

Toward a Political Ecology of the Emerging Global Ethanol Assemblage

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The Everglades are now suitable only for the haunt of noxious vermin, or the resort of pestilent reptiles. The statesman whose exertions shall cause the millions of acres they contain . . . to teem with the products of agricultural industry . . . will have created a State. (Buckingham Smith, 1848)

Roads have been built into this part of the vast Everglades formerly inhabited only by water moccasins and other wildlife. Thirteen thousand acres are now being planted in cane. (R. Hart Phillips, 1962)

A stretch of this dusty land in northwest Peru, currently home to snakes, scorpions and scrub brush, could soon become an unlikely contributor of jobs and local well-being. In 2002, Maple Cos. began an attempt to buy an abandoned section of the government-owned desert in order to build a sugar cane based ethanol plant. (April 2007)

At first glance, the 20,000 acres of hilly scrub land look best suited for the foxes, lizards and geckos that call it home today. But analysts believe that Peru's northern coast offers among the best conditions in the world for producing sugar cane for ethanol. (*Dallas Business Journal*, October 12, 2007)

With truly astounding speed, the once regionally restricted biofuels industry has gone global with a vengeance, expanding on every continent—in terms of both production and consumption—with astonishing alacrity. Concomitant with this expansion has been rapid transformation of land use in terms of land cover, cropping systems, ownership patterns and agrarian—or agroindustrial—structure. Over the past year, popular media attention to the rise of the biofuels industry has built to a crescendo, with extensive reports on the business of biofuels and the policies—particularly in Brazil, the European Union and the United States—that have helped to launch the industry. Most lately, there has been a spate of critical physical science studies produced by teams of ecologists and atmospheric scientists, which have received widespread media coverage. The most widely reported and damning were two studies published in February 2008 in *Science*, both of which

concluded that clearing land to promote biofuels such as ethanol will do more to exacerbate global warming than using gasoline or other fossil fuels. Both studies focused on emission of greenhouse gases brought about by land use change, due to the release of carbon sequestered in existing forests and grasslands. Calculating this hitherto unaccounted for “carbon-debt” for palm, soybean, sugarcane, and corn biofuels, researchers concluded that converting rainforests, peatlands, savannas, or grasslands in Southeast Asia, Latin America, or the U.S. would increase global warming pollution for decades, if not centuries (Fargione et al. 2008). Additionally, increases in U.S. corn production to produce ethanol would drive conversion of carbon-seequestering ecosystems to cropland around the world. Moreover, corn based ethanol nearly doubles greenhouse emissions over thirty years, as compared to gasoline (Searchinger et al 2008).

However, critical social science attention has been less responsive. In this paper I hope to begin to fill the gap, starting from the premise that the socio-environmental impacts of the expanding biofuels industry simply cannot be overstated: it has the potential to set in motion a sinister set of feedback loops that raise the specter of hastening human induced climate change, destabilizing agricultural systems—both biophysically and economically—and therefore, finally, threatening the global food supply. I am not advancing a Malthusian vision, but rather, to the extent that the past can enlighten us about the future, taking lessons from the carefully drawn history of Late Victorian Holocausts delineated by Mike Davis (2002). This is not an argument about global capacity to produce calories, bur rather a call for political ecological attention to the biofuels industry. Thus, in what follows, I want to suggest an approach to theorizing

transformations in the agro-commodity regulatory environment that are coming about from this newly emerging relationship between food and fuel.

While it is possible to talk about the rise of biofuels as a global phenomenon, it is also necessary to recognize that there are distinct regional patterns and alliances that cohere around various aspects of this polymorphous industry. This paper focuses on the regional alliances emanating from the U.S., particularly from Florida, to Latin America and the Caribbean. While the Midwestern US has focused on corn as a biofuels crop, the Southern US, particularly Louisiana, Texas and Florida, have looked to sugarcane. With increasing criticism leveled at the economics and environmental impacts of corn-based ethanol, some see sugarcane as the more economically efficient and environmentally benign alternative biofuels feedstock. These can be cautious appraisals—ethanol from Brazilian sugarcane would repay its carbon debt in four years “if sugarcane only converts tropical grazing land” (Searchinger et al. 2008, 1240). Or they can be promotionally optimistic: writing in *Science*, Secretary of the Environment, State of Sao Paulo, Brazil, argued that the best way to achieve the goal of “a sustainable energy future” is “by replicating the large Brazilian program of sugar-cane ethanol” (Goldemberg 2007). Reflecting popular media attention in the U.S., if not accuracy in energy accounting, a character on *Cane*, the CBS television show that aired during Fall 2007, said: “The government is now ready to support the production of ethanol from sugar instead of corn. It’s 10 times more efficient. Sugar is the new oil” (quoted on National Public Radio 2007). Just what that character or any of his fellow actors could say, however, was censored by the Fanjul family, transnational sugar agroindustrialists, whose lawyers

requested oversight of the show and received from CBS the scripts for approval (HavanaJournal.com 2007).

As I examine the emergence of the figurative and literal cultivation of sugar as the oil of the twenty-first century, I will engage with three themes in current geographic thought. First, the paper is informed by recent theorization of, or around, the term “assemblage.” In this I am drawing on two distinct conceptualizations of assemblage. Aihwa Ong and Stephen Collier present one approach as they consider how to study phenomena that “assume spatial forms that are nonisomorphic with standard units of analysis” (2005 3); that is, a way to move beyond the categories of local, global, or transnational in order to capture the particular and specific forms of “the *actual* global” (2005 12, italics in original). They specify the composite term “global assemblage,” which reflects their purpose in creating a tensive term that joins “broadly encompassing, seamless and mobile” to “heterogeneous, contingent, unstable, partial, and situated” (2005 12). Under the rubric of global assemblages they include technoscience, circuits of exchange, systems of administration or governance, and regimes of values. They consider how global forms are articulated in specific situations—that is, territorialized in assemblages—and how these define new material, collective and discursive relationships. Certainly the case of the biofuels industry illustrates how “the proliferation of technologies across the world produces systems that mix technology, politics, and actors in diverse configurations that do not follow given scales or political mappings” (Ong 2005, 338).

But how does this come about? Here I find helpful another approach to assemblages, which comes from the work of Saskia Sassen, who claims to be using the

term “in its most descriptive sense” (Sassen 2006, 5). Differentiating her use from Ong and Collier’s, she explains “I locate my theorization elsewhere, not on this term” (ibid.). What is critical to the work at hand is the way that Sassen carefully avoids the “endogeneity trap,” which would entail theorizing the global from a priori defined “global” processes and institutions. Her point is to explain rather than describe growing interdependence, the formation of global institutions, and the supposed decline of the nation state. She disaggregates two assemblages, the national and global, to examine how their component attributes are reconfigured dialectically. In doing so, she shows how the nation-state is actively employed in constructing the “global”; and how as global capabilities are inserted into the nation state there is a corresponding shift away from the domestic constituency, along with processes of privatization, selective deregulation, and in the case of the US state, a shift of power and rights to privacy to the executive branch. Sassen helps us to understand how the ethanol initiative can be conceived and promoted as a national project, which takes public funds and places them into private hands for investment in both domestic and overseas biofuels.

Second, and as may be evident from the paper’s epigraphs, I am interested in the way that discursive strategies and particular narratives are employed in the process of primitive accumulation and the construction of commodity systems. What is striking in this case is the way that reptiles have been used as a signifier for empty or “badlands”—lands that can only benefit from clearing and leveling—for over a century. From nineteenth century Florida to twenty-first century Peru, we see echoes of the “discursive dialectic” by which primary commodity zones are imagined as both “emptied spaces, homogeneous blanks” and at the same time, “spaces of immense fecundity and resource

abundance” (Bridge 2001, 2154-2155). Foreshadowing a bit, we will see below how landscapes in various countries are socially constructed as “the ‘ghost acreages’ that feed industrial society” (Bridge 2001, 2154). However, distinct from Bridge’s “postindustrial resource triumphalism” operating as a “postscarcity narrative,” the discursive strategies of biofuels promoters deploy the specter of scarcity, either implicitly or explicitly, through two types of discourse. One is a geopolitical, strategic discourse that centers on the role of biofuels in gaining energy “independence”. As I have argued elsewhere, sugar capitalists are skilled at invoking the discourse of security in various guises—national security, food security, etc.—to gain and legitimate trade protection and capital investment from the state (Hollander 2005). A second is the discourse of “greening”, by which biofuels will lead industrial society out of the twin crises of resource scarcity and environmental degradation into a brave, new, carbon-neutral future.

Third, the paper pays particular attention to the approach of critical geopolitics in general, and critical geopolitical economy in particular, which O’Tuathail describes thus: “the geopolitical order governing economic production, trade and the consumption of goods across the world and the geoeological consequences of this order” (O’Tuathail 2002, 177). While I am not certain that “order” is always the operative signifier to refer to processes of globalization, I do want to stress that these current assemblages invoke and rework existing patterns and historical layerings of geoeological relations of production. To take just one of many examples, the way that the Dominican Republic sugar industry has fit into the ethanol assemblage has been shaped by several centuries of sugar geopolitics. Biofuels raises the stakes for old players and introduces new players into the business of land-extensive agrocommodity production. With this comes an

intensification of the geopolitical discourse surrounding agrocommodities, with slippage in emphasis from food security to fuel security.

In what follows, these themes will by necessity be intertwined as we consider the empirical evidence for the emergence of a global—or perhaps better put, globalizing—ethanol assemblage. The paper proceeds in three parts. First, after providing some historical background to US sugar politics I document some of the recent political economic shifts in the industry. In doing so, I sketch the contours of the group of states, domestic and transnational corporations, nongovernmental organizations, growers, consumers and technologies that characterize the ethanol assemblage. Second I consider some of the geopolitical aims and consequences of the US ethanol initiative in Latin America, with particular attention to Peru and El Salvador. Third, I examine how these novel forms of state, federal and corporate capabilities invoke old tropes and rework existing patterns of accumulation as they set about to construct new infrastructures and ethanol sourcing patterns.

U.S. Sugar Policy and the Ethanol Agreement

Of all agricultural commodities in the US, sugar is considered particularly notorious with respect to back room dealings, which has led political scientists to coin the term “sugar sub-government” (Gerber 1976, 120). With the Free Trade Area of the Americas (FTAA) agreement pending, recent World Trade Organization (WTO) rulings, and the phasing in via NAFTA of an open market to Mexican sugar in January 2008, there seems to be great pressure to reform this managed and protected sector. To understand contemporary US ethanol politics, it is necessary to provide a bit of background on the US sugar program. The roots of the program date to the New Deal,

with the Sugar Act of 1934. This and subsequent acts required the US secretary of agriculture to assign quotas to each regional source, domestic and foreign, by state in the US and by country outside. For forty years this managed market was, in theory, supposed to balance domestic and foreign interests to secure for US consumers a reliable sugar supply while providing the putative benefits of agroindustry to as many as twenty-five states. The secretary of agriculture allocated specific quotas within the proportional framework designated by Congress and with, in special cases, presidential intervention. Thus, there was intense regional competition for quotas through political, bureaucratic channels, which meant that the industry developed sophisticated geo-political rhetorical strategies and lobbying techniques, often invoking questions of national security for purposes of securing protective policies. These were deployed against Cuba, in particular, in the mid twentieth century, when it was the largest, lowest cost producer in the world (Hollander, 2005, 2008).

The breaking of diplomatic and trade relations between the US and Cuba utterly transformed US sugar sourcing. Since the turn of the nineteenth century, Cuba had been the largest supplier to the US market and played the role of the swing producer for the otherwise structured market. In certain ways, the US replaced its longstanding relation with Cuba by turning toward the Dominican Republic. Also, from 1960 through 1965, the Florida industry expanded fivefold. With steady growth, the Florida industry currently supplies about twenty percent of US sugar consumed. In 1974 the US Sugar Program was allowed to expire; when President Reagan reinstated it, it was with marketing quotas but without restrictions on domestic producers. At that time, part of the impetus to reinstate the program came from the producers of high fructose corn syrup (HFCS) and

corn farmers, who, in the 1980s needed relatively high prices to make HFCS economically competitive in the sweetener market. Until recently, sugar farmers would say that they held an umbrella over corn. However, that umbrella is no longer needed with the development of corn-based ethanol.

Today the two largest sugar companies in Florida are Florida Crystals, owned by the Fanjul family and United States Sugar Corporation. When meetings were held in Miami in 2003 to negotiate the FTAA, these two companies along with the rest of the Florida industry found themselves at odds with the state's capitalist boosters. Trade agreements are national and international, but they also have local, urban aspects. Miami was the leading contender for the FTAA headquarters, while at the same time, the primary obstacle to the agreement was the US sugar program, to which Brazil strenuously objected. In frustration, the director of the Florida FTAA, Inc., an organization devoted to securing this headquarters, publicly accused the Florida sugar industry of "economic terrorism". In 2004, Brazil took its case against the European Union's subsidization of sugar farmers to the WTO and won. The US sugar industry in general and the Florida industry in particular donate disproportionate amounts to US political campaigns, with Florida Crystals ranked in the top fifty of all corporate "soft" money. The Fanjuls, known to be generous to both parties, contributed more than \$200,000 towards the 2004 presidential campaign of George W. Bush.

In 2005, the White House held "a closed-door meeting in Washington" with Florida Congressmen, members of Congress from beet producing states, USDA Secretary of Agriculture Mike Johanns, major sugar producers and White House policy analysts (Salisbury 2005). There a proposal to subsidize a sugar-based ethanol program in a

fashion similar to the corn-based ethanol program was initiated to sweeten the deals that the Bush administration hoped to close with respect to CAFTA and ultimately, the FTAA. Spokeswomen for USSC and the Sugar Cane Growers Cooperative of Florida were reported to have rejected the idea, whereas Florida Crystals' representative responded more positively. Shortly thereafter, "Governor Bush released the 2006 Florida Energy Act," which included a grant competition for renewable energy research. In 2007, eight awards were announced, among them a one million dollar grant awarded jointly to Florida Crystals and Florida International University (FIU) for ethanol research, to be matched by one million dollars from Florida Crystals.

In his January 2006 State of the Union Address, President Bush announced his Advanced Energy Initiative, "including funding for research in cutting-edge methods of producing ethanol, *not just from corn*" (emphasis added). In April the Florida FTAA, Inc., transmitted a position paper to President Bush via Governor Jeb Bush, entitled "15 by '15: A Hemispheric Wide Approach to Ethanol," which set a goal of U.S. consumption of fifteen billion gallons of ethanol annually by 2015 through a U.S. and Brazil partnership and which also advocated reconsidering the tariff on Brazilian ethanol. In August, Governor Bush sent a delegation to Brazil led by the Florida FTAA director, with the objective of advancing what was now titled the Governor's Ethanol Initiative. During this mission, an agreement was reached between Brazil and the state of Florida to create a commission for regional ethanol cooperation. Accordingly, in his "last Miami appearance as governor," Jeb Bush joined with Roberto Rodrigues, a Sao Paulo sugar grower "representing Brazilian agribusiness" (who had been the Agricultural Minister of Brazil), and Luis Alberto Moreno, president of the Inter-American Development Bank, to

launch the Inter-American Commission on Ethanol (Bussey 2006: 1C). The purpose of the Commission was to “fund feasibility studies, promote the use of Brazilian ethanol technology and target production opportunities in Central America” (Bussey 2006: 1C).

In March 2007, President Bush undertook “the longest Latin American trip of his presidency”, the stated purpose of which was to promote wider use of ethanol throughout Latin America (Rutenberg and Rohter 2007: A1). At the heart of the tour was the “ethanol agreement—signed by Secretary of State Condoleeza Rice and the Brazilian foreign minister” under which the U.S. and Brazil would “share technology to enhance ethanol production and push its development in other Latin American and Caribbean countries” (Rutenberg and Rohter 2007: A7). Not up for serious discussion was the reduction of the fifty-four cents per gallon U.S. tariff on Brazilian ethanol. Together, Brazil and the U.S. account for more than 70 percent of global ethanol production, with the U.S. the slightly larger producer in 2005.

U.S. ethanol production is based primarily on corn, whereas Brazil has been developing a sugar-based ethanol program since 1975, after the first energy crisis. By the 1980s, more than three-quarters of the cars made in Brazil ran on cane-based ethanol, which fell into disfavor there in 1989 when sugar prices spiked leaving motorists without fuel. The recovery of the Brazilian industry was predicated on the development of the “flex fuel” motor, introduced in 2003, which allowed consumers to switch between fuels based on price and supply. Now, with flex fuel engines, rising petroleum prices, and increasing demand for ethanol fuel, Brazilian leaders have identified the U.S. tariff as an obstacle to significant foreign direct investment, from, for example, “the four international giants that control much of the world’s agribusiness—Archer Daniels

[Midland], Bunge and Born, Cargill and Louis Dreyfuss—[who] have recently begun showing interest” (Rohter 2006: A1).

The goal of the ethanol agreement is therefore to enlarge ethanol fuel capacity—that is, the infrastructure of production, distribution, and consumption—at the hemispheric scale and beyond. While there is at the moment no public promise of tariff reduction from the U.S., the agreement outlines a level of collaboration that has the potential to deliver the substantially enlarged market that would entice the big players in global agribusiness. Although it might seem counterintuitive, in this case scarcity does not improve price; rather, abundance and ubiquity would create the conditions for the technological transition necessary to develop sufficient markets for ethanol fuel to provide substantial demand and therefore buoy price. As the vice president of an ethanol equipment manufacturer explained, “We want ethanol to become a global commodity, and for that to happen, Brazil can’t be the only producer” (Andrews and Rohter 2007: B9).

Thus domestic and multinational agribusiness firms, the U.S. and Brazilian governments, various corporate non-governmental organizations, and local and state governments participated in this project to forge the ethanol agreement. For the Brazilian business community, which has significant expertise and investment in ethanol technology, an important aspect of the agreement is its emphasis on developing ethanol production in other countries through equipment sales. Of particular interest are Caribbean nations and signatories to the Central American Free Trade Agreement (CAFTA), which are exempt from U.S. tariffs if they use their own crops for producing ethanol. Also, under the Caribbean Basin Initiative, Caribbean nations can import

partially processed ethanol to finish it before exporting it to the U.S. in quantities limited to 7 percent of U.S. ethanol consumption. As the director of the energy division of the Brazilian Foreign Ministry, Antonio Simoes, said of the ethanol agreement: “This is more than a document, it’s a point of convergence in the relationship that is denser and more intense than anything we’ve seen in the last 20 or 30 years. Brazil will profit, the United States will profit, and so will third world countries” (Andrews and Rohter 2007: B9).

At the global scale, the ethanol agreement points to an emerging assemblage that does not, contrary to the quotation above, necessarily translate into advantages for the general population in particular countries. Rather, it provides an example of the sort of de-nationalization that Saskia Sassen (2006) has carefully delineated, which brings about the insertion of global capabilities into the nation-state, along with processes of deregulation and privatization. In this case, the U.S. and Brazilian governments are working hand in glove with multinational agribusiness to promote the expansion of ethanol production and consumption at the hemispheric scale and beyond, with Japan identified as a major market. As they do so, we see a shift from a discourse emphasizing the critical importance of a nationally organized food commodity sector to a discourse promoting a “global assemblage” of states, domestic and transnational corporations, nongovernmental organizations, growers, consumers, and a set of interdependent technologies, including biotechnology, ethanol technology and automotive technology (Ong and Collier 2005, Sassen 2006).

Who precisely will benefit is open to debate, but there is mounting concern regarding environmental and social costs at the hemispheric scale. For example, in response to President Bush’s “energy visit” of March 2007, the head of the United

Nations Environmental Program voiced apprehension about impacts on the Brazilian Amazon, including accelerated deforestation. Indeed, Brazil's publicized plan to open one ethanol factory per month for the next six years has helped to create a resource frontier on lands suited to sugarcane farming. The position of the Forum of Resistance to Agribusiness, a consortium of South American NGOs, with regard to this emerging global assemblage—"the era of biofuels"—is that it "represents a grave threat to our region, our natural resources, and the sovereignty of our people" (quoted in Kenfield 2007). Of primary concern are trends toward increased concentration of ownership and control of the sugarcane industry and the expansion of monoculture, with an associated increase in landlessness, rural poverty and food insecurity (Kenfield 2007, Wright and Wolford 2003). These concerns were underscored with news that Brazilian authorities had raided a "debt-slave plantation," the largest ethanol producer in the northeastern state of Para, "where more than 1,000 laborers were found working 14 hour days in horrendous conditions cutting sugar cane for ethanol production" (Sequera 2007).

To "dispel certain myths" and "assess the distinct challenges" posed by the expansion of Brazilian sugarcane-ethanol production, the Brazil Institute of the Woodrow Wilson Center convened "an invitation-only working lunch" for representatives of industry, government and environmental organizations in April 2007. Eduardo Carvalho, President of the Sao Paulo Sugar Cane Agroindustry Union, led the "conversation," countering "two prevalent misconceptions" pertaining to comparisons and relations between the US corn and Brazilian sugarcane industries. First, he argued that sugarcane ethanol could not plausibly be subject to the neomalthusian criticisms of corn ethanol: "Sugar not used for ethanol will not serve to feed the poor." Off the hook for its

nutritional vacuity! Second, he asserted that the Brazilian industry was not interested in displacing U.S. domestic production. In fact, he explained, “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” (Woodrow Wilson Center 2007).

Meanwhile, back in Florida newspaper headlines championed “Ethanol a Boost for State? Florida May Be the Center of Brazil-U.S. Fuel Alliance” (Bauza 2007: 1A). Immediately upon leaving the governor’s office, Jeb Bush became director of the Inter-American Ethanol Commission, headquartered in Coral Gables, Florida. The ethanol initiative that he had spearheaded seemed to lead the way out of the impasse brought on by the strength of a united commodity sector to provide political resistance to “free trade” agreements. Ethanol was the perfect weapon to divide and conquer. USSC, the Florida Sugar Cane Growers Cooperative and other smaller growers remained skeptical, whereas the Fanjul’s Flo-Sun Corporation—with extensive holdings not only in Florida but also in the Dominican Republic—saw a moment of political and economic opportunity. With the ethanol agreement, the potential was enhanced to develop a transnational commodity network based on using sugarcane for fuel. The Fanjuls were in a particularly advantageous position to profit because the U.S. market is open to Caribbean ethanol, for which they have economies of scale because they can export from their plantations in the Dominican Republic. For the Bush brothers, the ethanol initiative seemed to provide multiple political economic functions—further greening through the promotion of alternative fuels, supporting the interests of multinational corporations, and transforming

the politics of sugar in order to break down place-based resistance to free trade by dividing the interests of the Florida sugar industry. According to the Interamerican Ethanol Commission—chaired by Jeb Bush—President Bush “has even been dubbed as ethanol’s ‘Promoter-in-Chief’”.

The Geopolitics of the Ethanol Initiative

Having proved itself a worthy ally in the Iraq war by steadfastly continuing to send its troops into that inferno, El Salvador has earned a place on a new front in US global policy, the ethanol wars. NotiCen, 2007a.

During President Bush’s 2007 trip, a fair amount of press coverage in the US focused on sparring between Venezuelan President Hugo Chavez and Bush, with ethanol as the lynchpin—either freeing the region from Chavez’s petroleum “dictatorship” or foisting upon it Bush’s “imperialistic” plot to use food for fuel. Certainly the concern in Washington that Chavez’s regional influence was bolstered by Venezuelan petroleum reserves tilted the U.S. toward a more enthusiastic stance toward Brazilian ethanol. US ethanol promoters, including Governor and President Bush, frequently employed the discursive tropes of national security, energy independence and freedom from foreign oil. Propelling this discursive strategy is the geopolitical aim to secure influence and resources throughout the hemisphere. In this section, I want to begin to consider how the Brazil/US ethanol agreement has the potential to restructure agrarian relations in third party countries, injecting ethanol geopolitics into rural areas throughout Latin America and the Caribbean. To do this, I will briefly consider the issue in general and then look at two cases in particular, El Salvador and Peru.

Numerous accounts of the 2007 ethanol agreement have noted that it seemed to make strange bedfellows of Presidents Bush and Lula da Silva. One account also noted the convergence of opinion between “London’s *The Economist* and Havana’s Fidel Castro”, when the former credited the latter “for warning against the ‘sinister idea of converting food into fuel’” (NotiCen 2007b). While condemning the use of corn, *The Economist* praised “ethanol made from sugarcane... It produces far more energy than is needed to grow it, and Brazil—the main producer of sugar ethanol—has plenty of land available on which to grow sugar.” Because of the regional importance of corn as a foodstuff, the potential to grow sugarcane as a biofuels feedstock, and the political polarization around petroleum reserves, some argue that with “the politicization of ethanol production ..., Central America can expect to be whipsawed as the region tries to find its place in the global situation” (NotiCen, 2007b). At the household level, families struggle with the “tortilla paradox”: when “tortillas cost more in lands where they are the staple food than they do in New York” (NotiCen 2007c). At the state level, leaders align on one side or the other of the fuel divide. For example, April 2007 found Nicaragua’s President Daniel Ortega canceling a trip to Brazil to discuss ethanol after concluding a deal with Venezuela for a gasoline refinery. In contrast, Guatemala, with four ethanol refineries and at least three more in the works, has partnered with Brazil and Colombia and hopes to be “the future Saudi Arabia of ethanol” (NotiCen, 2007b).

In March 2007, President Bush chose El Salvador as the site of a feasibility study for producing ethanol with a plan to build a plant in the country, although El Salvador already exports ethanol to the US under CAFTA. When Bush and Lula announced the award of the pilot project, President Antonio Saca noted that “two serious presidents,

with two totally different ideologies” foresee ethanol as the future. Saca said that the news confirmed “that El Salvador is the best country in the region to develop biofuels and renewable energy”. Julio Arroyo, director of the Sugar Association of El Salvador, explained the prices would be set by the costs of production and a price ceiling set in the New York and Chicago markets. According to news accounts, sides are being drawn within El Salvador, with the president’s conservative party lining “up with Bush’s ethanol policy, while the leftist opposition ... aligns with the anti-ethanol forces of ...Chavez and ...Castro.” Deputy Blanca Coto of the opposition party was quoted as saying “This project is not a part of a state energy policy nor is it framed within a national development plan of the agricultural sector.” Of particular concern to Coto and her party “was a bill Saca sent to the legislature for a law that would facilitate putting arable lands at the disposition of ethanol investors. This, she said, is an ARENA scheme to roll back land reforms and return the land to the hands of a few by eliminating current regulations limiting individual holdings to 243 hectares. ‘Careful, Saca! That was one of the causes of the war,’ said Coto, emphasizing the seriousness with which the FSLN views this legislation” (NotiCen 2007a).

In late 2004, Maple Cos., a Dallas-based mining and energy company, began exploring the Piura region of Peru for land on which to grow sugarcane for ethanol. This was a new venture for Maple, which already had oil and gas operations in the region. Then, in January 2007 Peruvian President Alan Garcia announced that “an ‘agrarian revolution’ has begun in Peru with the signing of the agreement between the Piura regional government and the U.S. Maple Group to grow sugar cane for ethanol production. According to the agreement, Maple will turn 10,684 hectares (26000 acres)

of arid lands into fields for growing sugar cane... ‘Peru should be aware that here today an agrarian revolution is starting, at this moment as never before in our history,’” Garcia warned reporters.” Maple also announced that it would develop two other ethanol projects on the northern coast of Peru, similar to Piura, which would “improve its ‘position as an energy-producing company in Peru.’” *The Economist* labeled this news Sweet Times for Peru: “[N]ow, investors are piling in. Industry sources predict that land under sugar will expand by 10,000 hectares (25,000 acres) a year, more than doubling output over the next decades.” Spurring on investment was the Andean Trade Promotion and Drug Eradication Act, which Peru had signed with the US, which would allow ethanol to enter the US duty-free. Under the terms of this bilateral trade agreement, it was expected that rice farmers in the area would not be able to compete with U.S. rice imports, so the regional governor expressed his “hopes that farmers will switch to sugar cane” to feed the ethanol factory. *The Economist* did raise one critical question: Whether sugar—a thirsty crop—is the best use of Peru’s desert coastal strip, with its precarious water supply.”

The *Miami Herald* noted the announcement: “With a plan to plant sugar cane in the northern Peruvian state of Piura, Maple Energy has one of the most ambitious ethanol projects outside of Brazil. The Dallas-based company is planning to level 20,000 acres of hilly scrubland to begin producing sugar cane-based ethanol for export to the United States and Europe in 2009. “ CEO Rex Canon said Peru’s northern coast “offers among the best conditions in the world for producing sugar cane ethanol. ‘We’ve got the best feedstock, we’ve got the best place in the world to produce that feedstock, and we have strong demand. That’s what makes it work.’” Maple Cos. also planned a pipeline to the Pacific Ocean to deliver fuel to tankers and onward to US customers: the company sees

Peru as the perfect platform from which to fulfill US demand for biofuels as legislated in US energy policy (Kraul 2007).

Later in 2007, it was reported that Garcia planned to introduce in Congress a bill that would facilitate the purchase by foreign investors of communally owned land in rural indigenous villages. “Although analysts say the initiative will spark social conflict, the president has argued that the small farmers have neither the training nor the economic resources to add value to their property.” The law as drafted would reduce from two-thirds to fifty percent plus one the members of the community needed to approve sale or lease of land to private investors. In an article he wrote for the Lima newspaper, *El Comercio*, Garcia argued that community owned land is “idle land, because the owner has neither the training nor the economic resources. That same land sold in large plots would bring in technology.” The highest profile case of land conflict noted in this report was in Piura, over plans put forth by a Chinese mining company (Salazar 2007).

Meanwhile, Maple Co. announced that it had secured an equity investment of ten million dollars from the International Financial Corporation, the private sector branch of the World Bank to finance expansion of its Peruvian oil and gas operations and its ethanol venture, “the first large scale dedicated ethanol production in the country”

(NoticiasFinancieras 2007, 1).

The *Ethanol Producer Magazine*, which places “The world of ethanol at your fingertips,” has coined the term “global ethanol superpowers” for the US and Brazil. In 2008 the magazine published an article advising companies on strategies to deal with terrorist extortion groups: “Some say the world is getting flatter, and the U.S. ethanol industry is very much an active part in it.” Because the U.S. ethanol industry is

becoming increasingly global it therefore will “likely come up against the threat of terror and subsequent extortion payments.” The first step to reduce risk is to consider benefits versus risks in a particular country. Then, if “the company decides to proceed, it can reduce risks by exploring whether land grants or subsidized loans are available from the host country or a development agency (e.g., the World Bank or a regional development bank)” (Alexander 2008).

What’s good for GM is good for...the global ethanol assemblage?

There were major snickers aplenty last week when General Motors joined hands with an Illinois company to announce a major biofuels initiative. (Brown, 2008)

On the heels of Congressional approval and President George W. Bush signing into legislation the Energy Independence and Security Act of 2007, Broward County’s Port Everglades received its first shipment of ethanol fuel today. (*Caribbean Today*, 2008).

While Jeb Bush oversees the Interamerican Ethanol Commission from his office in Coral Gables, Florida, his successor, Governor Crist has carried the state’s official mission forward. In October 2007, the governor and “200 business leaders”, among them Jose Fanjul, took a six day business jaunt to Brazil, Florida’s number one trade partner. While Crist was “especially keen to learn more about how Brazil developed its strong bio-fuels industry,” presumably some of the other visitors were interested in another investment possibility: “Today, in the second term of President Lula de Silva, Brazil is privatizing operations of roads and ports, creating opportunities for Florida companies” (Hemlock 2007a). Announcing an initiative to finance a Florida energy plant through the Brazilian office of Controlsbud International of Luxembourg and a pledge to encourage Congress to push for elimination of Brazil’s ethanol tariff, Crist noted that these

measures “will keep us free and protect our democracy” (Hemlock 2007b). In December it was announced that Controlsbud International of Luxembourg was now working through its Florida offices to finance the development of 150,000 acres in sugarcane farms and three mills in Colombia.

Florida’s latest ethanol motto is 25 by 25, that is, as part of the “Farm to Fuel” program the goal is that 25 percent of the state’s energy needs will come from agriculture by 2025. Florida’s agricultural commissioner claimed that the state itself could become one of the largest ethanol producers in the country. Deploying the discourse of empty wasteland, he stated “There’s a huge amount of unused land that could easily be turned to material for biomass for energy.” However, most are looking elsewhere: “Inspired by Brazil’s success in developing an ethanol industry, South Florida leaders have a vision of their own. They see the region building on its role as the ‘Gateway to the America’s’ to become an ethanol hub for the hemisphere” (Hemlock 2008). Boosters emphasize the role of seaports, banks, and the development of an exchange in Miami modeled after the Mercantile Exchange in Chicago. They note that former Governor Bush laid the groundwork, by joining with Brazil’s former agricultural minister to form the Inter-American Ethanol Commission, which “sees Latin America as a key source of ethanol for Florida and the United States, based on Latin America’s abundant sunshine for sugar cane and other crops, available farmland and lower costs” (Hemlock 2008). Through a tortuous discursive dialectic, “ghost acreages” throughout Latin America are emptied and then discursively annexed to the US, a necessary process of domestication as they lead the U.S. to energy “independence.” Thus the “farm” from which the “fuel” will be

coming is likely an agroindustrial territorial production complex in Latin America or the Caribbean.

General Motors has been underwriting some of the recent Florida ethanol boosterism, such as symposia held during fall 2007 on E85 Ethanol: “Preparing for the arrival of E85 Ethanol in South Florida.” General Motors has embraced biofuels as the lesser evil, far preferring to adapt to flex-fuel than to meet fuel reduction standards. Thus, Florida, which as a state is second only to California in the number of vehicles, has been key to General Motors’ strategies as it inserts itself into the global ethanol assemblage. Florida’s legislators provide an important counterweight to California’s environmentally driven fuel standards. Here history provides a small irony, since it was primarily General Motors investors that established the oldest and second largest sugar company in Florida (Hollander 2008).

Geographic differences notwithstanding, support for ethanol crosses U.S. national political party lines. As it happens, this paper has focused on regional alliances formed during a period when brothers occupied the White House and the Florida governor’s mansion, but whichever party wins the next presidential election, there is no doubt the next U.S. president supports and is supported by the industry. For example, the Clinton Global Initiative, founded by former President Bill Clinton, has “generated commitments to spend billions on ethanol” (McIntire 2008, A23). Bill Clinton serves as a senior advisor to the Yucaipa Companies, whose founder has “raised hundreds of thousands of dollars for Mrs. Clinton’s campaigns” (ibid.). Yucaipa Companies include grocery chains and now investments in Cilion Inc., a start-up company building numerous ethanol plants in New York State and elsewhere, including Famoso, California. In this case, the

California Attorney General has requested that the County take into account the fact that “corn ethanol appears to be far less sustainable when viewed through a field to wheel carbon measure, and may not answer California’s fuel needs” (E. Brown 2008, 3).

One of my aims in this paper has been to demonstrate that theorizations of food commodity chains and of the geopolitics of fuel commodities need to be brought in dialogue with each other in order to capture the newly emerging and dynamic relationship between food and fuel crops. Perhaps no better ammunition for my argument comes from the intersection of U.S. energy and agricultural policies as reflected in the recently passed Energy Bill and the pending Farm Bill. For example, the Energy Independence and Security Act of 2007 increased the renewable fuels standard to 9 billion gallons in 2008 and mandated the production of 36 billion gallons annually by 2022, from 7.5 billion now. In response, a group of senior scientists who research climate change sent a letter to the President and Congress urging reconsideration of these energy policies in light of recent findings: “There is an urgent need for policy that ensures biofuels are not produced on productive forest, grassland or cropland.” Timothy Searchinger, lead author on one of the *Science* articles cited above, explained: “When you take this into account, most of the biofuels that people are using or planning to use would probably increase greenhouse gasses substantially. Previously there’s been an accounting error: land use change has been left out of the analysis.” Addressing the two *Science* articles on which these statements were based, the U.S. Department of Energy posted to its Web site the following statement, which read in part: “Two studies posted last week on ‘Science Express’ and widely reported in the press, raise important issues but often read like conclusions looking for an underlying rationale. These two studies

fundamentally misunderstand the local forces behind land use change...” (U.S. Department of Energy 2008).

Meanwhile, the 2007 Farm Bill—entitled “The Farm, Nutrition, and Bioenergy Act of 2007” in the U.S. House of Representatives and the “Food and Energy Security Act” in the U.S. Senate—would allocate several billion dollars for biofuels. The acts also propose a remedy for US sugar growers threatened by unrestricted imports of sugar from Mexico: “Both the House and Senate farm bills contain provisions that Mexican sugar imports be purchased by the U.S. Department of Agriculture and then sold to ethanol producers while taxpayers eat the difference. ‘We’re going to be buying it at 21 cents [per pound] and probably selling it at six cents,’ acting Agriculture Secretary Chuck Connor” said (*Wall Street Journal* 2008, A18). That provision is just one of a multitude of ways in which public and private are intertwining to form the global ethanol assemblage, as the nation-state acts to provide the infrastructure and capital for private accumulation in the biofuels industry. As the assemblage emerges, we see a welter of hybrid entities (e.g., see www.flgov.com/brazil) that insert state capacity into the transnational energy industry and the proliferation of industry organizations claiming scientific expertise. As the site for the first biomass ethanol plant in Florida—funded by a \$20 million state grant—Florida Crystals now markets “carbon neutral sugar”: “Carbonfund.org and Florida Crystals Corporation today announced the CarbonFree[®] certification of Florida Crystals Organic Sugar, marking a growing trend of businesses that are bringing carbon-conscious consumerism directly to their customers.”

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