Biofuels
Trade and Certification

Gernot Klepper
The Kiel Institute for the World Economy
Kiel, Germany

gernot.klepper@ifw-kiel.de

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Outline

- Biofuels as a global commodity
- Imports and Exports
- Certification and Sustainability
- Certification Process
- Open Questions
Bioethanol Production 2005

- N&C America: 41%
- South America: 35%
- Asia: 14%
- Europe: 6%
- Other Europe: 3%
- Africa: 1%
- Oceania: 0%
- Other EU: 10%
- Sweden: 9%
- UK: 4%
- Spain: 15%
- Poland: 7%
- Italy: 5%
- Hungary: 2%
- France: 30%
- Germany: 18%

45 Mio. m³ Ethanol were produced in 2005, in 2006 50 Mio. m³ are expected.

Only about 2,7 Mio. m³ were produced 2005 in the EU, for 2006 3,1 Mio. m³ are expected.

Quelle: F.O. Licht
Worldwide biodiesel production is 3.8 Mio. t in 2005. Of which 3.2 Mio. t are produced in the EU, more than half of it in Germany.
Biofuel trade is growing faster than production

Source: F.O. Licht, 2007; UNICA
Ethanol is classified as an agricultural good and enjoys much higher tariff rates than biodiesel that is classified as an industrial good.

<table>
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<th>Country</th>
<th>Import Duty Bioethanol</th>
<th>Import Duty Biodiesel</th>
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| EU      | - 0.192 €/liter (undenatured)  
          - 0.102 €/liter (denatured)  
          - 101 developing countries enjoy duty free access. Brazil is not among them (GSP, EBA, ACP) | - 6.5% ad valorem  
          - Major vegetable oil producers (e.g. ARG, IND, MLY) have duty-free access (covered under GSP) |
| USA     | - 0.1427 US$/l plus small ad valorem tariff (2.5% undenatured and 1.9% denatured)  
          - Some countries in the region enjoy various forms of duty-free access (CBI, NAFTA, CAFTA) | - 1.9% ad valorem |
| India   | - 182% undenatured  
          - 30% denatured  
          - For use by chemical and petroleum industry: 10%  
          - Rates not totally clear, many changes take place | - 12.5%  
          - Crude palm oil: 50% |
| Brazil  | - 20% ad valorem (temporarily lifted, e.g. in February 2006 when sugar prices surged and ethanol shortage was possible)  
          - Duty-free trade within Mercosur | - n.a. |

- Ethanol's agricultural classification allows countries that impose high tariff rates on ethanol more time to liberalize ethanol trade, protecting domestic producers longer.
Exports by Region

Imports by Region
... and the forecast for the next decade (FAPRI)
Targets for Bio-fuels Worldwide

- **US**: 15% - Ethanol, <= 5% Biodiesel (2017)
- **Brazil**: 5% Biodiesel, 25% Bioethanol (2020)
- **Europe**: 10% (2020)
- **China**: 15% (2020)
- **South Africa**: 10% (2020)
- **India**: 10% (2020)
- **S.Korea**: 5.0% (Date?)
- **Japan**: 10% (2030)
- **Malaysia / Indonesia / Thailand**: 10% (2012)

An internationally traded commodity such as bioethanol is homogeneous, i.e. it is not possible to judge the sustainability of a particular biofuel!

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<td>– Otherwise compliance with certain regulation</td>
<td>– No feedstocks from high biodiversity land, wetlands, untouched peatland, continuously forested areas</td>
<td>– Cross Compliance/ Good Agricultural Practices or similar regulations</td>
<td>– No cultivation in high nature value areas</td>
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Certification Requirements:

The EC proposal requires minimum GHG savings, the protection of certain land types and cross compliance.

Requirements for biofuels and their production:

- **GHG savings of at least 35%**
  - Carbon stock losses from land use change ruled out

- **Not from high biodiversity value land**
  - Forest undisturbed by significant human activity
  - Designated nature protection areas
  - Grassland with high biodiversity

- **Not from land with high carbon stock**
  - Wetlands, including pristine peatland
  - Areas with a Continuous Forest Cover

- **Cross Compliance (EC1782/200317)**
  - Environment
  - Good Agric. and environmental condition (Art. 5)
Certification of Biofuels in the Value Chain:

Relevant biofuels for pilot phase:
- Bioethanol
- Biodiesel
- Vegetable oil
- ETBE

Biofuel value chain

Order process

Mineral oil industry
Trader
Biofuel producer
Feedstock producer/plantation

Certificates
National governmental body

Delivery process

Endorsement

Metasystem
Real life has hardly any similarities with an idealised value chain

Order and delivery process still simplified

Certification Process

Transport to port
Regional port warehouse
Shipping operator
International port

Road transport
Shipping operator
Train transport

Order

Warehouse Trader Germany

Mineral Oil-Company

Oil mill and warehouse Malaysia
Biodiesel plant and warehouse Malaysia

Oil mill and warehouse Malaysia
Biodiesel plant and warehouse Germany

Quota credit acceptance

Customs (Hauptzollamt)

Refinery with customs warehouse
Customs warehouse

ships

Transport
Road
Train
Our Objectives

Sustainable production of biofuels is important for economic and ecological reasons. We develop an international certification system to distinguish between sustainable and non-sustainable bio-energies.

Welcome to the ISCC Project

Due to the growing market relevance of biofuels and the increasing use of agricultural feedstock for their production, the discussion about sustainability has gained in importance.
Open Questions

Assessing the emissions of non-CO₂ GHGs

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<th>Formula</th>
<th>Name</th>
<th>GWP</th>
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<tbody>
<tr>
<td>CO₂</td>
<td>Carbon dioxide</td>
<td>1</td>
</tr>
<tr>
<td>CH₄</td>
<td>Methane</td>
<td>25</td>
</tr>
<tr>
<td>N₂O</td>
<td>Nitrous oxide</td>
<td>298</td>
</tr>
</tbody>
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100 – 15,000