BRAZILIAN SUGARCANE INDUSTRY ASSOCIATION

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Brussels, 29 October 2010

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Register of Interest Representatives ID: 80996311873-05

By email to: European Commission
ec-land-use-change-biofuels@ec.europa.eu

Re: Consultation on Indirect Land Use Change impacts of biofuels
Comments by the Brazilian Sugarcane Industry Association (UNICA)

Following the stakeholders' consultation organised by the European Commission in Brussels on 17 September and 26 October 2010, the Brazilian Sugarcane Industry Association (UNICA) is pleased to submit comments to the European Commission on the analytical work it commissioned as well as the different policy options that are considered to address the issue of indirect land use change (ILUC).

UNICA's contribution is structured as follows: introductory remarks on UNICA (I); making sense of the ILUC debate (II); response to the analytical work submitted to consultation (III); comments on proposed policy actions to be undertaken (IV); final recommendations (V).

I- Introduction to UNICA and the Brazilian sugarcane sector

UNICA is the leading trade association for the sugarcane industry in Brazil, representing approximately 60% of all sugarcane production and processing in the country. Our member companies are the top producers of sugar, ethanol, renewable electricity and other sugarcane-derived products in Brazil's South-Central region, the heart of the sugarcane industry.

UNICA's mission is to play a leading role in the consolidation of the Brazilian sugarcane industry as a modern agro-industrial complex equipped to compete sustainably, in Brazil and around the world, as suppliers of ethanol, sugar, bioelectricity and other sugarcane-based value-added products. UNICA aims to consolidate ethanol as a globally traded commodity, promote the demand and use of ethanol as a clean and renewable transport fuel, assist member companies in becoming sustainability benchmarks and disseminate scientific data about the competitiveness and sustainability of sugarcane ethanol.

UNICA's expanding foreign presence is an integral part of its strategy to provide consumers, government officials, NGOs, the business community and the news media with information on key social, economic and environmental contributions of Brazil's sugarcane sector. Following the opening of its Washington DC office in 2007, UNICA opened its European Union office in Brussels in 2008, at the time when the European Union Renewable Energy Sources Directive (hereafter RED) and revised Fuel Quality Directive (hereafter FQD)[1] were being adopted.

[1] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. Official Journal L 140 of 5 June 2009, page 16.
Directive 2009/30/EC of the European Parliament and of the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC Official Journal L 140 of 5 June 2009, page 88.

Brazil is the world's largest sugarcane-producing country with over half a billion metric tonnes of cane harvested yearly. In 2009/2010, Brazil produced over 33 million tonnes of sugar and 25.5 billion litres of ethanol. Sugarcane ethanol is a clean, renewable energy, which has the highest emissions savings of any fuel. Using just 1.5% of Brazil's arable land, sugarcane ethanol replaced half of the country's gasoline needs: thanks to the mandatory blend of 20 to 25% of ethanol in petrol and to the use of Flex-Fuel Vehicles – which can run on ethanol, petrol or any mix of the two, and which already represent 40% of the light fleet[2] – most of the fuel ethanol produced in Brazil is absorbed by the domestic market. The surplus is destined to exports markets: in 2009 Brazil exported 0.876 billion litres of ethanol to the European Union and 1.047 billion litres to the United States[3]. In addition, the mills generate their own power from the sugarcane biomass and supply the national grid with the electricity surplus. Sugarcane mills produced approximately 16,000 GWh last year, which represents 3% of the country's annual electricity demand.

Thanks to the innovative use of ethanol in transportation and biomass for cogeneration of electricity, sugarcane is now the number one source of renewable energy in Brazil, representing 18.1% of the country's total energy needs according to official government data[4]. Our industry expands its sugarcane production in a way that preserves Brazil's precious natural resources and produces not only fuel, but also food, bioelectricity, raw material for bioplastics and next generation biofuels[5].

Brazil is home to some of the world's most important natural resources, including one of the largest tropical coastal regions in the world and the Amazon rainforest. This is one of the reasons why the debate around Indirect Land Use Change, Brazilian biodiversity and carbon stocks is important to us.

II- Making sense of the ILUC debate

On the occasion of the summer 2009 pre-public consultation on Indirect Land Use Change[6], UNICA welcomed the global approach taken by the European Commission on ILUC, conceived as a global problem that requires global solutions, and not as a phenomenon limited to biofuels and specific countries[7].

At the time, UNICA argued that if the European Union's objective is to limit CO_2 emissions in general, the ILUC global picture must be considered: because indirect effects are not exclusive to biofuels or specific countries, the issue of ILUC cannot be treated in isolation of world agricultural dynamics and broader deforestation drivers (including illegal logging, landless settlements, etc.). The fact is that today biofuels only occupy 1% of the world arable land in production, a figure expected to reach 2% by 2030 according to the International Energy Agency. It would therefore make little sense to address ILUC by only biofuels-related policies.

On this basis, UNICA, together with a significant majority of consulted stakeholders and third countries, favoured **the route of fostering international agreements to protect carbon-rich habitats[8] as this option was the only one that allowed reaching the primary objective of the legislations: to limit/avoid CO_2 global emissions from any source, in any country**. UNICA highlighted this option would address the right source of emissions resulting from land use change in its global dimension, without putting an unnecessary burden on

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[2] Source: ANFAVEA (National Association of Automotive Vehicles Manufacturers, Brazil).

[3] For detailed data on exports, see the Brazilian Secretary of State for External Trade (SECEX). Note that Brazilian ethanol exports include all ethanol independent of end use, whether for fuel, industrial purposes or beverages.

[4] See Brazilian Energy Ministry's National Energy Balance, 2010

[5] Our industry will soon be offering bio-based hydrocarbons such as diesel or petrol from sugarcane that can replace carbon-intensive fossil fuels.

[6] ILUC Pre-Consultation Document: Indirect land use change – Possible elements of a policy approach – preparatory draft for stakeholder/expert comments. European Commission, DG Energy, 2009.

[7] Pre-Consultation on Policy Options to Address Indirect Land Use Change - Comments by the Brazilian Sugarcane Industry Association, 31 July 2009, available on DG Energy website here.

[8] From ILUC Pre-Consultation Document op. cit: Option B - *International agreements on protecting carbon-rich habitats:* The implementation of multilateral agreements on protecting carbon-rich habitats such as tropical rain forests in countries that are threatened by land use changes and resulting large GHG releases could limit indirect land use change emissions.

the biofuels industry. UNICA therefore regrets that this sensible option to address the issue of land use change in the international arena, which received the backing of most consulted parties, and was supported by the commitments shown by some third countries governments and private sectors[9] was simply dismissed by the new public consultation document.

Taking the global picture into consideration also means that the EU needs to engage with third countries, industries and experts from around the world, who have the environmental expertise and knowledge of the agriculture dynamics, to ensure the adoption of thorough and accurate policies that effectively protect high carbon stock areas and fight deforestation. As stated in the introduction, the protection of high carbon rich habitats and biodiverse areas is important to Brazil. Neither the cause of their unfortunate destruction, when it happens, nor the interest in protecting these, is derived from the interest in biofuels recently shown by potential export markets such as the European Union. Brazil has been proactive in addressing the problem and the private sector has embraced this effort. It is worth mentioning some recent initiatives and successes:

- Announced in Copenhagen in December 2009, the ambitious Brazilian National Plan on Climate Change[10] includes targets for the reduction in Amazon and Cerrado deforestation, restoration of grazing land, integration of crop-livestock system, no-till farming, biological N2O fixation, etc. It is expected to provide a 36.1 to 38.9 % reduction compared to the projected GHG emissions of Brazil by 2020.
- In Brazil, the public-private collaboration has resulted in policies which have led to a deforestation decrease in the legal Amazon by 75% between 2004 and 2009[11]. As a result, while the area dedicated to sugarcane in Brazil has increased steadily, in particular after demand for sugarcane ethanol took up as a consequence of the introduction of Flex-Fuel Vehicles, the deforestation rate in the legal Amazon has decreased as the chart below shows. These empirical data bring evidence that contradicts the conceptual link made between land use expansion for bioenergy and deforestation.

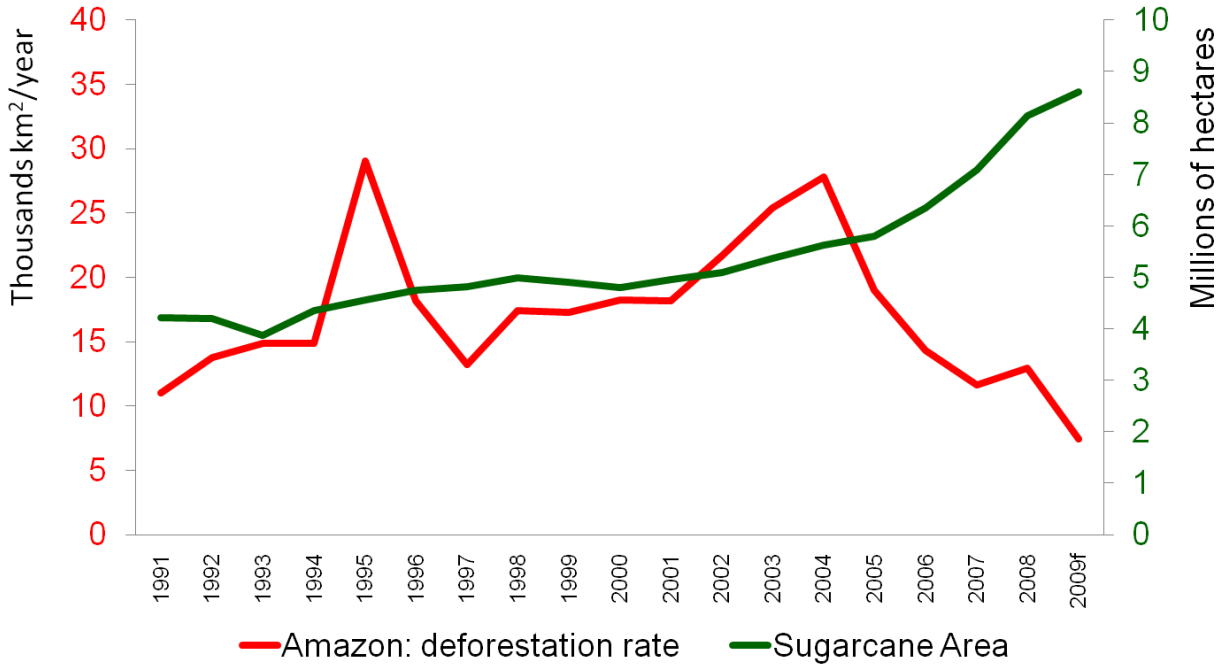

Figure 1: Sugarcane Area vs. Annual Deforestation Rate in the Legal Amazon[12]

[9] See Brazil's announcement of its National Plan for Climate Change, which includes the adoption of national targets for the elimination of illegal deforestation. The private sector also has engaged in the protection of land of high carbon stocks (e.g. moratorium on the purchase of soybeans in newly deforested parts of the Amazon rainforest).

[10] See Brazil's communication to the UNFCCC and the National Plan for Climate Change (in Portuguese).

[11] INPE data published in November 2009

[12] f = Forecasted sugarcane area. Sources: INPE (deforestation rate) and IBGE (sugarcane area).

- The Brazilian government has also developed the Agro-Ecological Zoning for Sugarcane[13], which forbids sugarcane expansion in areas rich in biodiversity, including the Amazon, Pantanal, the Upper Paraguayan Basin, and on any type of native vegetation, including the Cerrado grasslands. Via a satellite mapping exercise, the Zoning also identified areas suitable for sugarcane expansion which become the maximum allowed area for sugarcane, highlighted in green in the map below.

Figure 2: Agro-Ecological Zoning for Sugarcane

- In addition, around 600,000 ha are afforested annually in Brazil, showing pro-activity in the government but also in civil society to tackle this problem.

These efforts made in some countries, such as Brazil, to significantly reduce deforestation, preserve and increase carbon-rich habitats and biodiverse areas should be recognized and accepted by the EU as effective mitigation policies.

III- Response to the analytical work submitted to consultation

Do you consider that the analytical work referred 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?

Effective policies must be based on sound data. After a first engagement with stakeholders took place in July 2009, UNICA called on the European Commission to engage publicly with scientific experts on the review of

[13] Source: the Brazilian Agricultural Research Corporation (EMBRAPA), Brazilian Ministry for Agriculture (MAPA) http://www.cnps.embrapa.br/zoneamento_cana_de_acucar/.

the modeling work and other studies by the Commission, **to ensure scientific robustness, an indispensable pre-condition to any political consideration**. A comprehensive stakeholder consultation process would ensure accuracy of data, multiplicity of positions and constructive recommendations for improvement. UNICA believes only after this careful review of the findings a discussion could take place on the best political answers to give to ILUC.

At this stage, we do not believe that existing science, the analytical work part of the consultation and other studies, have led to a meaningful common understanding of the ILUC question. The studies that have been commissioned in Europe without much input from international experts have led to incomplete reports. The following section highlights the studies' limitations and room for improvement, with particular emphasis on those where a Brazilian sugarcane ethanol pathway was included.

A- While giving a positive verdict for Brazilian sugarcane ethanol, the IFPRI report[14] contains some inaccuracies:

- The baseline scenario
    - The scenario with no biofuels additional demand assumes a much broader land use than what Brazilian experts and industry estimate, which has a direct bearing on the simulated scenarios: as more land is deemed to be used, less land for expansion is available when the biofuels shock is applied, leading to ILUC occurring mainly in forestland, with corresponding overestimated emissions.
    - The 2004 and 2008 land use data already do not match the Brazilian reality[15], casting serious doubts for the land use projections in 2010, 2015 and 2020. MIRAGE should therefore be recalibrated to provide an accurate picture of the sugarcane ethanol industry in Brazil today in order to fine tune estimated projections for the years to come.
- Yield increase
    - In page 41, authors explain that 'for crushing, distilling and biofuel production activities', no change in the yield is assumed. The assumption that productivity gains will be constant for the period 2008-2018 contradicts Brazilian historical empirical trends and has a direct consequence in overestimating the CO_2 emissions.
- Elasticities are not calibrated in an appropriate manner
    - The model underestimates the cattle intensification, which is key to understand the land use dynamics in Brazil. Because MIRAGE does not address beef production, it is likely that the cattle intensification projected in the baseline scenario is not aligned with historical trends. Brazil is already the largest beef exporter in the world, and unless MIRAGE projects a stronger growth in Brazilian world market share, projected pasture area should be decreasing at a rate higher than the historical rate. Keeping the demand constant, the increase in beef productivity would lead to a strong reduction in the pasture area.
    - Authors suggest that the model would first try to intensify agricultural production before expanding land use[16]. However, results suggest that the model answers to the EU biofuels mandate with much more land use expansion than intensification.
    - The assumed elasticity of land expansion in Brazil is at least twice bigger than the land elasticity chosen for other regions, including areas that have experienced similar deforestation rates as Brazil in relation to the natural land available . In other words, given one additional unit of demand, the model assumes that land expansion (and deforestation) would occur twice as fast in Brazil than in other places. There is no scientific justification to assume a twice bigger expansion elasticity for Brazil.

[14] Global Trade and Environment Impact Study of the EU Biofuels mandate. Final Report. March 2010. Al-riffai et al, 2010, available here.

[15] According to IFPRI, sugarcane production was of 416,103 million tonnes in 2004 and 459,346 million tonnes in 2008, while official IBGE data report sugarcane production of 415,206 million tonnes in 2004 and 645,300 million tonnes in 2008.

[16] Global Trade and Environment Impact Study of the EU Biofuels mandate. Op. Cit. Annex VI – Modeling land use expansion, pages 91-92.

- **Marginal productivity and yield elasticity to land expansion.** GTAP specifies a parameter that determines how much less productive new land put in production would be: the 'yield elasticity to land expansion' is a ratio between yields of new land converted and yields in the traditional cropland. For Brazil, authors assume 0.75 for new land put in production, 0.5 for the rest of the world[17]. UNICA's comments to CARB[18] have looked into this key parameter and suggested a marginal land productivity around 0.9. This is further aligned with recent studies by Babcock and Carriquiry[19], as well as Tuner ar al[20] which find land conversion factors for Brazil range from 0.89 to 1, most of them being around 0.9. This implies that MIRAGE for IFPRI contributes to underestimate the productivity of the new land put in production in regions such as Brazil, and consequently overestimate the land use changes.

- Land converted and GHG emissions coefficients:
  - Key to estimate GHG emissions is the type of land which is converted, directly or indirectly. Except for the conversion of pastureland to cropland, additional cropland demand was allocated in different ecosystems according to a coefficient used by EPA in 2010. These coefficients are derived from MODIS data for the period of 2001-2007. The share of forest conversion on total cropland expansion is very sensitive for the period of analysis. Given that deforestation rates have been decreasing sharply in Brazil since 2004, , less crops are growing over forests than the coefficients presented by EPA 2010 and, therefore, iLUC is overestimated.
  - The situation is also that in Brazil, when there is native vegetation conversion to cropland, as presented in IFPRI, it is the result of direct conversion to annual crops and not sugarcane. If competition between sugarcane and other crops is not well known, a prerequisite to make possible to isolate the contribution of competition and demand in the advancement of the frontier, applying historical conversion rates to shocks on ethanol may lead to measuring wrongly land use change effects.
  - In addition, the Agro-Ecological Zoning for Sugarcane is not taken into account, leading to discrepancies in conversion results: while IFPRI assumes 58% expansion takes place and will continue on savannahs/grasslands, 14% on pastures, 12% on crop land, a study published by the Wageningen University[21] forecasts that about 62% of the expansion of sugarcane in South-Central Brazil will take place primarily on pasture land, 37.8% on lands previously occupied by other crops. The projection covered the period from 2008 to 2018.
  - In part 3.4 'GHG emissions and marginal ILUC measurement', the study does not present data for emissions coefficients, but is said to only 'rely on IPCC coefficients for these different ecosystems'[22], which may not be precise and accurate enough to reflect the carbon content in the Brazilian ecosystems. This is specially the case for sugarcane, which is a semi-perennial crop with high carbon stocks; semi-perennial crops are not appropriately reflected in the IPCC default values.

- By-products of sugarcane production are not considered in the modeling exercise, whereas the production of energy for co-generation and surplus is a common trend in Brazil.

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[17] Global Trade and Environment Impact Study of the EU Biofuels mandate. Op. Cit., page 98

[18] See UNICA Comments on California's Low Carbon Fuel Standard, 16 April 2009: http://www.arb.ca.gov/lists/lcfs09/129-unica_comments_to_carb_on_sugarcane_ethanol.pdf, page 18.

[19] Babcock, B. A. and M. Carriquiry (2010). An Exploration of Certain Aspects of CARB's Approach to Modeling Indirect Land Use from Expanded Biodiesel Production. Center for Agricultural and Rural Development Iowa State University Staff Report 10-SR 105, February 2010.

[20] Tyner, W. E., F. Taheripour, Q. Zhuang, D. Birur, U. Baldos, 2010. Land use change carbon emissions due to US corn ethanol production: a comprehensive analysis. Department of Agricultural Economics, Purdue University, Final Report, April 2010

[21] Sugarcane ethanol: Contributions to climate change mitigation and the environment. Wageningen Academic Publishers. Edited by: Peter Zuurbier and Jos van de Vooren, 2009. Available here.

[22] Global Trade and Environment Impact Study of the EU Biofuels mandate. Op Cit. Page 38.

- Finally, authors explain that the shock in applied in 2020[23], whereas results would be different, and likely to be lower, if the shock was applied at the beginning of the biofuels mandate, not when less carbon intensive changes such as intensification in crop production have already taken place.

B- The JRC-IE study[24] makes a comparison of models based on land use change results from different models regarding the marginal increment of biofuels.

General comments

- Despite the tentative to harmonise the analysis between models, the different assumptions among models make it for a wide range of results. LEITAP is recognized to be presenting several issues, and authors acknowledge that results are not fully understood[25] reason why the model cannot be trusted or taken into consideration.
- Leaving aside LEITAP, the compared models tend to agree that sugarcane ethanol is the one biofuel with the lowest ILUC. IMPACT presents the lowest land use changes for biofuels although it does not contemplate a sugarcane ethanol production pathway. We can certainly assume that even lower results would be given by IMPACT if it was to capture the sugarcane ethanol pathway.
- The study provides results in hectares per tonnes of oil equivalent, rendering the comparison of results complex. When converting the results into emissions, the authors very simplistically assumed an average stock of carbon of 40tC/ha around the world, which does not make scientific sense as puts all deforestation at the same level, whether it takes place on tropical forest, cerrados or else, i.e. independent of carbon content. This is a very weak approach compared to most models which estimate land use changes at regional level by land use categories.
- Armington trade elasticities are said to concentrate crop production too much on developed world, where yields are higher, an argument that does not apply to Brazil where sugarcane ethanol presents one of the highest yield of the world.

Specific comments

From the JRC-IE study, only AGLINK-IE and IFPRI provide ILUC estimates resulting from Brazilian sugarcane ethanol production. Because comments on the IFPRI report were covered above, the following will concentrate on the AGLINK-IE study. In AGLINK-IE, sugarcane comes as the best feedstock for ethanol production, yet the study contains various inaccurate assumptions that would need revisiting to re-run the model with a more accurate and satisfactory outcome:

- AGLINK-IE fails to apply country regionalization, where Brazil is a vast country which contains 6 main biomes[26], each of them having their own different agricultural dynamics. Sugarcane is grown for around 90% in the Centre-South of Brazil, which is key to understand before one study pretends to capture the overall Brazilian agricultural dynamics.
- Brazilian agricultural dynamics:
    - AGLINK-IE does not take into account pastureland in the expansion of the total agricultural activities. By keeping pasture land outside the model, it is neglecting one of the most, if not the most, important drivers of Brazilian land use. Today, pasture areas are estimated at 158 million ha, while all the crops occupy only 59.9 million hectares[27].
    - Livestock sector dynamics: AGLINK-IE does not take into account the intensification taking place on pastureland in a satisfactory manner. Empirical data show strong evidence of cattle intensification at the same time of expansion of sugarcane, coarse grains, oil seeds, commercial forests. A higher intensification is expected for pastures, as a result of beef

[23] Global Trade and Environment Impact Study of the EU Biofuels mandate. Op. Cit. Annex VII, page 103.
[24] Indirect Land Use Change from increased biofuel demand. Comparison of models and results from marginal biofuels production from different feedstocks. Edwards et al. JRC-IE, 2010, available here.
[25] Indirect Land Use Change from increased biofuel demand. Comparison of models and results from marginal biofuels production from different feedstocks. Op. Cit. Page 11 and 72.
[26] According to IBGE, MAPA, the Brazilian biomes are Amazon forest, Atlantic, Savannah, Steppe, Pantanal wetland and South Grassland.
[27] Source IBGE (Instituto Brasileiro de Geografia e Estatística)

production.

- In page 59, authors present a strange scenario whereby the productive area is decreased in other countries which compete with Brazil for the grains and other agricultural products. Historical data show that a higher demand for land in Brazil to produce sugarcane for ethanol did not impact negatively the grains production in Brazil. The model does not take into account second crop production (especially for coarse grains and wheat), which is of particular relevance: for example, around 24% of the soybeans area was used to grow corn as second crop in Brazil. If this had been considered, this corn area would produce an extra 5.6 million tonnes in the baseline scenario, accounting for 3.4% of the world corn production.
- Considering all these, competition among crops and pastures will tend to reduce pasture area. Also, with more area for specific crops high yield crops, many of them based in multicrop systems, will cause a reduction on the total demand for agricultural land.

- Sugarcane yield:
  - According to CONAB data, the increase of sugarcane production in Brazil is explained more by yield increases than area. This is the exact opposite consideration made by the study, which considers that the increase will come from 85% by land expansion, 15% by yields increase.
  - Ethanol yield for sugarcane is composed by both the yield of the crop, measures in tonnes per hectare, and its sugar content, known in Brazil as the Total Recoverable Sugar (TRS).
  - In the Bra-SC-Et scenario, yield is observed at lower results that the observed values for 2008: where AGLINK-IE considered yield of 76.6 t/ha, IBGE, the Brazilian national bureau of statistics show that sugarcane yield was 78.6 t/ha in 2008 for the sugarcane sector as a whole, 80.9 t/ha in sugar and ethanol mills[28].
  - Correcting both the sugarcane yield in 2008 and the expected growth of 1.6% / year[29], the correct sugarcane average yield for the period 2016-2018 would be 87.8 t/ha, a value which is 7.2% higher than AGLINK-IE projected.
  - Another inconsistency is in the conversion of sugarcane into ethanol. A conversion is given of 78.7 litres of ethanol for each tonne of sugarcane in 2008, and the value is kept constant through the projected period. This does not consider the reality of anhydrous and hydrous ethanol in Brazil and the growth in Total Recoverable Sugar per tonne of sugarcane.
  - According to CONAB, the following conversion factors are used for ethanol:
    1 litre of anhydrous ethanol = 1.7651 kg TRS
    1 litre of hydrous ethanol = 1.6913 kg TRS
    1 kg of sugar = 1.0495 TRS
    Furthermore, Van den Bake at al[30] show the growth trend in TRS per tonne of sugarcane over the last years as follows:

Agricultural Yield: TRS per ton of sugarcane

	1975-80	**1980-85**	**1985-90**	**1990-95**	**1995-00**	**>2000**
Agricultural yield (kg TRS/TC)	122-128	127-136	137-139	139-141	139-142	144-148

Source: Van den Bake et all (2009)

Considering these values, as well as the relative low TRS content in the last two seasons (because of heavy rainfalls), the conversion from sugarcane would be 77.7 liters of anhydrous ethanol or 81.06 litres of hydrous ethanol. Since the share of anhydrous ethanol

[28] Source: CONAB (Companhia Nacional de Abastecimento, MAPA), Dec. 2009

[29] See previous comments on estimated flat yields for the reference period compared to historical trend of 1.6% gains over the last decade.

[30] Van den Wall Bake, J.D., Junginger, M., Faaij, A., Poot, T., Walter, A. Explaining the experience curve: Cost reductions of Brazilian ethanol from sugarcane. Biomass and Bioenergy, 33(4), 644-658, 2009.

in this crop season was 34%, the correct value for the conversion should be 79.91 in 2008 – higher than the value considered by AGLINK-IE of 78.7.
Using a yield growth of 0.32% a year as the correct conversion in 2008/09 and the share of 71% of hydrous (observed in the 2010/11 crop season), a more accurate value of 82 litres of ethanol per tonne of sugarcane should be used. This value is 4% higher than the value used in AGLINK-IE.

- Other inaccuracies that should be corrected are listed below:
  - The scenario considers that a shock in Brazilian sugarcane ethanol consumption will decrease the production of other crops in the world (wheat, coarse grains and rice) as considers that sugarcane land expansion will be needed and take place on other activities' areas, to be compensated in other regions. However, considering pasture intensification and second crop production, this is not true.
  - Another unusual result is the increase of sugarbeet area worldwide and the sugarcane area outside Brazil. Because ethanol and sugar prices are correlated as produced from the same feedstock, a shock in the ethanol market would lead to higher prices of ethanol and more cane being diverted to ethanol. Sugar prices should also respond to that shock. Because Brazil is the marginal producer of both sugar and ethanol, there is no reason to argue for a lower response of sugar production in the country due to a higher demand for ethanol.

UNICA considers it is worth running the AGLINK-IE model with more accurate assumptions, in particular correcting the three main inconsistencies which are: the absence of consideration for pasture intensification, the ethanol/sugarcane yield, and keeping the LUC within Brazilian boundaries. ICONE estimates the adjusted ILUC would 18.8 kha / Mtoe, that is 86% less than the original AGLINK-IE results. We still believe this 18.8 kha/Mtoe to be overestimated as does not consider intensification in crops (multicropping) or reduction in consumption.

C- IN JRC-IPTS[31], three partial equilibrium models are used (AGLINK, ESIM and CAPRI), all of which show limitations, as it is acknowledged by the authors themselves: they neglect the energy markets and have incomplete land use representation[32]. Their results are focused in changes in the markets (supply, demand, trade and prices) but they discuss results in terms of land allocation and demand.

The models do not concentrate on the Brazilian sugarcane ethanol pathway, apart from AGLINK-IPTS, for which UNICA wishes to make the following comments:

- Land use effects in Indonesia and Malaysia are not simulated, which is an important limitation to the model as these two countries are expected to be exporting palm oil biodiesel to Europe;
- Because ethanol crops have higher yields than biodiesel crops, shifting the biofuel mix in favour of ethanol should have the consequence of less area needed, whereas the model finds an extra 1.1 million hectares is needed[33].
- The model only projects land demand for crops, neglecting land use for pastures. This has another implication as the results of AGLINK-COSIMO are used in the report 'biofuels: a new methodology to estimate GHG emissions from global land use change'[34].
- The presentation of aggregated results makes it impossible for the evaluation of contribution of individual feedstocks in biofuels production and marginal land required. By assuming that the additional land required which is not for oilseeds in Brazil will be met by sugarcane, one would find an ethanol yield of 4.2 tonnes per hectare, compared to current ethanol yield taken at 4.34 tonnes per hectare (page 3). That is to say that projected yield is lower than current yield, indicating that

[31] Impacts of the EU biofuel target on agricultural markets and land use: a comparative modeling assessment, Fonseca et al., 2010.
[32] Impacts of the EU biofuel target on agricultural markets and land use: a comparative modeling assessment. Op Cit. Page 94 and following: section 6.1. limitations of current models.
[33] Impacts of the EU biofuel target on agricultural markets and land use: a comparative modeling assessment, Op Cit. Page ix
[34] Biofuels: a New Methodology to Estimate GHG Emissions from Global Land Use Change", Hiederer et al., 2010 available here.

the model is overestimating land impacts for sugarcane in Brazil and neglecting expected yield increase.

- As was the case in AGLINK-IE, mutlicropping is not considered by AGLINK-COSIMO, though it is an important agricultural practice in Brazil that, if not considered, may lead to an overestimation of land use results.

Although ESIM does not consider Brazil specifically but the EU 27, Turkey and the US, all other countries being integrated in a 'rest of the world' category, one comment is worth being presented. Authors comment that the demand for sugar for ethanol production is more than four times higher, and imports double to accommodate the stronger domestic demand[35]. It therefore seems that the model assumes that sugar, not sugarcane, will be transformed into ethanol, because it does not model biofuels production outside the EU and sugarcane is not exported or exportable. The assumption that one might import sugar to be transformed into ethanol instead of importing Brazilian sugarcane ethanol does not make sense.

D- Comments on the Study 'Biofuels: a new methodology to estimate GHG emissions from global land use change'[36].

The JRC spatial allocation methodology is overestimating forest land conversion to cropland in Brazil and, because it also neglects pasture intensification, also overestimates marginal land demand for Brazil.

- Because the study only presents final and aggregated results, it is impossible for external people to analyse data on land cover and land used. It is unclear how MODIS land cover data were combined with FAO statistics (page 13 and 14).
- The 2001-2004 time period was used to define historical land cover conversion trends. In the case of Brazil, this period presented both deforestation and crop land area increases, where since then deforestation rates have continuously been going down as figure 1 shows. The US Environmental Protection Agency similarly included at first land cover data from MODIS 2001-2004, submitted to a peer review evaluation[37] that expressed concerns over the shortened period and the lower resolution of 1km imagery. For RFS 2, 2001-2007 period and 500 m resolution imagery were used.
- Conversion of natural vegetation to cropland was derived from MODIS 2001-2004. The amount of closed forest conversion to cropland presented in figures 35 and 45 (35% and 30% respectively) indicate an overestimation of closed forest conversion. While JRC argues that a conservative approach was used[38], several evidences support an overestimate:
    - Although Morton et al. found results that support JRC, longer and more updated series indicate this proportion is not confirmed for longer periods;
    - EPA using 2001-2007 MODIS data found 18% forest conversion to cropland;
    - Data on the Soybean Moratorium Initiative indicate only 1.7% (6.7 k ha) of the deforested area from 2007-2009 were partially or fully occupied with annual crops;
    - Based on Nassar et al. 2010[39], land conversion was 81.6% over pastures, 9.6% over savannahs, and 8.8% over forests for the period 2005-2008. With a different reference period (2002-2008), the share of forest conversion increases to 20.7% (64% over pasture and 15.3% over savannahs), yet much lower than JRC results.
    - Only Morton et al support JRC study because the authors analysed the period with the highest deforestation and cropland expansion rates. The consequence is an overestimate of GHG emissions associated.

[35] Impacts of the EU biofuel target on agricultural markets and land use: a comparative modeling assessment, Op Cit. Page 70.
[36] Biofuels: a New Methodology to Estimate GHG Emissions from Global Land Use Change", Hiederer et al., 2010. Op Cit.
[37] ICF International. (2009). Emissions from Land Use Change due to Increased Biofuel Production: Satellite Imagery and Emissions Factor Analysis. Peer Review Report (available at www.epa.gov/oms/renewablefuels/rfs2-peer-review-land-use.pdf).
[38] Biofuels: a New Methodology to Estimate GHG Emissions from Global Land Use Change", Hiederer et al., 2010. Op Cit. Page 130.
[39] NASSAR, A. M.; ANTONIAZZI, L. B.; MOREIRA, M. R.; CHIODI, L.; HARFUCH, L. 2010. An Allocation Methodology to Assess GHG Emissions Associated with Land Use Change. Final Report available here.

- The Brazilian reality very much differs from JRC's. Because of the legal restrictions to convert forests in productive land and the poor logistical conditions in the forest regions, if any expansion was to occur, savannahs are expected to be the favoured ecosystem to be indirectly converted to cropland by other activities. JRC analysis has ignored the legal constraints in Brazil.
- Absence of pasture: the spatial model by JRC takes marginal land demand from IFPRI-MIRAGE and AGLINK-IPTS and allocate that additional cropland over different land uses. The land intensity in the two models are significantly different (111 kha/Mtoe in IFPRI and 219 kha/Mtoe in Aglink), with the corresponding emissions differences. As mentioned previously, the correct methodological procedure would be to input marginal cropland d net of pasture displacement and intensification. Applying the pasture land substitution and intensification factor presented above, results would differ significantly.

E- Conclusions on modeling work submitted to public consultation

Given the importance of tackling these pressing environmental issues, the European Commission would benefit from a fresh approach that engages with a larger and more representative panel of experts and ensures a factually accurate basis for its policy-making **first**. This is in everyone's interest.

To further illustrate the complexity of today's science, UNICA wishes to draw the European Commission's attention to some alarmingly differences in ILUC calculations for sugarcane ethanol according to different modeling scenarios performed or commissioned by regulatory authorities in the US and Europe:

- According to the California Air Resources Board[40], ILUC for sugarcane ethanol, would be 46gr CO_2eq/MJ, though this value is currently under revision;
- According to IFPRI for the European Commission DG Trade[41], ILUC for sugarcane ethanol would be 17gr CO_2eq/MJ;
- According to the US Environmental Protection Agency[42], ILUC for sugarcane ethanol would be 3.8 gr CO_2eq/MJ.

The assumption that science provides a sound understanding of the level of ILUC emissions that can be attributed to biofuels is therefore highly hazardous for a science field which is relatively recent and still immature. Such differences between final results clearly show that, for the time being, science cannot accurately measure the magnitude of the ILUC phenomenon due to biofuels expansion, proof that is not mature yet. Any public policy based on such highly debatable results would be **easily challengeable at the World Trade Organisation[43]**.

The reason is to be found in the role and limits of the models and modelling exercises themselves, already highlighted in UNICA's comments to the EC pre-consultation[44]: models can well give indications of changes from simulated scenarios and identify the best and worst cases and ranking of the results. Models provide orientations, but they are not conceived to pick-up a single number to be integrated in legislation.

Limits of equilibrium models:

- Partial equilibrium models provide aggregated results on land allocation in determined conditions at national level, but not the actual resulting land use change.

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[40] Source: CARB Low Carbon Fuel Standard.
[41] Global Trade and Environment Impact Study of the EU Biofuels mandate. IFPRI. Op cit.
[42] Source: US EPA Renewable Fuel Standard 2
[43] The differentiation o "like products" due to Production and Process Methods (PPM) is an issue that is still under debate at the WTO. This issue becomes especially complex and challengeable when it goes beyond the PPM of a given product and considers PPMs of other sectors into the "differentiation of like products", as it would seem to be the case here. Article XX of the General Agreement on Tariffs and Trade (GATT) also requires sound scientific evidences to support the environmental effectiveness of any trade related measure, which is very doubtful at this stage. The EU would have to prove that the environmental objective it seeks cannot be met in a less trade-restrictive manner.
[44] Consultation on Policy Options to Address Indirect Land Use Change - Comments by the Brazilian Sugarcane Industry Association, 31 July 2009. Op Cit.

- Because they take given world economic conditions, equilibrium models cannot integrate changing environment, shifts in policies, increased productivities, use of degraded, marginal or idle lands, etc. in definitive, the drivers for agriculture expansion/dynamics in different countries. **This is particularly relevant as models submitted to the public consultation do not capture the implementation of sustainability criteria for biofuels derived from EU regulations, national public policies that regulate agricultural activities as is the case of the Brazilian Agro-Ecological Zoning for Sugarcane**.
- In addition, for these models to run properly, accurate data are needed. In some cases, these data are simply not available, and often are being replaced in the models by macrodata, thus adding to the uncertain outcome[45].
- Small bias in input parameters lead to large errors, and the more complex the model is, the less accurate the results are[46], meaning that models would not pass a robust sensitivity analysis.

These limits explain why modellers themselves avoid putting too much weight or credence on precise numbers. This has to be taken into account for policy options which include numbers issued from these exercises, be they for the definition of an adequate GHG 'cushion' or others, including the factor approach. If a satisfactory understanding of the ILUC magnitude per crop for biofuels is not reached, as it is today, it is clearly impossible to deal with the policy options considered by the European Commission.

IV- Comments on proposed actions

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

Despite the significant differences between the modelling exercises, there is a trend in science to go towards much lower estimates of ILUC emissions biofuels are responsible for. The literature review and recent modelling exercises show a tendency to lower these estimates as the science progresses and better and more accurate assumptions and data are inputted in the models.

However, as per our introductory remarks, it is in the sole international arena that land use change dynamics and the protection of carbon-rich and biodiverse habitats can be tackled. **Addressing ILUC by policies focusing on the sole 1% of arable land in production used for biofuels crops will be highly inefficient in addressing the issue.** Energy policy cannot address agricultural/land use management issues. Any policy should be effective in addressing emissions from land use change and encourage actions inside and outside the biofuels sector. Efforts should be made to encourage, or recognise where they exist, better land use management / planning and strengthen the protection of forests and sensitive biomes.

At the European level, ensuring the respect of practical sustainability criteria for biofuels will be key to land use management. Some operators have already shown willingness to extend sustainability criteria to other end uses of the crops. This is the case of the Better Sugarcane Initiative[47], which captures the EU's land use restriction and aims at achieving continuous improvement for sugarcane-derived products, not limited to

[45] From IFPRI, page 71: 'the biofuels modelling project has demonstrated how the current limits to data availability create significant uncertainty regarding the outcomes predictes by these policy simulations. The model represents state of the art simulation of the real world, but more data collection work will be required to reduce this margin of uncertainty'.

[46] The modeling performed in California by the Air Board in the framework of the LCFS clearly demonstrates how different assumptions provide for a complete different outcome. With different, more sensible assumptions taken by UNICA and Brazilian experts, the ILUC results for Brazilian sugarcane varied from + 25.3 gCO2e/MJ to - 10.7 gCO2e/MJ. See UNICA Comments on California's Low Carbon Fuel Standard, 16 April 2009: http://www.arb.ca.gov/lists/lcfs09/129-unica_comments_to_carb_on_sugarcane_ethanol.pdf

[47] UNICA is working with partners to develop certification mechanisms such as the Better Sugarcane Initiative, which gathers producers, buyers, end users, like BP, Shell, Coca- Cola, Cargill, and non-profits like WWF and Solidaridad. The initiative focuses on continuously improving a few significant social, environmental and economic issues such as soil productivity, rational water use, waste water management, biodiversity maintenance, equitable labour conditions. See Better Sugarcane Initiative website.

fuel ethanol for the EU market, but covering also sugar and in the future other sugarcane-derived products. The ball is in the European Commission's camp to ensure these **voluntary** certification schemes, which go beyond the strict legislative requirements, work in practice and timely. While part of this ambitious sustainability initiative, UNICA does not believe that mandating the extension of land use restrictions to other commodities would be a workable solution to address ILUC, as demand for commodities cannot be isolated as would inevitably be the case if this option was legally required. Producers of other agricultural commodities may well respect these requirements when exporting to the EU market, but the EU cannot force them to respect the same rules when exporting to other markets. As a result, the global ILUC problem would not be addressed but only transferred. In addition, the corresponding certification of all commodities would be extremely burdensome and costly, a cost that would be passed onto consumers and would result in higher food costs.

- ***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 according to
  - ***feedstock type***
  - ***geographical location,***
  - ***land management?***

Despite the complexity in comparing models outlined above and recognised by the JRC, one of the few common conclusions that can be made from the analytical work is where most GHG savings are achieved, including ILUC, is by using ethanol. Europe is highly dependent on diesel because of its vehicles fleet composition and biodiesel therefore accounts for roughly 75% of the projected 2020 biofuel mix according to the 23 national action plans released to date[48]. This is in sharp contrast with the other two main biofuels producing and consuming markets: the US and Brazil. The Fuel Quality Directive already provides an incentive to improve the GHG savings of fuels, but the implications and the take up by the fuel distributor is largely unknown. It would seem sensible to complement the FQD by an energy policy that encourages greater use of ethanol in the biofuel mix:

- in the Energy Taxation Directive; and/or
- in a system of the kind developed in the US with the Renewable Fuel Standard[49], with specific mandates of liquid fuels from determined types of best performing biofuels.

Should the EU wishes to encourage some categories of biofuels, it should recognize and accepts effectives policies in third countries where they exist, that establish sound land use management, encourage the best performance of biofuels. The Brazilian experience is particularly relevant as allowed to gain significant yields over the last 35 years of production and use of sugarcane ethanol. The implementation of sound land use management policies such as the Agro-Ecological Zoning for Sugarcane at the São Paulo and federal levels are other examples that need to be recognized and accepted by the European Union.

- ***Based on your responses to the above questions, what course of action do you think appropriate?***
  a. *Take no action for the time being, while monitoring impacts including trends in certain key parameters and, if appropriate, proposing corrective action at a later date;*
  b. *Take action by encouraging greater use of some categories of biofuel*
  c. *Take action by discouraging the use of some categories of biofuel*
     i. *Increasing the minimum GHG saving threshold for biofuel*

During the negotiation towards the adoption of the RED, UNICA favoured the idea of increasing the greenhouse gas efficiency threshold to more ambitious levels to be consistent with the ambitious objectives of the legislation, i.e. reducing GHG emissions from the transport sector. Because some biofuels already

[48] Analysis derived from the 23 NREAPS submitted to the EC to date and available here.
[49] See US Environmental Protection Agency: http://www.epa.gov/otaq/fuels/renewablefuels/regulations.htm

achieve higher GHG emissions reductions while others have room to improve, it appears feasible to secure a sufficient threshold to offset any potential GHG emissions arising from ILUC. However, this precautionary principle is already accounted for in the existing RED legislation: **the existing GHG emissions savings thresholds provide assurance that most biofuels provide real emissions savings versus their fossil alternatives.** In addition, the design of the Fuel Quality Directive already incentivises the fuel distributors to achieve the 6% emissions reduction target by using those biofuels that achieve the most GHG savings. However, there may be limits in a policy that simply wishes to address ILUC with numbers by raising the threshold:

- The definition of the adequate threshold would rely on the modelling exercises being ran, with the corresponding uncertainties above mentioned, and would be open to arbitrary political interpretation;
- It would not differentiate between biofuels and to the extent each pathway is accountable for emissions resulting from ILUC. In that respect, the 'cushion' approach proves as limited as the 'blanket penalty' approach;
- Such an approach only defines culpabilities but can in no way be integrated as better management practices to seek reducing the ILUC impact from a producer's perspective.

Opting for the 'cushion approach' is to recognise that we do not know how to measure ILUC. Coupled with the already existing difficulties identified in the calculation of GHG emissions from biofuels (lack of transparency, limited take into account of co-products, strong discrepancies between the default values used for soil carbon stock and the empirical measurements, etc.), this option shows far more limits than potential benefits for reducing substantially global GHG emissions. Using precautionary approach of the kind is limited for biofuels which are forecasted to represent only up to 2% of the arable land by 2030.

ii. Imposing additional sustainability requirements on certain categories of biofuel

This option discriminates between biofuels and, because of the uncertainties contained in the modelling exercises, it is unclear how crops and/or areas deemed to be liable for a high level of damaging land use change would be identified from a scientific point of view. Requiring additional sustainability criteria would suppose an additional administrative burden for the industry and the idea that some biofuels are 'guilty before proven innocent' is not giving the right signal that the European Union is serious about low carbon fuels, and that investments should be encouraged in the area.

The examples of additional requirements given by the European Commission in the 2009 pre-consultation do not answer the concerns derived from this policy option:

- Proving the use of degraded land: the use of degraded land for biofuels production is already encouraged in the Directives by a bonus equivalent to 35% of GHG savings;
- Other provisions such as proving that measures were taken to improve land imply other constraints such as how to ensure that we do not discriminate against front runners who have already achieved significant yields increase in previous years;
- Requiring national measures are taken to control damaging land use change would inevitably raise question from international trade rules perspectives.

The compatibility with international trade rules of an option which would discriminate between biofuels and imposes different sustainability requirements on biofuels coming from different areas is extremely questionable. It may also stifle economic development in countries that have potential or are already significant producers and protect production in developed countries where damage on land use has already happened.

iii. Attributing a quantity of GHG emissions from ILUC to all biofuels that use land

As previously evoked, UNICA believes that science is not yet able to quantify the level of indirect land use change and their impacts on GHG emissions from biofuels. Similar exercises (CARB LCFS, EPA) have shown

crucial limits in the quantification of the factor, because modelling tools are incomplete and drivers of land use change and agricultural expansion for the world as a whole are largely unknown.

The introduction of any penalty, based on currently available modelling exercises, would not reduce ILUC but simply disqualify all or most existing biofuels production performed on arable land. As the objective is to promote the best alternatives for climate change mitigation, attributing a single constant value ('blanket penalty') to all biofuels would not make any sense, and there would be a need to differentiate by production pathways. While the consistency of the EU sustainability criteria for biofuels with WTO rules is still open to assessment, any attempt to evaluate environmental impacts along the life-cycle production must be based on solid scientific consensus.

Finally, as for the cushion approach, a penalty would not allow producers to minimise ILUC by implementing best management practices, and would not address the principle causes of LUC. It would also be extremely uncertain for policy regulators to insert a precautionary penalty in the legislation when actual results of the predictive models will only be known in a few years time.

d. Take some other form of action.

The concept of the Responsible Cultivation Area (RCA)[50], which has been developed jointly by Ecofys, WWF and Conservation International has some merits insofar it is the first attempt to build a methodology a biofuel producer could use to try to mitigate potential adverse indirect effects. However, because ILUC and its emissions are by nature outside the scope of remit of the producers, the methodology present some crucial limits to be concretely implemented, not to mention the difficulty, legally speaking, to translate it in a policy.

The RCA methodology distinguishes three possible actions to mitigate ILUC, which can be taken at producer level, to reduce unwanted indirect effects, i.e. to prevent the displacement of existing production. These are: making use of 'unused' land; increasing productivity (yields); integrating with non-bioenergy activities.

While these concepts of mitigation measures make sense theoretically, they are already embedded in operational practices anyway or in best practices such as the Better Sugarcane Initiative. All three present limits, not mentioning the fact that they would be hard to capture in a certification tool:

- The use of 'unused' land does not capture the dynamics of agricultural activities. In this scenario, the sugarcane expanding on pastureland, released because of the gains of productivity of the cattle activity, would not qualify, as there is no proactive intervention from the sugarcane industry, which simply 'benefits' from the released land. Defining unused land would probably prove difficult. Finally, the incentive to use severely degraded and contaminated land is already in the EU legislation and reflected in voluntary certification schemes such as the BSI.
- Similarly, the concept of increasing productivity makes commercial sense anyway from a biofuels producer perspective. Setting a baseline now for future expansion discriminates against those who have been increasing yields over the last 35 years as is the case of the Brazilian sugarcane industry. Taking a practical example between two plants, one achieving 7,000 litres per hectare yields, and going to 7,700 litres in the next years; another one achieving 2,000 litres, rising to 4,000. In this scenario, following the sold yield increase concept, the second plant which achieves a 100% increase in productivity would qualify better, ILUC wise, than the first one which is almost twice more efficient but only achieves a 10% increase in productivity.
- Finally, the concept of integration with non bioenergy activity, namely cattle by selling the bagasse for animal feed makes little sense in Brazil, given the low nutritive value of bagasse, the need for hydrolisis, the absence of logistics including warehousing for bagasse as animal feed, and the requirement to enter into an agreement with another activity. Applying the RCA concept to obtain an exemption from an eventual ILUC penalty, one producer would cease to use the bagasse to

50 'Responsible Cultivation Areas' methodology developed by Ecofys, Conservation International and WWF International available here.

generate power (as in any case under EU legislation it does not provide emissions credit) and would divert it for animal feed. This would have an adverse impact on the GHG lifecycle analysis of the biofuel, as the missing electricity would have to be found another way, likely to be from non clean and renewable sources. For Brazil, which produces food and feed in large quantities, and faces an electricity grid problem with frequent large scale cuts, the use of bagasse is currently maximized and should not be diverted for the sake of avoiding an ILUC penalty for the EU biofuel market. This is a particularly sensitive subject that touches upon the possible **adverse and perverse indirect effects of ILUC mitigation policies limited to the biofuels sector.**

V- Recommendations

- It doesn't matter where CO_2 emissions originate because the consequences for our planet are equally grave, including for the European Union. The challenge is to reduce global emissions, in particular in the transport sector.

- Developing science to understand ILUC for all land based activities is crucial. But it is still too immature to evaluate the magnitude of ILUC for biofuels or for other types of production. The wide gaps in the results in different studies prove that.

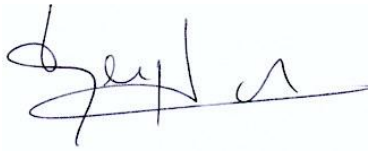
- Independent of the progresses of the science for ILUC, what is needed to address and limit the source of emissions is to start recognising countries that take concrete actions to reduce deforestation and protect carbon rich habitats such as Brazil, and promote a legally-binding multilateral agreement to eliminate deforestation and protect carbon-rich habitats. Or else the risk exists to eliminate a valid solution for transport while the same amount of CO_2 emissions would continue to be released as deforestation will continue to happen.

- **The EU should recognise and consider as valid solutions the efforts made in some countries, such as Brazil, to establish sound land use management practices and encourage the use of land which is both available and suitable for crops for biofuels without displacing other crops**. The Brazilian Agro-Ecological for Sugarcane mapping aims at managing sugarcane land expansion and ensuring respect of sensitive areas at the same time. Such land use planning exercises should be encouraged as allow the industry to identify lands suitable for biofuels feedstock and minimise the risks of indirect adverse effects, not limited to emissions.

- ILUC in the EU legislation is only about emissions. But the ILUC debate has ultimately become about whether biofuels are a valid option for decarbonising the transport sector. UNICA believes that the three objectives of the renewable in transport policies are valid (climate change mitigation, economic growth/development, energy security) and that biofuels have a role to play, being one of the very few available options today. Ultimately a sound policy, not limited to ILUC related issues, should incentivise those biofuels that respond the most to these policy objectives.

We remain available for the European Commission to answer any question arising from UNICA's submission.

Sincerely,



Emmanuel Desplechin
Chief Representative in the European Union