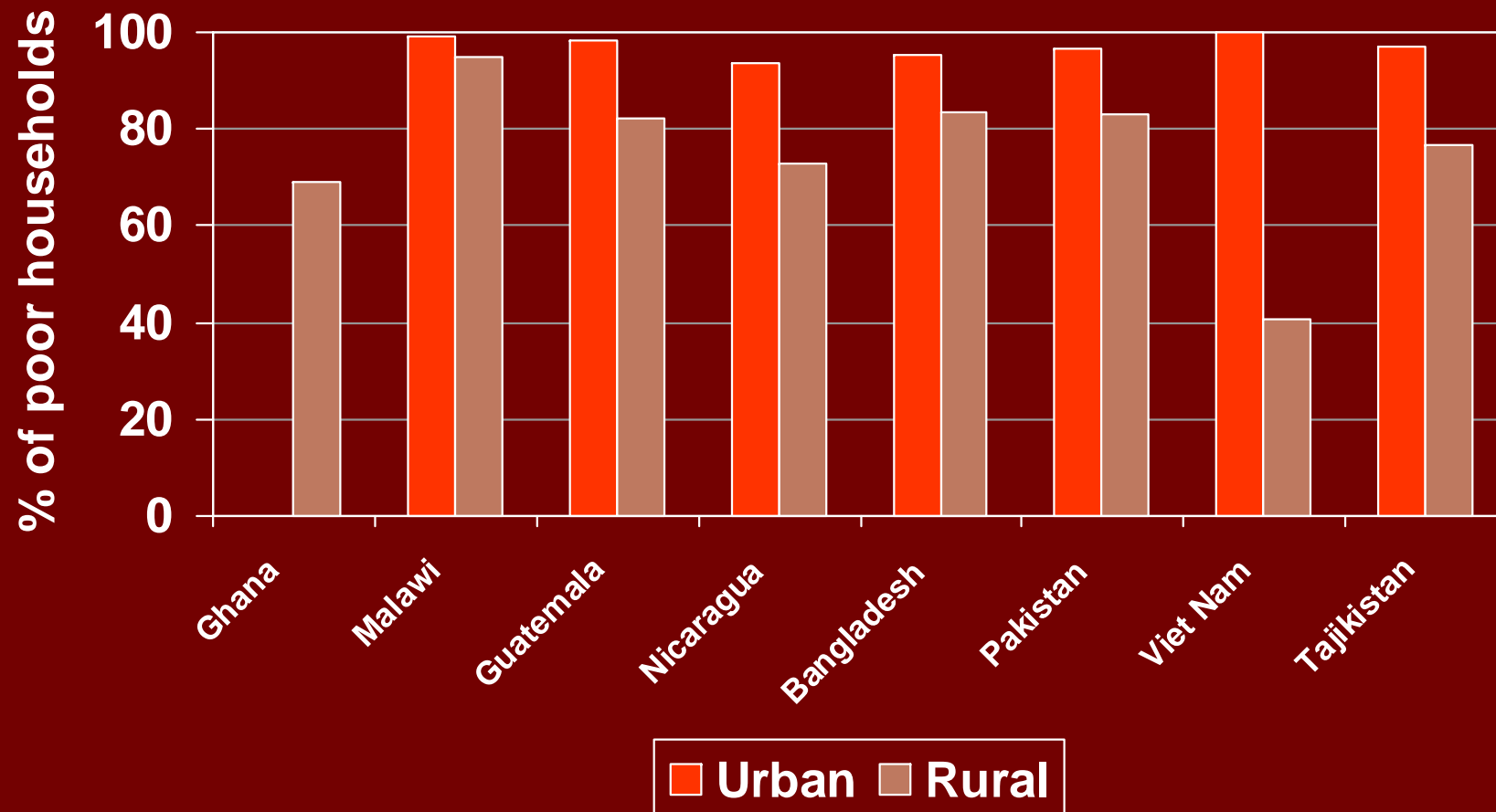
Global cereal production actually increased

- record global harvests in 2008
 - up 7.3% over 2007
- but performance was uneven
 - up 13.2% in developed countries
 - up 2.8% in developing countries



Most poor households are net buyers of staple foods

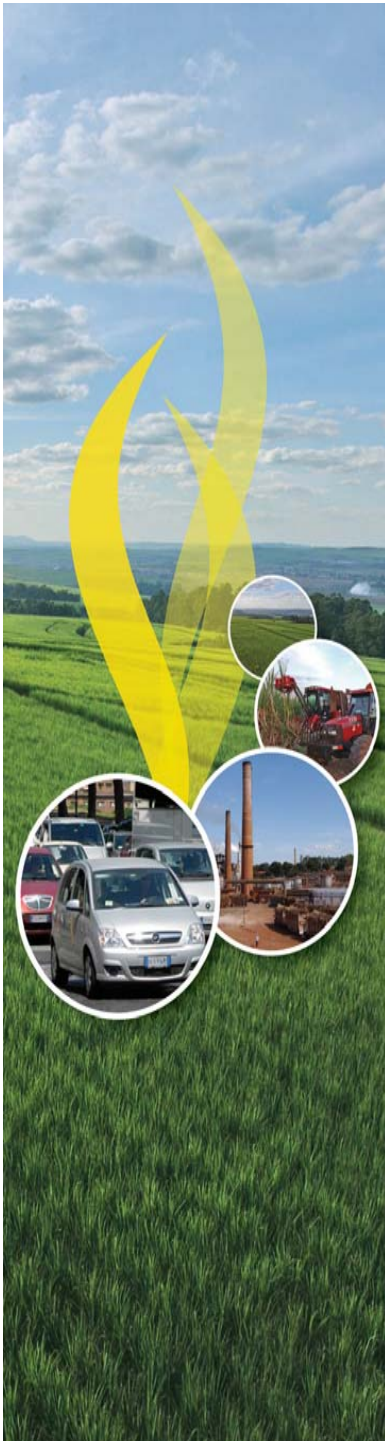
-- *even in rural areas*



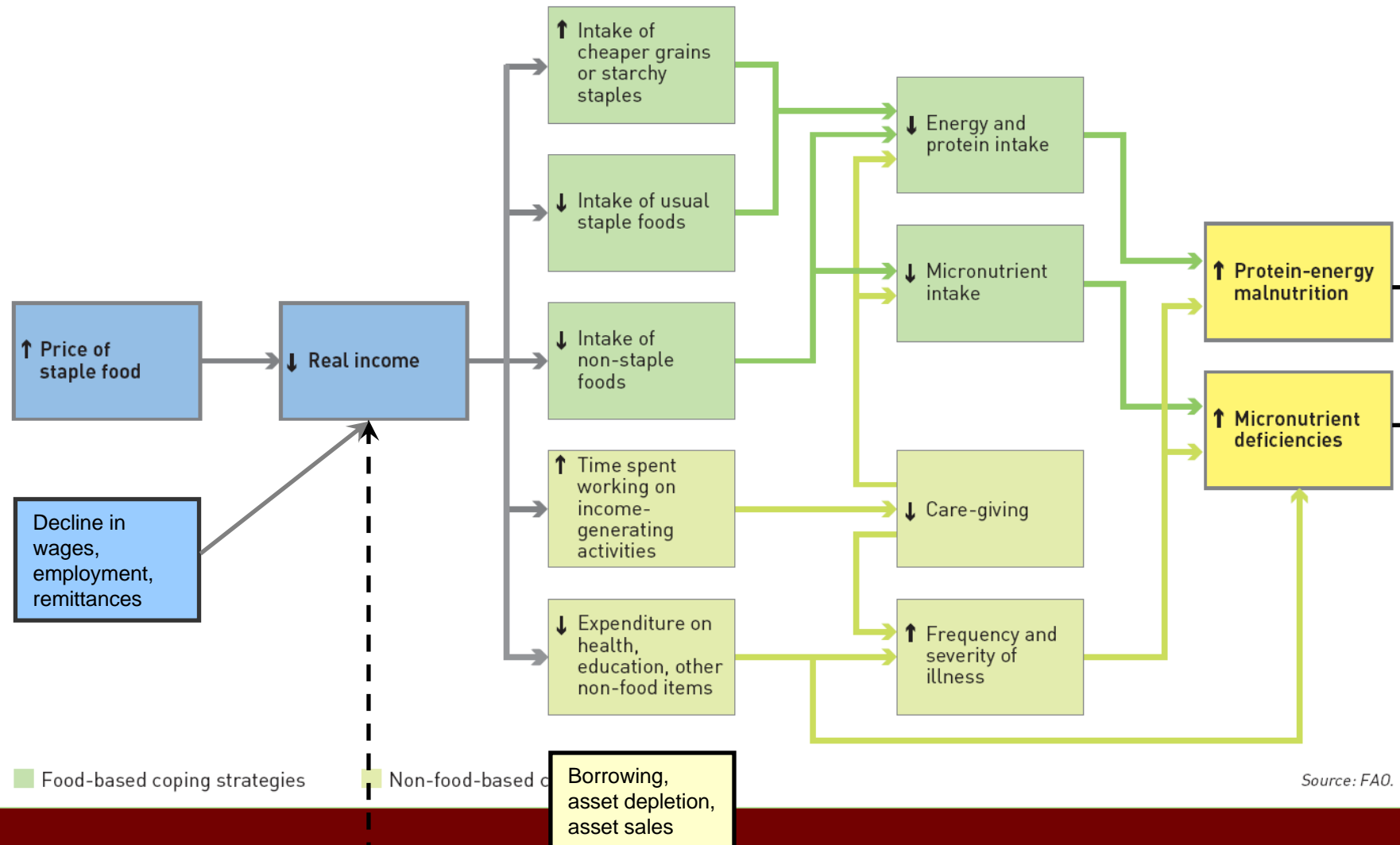
Source: FAO 2008

What is food security?

- **availability**
 - global, national, local, household
 - land, water, inputs, technology, yields
- **access**
 - national, local, household, individual
 - prices, income, wealth
- **utilization**
 - clean water, sanitation, health
- **stability**
 - variability in any of the above



Household coping behaviours and nutrition impacts following a sudden rise in food prices

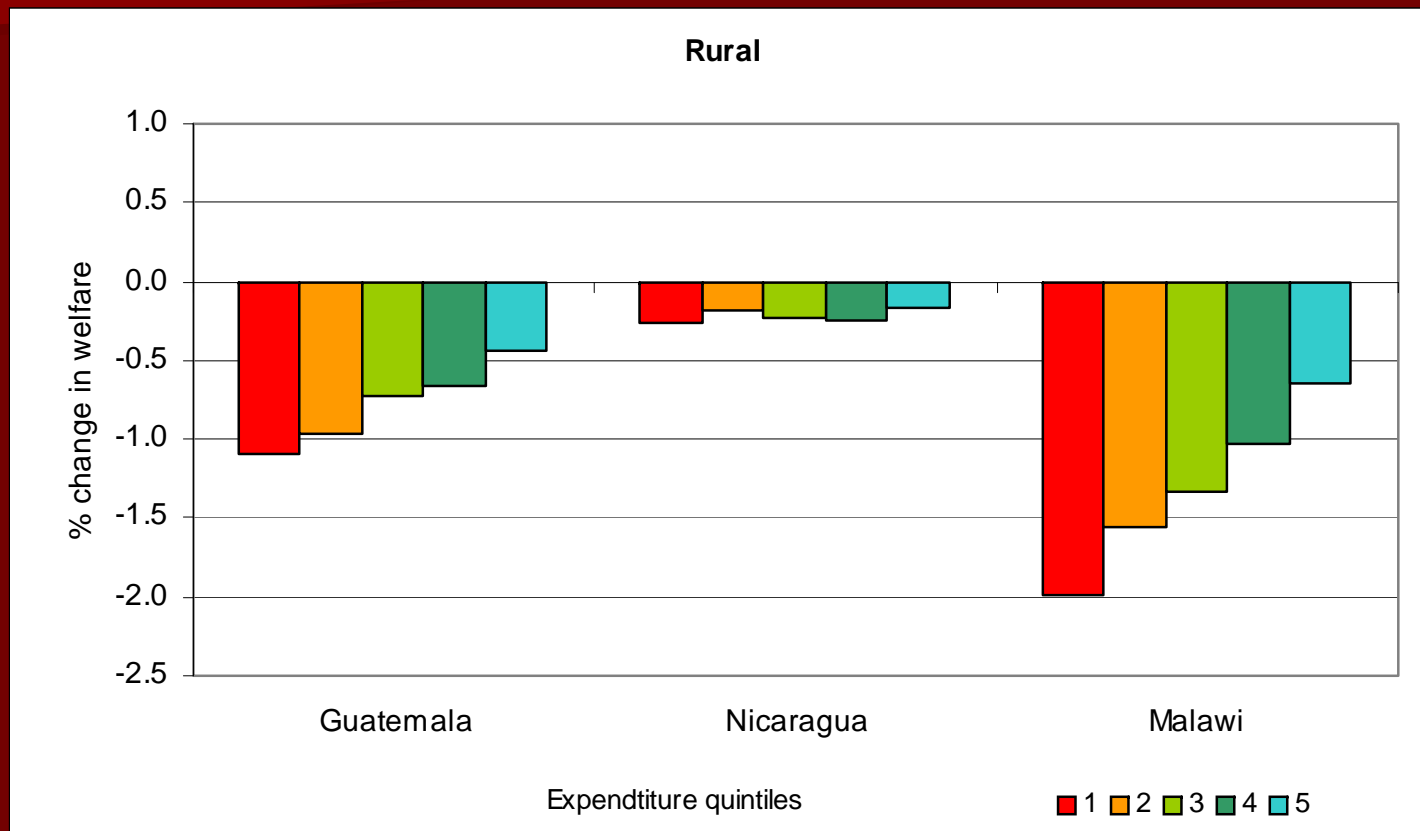


Source: FAO.

Source: FAO 2008

Poor households are hit hardest

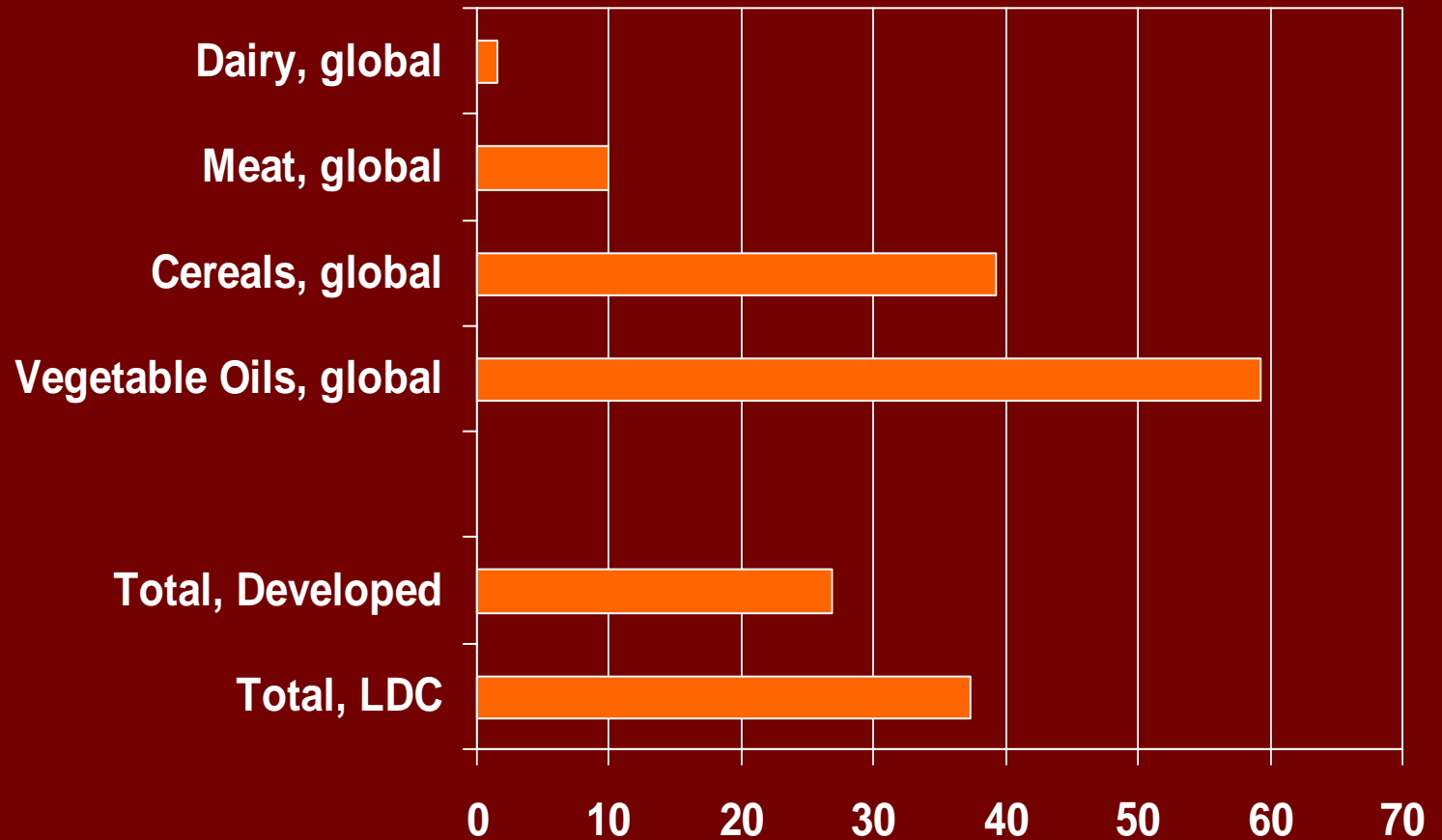
Impacts of a 10% increase in the price of maize



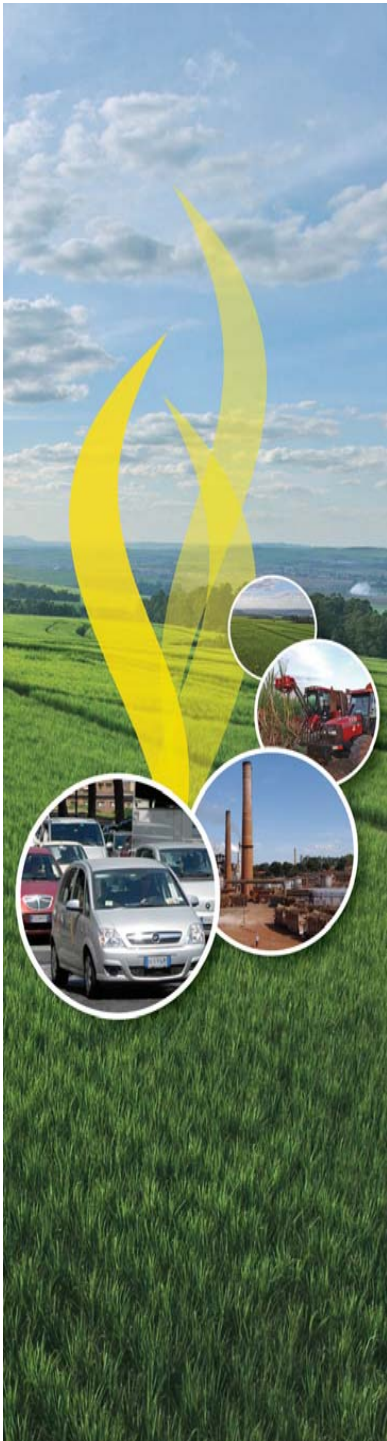
source: FAO/RIGA
Zeza et al (2008): The Impact of Rising Food Prices on the
Poor (<ftp://ftp.fao.org/docrep/fao/011/aj284e/aj284e00.pdf>)

Rising food import bills

% increase, 2008 over 2007

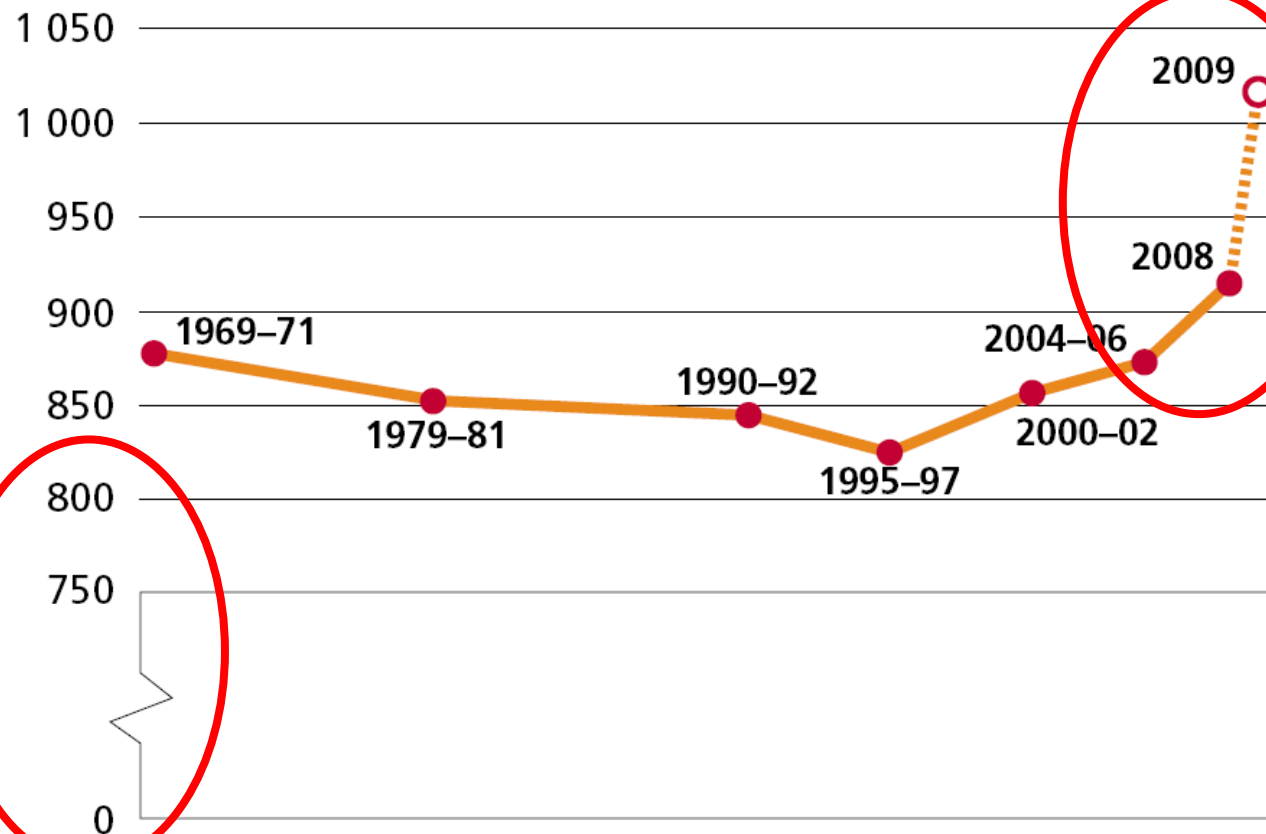


Source: FAO, 2008

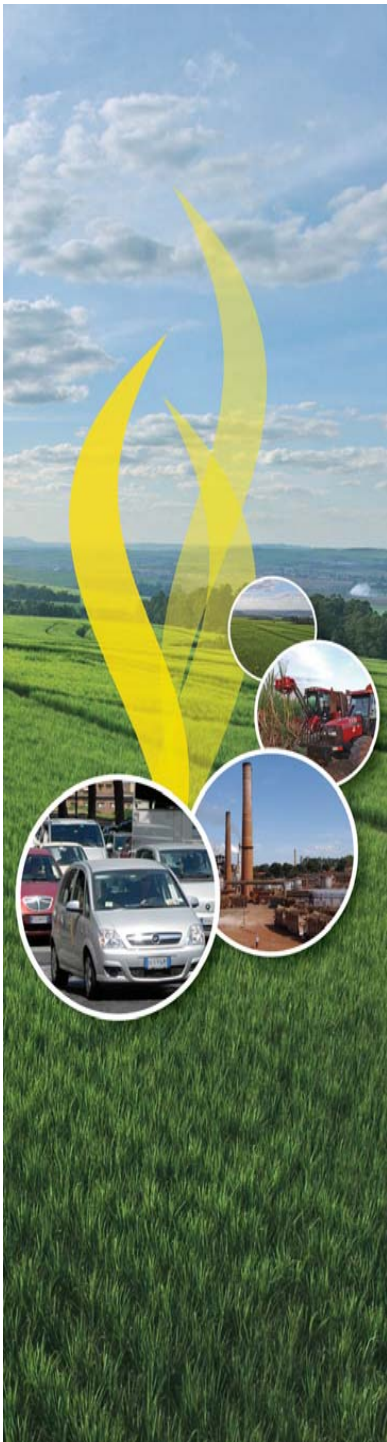


Learning from the past: number of undernourished in the world, 1969–71 to 2009

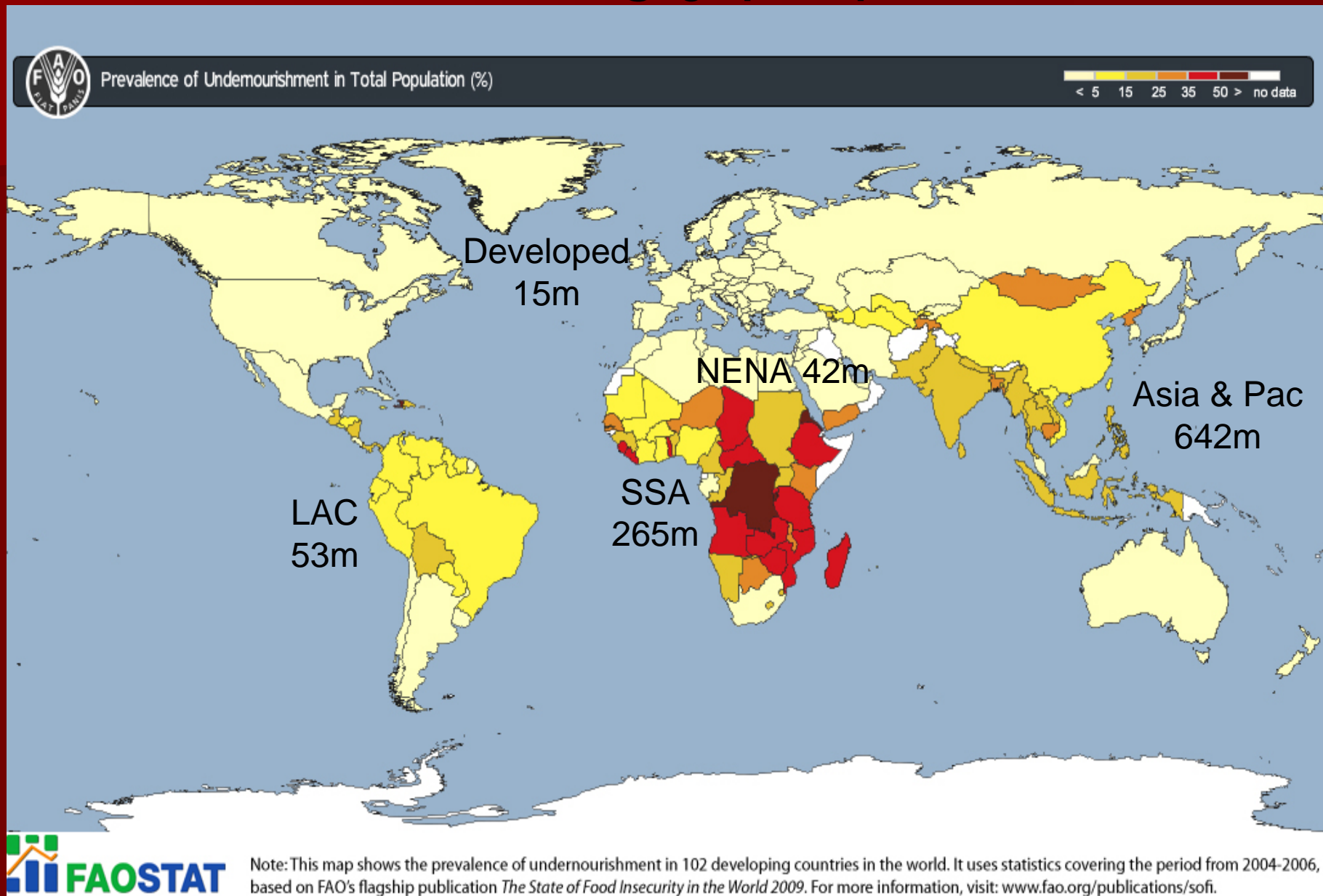
Millions



Source: FAO.



1.02 billion hungry people in 2009

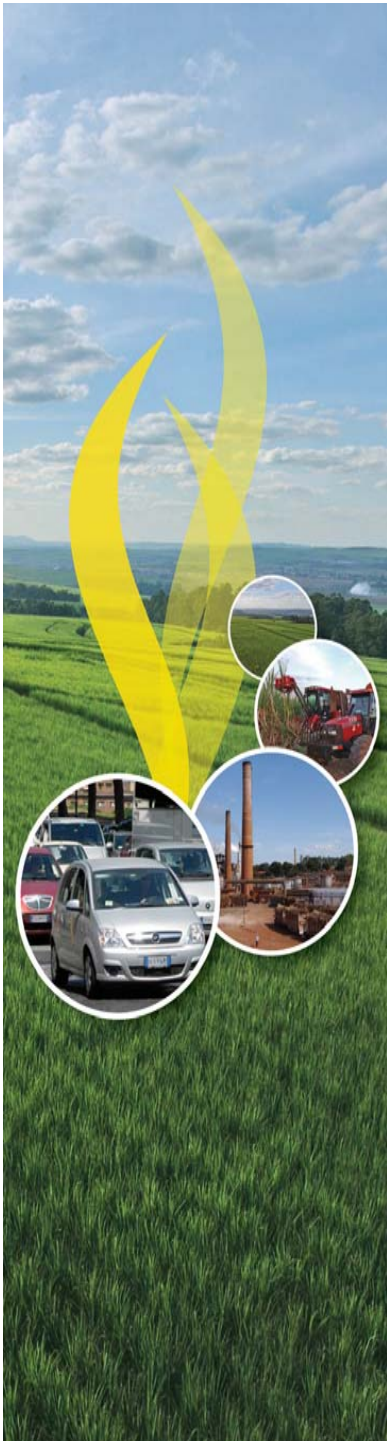


Many different types of impacts

- impact on farmers via dedicated feedstock production
 - depends on technology and scale of production
- impact on farmers via commodity prices
 - depends on access to input & output markets
- impact on consumers via food prices
 - depends on income, net buyers vs net sellers of food
- impact on workers via wages and employment
 - depends on technology and scale of production (in both feedstock and fuel production)
- impact on resource holders and users via land prices
 - depends on access to resources and tenure security

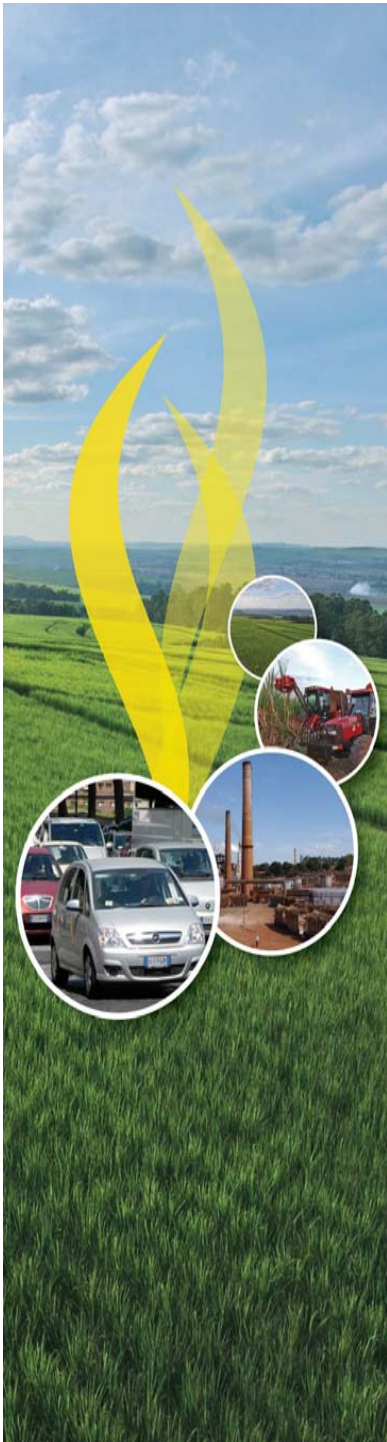
Key messages

- Short-term risks, longer-term opportunities
- Distribution depends critically on policies
- Current policies imply
 - modest impacts on energy security
 - diverse impacts on climate change
 - significant impacts on agriculture and food security
- Reducing risks and expanding opportunities requires changing policies

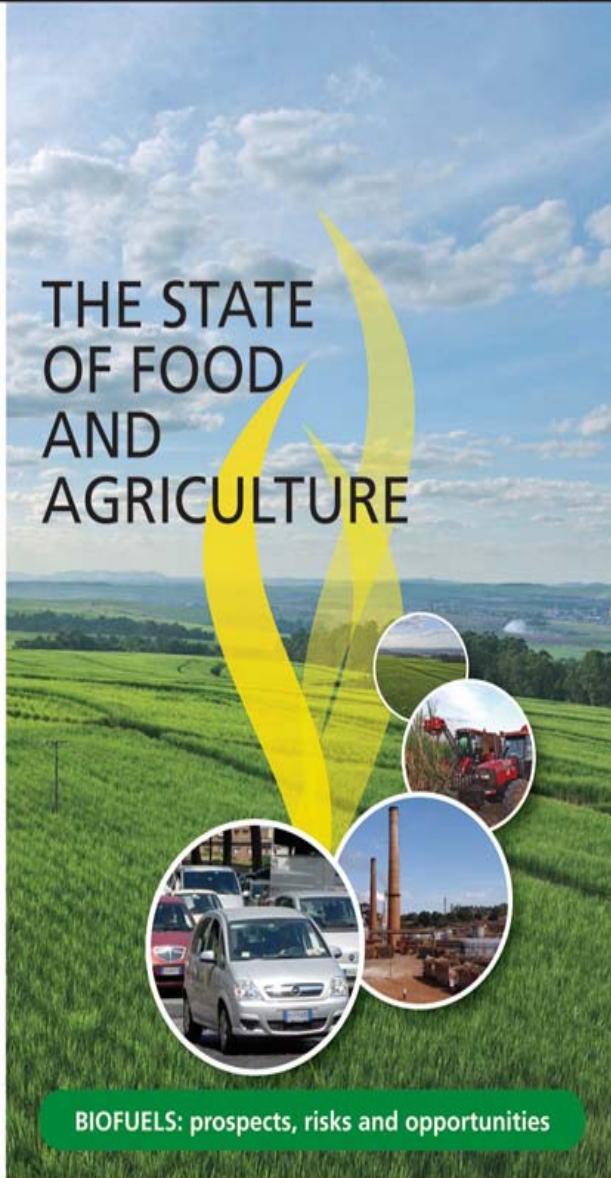


Policy priorities

- Invest in agriculture and rural development
- Protect the poor and food insecure
- Ensure environmental sustainability
- Review current biofuel policies
- Promote international policy coordination



2008



THE STATE OF FOOD AND AGRICULTURE

BIOFUELS: prospects, risks and opportunities

Thank you

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<http://www.fao.org/sof/sofa>

