ILUC impacts of biofuels – consultation: ActionAid International response[1]

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To: European Commission
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via electronic mail

The current consultation seeks to inform the report that the European Commission is required to submit to the European Council and the European Parliament by 31 December 2010 "reviewing the impact of indirect land use change on greenhouse gas emissions of biofuels" and "addressing ways to minimise that impact"[2]. This submission to the consultation responds to the questions as they are laid out by the European Commission. Additionally, the submission seeks to contribute to the broader debate about impact of indirect land use change as a consequence of biofuels production.

Question 1: Do you consider that the analytical work referred to above, and/or other analytical work in this field, provides good basis for determining how significant indirect land use change resulting from biofuels production is?

Yes, ActionAid International believes that there have been considerable and sufficient analytical studies at this point to determine the extent of indirect land use change (ILUC) and its consequences resulting from biofuels production. The studies published by the European Commission[3] confirmed previous existing scientific knowledge. All studies show that ILUC

[1] Prepared by ActionAid International in co-operation with national ActionAid offices around the world, and partner NGOs in both the global north and south

[2] http://ec.europa.eu/energy/renewables/consultations/doc/public_consultation_iluc/land_use_change_consultation_final.pdf

[3] ***ISPRA for DG CLIMATE***
FULL TITLE: Indirect Land Use Change from increased biofuels demand - comparison of models and results for marginal biofuels production from different feedstocks. Joint Research Centre, Institute for Energy, Ispra, July 2010, commissioned by DG ENV/CLIMA, July 2010 (**referred to as "ISPRA study"**);

IFPRI for DG TRADE
FULL TITLE: Global Trade and Environmental Impact Study of the EU Biofuels Mandate, Final Draft Report, March 2010. International Food Policy Research Institute (IFPRI), March 2010, commissioned by DG TRADE, (**referred to as "IFPRI study"**);

JRC ISPRA report quantifying DG AGRI IPTS and IFPRI
FULL TITLE: Biofuels: a New Methodology to Estimate GHG Emissions Due to Global Land Use Change. A methodology involving spatial allocation of agricultural land demand, calculation of carbon stocks and estimation of N2O emissions" by R. Hiederer, F. Ramos, C. Capitani, , R. Koeble, V. Blujdea, O. Gomez, D. Mulligan and L. Marelli. EU Report 24483, 2010 (**referred to as "ISPRA study 2"**).

The results of these three studies, taken in tandem with predicted biofuel usage in NREAPs, indicate the scale of ILUC. Two other studies were also released:

IPTS for DG AGRI

emissions are substantial and will lead to an increase in land conversion and in greenhouse gases (GHG)emissions if ILUC is not appropriately accounted for. Science and analytical projections commissioned by the European Commission and others exhibit in one format or another that adjusting GHG emission estimates to include ILUC significantly reduces or in some cases reverses the benefits originally calculated from biofuels.

ActionAid International's analysis of the quantitative and qualitative significance of the ILUC has also found a lack of proper accounting for ILUC as a factor in the biofuels sustainability criteria published on 10 June 2010[4] (which ensures that the Renewable Energy Directive[5] (RED) fulfills it objective of reducing emissions). ActionAid International has strongly argued that the sustainability criteria under Article 17(2) are fundamentally flawed as they do not provide adequate protection against negative effects on food rights[6], land rights and other human rights[78]. Even without ILUC and GHG emissions, a significant portion of biofuels currently imported and projected to be imported are already unsustainable – including from direct impacts on people and communities, land grabbing,[9] the depletion of water resources and soils, loss of biodiversity and habitats, poor working conditions on plantations. This will be further elaborated below.

An analysis of the recently submitted National Renewable Energy Action Plans (NREAPs) show that EU member states plan to use an additional 23 mtoe of conventional first generation (land-using) biofuels by 2020. The split between biodiesel and ethanol is approximately 75%/25%. First generation biofuels will comprise around 90% of the 10% transport fuel target. This means that the split estimated in the IFRI study is unrealistic. Rather, one should consider the 25/75% split outlined below.

Graph 1: the impact of a better biodiesel / bioethanol split in the IFPRI study.
http://www.theicct.org/workshops/iluc_sep10/ICCT_ILUC_workshop_IFPRI_Sep2010.pdf

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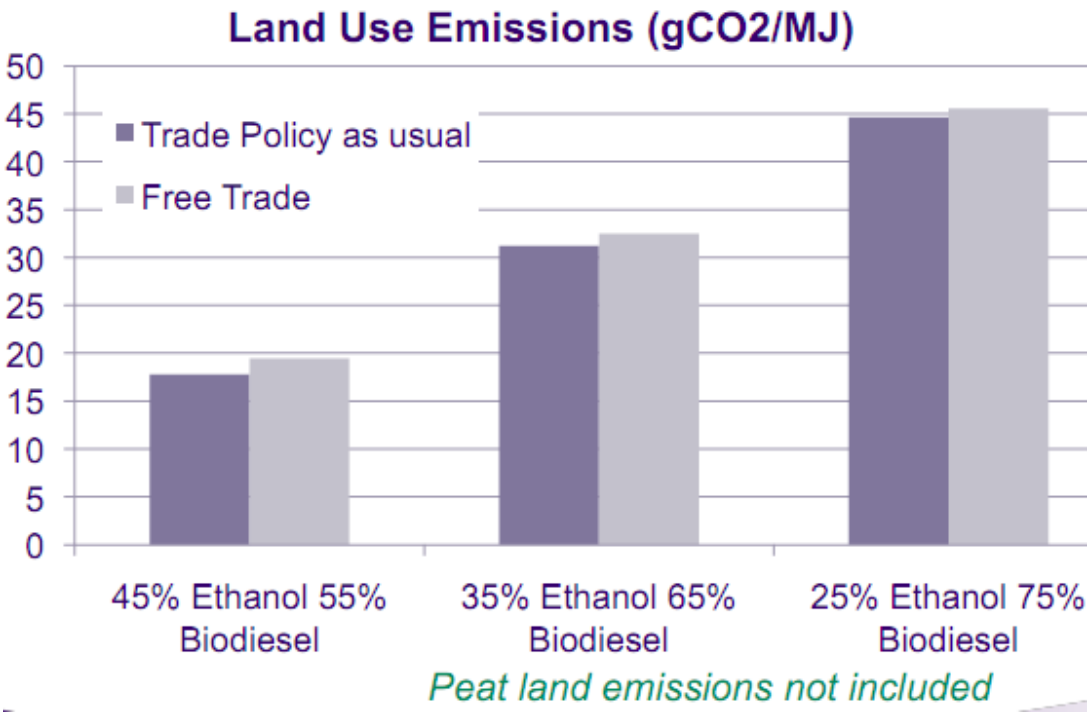
FULL TITLE: Impacts of the EU biofuel target on agricultural markets and land use: a comparative modelling assessment. Joint Research Centre, Institute for Prospective Technological studies, Seville, July 2010, commissioned by DG AGRI of the European Commission (**referred to as "IPTS study "**);

DG Energy Literature Review
FULL TITLE: The Impact of Land Use Change on Greenhouse Gas Emissions from Biofuels and Bioliquids. DG Energy, July 2010.

[4] http://ec.europa.eu/energy/renewables/biofuels/sustainability_criteria_en.htm
[5] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32009L0028:EN:NOT
[6] http://www.fao.org/righttofood/principles_en.htm
[7] http://www2.ohchr.org/english/law/ccpr.htm
[8] http://www2.ohchr.org/english/law/cescr.htm
[9] http://www.actionaid.org.uk/doc_lib/meals_per_gallon_final.pdf



Combining predicted biofuel usage with land-use change from the ISPRA study, one can calculate how much land will be converted worldwide to meet the 10% target. The global land-use change will be in the range of 5.1 and 8.4 million hectares due to the predicted increase of biofuels consumption, as illustrated in Table 1.[10]

Table 1: Estimated Land-Use Change Due to ILUC

Table 1	Increase in production from 2008 to 2020 from NREAPs (Ktoe)	Overall land increase to meet 2020 targets (thousand hectares)	
		Minimum additional land	Maximum additional land
Ethanol	4250	1657.5	2210
Biodiesel	10797	2483.31	4318.8
Bio liquids	5462	1000.46	1892.17
Total	**20509**	**5141.27**	**8420.97**

For comparison, the land area of the UK is 9.4 million hectares

[10] The highest estimates from one of the studies (Leitap) were not included in this review - these results are especially high for biodiesel, namely 1928 kHa per Mtoe of biodiesel.

As noted above, converting forests and other natural areas into croplands releases GHG emissions. Translating the hectares figure into emissions according to the IPCC figures, we come up with the one-off release of GHG emissions between 876 and 1459 Mt CO_2, as illustrated in Table 2. These emissions should be divided over 20 years as specified in RED. After incorporating approximate direct savings from the approximate aggregated use of biofuels due to displacement of fossil fuels, we still end up with a policy that will be a net emitter of up to 58 Mt CO_2 per year. This is the equivalent of adding an extra 12 to 25 million cars on European roads by 2020.

Table 2: Emissions from Land-Use Change[11]

	Emissions from land use change		
	One-off ILUC emissions	ILUC emissions on the annual basis (divided over 20 years as specified in RED)	ILUC emissions including GHG savings from biofuels use (divided over 20 years)
Table 2	Mt CO2eq	Mt CO2 eq	Mt CO2 eq
Minimum	875.92	43.8	29.04
Maximum	1459.34	72.97	58.21

The IPTS study came up with similar results. According to the JRC report, which calculated GHG impacts of the IPTS study, increasing biofuels from current shares to 7% of total transport fuels consumption in the EU would lead to estimated one-off GHG emissions of 1.092 Mt CO_2-eq.[12] Averaging this over a 20-year timeframe would yield around 54.6 Mt CO_2 per year.

There is one Commission study that came up with GHG savings from the policy as a whole: the IFPRI study. That study, however, did not analyze a realistic scenario of biofuels' share of total transport fuel consumption and the split between ethanol and biodiesel. Its main outcome is that there is a global net balance of nearly 13 Mt CO_2 savings per year, over a 20-year horizon, assuming an increase of biofuels from 3.3% to 5.6%. Under the 5.6% scenario, direct emission savings from biofuels under those low assumptions are estimated at 18 Mt CO_2, with additional ILUC emissions at 5.3 Mt CO_2 (mostly in Brazil), resulting in a global net balance of nearly 13 Mt CO_2 savings per year over a 20-year horizon.[13] As noted above, however, the NREAPs indicate that predicted biofuel usage will be much higher than 5.6% (i.e. rather around 9%) and the biodiesel/ethanol split will be hugely skewed toward biodiesel (while the study looks at an almost even split), making the projections based on this assumption irrelevant to calculating the true ILUC and its effects on climate and people.

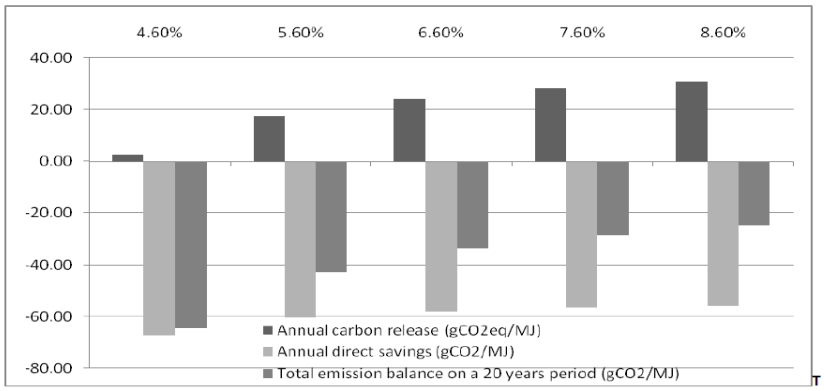
But, more importantly, the IFPRI study presents aggregate GHG impacts for scenarios other than 5.6% as sensitivity tests. These sensitivity tests clearly show that at higher levels of biofuel use

[11] The use of bioliquids would result in additional one-off emissions in the range of 210 – 400 Mt CO2.
[12] Marelli et al. 2010.
[13] JRC ISPRA later recalculated GHG emissions from IFPRI study on the most likely land use changes occurring around the world. For the BAU scenario total GHG emissions from ILUC are estimated at 201 Mt COeq (BAU) and 248 Mt CO eq (FT) over a period of 20 years. This means that net emissions from ILUC would be between 2 and 7 MT CO2 eq over a 20 year period.

the ILUC emissions are much higher, resulting in a worsening—and eventually negative—GHG balance. This impact is best illustrated in figure 9 at page 67 of the study – presented below. The study makes sensitivity analyses for the impacts of 4.6%, 5.6%, 6.6%, 7.6% and 8.6% biofuel consumption – with the latter closest to estimates in NREAPs. And from these figures we can derive the impact of going from, for example 4.6% (close to today's level) to 8.6% (the level closest to what could be expected in 2020 according to the NREAPs). The results are summarised below.

Figure 2: ILUC and Net GHG Savings for Different Target Levels (taken directly from IFPRI study)

Figure 9 Indirect land use emissions and direct savings for different mandate levels, No change in trade policy



Source: Authors' calculations
Note: Negative figures represent an emission reduction, positive values represent an emission increase.

Table 3 shows that a 1% increase in biofuel volume leads to an increase in GHG emissions of about 10MT. After recalculation, this implies that the 4% increase from today's levels of biofuels use, would lead to the emissions roughly twice those of extra fossil fuel oil. Compared to maintaining current levels of biofuel consumption, expanding the mandate will actually reduce any atmospheric benefits while significantly increasing costs to climate and biodiversity.

Ironically, the summary of the IFPRI study emphasizes that the EU's biofuels policy as a whole has GHG benefits. But the above analysis shows that the same study demonstrates that whilst today's levels of biofuel may reduce emissions, the much more relevant move from today's levels of biofuels use to expected biofuels use in 2020 as recorded in the NREAPs actually increases them. **It also underscores that all Commission studies are largely consistent in terms of results**.

Table 3: Emissions from ILUC from IFPRI Study[14]

Table 3:	Total GHG impact					
	4.6% biofuels	**8.6% biofuels**	**moving from 4.6 to 8.6%**	**1% increase of biofuels in EU**		**GHG increase compared with fossil fuels (%)**
No change in trade policy	-64MT	-24MT	+40MT	**+10MT**	**75 g CO2eq/MJ**	**82%**
Free trade	-70MT	-26MT	+44MT	**+11MT**	**83 g CO2eq/MJ**	**90%**

This means that two of the conditions under which the 10% target for renewables in transport was adopted will not be met. These conditions were:

1. That biofuels have to be environmentally and socially sustainable. However, the studies show that the target will end up increasing, not decreasing, carbon emissions from the transport sector, and that due to extensive land conversion, land and food rights will be threatened in the global south.
2. That "second-generation" biofuels will be commercially available. These studies show, however, that the share of advanced second-generation biofuels will be less than 10% of overall biofuels use. Even that may be optimistic. Many believe that second generation biofuels will not be commercially viable before 2020 (if at all).

In short, both conditions are not met. Therefore, not only should the sustainability criteria be reviewed, but so should the 10% target itself.

Furthermore, the ILUC issue is symptomatic of the human consequences that derive from the RED targets that drive the production of biofuels. ILUC means not only increased GHG emissions, but also that the livelihood of families and farming communities have to physically move their production of agriculture for subsistence or otherwise to a different piece of land. This poses serious challenges to their food security, and the protection of their rights to land and food security

In this regard, ActionAid International would also like to draw the Commission's attention to another obligation of the EU:

[14] Source: IFPRI for TRADE, figures 9 and 10, p 67. Last column calculated by T&E by taking the IPFRI assumption that 1% of biofuels equals 3.16 Mtoe, and that GHG from fossil fuels is 92 g CO2eq/MJ.

TFEU *Article 208*
(ex Article 177 TEC)

1. Union policy in the field of development cooperation shall be conducted within the framework of the principles and objectives of the Union's external action. The Union's development cooperation policy and that of the Member States complement and reinforce each other.

Union development cooperation policy shall have as its primary objective the reduction and, in the long term, the eradication of poverty. ***The Union shall take account of the objectives of development cooperation in the policies that it implements which are likely to affect developing countries.***

The political framework that surrounds this policy coherence for development (PCD) commitment has developed to explicitly comprise policies on energy and biofuels, such as the Commission staff working paper accompanying the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions "*The EU – a global partner for development*"[15] and the Council Conclusions of May 2008 which note that "*the EU will closely monitor the impact of its policies on agricultural production, food prices, food security, land tenure, natural forests, working conditions and environment*"[16]. This PCD obligation, that the EU's policies should cause no harm and not contradict the EU's own development objectives, is imperative for the EU, including the European Commission and ALL DGs, including DG Energy.

In light of this obligation, and the European Commission's wish to use the best available information on ILUC, a compilation of additional studies that approach the ILUC resulting from biofuels production from the perspective of its human impacts on the most poor and marginalised in the world should include:

- ActionAid International, 2010, Meals per Gallon[17]
- ActionAid International, 2009, Tanzania, implication of biofuels production on food security[18].
- World bank, 2010, Rising global interest in farmland [19]
- ActionAid International, 2010, Fertile ground[20]
- ActionAid International, 2010 upcoming Brazil[21]

These reports identify the human consequences of the expansion of biofuels consumption and production which result from the targets set in the RED. They supplement the scientific evidence of the size of ILUC by underlining the impact on livelihoods directly from land use change, indirectly from food price rises locally and internationally and this is all underpinned by a

[15] SEC (2008) 434/2
[16] http://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/gena/100688.pdf p. 17
[17] http://www.actionaid.org.uk/doc_lib/meals_per_gallon_final.pdf
[18] Available in PDF from ActionAid's EU office.
[19] http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22694767~pagePK:64257043~piPK:437376~theSitePK:4607,00.html
[20] http://www.actionaid.org.uk/doc_lib/fertile_ground.pdf
[21] In late 2010, ActionAid Brazil will publish a report on biofuels production in Brazil. While this will be published after the EC consultation is formally closed, ActionAid International will send the report to the European Commission and hopes that its findings will be considered in the writing of the report due by 31 December 2010.

fundamental failure to comply with the policy coherence for development (PCD) obligations that the EU have committed to in order to ensure consistency of its own policies.

ILUC as well as the direct land use change is a major cause of hunger. According to the International Labour Organisation, more than 1 billion[22] people are farmers and many live off their own plots of land. Increasing competition for land, which implementation of the NREAP will cause, is seriously undermining the livehoods of these people. The lack of appropriate regulation of biofuels and social sustainability criteria enables the current expansion of biofuels production to directly compete with land used for subsistence livelihoods or production for local food security. Independent analysis of the food price spike in 2007/08 suggests that biofuels were responsible for between 30-75% of the rise. The European Commission originally forecast in 2008 that its own target would increase word cereal prices by 3-6%.[23] Following the argument that the number of hungry people could increase by 16 million for every 1% rise, the EU alone could be responsible for up to 100 million more people going hungry by 2020. But even the 3-6% price rise could be conservative. Recently studies by the EC reveal that EU biofuel policies (counting only a 7% share of transport fuels) could increase cereal prices by up to 20%.[24]

The NREAPs show clearly the significant scale of ILUC and the consequences for GHG emission levels. The European Commission should act thereupon to ensure thorough compliance with its own Directive. Furthermore, there are measurable and significant impacts for food security, land rights recorded and reported by NGOs such as ActionAid International and the World Bank. Lastly, it poses serious questions about compliance with PCD.

Question 2: On the basis of the available evidence, do you think that EU action is needed to address indirect land use change?

Yes, it is imperative that ILUC is acted upon immediately. The studies published by the Commission[25] for the purposes of its report confirmed previous existing scientific knowledge

[22] http://www.ilo.org/public/english/dialogue/sector/sectors/agri/emp.htm

[23] Impacts of the EU biofuel target on agricultural markets and land use: a comparative modelling assessment. Joint Research Centre, Institute for Prospective Technological studies, Seville, July 2010, commissioned by DG AGRI of the European Commission (referred to as "IPTS study "); See page 14

[24] IPTS study, 2010. *Ibid*. Page 70

[25] ***ISPRA for DG CLIMATE***

FULL TITLE: Indirect Land Use Change from increased biofuels demand - comparison of models and results for marginal biofuels production from different feedstocks. Joint Research Centre, Institute for Energy, Ispra, July 2010, commissioned by DG ENV/CLIMA, July 2010 (**referred to as "ISPRA study"**);

IFPRI for DG TRADE

FULL TITLE: Global Trade and Environmental Impact Study of the EU Biofuels Mandate, Final Draft Report, March 2010. International Food Policy Research Institute (IFPRI), March 2010, commissioned by DG TRADE, (**referred to as "IFPRI study"**);

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FULL TITLE: Biofuels: a New Methodology to Estimate GHG Emissions Due to Global Land Use Change. A methodology involving spatial allocation of agricultural land demand, calculation of carbon stocks and estimation of N2O emissions" by R. Hiederer, F. Ramos, C. Capitani, , R. Koeble, V. Blujdea, O. Gomez, D. Mulligan and L. Marelli. EU Report 24483, 2010 (**referred to as "ISPRA study 2"**).

The results of these three studies, taken in tandem with predicted biofuel usage in NREAPs, indicate the scale of ILUC. Two other studies were also released:

that ILUC emissions are substantial. This available science and analytical projections commissioned by the European Commission and others show that adjusting GHG emission estimate to include those caused by ILUC significantly reduces or in some cases reverses the benefits originally calculated from biofuels.

The failure of conventional first generation biofuels in reality to comply with the sustainability criteria as set out in the RED article 17(2) casts doubt over the criteria as they currently stand. Furthermore, **preferably EU action would revise the sustainability criteria not only to include ILUC but to incorporate the human and developmental concerns.**

Consequences of large scale land use change have serious potential to undermine development objectives and are thus the source of policy incoherence and in breach of several treaty obligations. Incorporating an appropriate ILUC factor should only be the beginning of starting to count, calculate, and mitigate the full effects of European expansion of demand for biofuels and its consequences for millions of people across the global south.

Ensuring that an honest calculation of the ILUC emissions can act as a proxy for discouraging the most harmful biofuels production in terms of food rights, land rights and labour conditions and will prove beneficial for local communities in developing countries across the global south. It can be regarded as an initial step towards a full regulation of the impact of this piece of European legislation on third countries and the world's poorest and most marginalised. In this regard the 2012[26] review cannot come too soon as it provides a greater scope for mitigating the full set of consequences. Failing to take action will discredit the EU as a sincere and genuine actor of the fight against climate change. If the European Commission does not at this stage ensure that these GHG emissions are accounted for then the rationale for the RED is considerably undermined.

Question 3: If action is to be taken… on the basis of 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?**

The studies available give us an indication of marginal ILUC emissions and, to some extent, tell us what the marginal ILUC associated with different biofuel feedstocks is. As an initial matter, no study comes up with zero or negative impacts of marginal ILUC for land-using biofuels. In Annex

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IPTS for DG AGRI
FULL TITLE: Impacts of the EU biofuel target on agricultural markets and land use: a comparative modelling assessment. Joint Research Centre, Institute for Prospective Technological studies, Seville, July 2010, commissioned by DG AGRI of the European Commission (**referred to as "IPTS study "**);

DG Energy Literature Review
FULL TITLE: The Impact of Land Use Change on Greenhouse Gas Emissions from Biofuels and Bioliquids. DG Energy, July 2010.

[26] Article 17(8) of the RED

I of this paper, it can be seen that ILUC emissions range between 16 g CO_2/MJ (IFPRI study for sugar beet under BAU scenario) to 140 g CO_2/MJ (GTAP for US maize). Again these estimates exclude the highest estimates coming from the LEITAP study. This means that the ILUC number would have to be chosen somewhere within this range. **Uncertainty is, therefore, much smaller than often presented by opponents of an ILUC factor.** But this range can be narrowed even further. Looking at ILUC with similar assumptions across the models—such as the more realistic petrol diesel split—even the IFPRI study comes up with the aggregate marginal ILUC emissions of 45 g CO_2/MJ (see Annex II) excluding emissions from peat oxidation. The aggregate marginal emissions from the IPTS study are around 63 g CO_2/MJ. If we calculate marginal GHG impacts of biofuels on the basis of the assumed use and split of biofuels according to NREAPs and marginal land-use change from ISPRA study, we also come up with the range for an ILUC factor between 38 and 201 g CO_2/MJ, as illustrated in Table 4.

Table 4:	**Emissions per unit of fuel***	
	Minimum	**Maximum**
MtCO2 / Mtoe	33	173
MtCO2 amortised over 20 years / Mtoe	1.6	8.7
Implied marginal ILUC factor, gCO2e/MJ	38	201

Adding marginal ILUC emissions on top of direct emissions of producing biofuels (cultivation, transport and processing), means that the GHG emissions of many biofuels feedstocks increase compared to fossil fuels. This is illustrated in Annex I of this paper. These findings indicate that ILUC impacts of biofuels does indeed vary according to feedstock.

If ILUC can be regarded as being symptomatic of the societal consequences then by taking ILUC into account there is hope that it will not only bring biofuels into compliance with the RED's objectives but also eliminate the most harmful production methods.

Given that the projections of the future scale of ILUC for the Member states to reach their targets are not consistent with the development objectives if EU development policy and in particular seem to undermine advances towards MDG1. Production that is foreign owned, large scale, primarily oriented for export and taking place in countries that rely on imports of food products are highly unsustainable for local communities. This indicates that ILUC impacts do vary according to geographical spread and land management issues.

Question 4: what course of action?

In Article 19(6) of the RED, the EU legislature sets forth its ILUC mandate to the European Commission. In addition to reporting and submitting a proposal, if appropriate, the EU legislature stipulates statutory requirements that any proposal must comply with. A proposal that fails to meet these requirements should be considered inadequate as a matter of law[27].

In order to conform to the methodological framework in RED, the European Commission would need to introduce an ILUC-factor to sit alongside the nine other 'factors' that cover the lifecycle GHG emissions to yield 'total emission from the use of the biofuel'. The EU legislature included an ILUC factor in Recital 85 to the RED:

> "The Commission should develop a concrete methodology to minimise greenhouse gas emissions caused by indirect land-use changes. To this end, the Commission should analyse, on the basis of best available scientific evidence, in particular, the inclusion of a factor for indirect land-use changes in the calculation of greenhouse gas emissions"

ActionAid International believes that the following approach should be followed to try and immediately fill the loophole in accounting for emissions:

> Use feedstock-specific factors for each biofuels based on the best available scientific evidence. The estimates for different feedstocks can be drawn from the IFPRI study, which is the only report that came out with feedstock-specific numbers, and thereafter subject to periodic review.

The IFPRI research should be viewed as a minimum because other studies show higher figures (see Annex 2). Higher ILUC factors could be justified on the basis on the precautionary principle. The Lisbon Treaty states that EU policies "shall aim at a high level of protection" and be based on "the precautionary principle and on the principles that preventive action should be taken."[28]

The consequences of large scale land use change have serious potential to undermine development objectives and are thus the source of policy incoherence and in breach of several treaty obligations. Incorporating an appropriate ILUC factor should only be the beginning of starting to count, calculate, and mitigate the full effects of European expansion of demand for biofuels and its consequences for millions of people across the global south.

The failure of conventional first generation biofuels in reality to comply with the sustainability criteria as set out in the RED article 17(2) casts doubt over the criteria as they currently stand.. **Preferably EU action would revise the sustainability criteria not only to include ILUC but to incorporate human and developmental concerns.** ActionAid believes that if the sustainability criteria were to be meaningful they should promote basis for a model of production and consumption of bio-fuel that are inspired by the following principles:

1. Ensure the necessary funding and technical assistance to family farms, ensuring the expansion of diversified food production;

[27] RED, Article 19(6); Fuel Quality Directive, Article 7d(6).
[28] TFEU 174

2. Strengthen agrobiodiversity, culture and regional food habits;
3. Has as a premise of sustainability and democratization of access to land, water and other natural resources.
4. Promote systematic studies on the impacts of biofuel: health and environment, availability of water resources, food production, and impacts to farmers in the poorest regions of the country, especially women.
5. Prevent the establishment of agricultural activities in areas strategically important for the household production of food, with a view to ensuring food security, locally, regionally and nationally.
6. Prohibiting the use of areas that need ecosystems protection and/or could potentially suffer relevant environmental aggressions

ActionAid also has recommendations regarding the use of two particular areas as potential mitigation factors:

Yield increases: This has been proposed because it would decrease pressure to convert forests and other natural areas into cropland. But yield increases themselves can be strongly associated with increased GHG emissions, through for example the release of NOx emissions. Increased yields and intensive agriculture is also closely associated with species decline. More sustainable agricultural practices could lead to the preservation of soil carbon and massively reduce other impacts associated with intensive agriculture. Yield increases could take us in the opposite direction.

Marginal or degraded land: The concept of marginal or degraded lands has now become synonymous with other terms – for example land that is idle or exhausted. The whole idea that an industrial biofuel crop should be targeted at these lands in developing countries has been met with a hostile reaction from those that ActionAid works with in developing countries. Communities would dispute whether most, if any land would fall into these categories (even if definitions could be agreed). Communities use this land and massive numbers would be displaced. They use it for the collection of firewood, medical plants, food collection (i.e. nuts), fodder and grazing for animals, timber and so on. ActionAid offices from various parts of the global south, including Mozambique and Senegal have also reported that biofuels crops such as jathropha don't grow particularly well on lands designated as 'marginal' and are often in practice unattractive to biofuels producers who usually place their biofuels production on very fertile and productive agricultural land, which could and should be used to produce food crops for local food consumption.

But the same argument has been made for idle land within the EU, particularly bringing set aside land back into production and using 'idle' land in Eastern Europe. As ActionAid International understands, much of the previous set aside regime has already been brought back into agriculture. Further, much of the land set aside, as with 'idle land' in Eastern Europe is non-rotational, i.e. semi permanent grassland. This outcome has been summarised by the Gallagher review:[29]

> "*Idle land, such as set-aside, accumulates carbon in the soil over time and, over a long period, may begin to have significant vegetation and above ground carbon stocks. This*

[29] http://www.renewablefuelsagency.gov.uk/sites/rfa/files/_documents/Report_of_the_Gallagher_review.pdf

carbon is generally released when the land is brought back into agricultural production by ploughing. Analysis, undertaken by North Energy, indicates that the additional emissions associated with bringing set-aside land back into production reduces by approximately half the savings for OSR biodiesel and wheat bioethanol compared to feedstock grown on existing agricultural land. GHG savings will therefore be better where biofuels are grown on rotational rather than permanent set aside or fallow land."

5. Conclusion:

There is substantial available scientific evidence to support that additional GHG emissions result from ILUC as a consequence of biofuels production. If the European Commission does not at this stage ensure that these GHG emissions are accounted for then the rationale for the RED is considerably undermined. Furthermore, it has been shown that there are significant additional consequences as a result of the current production of biofuels, including threats to land rights, food rights and food security. If the EU were to introduce of an ILUC factor which accurately accounts for the full effects of ILUC does to some extent mitigate these threats. The extent of these consequences should be recognized and a more wide ranging set of sustainability criteria should be developed at first available occasion

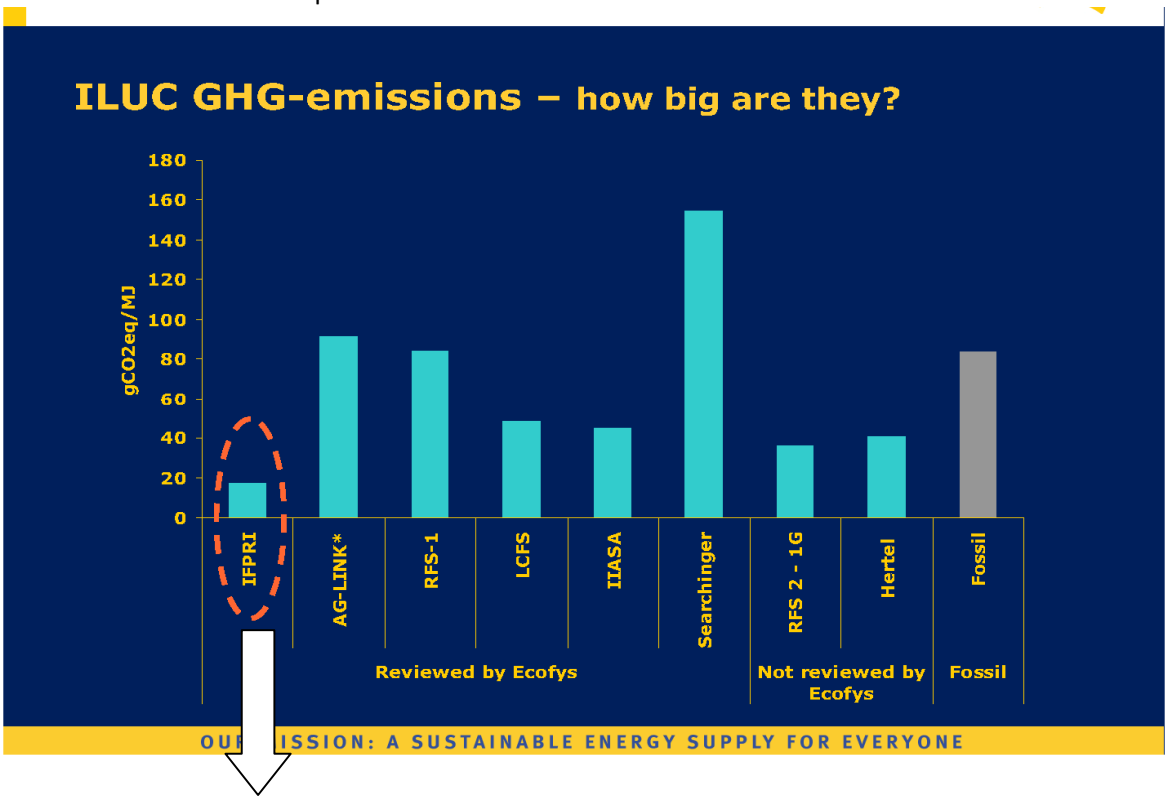
Annex I: Marginal emissions from indirect land use change

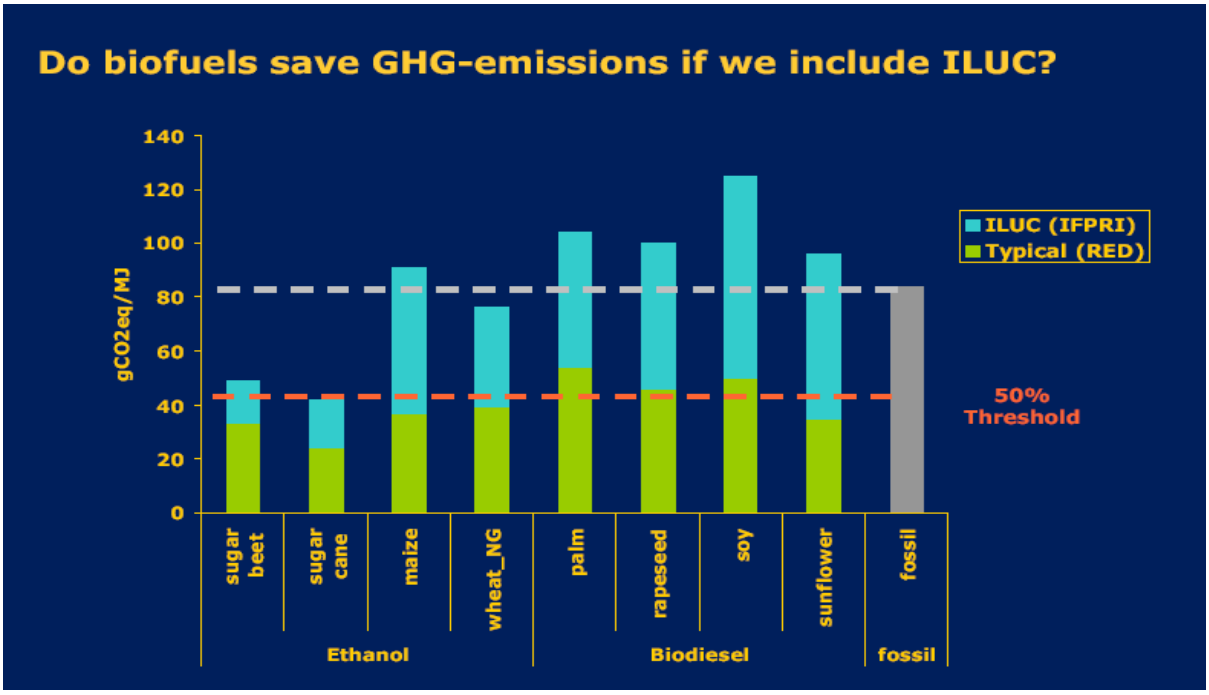
Scenario	emissions including emissions from peatlands	direct emissions from RED (default value)	GHG emissions from biofuels including ILUC	GHG savings (from the RED)	GHG savings (after ILUC is included)
LEITAP Biod EU-Deu*	352	44	396.2	47%	-373%
FAPRI Biod EU	99	44	143.3	47%	-71%
AGLINK Biod EU	40	44	84.2	47%	0%
AGLINK Biod US **	42	58	100.3	31%	-20%
GTAP Biod mix EU	73	44	117.2	47%	-40%
LEITAP Biod INDO***	326	29	355.1	65%	-324%
GTAP Biod Ind/Mal	79	29	107.7	65%	-28%
LEITAP Wht Eth EU-Fra	143	26	169.4	69%	-102%
FAPRI Wht Eth EU	69	26	95.0	69%	-13%
AGLINK Wht Eth EU	100	26	126.4	69%	-51%
IMPACT Wht Eth EU	39	26	65.0	69%	22%
GTAP Wht Eth EU	140	26	166.2	69%	-98%
IMPACT Wht Eth US	39	26	65.0	69%	22%
LEITAP Maize Eth US	151	43	194.0	49%	-131%
AGLINK Coarse Grain Eth US	89	43	132.2	49%	-58%
GTAP Coarse grains Eth US	37	43	79.6	49%	5%
IMPACT Maize Eth US	19	43	61.7	49%	26%
IMPACT Coarse Grains Eth EU	20	43	63.3	49%	24%
AGLINK Sugar cane Eth Bra	23	23	46.4	71%	45%
IFPRI BAU sugarbeet	16	40	56.1	52%	33%

IFPRI BAU sugar cane	18	23	40.8	71%	51%
IFPRI BAU maize	54	43	97.1	49%	-16%
IFPRI BAU wheat	37	26	63.3	69%	24%
IFPRI BAU palm oil	50	29	79.1	65%	6%
IFPRI BAU rapeseed	54	44	97.7	47%	-17%
IFPRI BAU soybean	75	58	133.4	31%	-59%
IFPRI BAU sun flower	61	41	101.5	51%	-21%
IFPRI BAU (JRC report)	34	21	65.0		22%
IFPRI FT (JRC report)	41	28	69.0		18%
IPTS AGLINK CG (JRC report)	63	48	111.0		-32%
IPTS AGLINK GM (JRC report)	64	48	112.0		-34%
Petrol (draft FQD)		85.8			
Diesel (draft FQD)		87.4			
Fossil fuel comparator in the RED		83.8			

** US biodiesel we assumed soy
*** Ind/Malay we assumed palm oil

Annex 2 - Different studies come up with different ILUC GHG emissions. The IFPRI study comes forward with low values compared to others.





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