

São Paulo, 29 January 2013

To: The HLPE Project Team and Steering Committee

Ref: Comments on V0 the HLPE draft Report: Biofuels and Food Security

The Brazilian Sugarcane Industry Association (UNICA) is the leading trade association for the sugarcane industry in Brazil, representing nearly two-thirds of all sugarcane production and processing in the country. The organization's 130 member companies are the top producers of sugar, ethanol, renewable electricity and other sugarcane-based products in Brazil's South-Central region, the heart of the sugarcane industry. Brazil is the world's largest sugarcane grower, with over half a billion metric tons of cane harvested yearly. In 2012, Brazil produced over 31 million tons of sugar and about 26 billion liters (6.8 billion gallons) of ethanol. In addition, mills generate their own power from the sugarcane biomass. Official government data shows that cane processing mills produced approximately 16,000 GWh of electricity last year, the equivalent of about 3% of the country's annual electricity demand.



Dear Members of the HLPE Project Team and of the Steering Committee,

The Brazilian Sugarcane Industry Association (UNICA) appreciates the opportunity to comment on V0 of the HLPE draft report on Biofuels and Food security.

We welcome the initiative taken by the UN Committee on Food Security to commission a science-based comparative literature analysis to explore the nexus between biofuels and food security. However, we regret that the work undertaken by the HLPE is not scientifically robust and has not been carried out with the rigor this important topic deserves. In fact, the report does not describe the methodology that has been used to conduct the literature review.

In our opinion, the lack of a clear methodology has induced a strong bias in the selection of the analytical works that have been taken into consideration. The report clearly focuses on possible negative impacts of biofuels on food security and other sustainability aspects. Positive effects of bioenergy production that are documented in a number of scientific studies should also be considered to guarantee the scientific robustness of this report.

Although Brazil is cited in many parts of the report, Brazilian reference studies on biofuels are almost inexistent. Brazil was a world pioneer in the production and use of biofuels and is the world's second-largest ethanol producer. With almost 40 years of experience with biofuels, the literature published by Brazilian scientists on biofuels production impacts and policies is extremely rich.

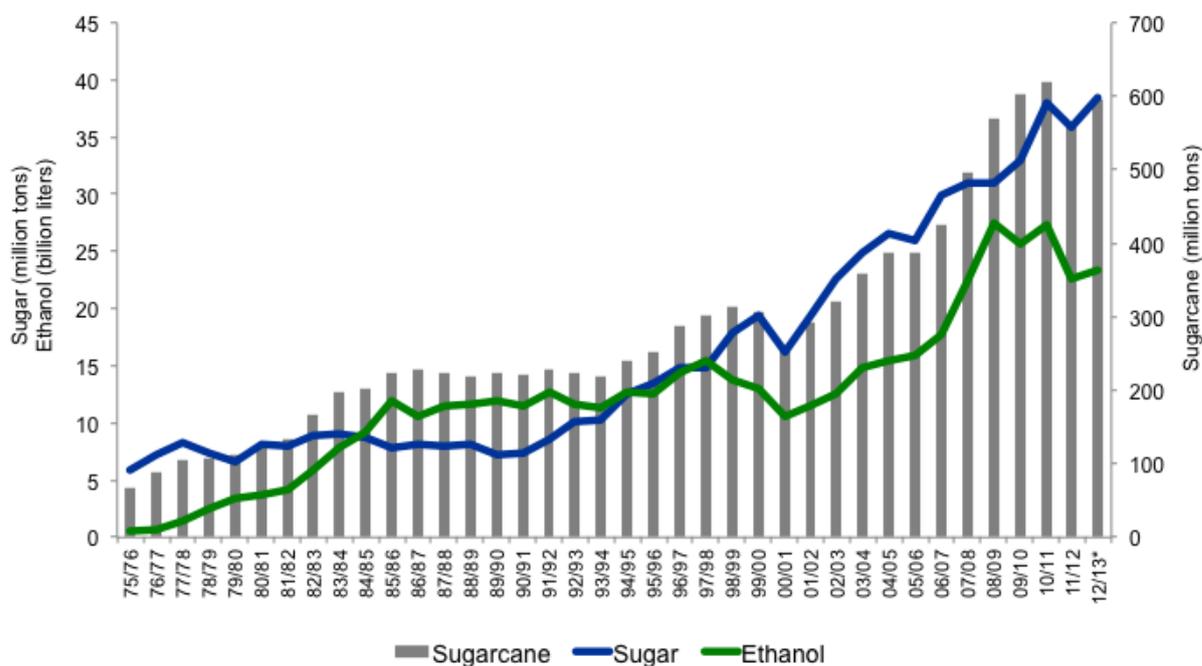
We are pleased to provide in annex a list of Brazilian and international bibliographic references we highly recommend the project team to consider.

We would also like to provide specific comments on the draft report in order to correct or complement some of the information it contains.

1. **P.6 Modern biofuels markets emerged in response to the two oil price hikes in the 1970s.** Various countries responded with proposals for alternative fuels policies but the two countries which created a biofuels ethanol market and a biofuels productive sector in this period were Brazil and the US, the former using sugar-cane and the latter corn. In both cases the defense of the interests of powerful agricultural and agro-industrial sectors was key, but these interests coincided with broader strategic goals to reduce levels of energy dependence.

As shown in the graph below, sugar and ethanol production have both grown substantially and simultaneously since the introduction of the Brazilian ethanol program in the 1970s. The intention of this program was also to make Brazil a large producer and exporter of sugar.

GRAPH. 1 EVOLUTION OF SUGARCANE, SUGAR AND ETHANOL PRODUCTION IN BRAZIL



Sources: UNICA and Brazilian Agriculture Ministry (MAPA)

2. **P.8** *In addition, and in counterpart to the large-scale monoculture model of sugarcane ethanol production, the Brazilian government launched a biodiesel program formally justified in terms of social inclusion and rural development.*

Regarding the social impacts of sugarcane large-scale production, it is important to take into account that this model requires significant manpower and machinery for cultivation, harvesting and processing. The Brazilian sugarcane industry employs over one million people, or nearly a quarter of the country's total rural workforce. Salaries for sugarcane industry workers are also among the highest in Brazilian agriculture.

In addition to income levels, Brazilian sugarcane provides an important social contribution in terms of geographical income distribution. No less than 1,042 municipalities produce sugarcane and/or ethanol, six times higher than the number of municipalities producing petroleum and/or processing its derivatives in the country. (Azanha, M., et. al. *Social Externalities of Fuels. In. Ethanol and bioelectricity: Sugarcane in the future of the energy matrix / [coordination and supervision Eduardo L. de Sousa and Isaias de Carvalho Macedo; English translation Brian Nicholson]. – São Paulo: Unica, 2011.*)

It is also important to recall that sugarcane is a semi-perennial crop. Sugarcane fields are renewed every 5 to 6 years on average. Before sugarcane is replanted, annual crops, such as oilseeds, are commonly cultivated, contributing to the maintenance of soil quality.

Around 1/6 of the sugarcane area is set aside for that purpose every year, quite often producing food. São Paulo State, for example, is the biggest producer of peanuts in Brazil, accounting for 83% of the country's total production, just by using this oilseed as a rotation for sugarcane (IBGE, Sidra System, www.sidra.ibge.gov.br, accessed on Jan 28th 2013).

In order to efficiently process sugarcane, the areas used for cane cultivation need to be located near the sugar/ethanol mills (at a distance of approximately 30 km) otherwise quality losses are significant. The proximity between fields and the mills where the cane is processed enables the transportation and use of the majority of residues from processing (i.e. filter cake) as organic fertilizers. This significantly reduces the use of fossil-based chemicals. This characteristic is a *sine qua non* condition for several important production practices that result in reduced environmental impacts of sugarcane production.

3. **P.23** *In line with the HLPE report on this theme (2011), our analysis indicates that biofuels have played a predominant role in the increases in food prices and volatility since 2004. Two basic reasons can be identified. In the first place, with the rise of oil prices, it has been economically feasible for ethanol manufacturers to bid up the price of maize (and through it the price of other crops) from roughly \$2.25 per bushel (\$88.6 per metric ton) to levels 2.5 to 3 times higher for much of 2008 and since 2010*

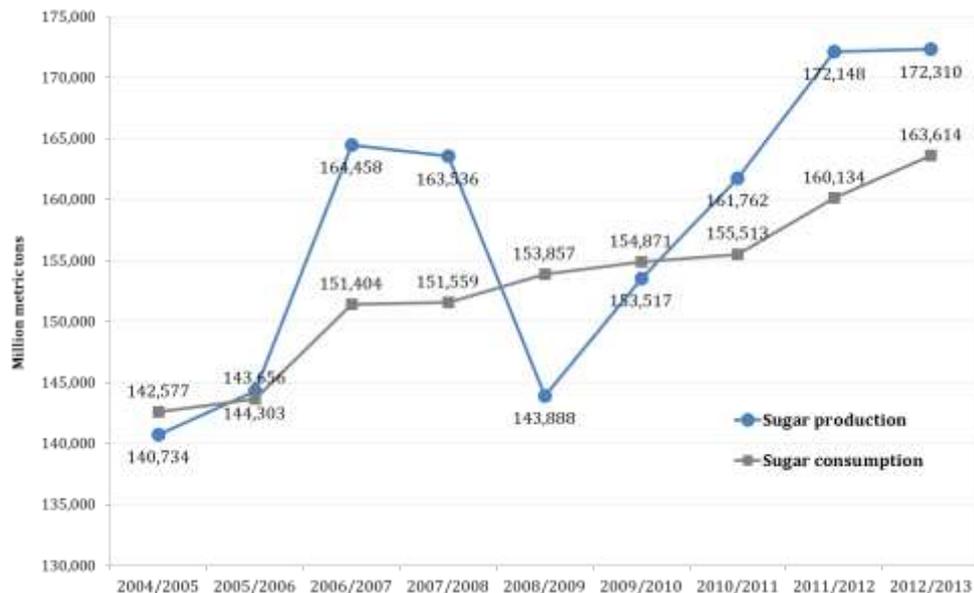


(prices ranging from \$6-\$8 per bushel, or roughly % per bushel, or roughly \$235 to more than \$300 per metric ton) for much of 2008, and since 2010. Secondly, the production and supply of grain, vegetable oil and sugar supplies since 2004 have not been growing as fast as the demand for them, which is due in large part to the rise in demand for biofuels.

According to data published by the United States Department of Agriculture (USDA), and contrary to what is stated in the report, global sugar production is higher than consumption. Since 2004 (year mentioned in the report), production has grown 0.78% per year, while demand grew by 0.53% (Graph 2). For the 2012/13 harvest, the USDA estimates a global surplus of 8.7 million metric tons of sugar. According to LMC International, production will outpace consumption by 9.6 million tons (Graph 3).

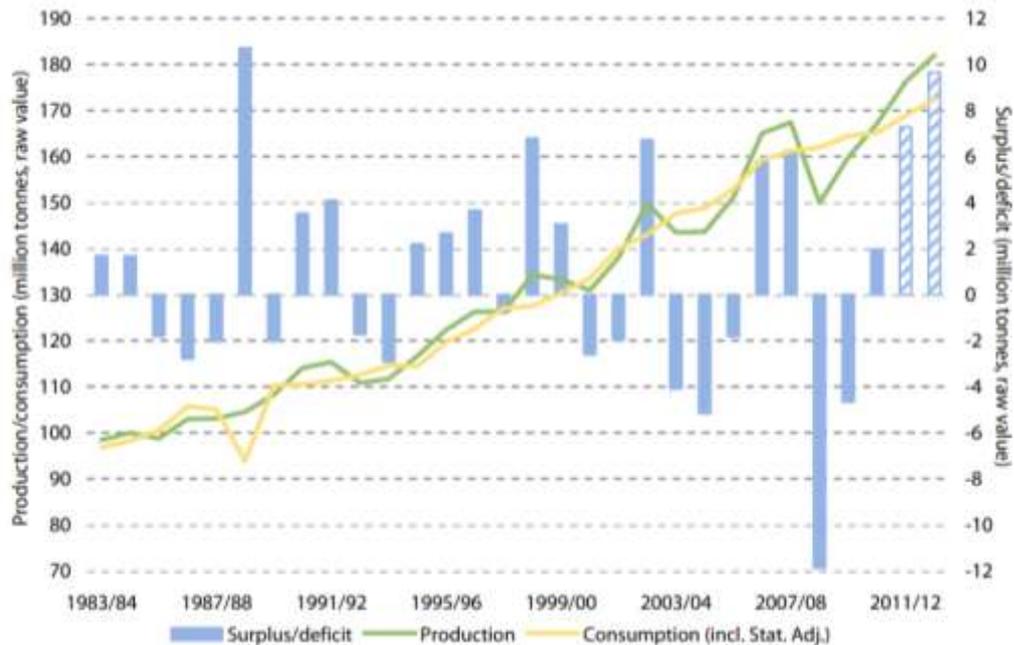
In addition, when analyzing sugar supply and demand it is necessary to consider sugar production/consumption cyclical behavior, as shown in Graph 3.

**GRAPH 2. GLOBAL SUGAR PRODUCTION AND CONSUMPTION
(IN MILLIONS OF METRIC TONS)**



Source: USDA

**GRAPH 3. GLOBAL SUGAR PRODUCTION AND CONSUMPTION
 (IN MILLIONS OF METRIC TONS)**



Source: LMC International.

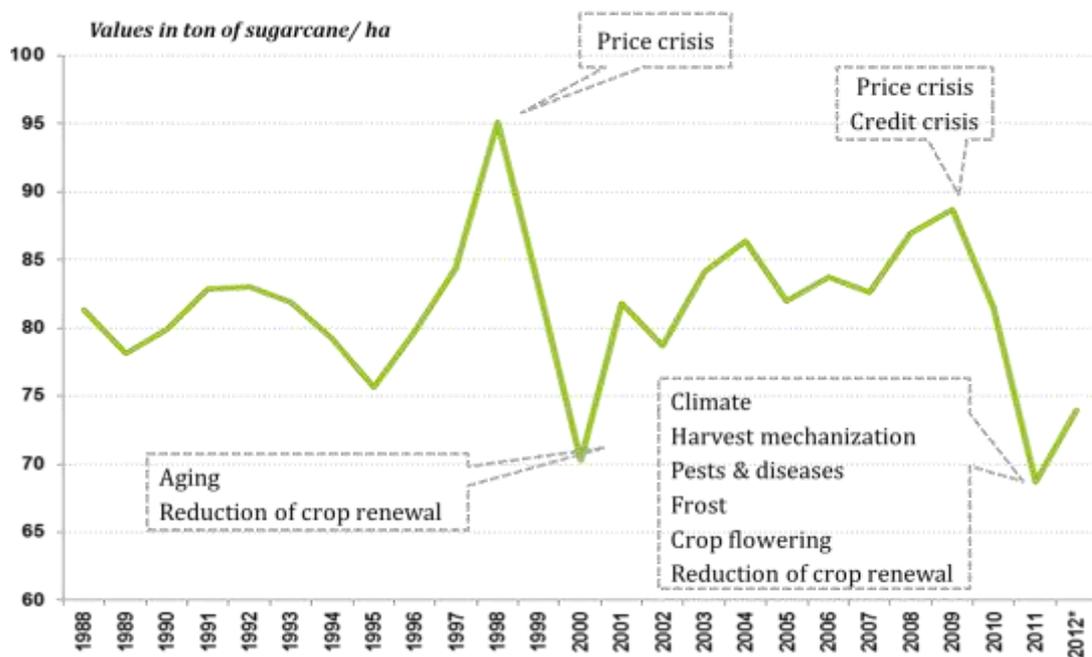
4. **P. 32, footnote 11** *The 26.46 million metric ton increase in soybean imports in China between 2004 and 2012 would require 9.6 million hectares of U.S. soybean land at 2012 yields (26.46 million mt divided by 2.75 MT/ha U.S. 2012 soybean yield). During this period, total grain used for ethanol increased 95.6 million metric tons, which implies a net increase of 66.9 million mt after accounting for by-products at 30%. Vegetable oil for biodiesel increased by 13.483 million metric tons and raw sugar used for ethanol increased by 26.444 million metric tons. That can be roughly translated into 7.542 million hectares of U.S. maize land net of by products (66.9 million mt/8.879 mt/ha), 8.57 million hectares of U.S. soybean land based on the caloric value of vegetable oil in the soybeans (13.483 million mt soybean oil/0.2 crush ratio*.35 caloric ratio/2.75 mt/ha U.S. 2012 soybean yield); and 6.6 million hectares of Brazilian cropland for sugarcane (26.444 million mt of raw sugar eq. /.048809 raw sugar to sugar cane ratio in Brazil in 2012/81.64 mt/ha sugarcane yield in Brazil in 2012*

The source of this data is not indicated in the report. The authors should include it. According to the Center for Sugarcane Technology (CTC), agricultural productivity in the 2012/13 harvest year is likely to reach about 74 tons of sugarcane per hectare. In the 2011/12 harvest year productivity reached 69 tonnes per hectare - the lowest level of the past 20 years – because of several factors: unfavorable weather conditions (including the occurrence of frost and flowering); incidence of new diseases such as “ferrugem laranja” (Sugarcane Orange Rust); increased levels of certain pest infestations; advanced age of sugarcane fields; the

expansion of mechanized planting and harvesting in areas not systematized for these procedures; production growth in regions with lower yield potential.

In addition, there is no information on the amount of sugarcane cultivated worldwide that is exclusively directed to ethanol production. Therefore, it is impossible to consider the 26,440,000 metric tons mentioned in the report as reliable data. In Brazil, the amount of sugarcane directed to ethanol production grew by 99.10 million tons between harvest years 2004/05 and 2012/13¹, which is equivalent to the period mentioned in the paragraph in question. In turn, this volume would total 4.84 million metric tons if the conversion factor used in that study (0.048809) is adopted.

GRAPH 4. HISTORICAL EVOLUTION OF SUGARCANE YIELDS IN THE SOUTH-CENTRAL REGION AS WELL AS RESPECTIVE FACTORS OF INFLUENCE.
 (IN TONS OF SUGARCANE PER HA)



Source: CTC. Note: 2012* - preliminary data.

5. **P. 36** Yet, the U.S. exported more than 300 million gallons of ethanol to Brazil in 2011 (CRS 2011 p. 31). This apparently strange behavior reflects the premium price paid for “advanced ethanol” to meet U.S. mandates, which include sugarcane, and the limited capacity of Brazil to produce ethanol both for its own market and the U.S

¹ Preliminary data.



Large imports of ethanol in 2011 were an exceptional situation, which cannot be taken as a parameter and is not expected to happen again in the future. Between the 2010/11 and 2011/12 harvests, the amount of sugarcane crushed dropped by 9.82% given the lowest productivity levels of the past 20 years. It should be noted that ethanol imports from the US in 2012 dropped considerably, to 144 million gallons, while exports rose to 541 million gallons.

The 2011 situation happened because of a poor harvest in Brazil, caused by economic and climate problems that impacted production. Export contracts, however, needed to be honored, which explains an important part of that trade. To conclude, however, it is paramount to point out the great benefits of a free market. The possibility of ethanol being traded freely between the two biggest producers allows for a reduction in market tensions. Between harvests, for example, when there is a tendency for prices to rise, the free market will act as a counter balance, avoiding price spikes and, therefore, benefiting consumers.

**TABLE 1. BRAZILIAN ETHANOL IMPORTS AND EXPORTS
(MILLION GALLONS).**

Year	Import.	Export.
2009	1,180	1,352,360
2010	19,707	874,075
2011	303,860	503,412
2012	144,148	816,378

Source: SECEX.

6. **P. 41** *Today, if 100% of world crop production were diverted to bioenergy, it would provide 13% of world primary energy*

According to the IPCC Special Report on Renewable Energy Sources and Climate Change Mitigation, bioenergy in 2008 accounted for 10.2% of total primary energy supply (492 EJ). It is worth noting, however, that 60% of the bioenergy produced in 2008 was characterized as traditional biomass. This indicates a significant potential for increasing the share of modern biomass in primary energy supply.

It is also important to point out that biofuels should be analyzed in light of the transportation energy needs, and not as the total of energy demand, as the author suggest. In this context, biofuels do have a significant potential to reduce the world's gasoline dependency. Just to illustrate and put this potential into perspective, we present a hypothetical scenario with the substitution of 20% of total global gasoline consumption by sugarcane ethanol in 2020.

Considering trends in the gasoline market, we assume an estimated world gasoline consumption of around 1.48 billion m³ in 2020. Considering ethanol's lower energy content, a 20% substitution would represent 332 million m³ of ethanol. To produce that amount of ethanol with sugarcane, and assuming a 30% increase in the productivity by 2020 (from 7,000 to 9,000 liters per hectare) due to technological advances (improved varieties, some production of second generation ethanol from sugarcane leaves, etc), the world would need 37.47 million hectares. In other words, it means that with 2.41% of the area currently under cultivation in the world, we would be able to substitute 20% of total global gasoline needs by 2020. Obviously this is just a very simplistic scenario and any conclusion needs to be done with care. It does, however, indicate that biofuels can have a relevant contribution to our transportation needs: a very different deduction when compared with the messages presented on page 41, which are also based on a very simplistic scenario.

7. **P.42** *Any effort, therefore, to produce meaningful quantities of bioenergy would result in large-scale competition with the use of land for other human needs or carbon storage.*

The Brazilian experience with sugarcane ethanol indicates that this may not be true. For instance, using less than 0.5% of the Brazilian territory, sugarcane ethanol surpassed gasoline consumption in 2008 (consumption data from ANP, Brazil). In addition to that, it is estimated that around 40% of the world's arable lands are severely degraded. Part of these areas could also be restored and used for bioenergy production.

8. **P. 52** *Certifications schemes are a key complement and advance on regulation to the extent that they operate at the level of the firm and can incorporate specific features not contemplated in general regulations. On the other hand, there are many certification schemes not all of which are multi-stakeholder or include social criteria. This makes it possible for UNICA, the representative of the Brazilian ethanol producers to be a member of the RSB but to certify its products through another certification scheme Bonsucro.*

It is important to clarify that UNICA does not certify any product. As an institutional representation, the organization is a member of some certification forums and roundtables, including the RSB and Bonsucro, with the aim of contributing to the development of robust and sound sustainability certification schemes that are applicable to the sugarcane industry in Brazil. UNICA's member companies, however, are completely free to choose whether or not to certify their products and, in the later case, which standard to follow.

Finally, unlike what the report suggests, Bonsucro is also an international multistakeholder initiative. Its more than 60 members come from different sectors, including farmers, biofuel producers, consumers and NGOs. Social requirements have always been a key part of the Bonsucro standard. Criteria specifically relating to social issues can be found, for instance, in Principles 1, 2 and 5 of the standard. Please visit the Bonsucro website (www.bonsucro.com) for additional information.

9. **P.73 Appendix I. Biofuels Policies by Country, Type, Mandates and Subsidies/Incentives**

The percentages specified in Appendix I regarding ethanol blends in Brazil is incorrect. According to the *Portaria* n° 678 of August 31st 2011 by the Ministry of Agriculture, the current ethanol blend in gasoline is 20%. However, it is important to point out that the law (Lei n° 12.490, Sept 16 2011) specifies a minimum of 18% and maximum of 25%.

Additional data that is incorrect refers to the volume of ethanol demand in Brazil (2.7 million m³ in 2011 mentioned in the report). According to ANP (National Petroleum, Natural Gas and Biofuels Agency), consumption in 2011 amounted to 19.29 billion liters (8.39 billion of hydrous ethanol, plus 10.9 billion of anhydrous ethanol).

Regarding the alleged subsidy to the sugar-energy industry in Brazil mentioned in the document, we encourage the authors to cite the source of this data in order to understand and comment on the methodology adopted. There are different levels for the ICMS (a consumption related tax), depending on the state. These taxes, however, are never lower than the ones applied, for example, to fossil diesel. Therefore, we would suggest that detailed information about the calculations and methodologies should be transparently presented.

We remain at your disposition should you need any additional information on the Brazilian Sugarcane industry.

Best regards,



Elizabeth Farina
President and CEO
Brazilian Sugarcane Industry Association

ANNEX

Bibliographic references list that we recommend the authors of the report take into consideration.

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