Prevention of indirect land use change: Policy and governance options

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ILUC

Increased demand for biofuels over the past decade has led to close scrutiny of the risks and benefits of their feedstock production. The debate has focused particularly on the concept of Indirect Land Use Change (ILUC).

ILUC happens when food crops are displaced or diverted to biofuels while demand for food remains constant, and/or when a biofuel mandate results in high crop prices that incentivize crop production elsewhere.

The risk of ILUC has so far been analyzed using aggregated, global economic models. Various studies have come to (largely) varying results (Figure 1). In addition, modeling studies have paid limited attention to measures that can counteract displacement, such as improved agricultural efficiency.

ILUC prevention

Because ILUC is the direct land use change (LUC) of another activity, ILUC can be mitigated or even prevented when taking a sustainable approach to all crop production (whether for food, feed, fiber or fuel purposes). This was done in the ILUC prevention project (Textbox 1), where key ILUC prevention measures (e.g. above-baseline yield increases and cultivation of currently under-utilized land) were assessed for their potential to produce additional biofuel feedstock with low risk of causing ILUC. Here, policy and governance options for ILUC prevention from this project are presented.

General governing framework

ILUC is a consequence of the interconnected nature of the biofuel and agricultural sectors. As a result, a governing framework for ILUC mitigation needs to take a broader and more integrated perspective that addresses all land use. We propose here a multi-step framework based on regional assessment of the low-ILUC-risk potential of biofuel production (Figure 2).

Specific policy options for ILUC prevention measures

The case studies demonstrate that (large amounts of) additional biofuel feedstocks can be produced without causing ILUC. However, additional action needs to be taken so that surplus land is generated and only suitable and available under-utilized land is used for additional production (whether for food, feed, fiber or fuels). In order to support and stimulate these actions, policy and governance are needed (Table 1).

Table 1: Specific policy and governance options for ILUC prevention measures

<table>
<thead>
<tr>
<th>ILUC prevention measure</th>
<th>Policy and governance options</th>
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<tr>
<td>Above baseline yield development</td>
<td>• Knowledge and capacity building (e.g. seed quality, fertilizer use, machinery, earlier replanting for palm oil)</td>
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<td>• Improve availability &amp; access to high-yielding seeds &amp; technology (incl. capital)</td>
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<td>Improved chain integration</td>
<td>• For under-utilized co-products: research &amp; development for optimal use (in terms of economics, environment &amp; social aspects)</td>
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<tr>
<td>Increased chain efficiencies</td>
<td>• For waste products: Tighter waste management regulation</td>
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<td>Production on under-utilized lands &amp; land zoning</td>
<td>• Improve data quality to be better understand where losses occur</td>
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<td>• Capacity building on reducing pre- and post-harvest losses for producers with high losses (e.g. important for smallholder palm oil producers)</td>
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Conclusions and recommendations

Implementing the measures proposed in this study, certifying low-ILUC-risk biofuel production and allowing its contribution to the renewable energy target is proposed here as the key option to mitigate ILUC. For this, a sustainable approach to all crop production for food, feed, fiber and fuel purposes is crucial.

Substantial investment in the agricultural sector is essential to realize the low-ILUC-risk potential of biofuels as estimated in this study as well as to strengthen and enforce land use policies.

The project’s key recommendations to prevent ILUC and to promote sustainable production practices for all crops are:

- Increase productivity and resource efficiency in the agricultural sector in a sustainable manner;
- Support and incentivize production on currently under-utilized land; and
- Implement land zoning that excludes high carbon stock, high conservation value and important ecosystem service areas from conversion to any agricultural use and incentivize forest maintenance.

Textbox 1: ILUC prevention project

The ILUC prevention project aimed at providing insights into how ILUC risks can be mitigated, how this can be quantified, and how this may be regulated. The core concept underlying this project is a regional approach that assumes that indirect land use change can be prevented if at least the projected regional increase in production due to the biofuel mandate can be covered in that region without diverting other production.

Four regional case studies were investigated (Figure 3)