Driving deforestation

The impact of expanding palm oil demand through biofuel policy

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24 May, 2018
Welcome!

With thanks to:

Cerulogy

Regnskogfondet
RAINFOREST FOUNDATION NORWAY
Since 2000, mandates in EU and U.S. have exceeded domestic production growth.
ILUC from vegetable oils

- Palm oil
- Soy oil
- Rapeseed oil
- Sunflower oil

ILUC emissions (gCO2e/MJ)

- MIRAGE (2011)
- GLOBIOM
- EPA
- CARB
Palm biofuel outlook to 2030
Sources of potential demand growth
## Potential markets
*(direct + indirect demand)*

<table>
<thead>
<tr>
<th>Market</th>
<th>Status</th>
<th>Biofuel driven palm oil demand (million tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Current</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Target 30% biodiesel by 2020, history of targets being missed</td>
<td>2.5</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Recent adoption of mandate, more modest aspiration</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>EU</strong></td>
<td><strong>Highest current biofuel driven palm oil demand, future policy in negotiation</strong></td>
<td>4.1</td>
</tr>
<tr>
<td>U.S.</td>
<td>Palm oil largely excluded from RFS, but can be grandfathered</td>
<td>2</td>
</tr>
<tr>
<td>China</td>
<td>No significant use, but reports claim interest in palm oil for B5 by 2030</td>
<td>0</td>
</tr>
<tr>
<td>Aviation</td>
<td>Industry goals would require massive expansion of biofuel use, potentially HEFA</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Palm oil biofuel demand scenarios for 2030
Biofuels and palm oil demand

- Palm oil drives deforestation
- Biofuels are the largest potential source of demand growth

Projected consumption for food
Current use for biofuel
Low biofuel scenario
Medium biofuel scenario
High biofuel scenario
Palm, land use and deforestation

An ecological disaster in the name of renewable energy?
Oil palm: expansion (Indonesia and Malaysia)
Oil palm: deforestation in Indonesia and Malaysia

Deforestation by 2030 at current rate
Deforestation for palm biofuel by 2030 in 'high' scenario?
Lost to biofuel by 2030?
Total peat area
Oil palm now

Total forest lost since 1990: 11

Oil palm linked

Deforestation Prevention Certification Scheme to date
Deforestation and peat loss

- Based on most recent data available:
  - A half of new plantations associated with deforestation
  - A third associated with peat drainage
- $\text{CO}_2$ loss from biomass and soils, biodiversity loss and increased fire risk
- Industry also has poor record on land rights and worker’s rights
- Initiatives such as RSPO and the moratorium have not resolved problem
  - ‘Cherry picking’ of older plantations for certification, and certified plantations for export
  - Negligible impact on overall deforestation at 20% coverage
RED and sustainability criteria

- Renewable Energy Directive has exclusions against feedstock from certain areas (as of Jan 2008):
  - Primary forest
  - Peatlands
  - Wetlands
  - Continuous forest
  - Areas identified as highly biodiverse

- However, nothing to prevent forest and peat loss next door to the plantation identified as meeting the sustainability criteria

- *Sustainability criteria unable to deal with ‘indirect’ impact*
Land use changes → CO\textsubscript{2} emissions

- Estimate potential CO\textsubscript{2} emissions from biomass and soils using basic assumptions about fraction of additional palm from area expansion and fraction of new area on peat/forest.

<table>
<thead>
<tr>
<th>Million hectares</th>
<th>Forest loss</th>
<th>Peat loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.8</td>
<td>0.5</td>
</tr>
<tr>
<td>Medium</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>High</td>
<td>1.9</td>
<td>1.2</td>
</tr>
<tr>
<td>2025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.7</td>
<td>0.4</td>
</tr>
<tr>
<td>Medium</td>
<td>1.2</td>
<td>0.8</td>
</tr>
<tr>
<td>High</td>
<td>2.9</td>
<td>1.9</td>
</tr>
<tr>
<td>2030</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>0.7</td>
<td>0.5</td>
</tr>
<tr>
<td>Medium</td>
<td>1.9</td>
<td>1.3</td>
</tr>
<tr>
<td>High</td>
<td>4.5</td>
<td>2.9</td>
</tr>
</tbody>
</table>
In conclusion
Recommendations

- The use of palm oil-based biofuel should be reduced and ideally phased out entirely.
- In Europe, the use of biodiesel other than that produced from approved waste or by-product feedstocks should be reduced or eliminated.
- The aviation industry should focus on the development of advanced aviation biofuels from cellulosic wastes and residues, rather than hydrotreated fats and oils.
- Sustainability initiatives for oil palm agriculture should be supported for food and oleochemical applications, but must not be used as an excuse for driving further demand growth from biofuels.
- The governments of Indonesia and Malaysia should be supported to overhaul forest governance and break the link between palm oil production and environmental destruction.
Thanks!

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Bonus slides
Carbon footprint of palm biodiesel

![Graph showing carbon intensity (gCO2e/MJ) for different studies and sources.]

- **GLOBIOM**
- **IFPRI MIRAGE (2011)**
- **IFPRI MIRAGE (2010)**
- **CARB**
- **US EPA**
- **US EPA (adjusted)**

Legend:
- **ILUC emissions**
- **Cultivation, processing and distribution**
- **Methane from effluent ponds**
- **Fossil diesel comparator**
Biodiesel expansion coincides with a shift in vegetable oil price regime
Vegetable oil market connections – MIRAGE
Vegetable oil market connections – GLOBIOM

- Palm oil biodiesel
- Rapeseed oil biodiesel
- Soy oil biodiesel
- Sunflower oil biodiesel