Woodrow Wilson International Center for Scholars
Brazil Institute

UNICA

JUNE 2008

BRAZIL INSTITUTE SPECIAL REPORT

BRAZIL–U.S. BIOFUELS COOPERATION: ONE YEAR LATER

Written by
Alan M. Wright
Program Assistant,
Brazil Institute

Organized with

ApexBrasil
BRAZILIAN TRADE AND INVESTMENT PROMOTION AGENCY

Brazilian Trade and Investment Promotion Agency

EXECUTIVE SUMMARY

On March 9, 2007, Brazil and the United States signed a Memorandum of Understanding (MOU) to deepen their efforts to develop reliable, clean, and sustainable energy sources. One year later, a group of high-level officials and analysts, convened by the Brazilian Sugarcane Industry Association (UNICA) in partnership with the Brazil Institute and the Brazilian Trade and Investment Promotion Agency (APEX-Brasil), came together on March 4, 2008 for a roundtable discussion at the Washington International Renewable Energy Conference (WIREC) 2008 in order to review progress made under the MOU. The debate centered on how the U.S. and Brazilian governments, in partnership with the private sector, can work together to continue to move the MOU beyond its initial, ambitious vision and help expand global production of biofuels.

Director of the Brazil Institute Paulo Sotero moderated the discussion and opened the debate by noting the political significance of Brazil-U.S. biofuels cooperation. That two presidents from different sides of the political spectrum, such as George W. Bush and Luiz Inácio Lula da Silva, came together to provide what President Lula described as an "answer to the great energy challenges of the 21st century" is an example of how, in many instances, Brazil and the United States have converging interests.

BRAZIL-U.S. BIOFUELS COOPERATION

Director of Brazil's Energy Department of the Foreign Ministry, Minister André Aranha Corrêa do Lago, has made significant contributions to advancing the global discussion on biofuels by expanding the presence and knowledge of the Brazilian ethanol industry. Corrêa do Lago is focused on dispelling the notion that Brazil's ethanol industry creates social and environmental problems. While he acknowledged the need for further scientific studies to determine more precisely if ethanol production in Brazil has any indirect impact on sensitive biomes such as the Amazon (for example, by displacing agricultural and cattle production into forested regions), Corrêa do Lago stated that current independent research has shown Brazilian sugarcane production to have no such effect. Moreover the vast majority of ethanol production takes place more than 1,000 km away from the Amazon. He also predicted that on the two-year anniversary of the biofuels initiative, observers would be suprised at the amount of progress made; an initiative that began as "pure politics" has already shown a significant amount of progress. APEX-Brasil was represented by the company's Business Director, Maurício Borges, who remarked that the MOU has established a solid foundation that will help guide the future expansion of the international biofuels market. Borges also stressed the need to encourage greater private sector involvement in the initiative.

"WITH JUST ABOUT 1.5% OF BRAZIL'S ARABLE LAND, BRAZIL HAS REPLACED HALF OF THE COUNTRY'S TOTAL GASOLINE CONSUMPTION."

Marcos Jank, president of the UNICA, provided an overview of ethanol production in both Brazil and the United States. Together, the two countries account for over 75 percent of gross world ethanol production; the United States produces 7.4 billion gallons of corn-based ethanol and Brazil produces more than 6 billion gallons of sugarcane-based ethanol per year. While the United States aims at producing and consuming around 36 billion gallons a year by 2020, Jank noted that although American output will continue to expand, it is unlikely that current production methods and available land will allow the country to produce more than 14 billion gallons per year. Therefore, the future of American ethanol rests on the development of so-called second-generation biofuels. Aside from the differences in feedstock used, the major distinctions between the Brazilian and American ethanol markets relate to infrastructure and fuel distribution networks. Light-vehicle ethanol consumption in Brazil is nearly 7 times that of the United States because consumers have access to the fuel—by law, each of the more than 33,000 fuel station throughout the country is required to have at least one pump dedicated to ethanol. In February 2008, Jank observed that for the first time, ethanol consumption in Brazil exceeded that of gasoline. Furthermore, flex-fuel cars, which can run on any combination of ethanol and gasoline, accounted for nearly 90 percent of all new light-vehicle sales in Brazil.

SUGARCANE ETHANOL IN BRAZIL

The process of sugarcane ethanol production has the added advantage, compared with other biofuels, of being a net source of electric power. Until recently, about two-thirds of the sugarcane's energy potential, contained in the bagasse and straw byproducts, went unused. But this is changing dramatically. Jank asserted that "bio-electricity is

From left to right, Jason Steinbaum, Maurício Borges, André Aranha Corrêa do Lago, Marcos Jank, Gregory Manuel and Paulo Sotero

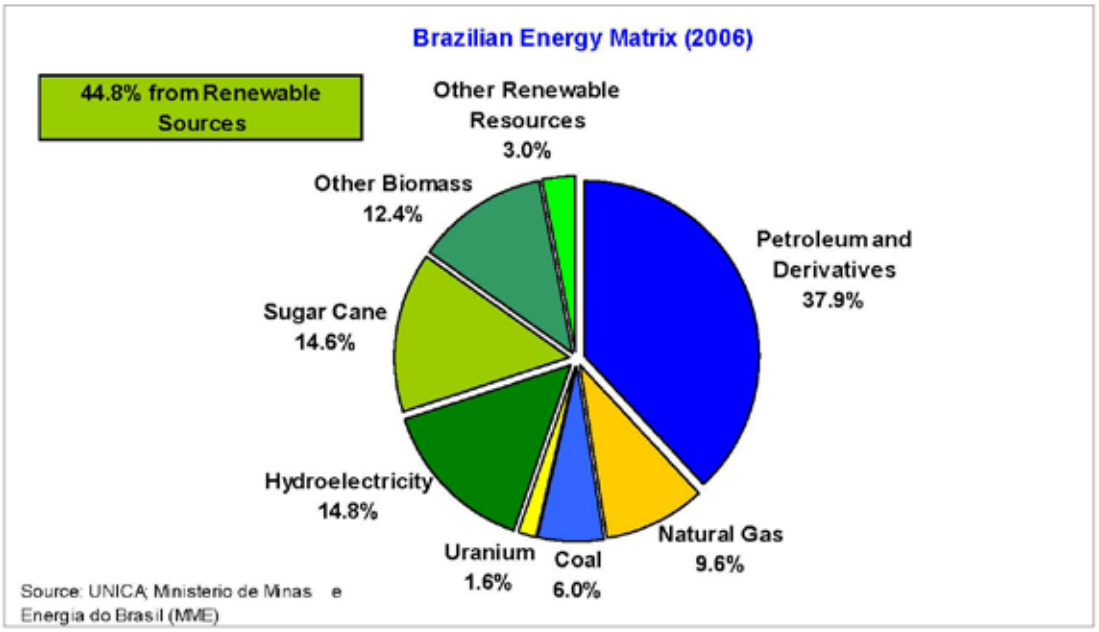
sugarcane's next frontier." Bioelectricity, explained Jank, is produced by burning sugarcane's byproducts in steam boilers. The power generated from this process not only makes ethanol processing mills 100 percent self-sufficient but also allows them to sell surplus electricity into the national electricity grid—the surplus energy of a typical ethanol plant can supply the electricity needs for a city of up to 750,000 inhabitants. Sugar and ethanol plants in Brazil already have the potential to generate an average of 3,000 megawatts in surplus electricity annually, which is equivalent to 3% of Brazil's overall needs today. With increased use of biomass from sugarcane and of high-efficiency boilers, generation capacity could rise to an estimated average of as much as 15,000 megawatts by 2015. That is enough electricity to supply 15% of the country's electricity needs, or the equivalent of electricity consumption in Sweden or the Netherlands.

Ethanol from sugarcane also offers higher productivity than other alternatives. Brazil already produces 7,000 liters of ethanol per hectare (or, about 750 gallons per acre) on average, which is more than double the productivity of American corn-based ethanol. Because of efficiency gains, Jank explained, the current price of ethanol in Brazil is 30 percent of what it was three decades ago, when the country first began large-scale use. Moreover, sugarcane currently occupies only 2.3% of Brazil's total arable land, half of which is dedicated to the production of ethanol. Jank described that "with just about 1.5% of the country's arable land, Brazil has replaced half of the country's total gasoline consumption."

"LIGHT-VEHICLE ETHANOL CONSUMPTION IN BRAZIL IS NEARLY 7 TIMES THAT OF THE UNITED STATES."

ENVIRONMENTAL IMPACT AND FOOD SECURITY

Jank also addressed concerns regarding the potential indirect impact of sugarcane ethanol production in sensitive biomes, particularly the Amazon and the Pantanal. 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. Jank stressed that the industry is willing to create, abide by, and enforce certification programs that verify the origin of sugarcane production and that no forested areas were destroyed. Outside of the Amazon region, Brazil has 200 million hectares (or, 500 million acres) of under-utilized pasture land, much of it degraded. It is precisely in these degraded pastures, mostly located in the southeastern region of Brazil, where sugarcane production will likely



expand. Moreover, recent scientific, independent research has shown that converting degraded pastures to sugarcane production in Brazil generates a "carbon credit," because sugarcane captures larger amounts of carbon than the quantities of carbon that are stocked in these degraded pastures.

While recent studies have questioned the environmental benefits of biofuels—calling attention to its potential negative impact when land-use is factored in the carbon emission equation—Brazilian ethanol seems to stand apart from other biofuels. In a widely referenced article, Timothy Searchinger et al. state that "using good cropland to expand biofuels will probably exacerbate global warming," but the "extraordinary productivity of Brazilian sugarcane," shows that its greenhouse benefits are legitimate. Brazilian sugarcane is also often erroneously linked to the "food versus fuel" debate. Although demand for U.S. corn-based ethanol does add inflationary pressures to global food prices, 35 years of expanded ethanol production in Brazil has coincided with massive export growth in agricultural products such as soy, corn and meat. In considering the environmental and social impacts of alternative energy, Jank remarked that "we need to compare the sustainability of biofuels with the sustainability of the world's reliance on fossil fuels."

BIOFUELS MEMORANDUM OF UNDESTANDING

Addressing the Brazil-U.S. MOU, Jank highlighted the three pillars of the biofuels initiative: working bilaterally and multilaterally to create an international standard for biofuels; bringing the economic and the energy security-related benefits of biofuel production to the hemisphere; and coordinating and advancing technical cooperation and promoting R&D.

The bilateral initiative made the most progress on the issue of global standards. The International Biofuels Forum (member countries are United States, Brazil, European Commission, China, India, and South Africa) is the primary institutional body charged with establishing global standards for bio-

From left to right, Jason Steinbaum, Gregory Manuel, André Aranha Corrêa do Lago, Maurício Borges, Carl Meacham and Marcos Jank

fuel production, finding ways to open markets and encouraging investment in countries with the potential to develop the industry. The Forum recently held its third meeting in Washington and successfully narrowed the variance of international standards and codes. One of the remaining standardization disputes involves the issue of water content in the storage and use of ethanol fuels (no longer a dispute between Brazil and the United States, but between the European Commission and Brazil).

The second part of the initiative—to bring the benefits of biofuels to our hemispheric neighbors—centers on the joint Brazil-U.S. biofuel programs aimed at promoting production of biofuels in Dominican Republic, El Salvador, Haiti, and St. Kitts & Nevis. While ongoing feasibility studies are a sign of progress, more work needs to be done to expand the number of countries included in these programs. "Our coalition must be as large as our ambition," he explained. Jank estimates there are about 110 countries that have the capacity to produce and export ethanol. Compared to the number of major oil suppliers (only 20 nations are considered substantial oil producers), ethanol is a "democratic" source of fuel that would help diversify the world's energy needs—offsetting its current dependence on fossil fuels and lessening energy-related security risks.

The third pillar is technical cooperation. This area of the MOU is dedicated to research and development of new technologies. The principal component has been a series of exchanges between Brazilian and American researchers; the most recent in September 2007, brought a Brazilian delegation to visit a number of the largest U.S. laboratories. Jank asserts that this is not enough, "governments and the private sector need to come together to establish and manage a committee to organize cooperation; this should not be only an academic exercise." To advance cooperation on areas such as bio-electricity, bio-plastics, and bio-refineries—the "next frontier" of biofuels production—the private sector must be charged with, and accept, a more prominent role in this process.

ADVANCING THE AGENDA

Gregory Manuel, special assistant to the U.S. Secretary of State and International Energy Coordinator, underscored the importance of framing the biofuels cooperation initiative within its broader context. "We are not replicating something that has ever

been done before," he said, stressing the complexity involved in creating a global biofuels market that crosses political, technological, and commercial boundaries. Nonetheless, Manuel remarked that the initiative has made significant progress in the past year. In implementing a tripartite framework of cooperation—based on international standards, expanding production throughout the hemisphere, and technical coordination—"we have effectively designed the engine that will serve to drive future projects and initiatives forward."

Most significantly, the United States, Brazil and the European Union have managed to "fast-track" the process for technical standardization; successfully indexing all of the technical properties associated with the production of different biofuels. Manuel assessed the implications of this accomplishment, highlighting the significant cost-saving potential of narrowing the variance of biofuels standards and codes: engine manufacturers, for example, can now build one product and distribute it everywhere without having to design and construct the product according to the disparate specifications of different regions. He concluded by noting that "where we are today is a place where we weren't even close to a year ago."

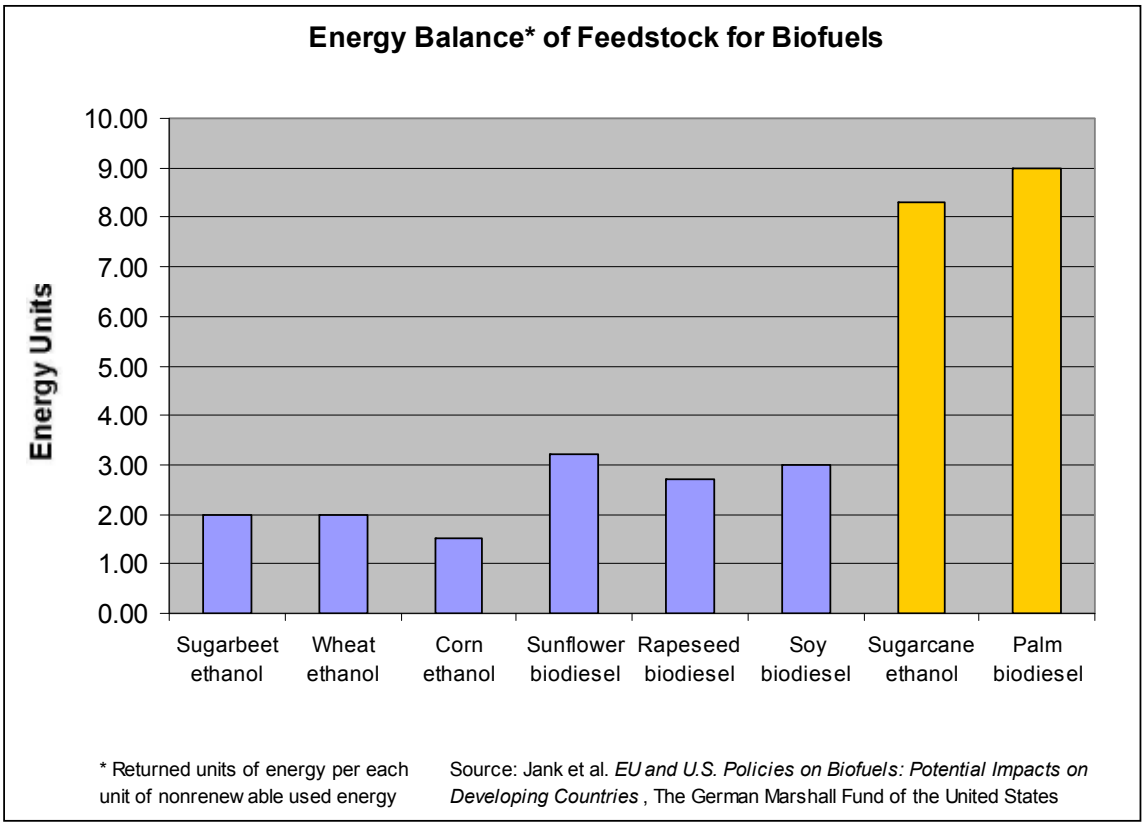
CONGRESSIONAL PERSPECTIVES

Jason Steinbaum, staff director of the House Foreign Affairs Committee's Subcommittee on the Western Hemisphere, embraced what he referred to as "two big discoveries" that the United States has made over the past two years. First, that as President Bush indicated in his 2006 State of the Union address, the nation is "addicted to oil." This realization, Steinbaum observed, has spurred interest in diversifying the country's energy sources, moving away from an environmentally harmful dependence on a single product that is predominately produced by countries in unstable parts of the world. Second,

"THIS YEAR, THE UNITED STATES DISCOVERED THAT IT NEEDED TO HAVE A BETTER RELATIONSHIP WITH BRAZIL."

the United States discovered that it needed to have a better relationship with Brazil, this "huge, booming country in South America." For years Brazil has flown under Washington's radar, but things appear to be changing. Secretary of State Condoleezza Rice remarked on a March 2008 visit to the country that "Brazil is such an important actor not just in the region, but globally." U.S. Congressman Eliot Engel believes that bilateral relations have "reached a point of a strategic confluence of interests." Brazilian-U.S. relations have improved on numerous fronts; from security cooperation in the Andean region to Brazil's leadership on the U.N. peacekeeping mission in Haiti (MINUSTAH), Brazil has proven to be an assertive regional and international player that the United States should further engage.

At the forefront of the growing Brazilian-U.S. relationship is the MOU on biofuels, stressed Steinbaum. While on previous visits to Brazil Steinbaum noticed significant divisions between the "pro-U.S." and an "anti-U.S. camps" in Brazil's foreign ministry. He noted that ministerial meetings and reciprocal presidential exchanges focused on increasing cooperation on biofuels seem to have diminished some of "Itamaraty's (the Brazilian foreign ministry) suspicion towards the U.S." Considering these advances, Steinbaum remarked that from a foreign policy perspective, this biofuels agreement has been successful. But on more technical grounds, he criticized the lack of substantive



progress. While feasibility studies have been completed in four countries (Dominican Republic, El Salvador, Haiti, and St. Kitts & Nevis), no new fields of production have been developed and the productive capacity of these countries are small—offering limited benefits to the overall expansion of the future global biofuels market.

Carl Meacham, senior professional staff member for the U.S. Senate's Committee on Foreign Relations, stressed the need to codify the MOU into law. This way, the partnership that began as a "political handshake" can extend beyond the executive branches and ensure that cooperation on biofuels continues despite administration turnover. Meacham stressed the need to dispel myths concerning the environmental and social costs of biofuels production—particularly distinguishing between the impact of corn- and sugarcane-based forms of ethanol—because many American constituencies fear that increased competition in the agricultural sector will threaten their livelihoods (especially in corn producing states). One way to alleviate these concerns and engage the public more directly, Meacham explained, is to promote state-level exchanges—there are many American governors who do not support the federal 54 cents a gallon tariff on imported ethanol and are in favor of increased Brazilian ethanol exports. These more local exchanges, coupled with increased cooperation on second-generation cellulosic ethanol, have the potential to advance the agreement beyond its current focus.

BRAZIL INSTITUTE

Created in June 2006 as part of the Wilson Center's Latin American Program, the BRAZIL INSTITUTE strives to foster informed dialogue on key issues important to Brazilians and to the Brazilian-U.S. relationship. We work to promote detailed analysis of Brazil's public policy and advance Washington's understanding of contemporary Brazilian developments, mindful of the long history that binds the two most populous democracies in the Americas.

The Institute honors this history and attempts to further bilateral cooperation by promoting informed dialogue between these two diverse and vibrant multiracial societies. Our activities include: convening policy forums to stimulate nonpartisan reflection and debate on critical issues related to Brazil; promoting, sponsoring, and disseminating research; participating in the broader effort to inform Americans about Brazil through lectures and interviews given by its director; appointing leading Brazilian and Brazilianist academics, journalists, and policy makers as Wilson Center Public Policy Scholars; and maintaining a comprehensive website devoted to news, analysis, research, and reference materials on Brazil.

Paulo Sotero, Director, Brazil Institute
Alan Wright, Program Assistant, Brazil Institute

www.wilsoncenter.org/brazil
Tel: 202.691.4087 / Fax: 202.691.4076
Brazil@wilsoncenter.org

ONE WOODROW WILSON PLAZA, 1300 PENNSYLVANIA AVENUE, NW, WASHINGTON, DC 20004-3027

Woodrow Wilson International Center for Scholars