International
Food & Agricultural Trade
Policy Council

October 2006

Trade Liberalization in Sugar and Oilseeds: How Will It Affect the Environment?

Introduction

The Doha "Development" Round of the WTO is at an impasse mainly due to a lack of progress in trade negotiations. While recent research and studies have explored the effects of liberalization on poverty reduction and world food production, few studies have assessed the environmental and social impacts of such liberalization. This brief summarizes the findings of two longer IPC studies focusing on how the lowering of barriers to trade in the oilseeds and sugar sectors would affect the environment and the poor in producing countries. IPC is of the view that identifying possible adverse environmental effects of trade liberalization, whether it occurs through the WTO, EU reform, or free trade agreements, will help policymakers address these issues in advance by making appropriate policy choices.

While each study finds noteworthy conclusions relating specifically to the oilseeds and sugar sectors, one common finding of both is that the impact of trade liberalization is less than the impact of an expected increase in demand for biofuels. In other words, long-term demand for biofuels and biofuel policies will have more of an impact on oilseed and sugar production, and by extension, have greater environmental or social impacts, than developments in the Doha Round. Moreover, the rapid pace of development, spurred by an increase in commodity prices, will challenge good management practices and environmental law enforcement ability. Policy changes therefore resulting from a successful Doha Round could provide producing countries with an opportunity to revisit development policies. These policies would benefit countries' continued ability to supply world markets and to serve environmental goals with a minimum of further disruption to eco- and social systems.

Specifically, the studies find that increased oilseed and sugar production will be an important contributor to environmental changes in producing countries. They identify five areas to consider when assessing whether production would positively or negatively affect a country: soil erosion, air quality, water quality, loss of biodiversity, and the social impacts of production. Policy changes in trade will lead to shifts in production of both commodities; liberalization tends to decrease production in countries that become uncompetitive without protection and increase production in countries that enjoy a comparative advantage. The papers note that too much production in the wrong places and without the proper legal and judicial systems can have negative environmental impacts. While it is important to identify all the potential ways in which counties could be hurt by trade policy changes, it is also wrong to assume that increased production will always be bad for the environment. It is necessary to first examine the issue more closely and shape policies accordingly. That is the purpose of these studies.

This IPC Brief is based on a more extensive discussion of the topic in IPC Issue Briefs 16 and 20, written by Jane Earley and Thomas Earley.
These Issue Briefs were supported by the United Nations Foundation and the Dutch Ministry of Foreign Affairs.

1616 P Street NW, Suite 100 Washington, DC 20036 / USA / TEL 1 202 328 5056 / FAX 1 202 328 5133 / www.agritrade.org

Common themes from both studies:

- **Changes in the biofuel market will have a greater impact on production and the environment** than trade liberalization
- **The net effect of biofuel production on the environment is uncertain**, considering the potential environmental consequences analyzed in these papers. In other words, the trade-off of the net positive effect on air quality of substituting ethanol for petroleum transportation fuels for the net negative effect of expanded crop production is an uncertain calculation.
- **Resource endowments are of critical importance** for assessing environmental outcomes. The availability of suitable land and an adequate water supply is the key to expansion of sustainable sugarcane production. Brazil is best endowed for sugarcane production, and China is the least.
- **Enforcement of existing environmental laws and regulations is needed** and is more important than developing new ones. Where enforcement is weak, countries will be more vulnerable to negative environmental impacts; where enforcement is robust, negative impacts caused by increased production will be mitigated or eliminated altogether.
- **Technological advances could ameliorate** some of the anticipated adverse environmental impacts.
- **The social pluses of increased employment probably more than offset any social negatives** from displacement of indigenous populations and a shift from diversified cropping to sugarcane monoculture.
- **Improved economic prospects in developing countries resulting from increased production of sugar and oilseeds may lead to more environmental awareness** and increased public and private activity to safeguard the environment.

The following discussion refers to the country-specific findings of the impact assessments of increased sugar and oilseeds production. It references matrices used in the complete studies, which score case study countries positively or negatively depending on the expected impact of certain policies on soil erosion, air quality, water quality, loss of biodiversity, and the social impacts of production.

Oilseeds: Country studies

United States

Trade liberalization will lead to an increase in the area planted to soybeans as a result of improved US access to other countries' markets. However, the US export assistance and support programs will be cut, and this will reduce impact on soybean production, provided all major US field crops are similarly affected. The US scores negatively in the area of market access due to the negative impact on water quality and loss of biodiversity; however, these are partially offset by the positive scores it receives related to cuts in domestic and export subsidies.

The scale of the various impacts is limited because producing soybeans is more environmentally friendly than producing competing crops like corn or cotton, due to lower input use, nitrogen-fixing character, and prevalence of no-till methods. Soil quality is generally well-maintained through US conservation measures, so the main environmental concern in most US crop production areas is with the quality of surface and sub-surface water.

Brazil

The effects of trade liberalization and expansion of the biodiesel industry work in the same direction in Brazil—to-

ward a major expansion in the area planted for soybeans. With liberalization, much new land will be brought under cultivation, with associated risks of deforestation and encroachment upon new land in the Cerrado and the Amazon. Brazil faces major challenges in developing an effective environmental regulatory system that is properly enforced. Currently, conservation laws do exist, however lack of enforcement and corruption are among the top factors leading to environmental challenges in Brazil.

Malaysia

Malaysia ranks between the United States and Brazil in the assessment of the environmental impacts of trade liberalization and changes in biodiesel policy. The country risks losing biodiversity due to an increase in palm oil production that would occur with rising global demand for biofuels. The direction of the environmental impacts is uniformly negative, but the scale of the impacts is moderate, in part because of limitations on land available for additional palm production, and in part because Malaysia has a reasonably good legal system that enforces property rights and environmental regulations.

Indonesia

Of all countries studied for this report, Indonesia proved to be the most worrisome in terms of the potential adverse environmental impacts of trade liberalization and the changing market for biofuels. Increased palm oil production would contribute to deforestation and the loss of biodiversity in a country with one of the most diverse set of species in the world. Weak environmental enforcement, in part due to government restructuring and lack of well-defined property rights, are major problems that will contribute to continuing loss of habitat and biodiversity. These problems will also contribute to lower soil, air, and water quality in the absence of effective policies designed to reverse such trends.

Sugar: Country studies

Brazil

More than trade liberalization, the growth in world demand for ethanol will affect the environmental sustainability of sugar production in Brazil. Because Brazil is one of the largest consumers and the largest exporter of ethanol, the expansion of sugarcane acreage will be mostly ethanol related. However, liberalization in the world sugar market will benefit Brazil in terms of its ability to export both sugar and ethanol, thereby also contributing to the increase in land devoted to sugarcane production.

The resulting increase in sugarcane monoculture will have a net negative effect on soil quality and water use, perhaps more negative for water than soil, because sugarcane is a "thirsty" crop. Brazil's score on air quality is difficult to determine, since it will be negative due to associated burning of cane and processing activity, but will be positively affected, since ethanol replaces fuels that contribute more to air quality degradation and carbon emissions. On the plus side, the effects on biodiversity are anticipated to be minimal and increases in sugarcane planting will lead to some additional seasonal rural employment. However, Brazil's good environmental legislation, but pronounced lack of enforcement capability, combined with the likelihood that increased sugarcane acreage will be widely dispersed in non-traditional areas, leads to a negative score across most environmental categories.

Removal of EU export subsidies will make Brazil's sugar sector more competitive, and therefore it will be able to export more sugar and derivative products. This will, in turn, adversely affect all environmental factors. The one exception is within the social sphere, where greater market access will create more rural employment. If and when cellulosic conversion technology becomes commercialized, Brazil will be able to also convert bagasse, the residue of sugarcane production, to ethanol and may be able to devote less land to sugarcane

production. This would limit some of the potential adverse environmental impacts discussed above.

Indonesia

Indonesia is a high-cost producer of both sugar and ethanol, compared to the countries currently producing sugarcane, like Brazil. Therefore, while trade liberalization and growth in fuel ethanol production will affect the world price of sugar, Indonesia will mostly focus on becoming more self-sufficient in producing sugar for domestic usage, and not for export. The degree to which this will affect sugarcane planting for ethanol and export likely depends on whether world sugar and oil prices continue to be linked and continue to rise. However, Indonesia's net contribution to biofuels will most likely continue to be through palm oil, for which plantings are already increasing.

Indonesia's notable lack of environmental enforcement capability and its eagerness for foreign direct investment to expand agricultural production earn it negative scores in most of the environmental categories. However, the social impact will be mitigated by increased employment. In terms of its non-pollution environmental externalities, the geophysical properties of Indonesia environmentally support sugarcane cultivation, but the manner in which it is conducted will likely lead to some deterioration of the physical environment. Internal distribution system problems (producing on other islands for transport to Java) would also discourage production. This may well be a plus environmentally, but diminished production would inhibit job opportunities, and thus not contribute to social benefits from increased sugar production.

China

China is currently making ethanol from corn, subsidizing production in part because of its intention to show reduced air pollution in urban areas for the 2008 Olympics. Sugarcane acreage is increasing, in response to higher sugar prices, but there is apparently no plan to use cane for ethanol. China's production costs are mid-range. It therefore rated negatively for water quality, but other environmental effects were seen as unlikely.

China's sugar sector will not be strongly affected by trade liberalization, except as a result of other exporters' increased access to other markets. Market prices will therefore be the primary drivers of increased production in China. The environmental impact resulting from increased sugar production is generally the same, except for water use, because any increase in cane or beet planting is likely to increase pressure on this resource. Biodiversity will not likely be influenced by market forces, but increased acreage in sugarcane is rated harmful in the social category due to the human health implications of water shortages. However, a higher price for sugar may keep marginal farmers in business and enhance their ability to remain in rural areas.

Turkey

Since sugar production is likely to decline in Turkey as a result of trade liberalization, and since the cost of producing fuel ethanol from beet in Turkey is comparatively high, area planted to sugar beets will decline. The question, then, is whether the environmental impacts of other crops in the current rotation — for example corn, wheat, and sunflower — are better or worse than those from beets. The main difference is probably the volume of irrigation required; from that perspective, a decline in beet area is an environmental plus because of the comparatively high water requirement. A decline in the number of beet factories will also have positive environmental impacts, but these will be offset to some degree by processing associated with increased output of other crops. Sugar beet is comparatively labor intensive and is also a cash crop with a payment guaranteed by the factory. Loss of that economic option for farmers will have adverse social impacts.