Biofuels: prospects, risks and opportunities

Food and Agriculture Organization of the United Nations
Rome
7 October 2008
World ethanol and biodiesel production, 2000-2017

Note: Figures for 2005-2017 include non-fuel ethanol

Source: OECD and FAO
Key messages

- Opportunities as well as risks
- Impacts depend critically on policies
- Current policies seek to
  - enhance energy security
  - mitigate climate change
  - support agriculture and rural development
Modest impacts on energy security

- Oil: 35%
- Coal: 25%
- Gas: 21%
- Biomass & waste: 10%
- Nuclear: 6%
- Hydro & other: 3%

Source: IEA

World primary energy demand, 2005
Diverse impacts on climate change

Greenhouse gas emissions

Fossil fuels

- Ethanol, maize, USA
- Biodiesel, rapeseed, EU
- Ethanol, sugar cane, Brazil

Source: IEA and FAO

with land-use change
Significant impacts on agriculture & food security

<table>
<thead>
<tr>
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<th>Share of crop to biofuels</th>
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<tbody>
<tr>
<td>Brazil</td>
<td>50% of sugarcane</td>
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<tr>
<td>USA</td>
<td>30% of maize</td>
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<tr>
<td>EU</td>
<td>60% of rapeseed</td>
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<tr>
<td>World</td>
<td>5% of cereals, 9% of vegetable oils, but over half of the increase during 2005-2007</td>
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</tbody>
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Source: OECD and FAO
Prices of crude oil and maize, 2003-2008

Monthly prices are from the Commodity Research Bureau (www.crbtrader.com).
Parity price lines for US ethanol are from Tyner and Taheripour 2007.
Significant impacts on agriculture & food security

- Farmers are responding to incentives
- Harvests are increasing
- ...but over 920 million people still lack access to sufficient food
Key messages

- Opportunities as well as risks
- Impacts depend 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 action is urgently needed

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