Indirect Land Use Change Impacts of Biofuels – Consultation

General

As Unilever we submit a number of comments to the Commission public consultation on Indirect Land Use Change. The analytical work referred to in the exercises commissioned by the EU Commission deals with the impacts on agricultural markets and land use. As Unilever we believe that a further assessment of these impacts is required based on the recent National Action Plans of EU Member States.

Question 1

Do you consider that the analytical work referred to above, and/or other analytical work in this field, provides a good basis for determining how significant indirect land use change resulting from the production of biofuels is?

The marginal land use changes for varying biofuels volumes were recently assessed by a number of organisations including CE Delft ("Marginal land use changes for varying biofuels volumes", October 2010 - report attached).

One of the conclusions in this report indicates that the total biofuels volumes in the four studies commissioned by the EU Commission significantly deviate from the prognosis given in the National Action Plans. The different computer model simulations for estimating the scale of ILUC related GHG emissions would best be calculated with a biofuels mix that is more in line with the National Action Plans. The same conclusion should apply for the impact on commodity prices.

Literature sources including the IFPRI study show that indirect land use change resulting from the production of biofuels is significant. This is illustrated in the attached table from the CE Delft report:

	Direct GHG Reductions (g CO_2/MJ)	**Marginal ILUC emission factors (g CO_2/MJ) at 5,6% level in the IFPRI model)**		**Net GHG balance (g CO_2/MJ)**		**Net GHG emission reduction**	
		Current trade policy	Liberal Trade policy	Current trade policy	Liberal Trade Policy	Current trade policy	Liberal Trade policy
Ethanol from straw	-73	0		-73	-73	-87%	-87%
Biogas from manure	-71	0		-71	-71	-85%	-85%
Waste fats based biodiesel	-74	0		-74	-74	-88%	-88%
FT diesel from waste wood	-79	0		-79	-79	-95%	-95%
Ethanol from agro commodities							
Sugar Beet ethanol	-51	16	65	-35	14	-42%	17%
Sugarcane	-59	18	19	-42	-41	-50%	-49%
Maize	-47	54	79	7	32	9%	39%
Wheat	-44	37	16	-7	-28	-9%	-34%
Biodiesel from agro commodities							
Palm	-52	50	48	-2	-4	-2%	-4%
Rapeseed	-42	54	51	12	9	14%	11%
Soybean	-34	75	68	42	34	50%	41%
Sunflower	-48	61	57	12	8	14%	10%

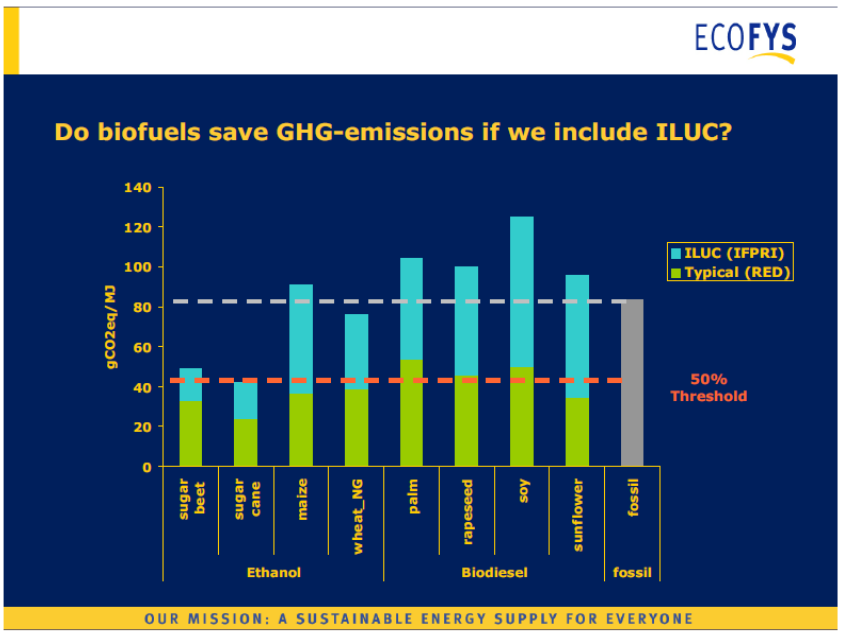
Sources: RED and IFPRI (2010)
A negative percentage means a net reduction of GHG emissions

Recently the Joint Research Centre of the European Commission analysed the results for marginal biofuels production from different feedstocks. These were presented at the Second Stakeholder Consultation Meeting, Brussels, 26 October 2010:
Comparison of models and results for marginal biofuels production from different feedstocks, Presentation by Robert Edwards, Declan Mulligan and Luisa Marelli
(http://ec.europa.eu/energy/renewables/consultations/doc/public_consultation_iluc/comparison_of_models_and_results_for_marginal_biofuels_production_from_different_feedstocks_jrc.pdf)

The conclusions of the JRC-model results are the following:

- All the models show significant ILUC effects for all feedstocks.
- These results are higher than those reported for the "5.6%" EU biofuels mix* by the IFPRI-MIRAGE model commissioned by DG Trade
  * Partly because this mix is principally sugarcane ethanol
- Most ILUC effects occur in "rest of the world"
- The results of the models (esp. for ethanol) would be significantly higher if they did not include emissions savings from reduced food consumption
- But models neglect several strong effects, causing them to underestimate ILUC emissions

A recent presentation from ECOFYS called "Indirect effects of biofuel production (unravelling the numbers)" confirms the impact for different feedstocks:



Excerpt from presentation by Mr Bart Dehue, Ecofys – ILUC Workshop International Council on Clean Transportation (ICCT) – 20 September 2010
(http://www.theicct.org/2010/09/eu-member-states-iluc-workshop/)

IPTS "biofuels modelling"

The increased use of agrifood crops for bio-energy appears to be a structural factor for demand/supply relations as well as land use change. The different models used point into the same direction. The calculated price impact for vegetable oils is explained in 3.5.1, 4.8 and 5.5.1 and would result in serious consequences for the traditional buyers of vegetable oils like ourselves. In 3.5.1 and figure 3.3 (AGLINK-COSIMO) we see that the impact of EU policies on the world biodiesel market is considerable, leading to much higher vegetable oil prices.

In 4.8 (ESIM) we see a 30% price increase for vegetable oil. In 5.5.1 (CAPRI) we see in table 5.5 a calculated increase for rapeseed oil of 203% and a 41% increase for sunflower oil (with an overall increase of 27%).

NB These model calculations all use a 7% share for 1st generation biofuels. Overall the impact on vegetable oil prices is much higher compared to the impact on bio-ethanol feedstocks. This is confirmed by other studies including the peer review by Imperial College.

In 5.7 Conclusions, the significant impacts of the simulation exercise on land use and agricultural markets are summarised.

The IFPRI study

- The study examines the impact of a 2.3% increased use of biofuels over a period of 11 years. They use a baseline scenario of 3.3% and a first generation land-using scenario of 5.6%.
- Simulations for EU consumption above 5.6% of road transport fuels show that ILUC emissions can rapidly increase and erode the sustainability of biofuels. This basically confirms that the large-scale production and use of 1st generation biofuels creates ILUC and for biodiesel in particular rapidly turns into a negative GHG balance.
- A 45-55% split between biodiesel and bio-ethanol is used. In practice we see that we have a 75-25% split. According to the authors this model scenario manipulates the outcome strongly.

The IFPRI report finds that "no emissions reductions appear in all cases for biodiesel when compared to their fossil fuel substitutions". Table 13 (page 66) clearly makes the difference between ethanol and biodiesel, with an emission increase for biodiesel. This implies that at a target level of 5.6% the marginal effect of increased use of biodiesel implies a calculated emission increase. This implies that somewhere between the baseline and the target of 5.6% the marginal net emissions have fallen below the 35% emission reduction requirement as included in the RED.

The EU consumption of biodiesel in 2020

The EU consumption of biodiesel in 2020 is estimated through the following two approaches:

- **National Renewable Energy Action Plans (NREAPs)**
  According to the first estimates received from the Commission, based on the NREAPs of the Member States, EU consumption of 1st generation biodiesel will be close to 20 Mtoe in 2020.

- **IFPRI study**
  Under the policy scenario of a first generation biofuels share of 5.6% by 2020, the IFPRI model estimates that EU consumption of 1st generation biodiesel will reach 9.8 Mtoe in 2020. In the IFPRI reference scenario (3.3% biofuels) the biodiesel volume is estimated at 8 Mtoe in 2020.

Regarding the EU consumption of first generation biodiesel in 2020, the difference between the IFPRI 5.6% scenario and the first estimates based on the NREAPs reaches **10 Mtoe biodiesel.**
We note that the IFPRI model calculations have underestimated the volume of 1st generation biofuels and that the split between biodiesel and bio-ethanol does not reflect the one observed in the NREAPs.

The facts and figures used in the other 3 studies also differ from the data submitted in the NREAPS.

In this context, we suggest that **the 4 model-calculations should take into account the facts and figures from the NREAPs.** A much higher EU consumption of biodiesel in 2020, as estimated in the NREAPs, would lead to a different conclusion in relation to the availability of raw materials, the environmental sustainability of biofuels, notably as regards greenhouse gas balance, and the impact on vegetable oils prices.

Question 2

On the basis of the available evidence, do you think that EU action is needed to address indirect land use change?

Yes.

Question 3

If action is to be taken, and if it is to have the effect of encouraging greater use of some categories of biofuel and/or less use of other categories of biofuel than would otherwise be the case, it would be necessary to identify these categories of biofuel on the basis of the analytical work. As such, do you think it is possible to draw sufficiently reliable conclusions on whether indirect land use change impacts of biofuels vary according to:
· feedstock type?
· geographical location?
· land management?

We believe that based on the available analytical evidence the EU could best define separate ILUC factors for the different categories of biofuel feedstocks:

- Waste derived biofuels
- Sugarcane ethanol and sugar beet ethanol
- Cereals based 1st generation bio-ethanol
- First generation biodiesel like rapeseed and soy-based biodiesel.

Question 4

Based on your responses to the above questions, what course of action do you think appropriate?

The introduction of separate ILUC factors for the different categories of biofuel feedstocks could serve to encourage greater use of some categories of biofuel while discouraging the use of other categories. Based on the available evidence it would be appropriate to define the following ILUC factors:

- Nil for waste derived biofuels
- 15-20 g/MJ for sugarcane ethanol and sugar beet ethanol
- ±40 g/MJ for cereals based 1st generation bio-ethanol
- ±60 g/MJ for first generation biodiesel like rapeseed and soy-based biodiesel.

The findings of the ILUC reports should be used for adjusting the EU biofuels policy and the implementation of the EU Directives at national level. We believe that the national ambitions concerning the role of 1st generation biodiesel in the period 2011-2020 have to be reduced substantially, considering the impact on ILUC emissions and the impact on commodity prices. The biofuel mandates at national level should discourage the use of biofuels which have a poor greenhouse gas balance.

29 October 2010

Attachments

- CE Delft report “Marginal land use changes for varying biofuels volumes”:

R:\Global_Comm\PA\
WilleReport CE Delft

- Unilever Brochure “Promoting Sustainable Biofuels”:
http://www.unilever.com/images/es_promoting_sustainable_biofuels_tcm13-107909.pdf