Woodrow Wilson International Center for Scholars
*Brazil Institute*

Summary of a conversation held on April 18th, 2007 between
UNICA's Eduardo Carvalho and representatives of the environmental policy community.

Since President George W. Bush pledged to set a mandatory fuels standard to require 35 billion gallons of renewable and alternative fuels be used in the United States by 2017, academics, interest groups, and business leaders have sought to understand the potential social, economic and environmental repercussions of such a profound shift. Unfortunately, the ethanol debate taking place within the United States has been dominated by the impacts of increasing corn-based ethanol production. Other alternative energy sources, such as Brazil's *sugarcane*-based ethanol, have been inaccurately lumped together with corn-based ethanol regardless of the industry's striking differences.

To dispel certain myths and accurately assess the distinct challenges posed by the current and projected expansion of Brazilian sugarcane-ethanol production, the Brazil Institute of the Woodrow Wilson Center convened an invitation-only working lunch with representatives of the industry, governments and the environmental community. The event brought together leaders from prominent organizations, including but not limited to the World and National Wildlife Federations, Conservation International, the Environmental Working Group, and the International Agricultural & Food Trade Policy Council, along with government officials from U.S. and Brazilian agencies, and Eduardo Carvalho, President of Unica – the São Paulo Sugar Cane Agroindustry Union. Unica represents the sugarcane, sugar, and alcohol businesses in the State of São Paulo. The candid discussion elicited a substantive exchange of views on common environmental and social concerns about current and future sugarcane ethanol production in Brazil. This is a summary of the views expressed by the participants of this working group meeting.

Carvalho provided some general information about the ethanol industry to contextualize the debate. Sugarcane has become an increasingly integral part of the Brazilian economy, now accounting for 14 percent of the country's energy matrix. Improvements in efficiency and productivity have attracted increasing investments, with current projections for the industry to expand its production capacity by a factor of 10 to 20 before 2015. Some consider the emersion of alternative energy sources like ethanol a "silver-bullet" that will solve all of the world's energy problems. However, Carvalho finds such optimism is excessive. Ethanol is only one of many elements needed to resolve the hazards associated with global warming, environmental degradation, and energy security. It is clear, however, that new sources of energy are needed to lessen the world's dependence on and excessive consumption of fossil fuels, he explained, and ethanol is a proven, less carbon-emitting alternative. In Brazil, ethanol currently accounts for 43 percent of the total combustion fuel used in cars, including pure ethanol and gas/ethanol blends. Flex-fuel vehicles, which can run on any mixture of gasoline and ethanol, made up over 83 percent of light vehicles sold in 2006, and are projected to account for 17

percent of the total vehicle fleet in Brazil, or 3.96 million cars in 2007. The success of Brazil's ethanol market shows that ethanol is a viable alternative energy sources.

Carvalho clarified two prevalent misconceptions: that the fears associated with the U.S. corn-based ethanol production are relevant to the Brazilian case and that the Brazilian ethanol industry is interested in displacing U.S. domestic production. Regarding the first point, neo-malthusianist criticisms against biofuels raised by Fidel Castro and the authors of the recent *Foreign Affairs* article, "How biofuels could starve the poor," do not apply to ethanol production in Brazil. Sugar not used for ethanol will not serve to feed the poor. This argument's proponents also fail to realize the poverty-reduction potential associated with the growth of fuel crops and production of biofuels. Attendees noted that poor farmers could produce more food if they had value-added fuel crops to sell for supplementary income or extra fuel for household consumption.

**The International Trade of Ethanol**

On the second point, Carvalho explained that the U.S. ethanol industry is vital to turning ethanol into an internationally tradable commodity. Without domestic producers in the United States—and hence domestic proponents willing and able to lobby for supportive public policies —the United States has little effective demand for embracing biofuels as an alternative source of energy. Even so, the U.S. 54 cents/gallon tariff levied on ethanol imports only serves short-term protectionist interests and stymies collaborative efforts.

For ethanol to become an internationally tradable commodity, more cooperation is needed to transfer technology and establish global standards, regulations, certifications. Alcohol is one of the most protected products in the world thanks to trade distorting measures in the United States (0.54 cents per gallon tariff, termed "other duties" by the United States Trade Representative), as well as similar duties and tariffs virtually everywhere else in the world. Vested interests and protected markets harm the industry's chances of expanding ethanol. Yet, Carvalho admitted that a sudden dismantling of U.S. tariffs would create severe disruptions and dislocations on both international production and trade: Brazil, for one, is not prepared for sharp increases in ethanol exports. Instead, he proposed a gradually increasing quota—a move that would help the U.S. industry transition away from its trade-distorting tariff regime.

Some attendees urged Brazil to engage with and sign on to nascent international measures to promote transparency and create industry standards. Such measures, currently being designed in a participatory process by technical working groups, would serve to help ethanol become a globally traded commodity. Furthermore, since Brazil is at the head of the industry, it would only serve to gain in helping establish and subsequently adhering to such standards and safeguards. As a leading producer of ethanol, Brazil could easily comply with standards, such as maintenance of soil structure and fertility, reduction of water pollution, as well as reduction of the "carbon belch."

**Environmental Concerns**

Brazilian sugarcane cultivation is not overly taxing to the environment, argued Carvalho. The crop is not irrigated but rain-fed. As sugarcane is a semi-permanent grass, it is not

grown every year: it is planted once, and harvested six or seven times. Furthermore, the plant is a fantastic instrument for reducing soil corrosion. Ethanol is produced in sugar mills, so little new infrastructure is needed, and the processed water is recycled. Additionally, most pesticides are not used.

The main issue addressed, however, was concern that the ethanol boom would expand sugarcane production to environmentally sensitive areas, such as the Amazon and the Pantanal. Carvalho averred that the sugarcane boom would *not* encroach on the rainforest, the wetland, or other environmentally sensitive areas. He cited Coca-Cola's disastrous attempt to produce sugarcane in Manaus, Amazonas, as an example of the incompatibility between tropical climate and sugarcane production. The sugarcane plant requires both a cool/dry season and a hot/wet season, and so neither rainforests nor wetlands offer the necessary harvest conditions for the efficient cultivation of sugarcane.

Sugarcane production mostly takes place in the South and Southeastern regions of Brazil, in the states of Paraná, southern Goiás, Mato Grosso do Sul, Minas Gerais, with the majority (60 percent) concentrated in São Paulo. Unlike in the United States, an ethanol boom in Brazil is not a threat to limited agricultural land. In Brazil, around 615 million acres land are used as pasture for cattle and 155 million acres for all crops (figures taken from the Economist) – of which 62 million is used for soya, 35 million for corn, and approximately 8.65 million for sugarcane. Most of the expanding sugarcane production – projected to increase by 7.4 million acres in the next 5-10 years, based on present productivity calculations – will encroach solely on overabundant and grossly inefficient pasture land. A Brazilian cow currently occupies nearly 6 acres of pasture land, whereas in other countries, nearly 40 cows utilize the same area (based on Carvalho's claim that 6-7 cows occupy 1 hectare of land in Europe and the United States).

Carvalho also maintained that a growing ethanol industry is raising land prices (due to greater demand) and forcing cattle ranchers to improve efficiency – an objective promoted by the agricultural research branch of the government, Embrapa, in its push for greater crop and cattle integration. Looking to the future, Carvalho concluded that a potential ten-fold increase in sugarcane production can be supported by 704 million acres of land, none of which would encroach on the Amazon, the Pantanal or river valley reservation areas. Furthermore, even if sugarcane cultivation increased ten-fold, the total area of cultivation would only be the current size of Brazil's soybean croplands.

Another factor that limits the areas to which sugarcane production can expand is the industry's logistical system. Once the crop is harvested, it has up to 72 hours to be milled. This requires centrally located storage facilities and processing plants, as well as nearby stores supplying spare parts, thereby placing most of the industry in large clusters within the Center-South region of the country. Thus, spreading sugarcane production beyond the current boundaries, which are far from agriculturally sensitive lands, is unlikely because of the high costs of dispersion and Brazil's limited infrastructure network.

Some of the attendees remained unconvinced of Carvalho's assertion that the expansion of Brazil's ethanol production will not bring about negative environmental repercussions.

While sugarcane production itself will not encroach on the Amazon or the Pantanal, increased demand for sugarcane (not to mention rising land prices, luring farmers onto cheaper frontier lands) would push *other* crops closer to sensitive areas. While Carvalho insisted that *illegal logging* is the principle cause of deforestation, others maintained that *cattle ranching* is the number one cause of deforestation in the Amazon. Additionally, other attendees posited that, likewise, soya cultivation is encroaching upon wetlands elsewhere in the country. This debate went unresolved. Carvalho argued that one must look at the environmental implications of each crop separately, and that sugarcane growth cannot be held accountable for crop displacements; whereas others insisted on the importance of acknowledging that sugarcane is directly forcing cattle and other crops into at-risk biomes. Similarly, there was contention regarding the legislation supposed to protect water sources and priority conservation areas. Carvalho argued that since punishments are severe, São Paulo's producers readily adhere to the legislation. Others contended that compliance is low; perhaps not in São Paulo, but most definitely in other parts of the country—particularly in the Northeast.

Carvalho also briefly addressed the issue of biomass. He noted that Brazil is the world's leading producer of biomass energy. At some processing mills, two-thirds of the bagasse of processed sugarcane is converted into electricity. The country is very well-prepared to use new cellulosic technology. With the production process centrally located, Brazil cuts down on the largest investment costs of material collection and transportation. But to truly release the technologies potential, more public and private funding is required.

**Labor Concerns**

Carvalho dismissed the claims that the sugarcane industry has exploitative labor practices. He acknowledged that while there are problems, labor conditions are drastically improving. Current federal legislation, which is constantly being revamped, requires stringent labor standards. Nonetheless, he recognized the need to keep labor conditions on the top of the industry's agenda to avoid further abuses.

Carvalho highlighted the positive impact of sugarcane production on the workforce. The industry directly employs over one million workers and another 3 - 4 million indirectly. After soya workers, the industry's workforce is the highest paid within the rural sector. But new threats to the labor force have arisen. As local state legislators respond to citizens' respiratory concerns (resulting from the labor-intensive practice of burning sugarcane fields during the harvest), new laws have been adopted calling for increased mechanization (that antiquates the need for burnings), which threatens to deplete much of the industry's low-skilled jobs. Each new machine added displaces 80 employees. Carvalho warned that the benefits of mechanization are offset by the two problems it creates. First, because mechanized harvesting does not discard the crop leaves, it attracts harmful insects which increase the need for pesticides. And second, it causes soil compaction, diminishing the soil's ability to naturally replenish nutrients and decreasing the number of harvests per planting cycle (6-7 for non-mechanized harvesting).