Corporate interest in agrofuels has gone from a casual trot to a full-on stampede over the last few years. For business and politicians alike, agrofuels are certainly one of the more palatable "renewable" forms of energy because they fit easily into the existing petroleum-based economy. But they also present opportunities for profit that the new order of "green" business has wasted no time in capturing. Big money is now flowing into agrofuel projects across the world – with big consequences.

Corporate power

Agrofuels and the expansion of agribusiness

GRAIN

The wave of investment in agrofuels is restructuring agribusiness itself. New, powerful players are converging into the sector. Cosmetics corporations are selling biodiesel. Big oil is buying up plantations. Wall Street speculators are swinging deals with feudal sugar barons. All of this money circulating around the globe is reorganising and intensifying transnational structures, linking the most brutal landowning class of the South with the most powerful corporations of the North.

This article looks at the expanding corporate investment in and control over agrofuels. It provides an overview of who is investing in agrofuels and where the money is going, shedding light on how the development of this alternative fuel, promoted for its environmental advantages and the economic benefits it brings to farmers, is already being managed by transnational corporations and absorbed into their profit strategies and expansion plans.

Where the money is coming from

Is it a trend, a bubble or a structural reconfiguration? It is difficult to say at this point. The most appropriate way to describe the investment in agrofuels over the last few years would probably be to call it a flood. Hardly a day goes by without reports of a new multi-million-dollar agrofuel refinery going up somewhere. So who's investing in all this new construction?

Table 1. Some transnational corporations investing in agrofuels

Agribusiness	ADM, Cargill, China National Cereals, Oils and Foodstuffs Import & Export Corporation, Noble Group, DuPont, Syngenta, ConAgra, Bunge, Itochu, Marubeni, Louis Dreyfus
sugar	British Sugar, Tate & Lyle, Tereos, Sucden, Cosan, AlcoGroup, EDF & Man, Bajaj Hindusthan, Royal Nedalco
palm oil	IOI, Peter Cremer, Wilmar
forestry	Weyerhauser, Tembec
Oil	British Petroleum, Eni, Shell, Mitsui, Mitsubishi, Repsol, Chevron, Titan, Lukoil, Petrobrás, Total, PetroChina, Bharat Petroleum, PT Medco, Gulf Oil
Finance	Rabobank, Barclays, Société Générale, Morgan Stanley, Kleiner Perkins Caufield & Byers, Goldman Sachs, Carlyle Group, Kohsla Ventures, George Soros

As one would expect, big agribusiness is one of the main backers. Agriculture commodity companies like Archer Daniels Midland (ADM), Noble, and Cargill are investing heavily. So too are those companies that specialise in the sugar trade, palm oil, and, to a lesser extent, forestry.

Then there's the money from the energy sector. Big oil companies such as British Petroleum (BP) and Mitsui are making substantial investments. So too are those oil companies more directly linked to their home government's agrofuel agendas, such as Petrobrás of Brazil and PetroChina, and smaller firms such as PT Medco of Indonesia and the Philippine National Oil Company.

Perhaps the most aggressive source of investment in agrofuels, however, comes from the world of finance. A number of the largest and most important houses of globalised capital have stepped into the agrofuels game. Financing is coming from banks such as Rabobank, Barclays and Société Générale, and from equity funds, such as Morgan Stanley and Goldman Sachs, that specialise in buy-outs and can quickly shift billions of dollars from one part of the world to another.

Then there are the billionaires: George Soros, the hedge fund guru, owns ethanol/agribusiness operations in Brazil; Bill Gates owns one of the US's largest ethanol producers; Vinod Khosla, of Google fame, is a major investor in a range of agrofuel production and technology ventures; and Sir Richard Branson, owner of Virgin Group and now Virgin Fuels, has a growing portfolio of agrofuel investments. These titans of globalisation not only bring their vast fortunes to the agrofuel gold rush, but their heavy political clout as well.

Of course, behind all of this, lessening the risks to the world's great "speculators", are the governments and the international lending agencies, such as the World Bank and the regional development banks. The billions they provide through direct subsidies, tax breaks, publicly built transportation routes, carbon-trading schemes and soft loans are what make agrofuels economically viable.

Where the money is going

"Growing the crop is where the profit will be"
Nancy DeVore, Bunge Global Agribusiness.

There is certainly a connection between today's agrofuel binge and the jump in oil prices that began a couple of years ago. But an oil price spike hardly makes for the kind of long-term investments that big players are currently making in agrofuels. The price of oil, even if global reserves are shrinking, is still determined by speculation, which is only loosely correlated to supply and demand. Just as fast as the price of oil can rise, so can it fall, taking

The Carlyle Group: an agrofuel corporation?

The Carlyle Group is a US$55-billion equity fund and notorious Washington insider that has made a number of agrofuels-related acquisitions over the past few years through its renewable energy groups. Today its portfolio includes one of Brazil's largest sugar-cane ethanol groups (see box on the Crystalsev conglomerate on page 20) and numerous agrofuel plants in the US and Europe, which it manages with agribusiness majors like Bunge and ConAgra. In January 2007 it joined Goldman Sachs and Richard Morgan, one of President George Bush's most important financial backers, in taking over the energy distribution corporation Kinder Morgan, which handles roughly 30 per cent of the ethanol sold in the US.

Table 2. Corporate control of key agrofuel feedstocks

	Top corporations	Corporate control
Maize merchants (US)	Cargill, ADM	Top 3 control over 80% of US maize exports
Maize seeds (US)	Monsanto, DuPont, Syngenta	Monsanto controls 41% of global market
Sugar trade (Brazil)	Cargill, Louis Dreyfus, Cosan/ Tereos/Sucden	Cargill is the largest shipper of raw sugar from Brazil
Palm oil trade (Global)	Wilmar, IOI, Synergy Drive, Cargill	60% of palm oil area in Malaysia is owned by corporations, only 9% is owned by individual landowners.
Soya trade (Global)	Bunge, ADM, Cargill, Dreyfus	3 companies control 80% of European crushing; 5 companies control 60% of Brazilian production
Soya seeds (global)	Monsanto, DuPont	Monsanto controls 25% of global market

Sources: ETC Group, WWF, UK Food Group, Cargill.

down agrofuels producers in the process. This is precisely what happened to the ethanol industry in the 1980s.

The difference in the agrofuels market today is not so much the price of oil but the level of support from government. For an array of political reasons, certainly related to the growing corporate interest in "renewables", the governments of the major oil-consuming countries have mandated or are in the process of mandating that transport fuel contain minimum percentages of ethanol and biodiesel. Together, the subsidies and this guaranteed demand boil down to a big captive market for agrofuel corporations.

But even so, agrofuels remain on the cusp of viability, with profits still at the mercy of another important variable – the price of feedstock, the plant matter used to produce the agrofuel.

The cost of the feedstock can make or break an agrofuel operation, and it is not easy for an agrofuel producer to control the price. This is because the agrofuel industry is forever in competition with other markets, especially for food, which depend on the same crops or the same lands. Indeed, the very success of agrofuels – manifest in their increasing use – drives up prices for feedstocks and tightens supplies. And a price rise can be lethal because agrofuel companies have few options for passing down costs.

The surest way out of this quandary is for the agrofuel companies to control the production and supply of their own feedstocks. This is why today most agrofuel factories are being built with simultaneous investments in crop production. The clear trend is towards the formation of fully integrated transnational agrofuel networks, bringing together everything from seeds to shipping.

Here the agribusiness corporations with their already well-developed global agriculture commodity chains have the advantage over their competitors. For the foreseeable future, feedstocks produced in sufficient quantities for large-scale agrofuel operations will be crops – soya, maize, palm oil and sugar – whose production and trade are dominated by a small number of transnational corporations. It is not surprising, then, that much of the investment money pouring into agrofuels is either coming from or being channelled to these corporations. Agrofuels thus bring a double bonus to big agribusiness corporations: they make money not only in the production and sale of agrofuels but also through the global commodities boom that this new source of demand helps to generate. (see "The palm-oil-biodiesel nexus" on page 16)

There are, however, some limits to how deep and fast big agribusiness will go with its investment in agrofuels. Cargill, for instance, has openly stated its preference for selling into food and feed channels when push comes to shove. Why get tied up selling soya to agrofuel producers when you can make more money by turning it into cooking oil? [1] ADM may be the world's biggest ethanol producer, but its main business still comes from converting maize into animal feed or into high-fructose corn syrup for companies like Coca-Cola and Pepsi, and it wouldn't want high maize prices to jeopardise those markets.[2] These big agribusiness corporations are happy to sell agrofuels to increase overall business, but only under their careful coordination and control, so as not to lose their cherished flexibility and traditional profit channels.[3]

1 Steve Karnowski, "Cargill, ADM differ in food-duel debate", AP, 17 May 2006: http://tinyurl.com/3bxtw7

2 Alexei Barrionuevo, "Springtime for ethanol", New York Times, 23 January 2007. http://tinyurl.com/3y9v9t

3 Tom Philpott, "ADM, high-fructose corn syrup and ethanol", Gristmill blog, posted 10 May 2006. http://tinyurl.com/kxmqq

Wall Street on the farm

George Soros

George Soros bought the Argentine company Pecom Agribusiness in 2002, which gave him over 100,000 hectares of land in Argentina for beef and dairy cattle, soya, maize, wheat, rice, and sunflowers production.[1] Then, in 2004, Soros' company, now called Adenco, expanded into Brazil, buying 27,000 hectares of land in the states of Tocantins and Bahia for the production of cotton and coffee. In 2006, Adenco entered into a partnership with Brazil's Vieira family, a coffee-growing clan from Minas Gerais state, to set up a mill with a productive capacity of one million tonnes of sugar cane per year. The Vieira family are now shareholders in Adenco and manage the group's Brazilian operations. The group continues to expand, and soon its four sugar processing plants in Brazil expect to be milling 12 million tonnes of sugar cane, converting much of it into ethanol. Meanwhile, in the US, Soros announced that his company is constructing a plant for maize-based ethanol, which will process 50 million tonnes of maize, harvested from an area of 50,000 hectares, with similar plants under consideration for Argentina.

Goldman Sachs

Goldman Sachs, one of the world's largest investment banks, not only handles the financing for many of the major agrofuel ventures, but is also one of the leading investors in "renewable" energy, having invested upwards of US$1 billion already, with much of it going into agrofuels.[2] It co-owns leading cellulosic ethanol developer Iogen, as well as energy distribution companies Kinder Morgan and Green Earth Fuels, which are working together on an 86-million-gallon biodiesel plant and storage terminal in Texas that can handle 8 million barrels of biodiesel. Moving even more directly into agribusiness, Goldman Sachs became a co-owner in 2006 of China's two largest meat companies, making the investment bank China's largest investor in this sector.[3]

1 Fabiane Stefano and Lívia Andrade, "George Soros ataca no campo", Dinheiro rural, October 2006, http://tinyurl.com/365e4z (also translated into English by Ethablog), http://tinyurl.com/2ww5wb

2 The CEO of British Petroleum, Lord Browne of Madingley, has served on Goldman Sachs Board since 1991. In 2007 he retires from both positions, following a highly publicised trial over allegations made by his former lover. See: http://tinyurl.com/33jkpc

3 Dominique Patton, "Foreign equity group wins bid for China's leading meat processor", MeatProcess.com, 16 May 2006. http://tinyurl.com/2v9zg6

As a result, the surplus money flowing into agrofuels that is not absorbed by big agribusiness is being diverted to the construction of alternative transnational commodity networks with their own feedstock production and supply chains. This surge in speculative investment is generating a wave of new alliances and business groupings, bringing together financial companies, shippers, traders, and producers. In some cases major investment funds, such as the Carlyle Group, are even setting up their own fully integrated agribusiness/energy networks (*see* box above: "Wall Street on the farm").

Other companies are sidestepping already-formed commodity chains by launching production in geographic areas where agribusiness is less present and where production costs are low. Several Chinese corporations struck deals in the Philippines and Indonesia in early 2007 to convert 1 million hectares in each country to the production of agrofuel crops for export.[4] Brazilian ethanol producers are expanding sugar-cane production into neighbouring Paraguay, where costs of production are estimated to be even lower than in Brazil. Similarly, the Maple Corporation, a US energy firm, is setting up a sugar-cane plantation and ethanol plant in Peru to take advantage of the country's low production costs and favourable ethanol export access to the US.[5]

Another way to sidestep supply problems is through the production of feedstocks that are less tightly controlled by big agribusiness. Both BP and ConocoPhillips have struck deals with major meat processors for the supply of animal fats to produce biodiesel.[6] BP, along with several other companies, is also developing jatropha as a feedstock, while Chinese and South Korean corporations are busy making deals in Nigeria and Indonesia for the large-scale production of cassava.

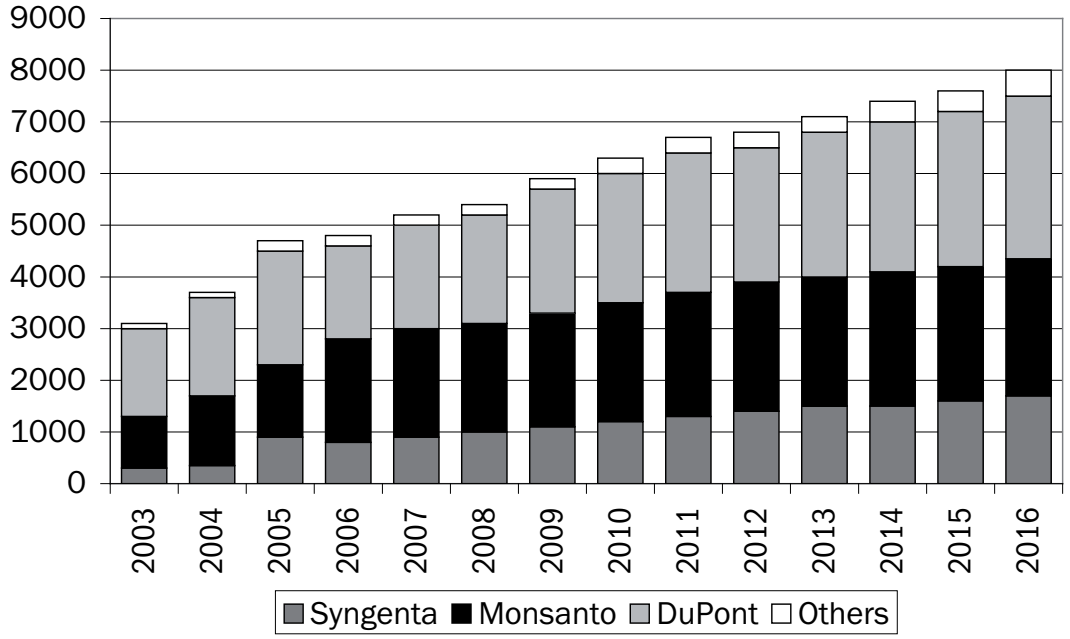
On the research and development side, however, most of the money is focused on cellulosic ethanol, the supposed next generation of agrofuels. Many people within the agrofuel industry believe

4 GRAIN, "Hybrid rice and China's expanding empire", 6 February 2007, www.grain.org/hybridrice/?id=176
"Indonesia and China sign biofuel deal", AFP, 9 January 2007.

5 "US-based Maple invests in Peru ethanol production", Reuters, 20 March, 2007. http://tinyurl.com/39psuj

6 "BP Brews the fat", Engineer Online, 3 April 2006, http://tinyurl.com/2qe2lh
"Pig fat to be turned into biodiesel", BBC, 19 April 2007. http://tinyurl.com/2mrhvf

Maize seed and biotech sales worldwide (US$ millions)



Source: Cropnosis

that economically viable methods will soon be developed to convert the cellulosic matter of plants into ethanol, opening the way for the large-scale use in agrofuel production of crops such as switchgrass and trees, or the use of the complete plant of existing agrofuel crops such as sugar cane and maize, rather than just the extruded fluid or the corn-cobs, as at present. Those who develop and patent these cellulosic technologies will clearly gain an enormous amount of leverage within the agrofuel commodity chain, so it is no surprise that Big Oil is strategically channelling its investments into this area or that biotechnology companies like Monsanto are already securing monopolies over the seeds and genes of promising next-generation crops, such as jatropha or miscanthus. Already, just a few companies, with large patent portfolios and tight alliances with major agrofuel corporations, dominate the research and development into the enzymes needed to make cellulosic ethanol viable (see "Coporate control, the sequel" on page 18).

Political winds

Agrofuels are not, of course, just about business. They are highly political, and the corporations that control their production both shape and follow the shifting political currents. Although there is a general euphoria for agrofuels among most governments, national policies are influenced by the different dynamics among business lobbies, geopolitical concerns and trade politics. Government and corporations in China, South Korea and Japan are looking to other countries for the production and supply of raw materials. Brazil wants to supply the world with both ethanol fuel and technologies, and has been negotiating packages with countries on every continent to that end. The US and Europe see agrofuels as the answer to everything from climate change to farm crises to problems with oil-rich "rogue" states. As a result, agrofuel deals are being struck all over the place, determining where the agrofuels are being produced, by whom and for whom, and, perhaps most importantly, how they are being traded. Nowhere is this more apparent than in the development of the global market for sugar-cane ethanol (see "The sugar-cane-ethanol nexus" on page 20).

Green agribusiness? Don't be fuelled

There is nothing new about farming for energy. Most farms have always produced the energy that their families and animals use to farm the land. The difference with agrofuels, however, is that they involve the farming of energy as a commodity, which, as such, is completely integrated into the circuits of transnational agribusiness and finance. Agrofuel production, therefore, follows the dictates of the global money managers, the heads of investment banks or agribusiness corporations, who preside over immense concentrations of wealth and who, in this era of neo-liberal globalisation, can shuffle it around to wherever it generates the most profit.

Thanks to the deep, long-term commitment of governments, it is now more certain that agrofuels

"We are trying to get cars to eat bread and people to eat oil" *Source: El Roto,* El País*, Madrid, 2007*

will be profitable. So the big money is rushing in, urging agribusiness and its agroexport model of production to move more deeply and more quickly than ever before in its takeover of world farming.

One clear pattern to this investment in agrofuels is that the money is increasingly going into the construction of fully integrated agrofuel networks, involving production, shipping, processing and distribution. It is also flowing to a few low-cost centres of production, especially Brazil for sugar cane, the US for maize and Indonesia for palm oil, although substantial sums are also going to countries that sign on to special deals or that have preferential trade access to the US, Japan or the EU. Production and control over the supply of feedstocks are critical, and almost all new agrofuel projects now come with plans for high-tech plantations or contract growing arrangements, often managed by local agribusiness and often on lands used for food production or communal pastures and forests.

Agrofuel projects are thus generating new alliances or expanding existing ones between local producers and suppliers of the feedstock and foreign corporations. Typically, foreign investors set up joint ventures with companies controlled by large landholding and politically powerful families, getting these families to manage the production side of things. Agrofuels thus deepen the relationships between transnational capital and local landed elites, with profound consequences for struggles over land and local food production.

This evolving web of global production and trade routes for the extraction and export of agrofuels will become ever more tightly controlled by corporations with time. The technology for the next generation of biofuel crops is in the hands of a few companies and their corporate partners, who will use patents and other monopoly rights to shut out competitors and control the market. Moreover, corporations are already starting to turn to brands and standards as a way to consolidate market shares.[7]

None of this has anything to do with preventing climate change or even lessening foreign dependence on oil, as the US government likes to claim. The bottom line is that agrofuels are a new way for corporations, speculators and powerful agro-barons to make more money, sell more commodities, and consolidate their control over the earth.

7 The Peter Cremer Gruppe of Germany, for instance, one of the largest global traders of oleochemicals, sells a branded biodiesel in the US, Europe and Australia called Nexsol.

The palm-oil–

"Palm oil is like green gold now", said Sukanto Tanoto, Indonesia's richest individual and owner of palm-oil, forestry and energy corporation RGM International.[1] Indeed, the global palm-oil market is booming and this is largely because of the growing production of biodiesel. Palm oil is not only one of the main feedstocks for biodiesel, it's also the primary substitute for rapeseed oil, which is in short supply in Europe because of its conversion into biodiesel.

The rising prices are bad news for biodiesel producers that rely on palm oil for their feedstock, except where the biodiesel producer also happens to be the producer of the palm oil. "For us, [biodiesel] is an additional downstream market", said a director of Malaysia's Golden Hope Plantations. "Big plantation companies may not make much money on biodiesel, but we'll be supported by the group, get our palm oil at a good price and our overall earnings will remain stable."[2]

This is one of the main reasons why investment in palm-oil-based biodiesel refineries is being led by palm-oil producers. In Indonesia, Tanoto's Pt Asianagro company is ploughing its profits into the construction of a 150,000-tonne-per-year biodiesel refinery. Nearby, the Bakrie Group, another Indonesian palm-oil major, is building a new US$25 million biodiesel factory, and expanding its plantations over thousands of hectares to supply the feedstock. Similarly, Indonesia's Surya Dumai Group is in the midst of constructing its own US$30-million biodiesel refinery.[3]

In Malaysia and Singapore, home base to some of the world's largest palm-oil producers, biodiesel activity is at frenzied levels. Companies are merging, buying others out and forming all kinds of alliances to take advantage of the new market opportunities. Late in 2006, the three leading Malaysian palm-oil companies controlled by the state investment holding company Permodalan Nasional Bhd (Golden Hope Plantations, Sime Darby, and Kumpulan Guthrie) merged to form Synergy Drive, the world's largest listed oil-palm company. The combined company now controls 526,000 hectares of oil-palm plantations in Malaysia and Indonesia (see article on page 25) and is involved in several planned biodiesel factories.

For the major producers, a key focus is on expanding and integrating refining capacity both at home and abroad. In early 2007, the Federal Land Development Authority (FELDA), the largest palm-oil manufacturer in the world, purchased US-based Twin Rivers Technologies, which operates the US's largest biodiesel processing facility. Malaysia's IOI Corporation recently took over Unilever's European palm-oil processing operations, bought up two Malaysian palm-oil refinery companies and then publicly acknowledged its intentions to take over Asiatic Development, another major palm-oil producer and refiner. IOI is currently constructing a 200,000-tonne-per-year biodiesel refinery in Johor, Malaysia and Europe's largest palm-oil refinery in Rotterdam, the Netherlands, with a capacity to refine 900,000 tonnes a year into cooking oil or biodiesel. The Kuok Group is in similar expansion mode (see box on page 17).

Cargill, for its part, has been steadily expanding and integrating its palm-oil operations to take advantage of the surge in demand for the commodity. The company operates two refineries in Malaysia and a crushing plant in Indonesia. It has also recently boosted the capacity of its Rotterdam plant to refine tropical oils – an additional 200,000 tonnes per year of coconut oil and 300,000 tonnes per year of palm oil. On the production side, Cargill launched its first palm-oil plantations in Sumatra, Indonesia in 1997. Then, in 2005, Cargill and Temasek Holding, a private investment arm of the Singapore government, acquired the CDC Group's palm plantations in Indonesia and Papua New Guinea. These include a plantation in Kalimantan, Indonesia and a majority shareholding in four other plantations in the region – three in Indonesia and one in Papua New Guinea. Cargill's existing plantations were merged into the new joint venture, registered in Singapore as CTP Holdings, with Cargill, as its majority shareholder, assuming complete managerial and operational responsibilities.

Overall, then, the demand for biodiesel is encouraging consolidation in the palm-oil sector and a shift to a more transnational orientation and structure, with tighter integration between foreign companies and palm-oil producers and suppliers.

1 APRIL-Watch, 11 May 2007. http://aprilwatch.blogspot.com/

2 Shibu itty Kuttickal, "Palm oil merger may deter some projects", ICIS News, 1 December 2006. http://tinyurl.com/2jg724

3 For a breakdown of biodiesel production in Asia, see Credit Suisse, "Biofuel Sector: Global comparisons of a fast-growing sector", 30 August 2006, http://tinyurl.com/2sawse and Liaw Thong Jung, "Equity Focus: KNM Group Berhad", Aseambankers Malaysia Equity Research, 15 February 2007. http://tinyurl.com/3yh8xl

biodiesel nexus

Table 3. Examples of transnational palm-oil-based biodiesel webs

Producer/supplier	Foreign partner	Project
Golden Agri-Resources (Singapore/Indonesia, owned by the Sinar Mas Group)	China National Offshore Oil Co. and Hong Kong Energy Ltd.	US$5.5 billion, eight year project to develop crude palm oil-based biodiesel, and sugarcane- or cassava-based bioethanol on around one million hectares of land in Papua and Kalimantan, Indonesia
PT Mopoli Raya (Indonesia, subsidiary of the Bolloré Group)	Merloni (Italy, owned by Indesit/ Fineldo)	Builiding a 250,000 tonne per year biodiesel plant in Kuala Tanjung, North Sumatra called, Nusantara Bio Fuel.
Kulim (Malaysia, owned by the Johor Corporation)	Peter Cremer Gruppe (Germany)	Launched a joint venture for the construction and operation of two biodiesel plants in Malaysia and Singapore
IOI and Golden Hope Plantation (Synergy Drive)	BioX Group (Netherlands)	In 2006, BioX signed a 10-year supply agreement with IOI and Golden Hope Plantations. Deal with IOI includes the construction of a biofuel powerplant at IOI's refinery in Rotterdam. BioX Group also has joint ventures with Tradewinds Plantations and Sime Darby for carbon trading projects at their oil palm refineries.

Robert Kuok and the Wilmar web

Early in 2007, Robert Kuok, South-east Asia's richest individual, brought the various palm-oil segments of his empire together under a single entity.[1] The new company, Wilmar International, was formed through a US$4.3-billion merger between Kuok's PPB Oils and Wilmar, which involves not only the Kuok family, but also ADM and China National Cereals, Oils and Foodstuffs Import & Export Corporation (COFCO), China's largest food company and one of its most aggressive investors in agrofuel production.[2] Through the merger, ADM becomes Wilmar International's second largest shareholder.[3]

The Kuok Group of companies is an important but largely unknown agrofuels player, both in biodiesel and ethanol. Wilmar International holds around 435,000 hectares of oil-palm plantations and 25 refineries in Indonesia, Malaysia and Singapore. Through its alliance with ADM, it has a 300,000-tonne-per-year biodiesel refinery in Singapore, and the two companies have another three refineries set to come into production in Riau, Indonesia, each with a capacity of 350,000 tonnes per year, as well as a refinery in Rotterdam with a capacity of 1 million tonnes per year, making Wilmar easily one of the largest biodiesel producers in the world. The company, through its Malaysian subsidiary Josovina, is also to be the exclusive palm-oil supplier to Global Bio-Diesel, a 500,000-tonne-per-year biodiesel operation being built in Malaysia by the South Korean company Eco Solutions. And when it comes to the important trade link in the biodiesel chain, Kuok owns Singapore-based Pacific Carriers – one of the largest shipping companies in South-east Asia.

The Kuok Group's ethanol activities spring from its large sugar operations. Since he first ventured into the sugar business in the 1950s, Robert Kuok has steadily expanded the global reach of his operations. In the 1970s, together with the Salim Group, an Indonesian palm-oil and food company owned by Kuok's close associate Liem Sioe Liong, he established the country's largest sugar plantation and became the main supplier to the Suharto government's purchasing agency. Then, in 1987, Kuok, through his Singapore-based company Kerry International, purchased a 30 per cent share of the French sugar giant, Sucres et Denrées (Sucden), which controls around 15 per cent of the global sugar trade. More recently, Kuok, through his individual holdings and through Sucden, became the second largest shareholder in Cosan, Brazil's largest sugar processor and ethanol producer.

1 Robert Kuok also owns Hong Kong's influential English daily, the *South China Morning Post*. For more information, see the website of Not The South China Morning Post:
http://www.ntscmp.com/

2 Wan Zhihong, "COFCO to invest US$1b in ethanol", *China Daily*, 19 October 2006.

3 "ADM to acquire shares in Wilmar International", FirstCall, 14 December 2006. http://tinyurl.com/3xdpds

Corporate co

Alternative energy crops and nex

There is no mystery to big biotech's love affair with agrofuels. More agrofuels translates into more soya and more hybrid maize production – meaning more sales of GM seeds and pesticides. Robert Fraley, the Vice-President of Monsanto and co-inventor of its Roundup Ready crops, gleefully told an audience at a recent agribusiness exhibition in Argentina that the growth of agrofuels was "unimaginable in terms of what it's going to mean for corn and soybean surface".[1]

Not long ago Fraley's main message was about how genetic modification would fill the bellies of the world's poor; now it's about how GM will fuel the world's cars. It's merely a question, it seems, of adapting the message to the latest fashionable concern. Anyway, as Fraley pointed out, Monsanto and Cargill are working on new maize varieties through their joint venture, Renessen, that Cargill can simultaneously process into both ethanol and animal feed, thereby resolving, at least for Cargill, the tension between its markets for fuel and food.

Renessen's maize breeding says a lot about how companies like Monsanto stand to benefit from the agrofuels push. Agrofuels open up new markets for GM crops, be they maize, soya or canola, that have so far been constrained in Europe, Japan and elsewhere by regulatory hurdles based on concern about the effects of GM on human health. But Renessen's GM maize is directed at the two outlets – agrofuels and animal feed – that have the least amount of regulation. It is a perfect arrangement for both companies: Cargill sidesteps trade impediments and Monsanto secures its position within the empire of the world's biggest grain trader.

Similar arrangements are popping up elsewhere. In 2006, DuPont and Bunge announced that they were expanding the scope of their joint venture in soya research and development, known as Solae, to include agrofuels.[2]

Big biotech's interest in agrofuels, however, does not stop with the main GM crops. These companies are also at the centre of the search for alternative feedstocks and the elusive next generation of cellulosic ethanol, where similar scenarios of monopoly control are unfolding (see article on jatropha on page 34).

Monsanto is a leading player in R&D for both miscanthus and switchgrass, two of the most promising feedstocks for the future cellulosic ethanol market. In early 2007, Mendel Biotechhnology, which is partly owned by Monsanto, bought the German-based Tinplant Biotechnik company, acquiring its hybrid miscanthus cultivars and its entire miscanthus germplasm collection – the largest in the world, with over 1,000 accessions. Mendel also has miscanthus breeding operations in China (a centre of miscanthus diversity) and in the US, where it is working on high-yielding GM varieties, potentially in collaboration with BP's new Energy Biosciences Institute at the University of Berkeley.[3] On 13 June 2007, BP announced that it was funding Mendel to conduct a five-year research programme on agrofuel feedstocks and that it had purchased shares in the company, giving it a seat beside Monsanto on Mendel's Board.[4]

Monsanto's involvement in switchgrass occurs through its partnership with another US biotechnology company, Ceres, which is also connected to BP's Energy Biosciences Institute.[5] Ceres claims to be

Big oil, big tree plantations

If cellulosic agrofuel systems eventually make it to market, eucalyptus and other tree plantations will be important sources of feedstock. Big oil is already moving to secure its place in this matrix. Chevron, for instance, has a partnership with Weyerhaeuser, one of the world's largest forestry companies, with hundreds of thousands of hectares of eucalyptus plantations in Uruguay and Brazil. Shell Oil is developing cellulosic ethanol from wood chips in partnership with Iogen Corp and Choren Industries of Germany, even though, between 2000 and 2004, it put the brake on its biomass programme and sold off its forestry subsidiaries in Africa and South America.

1 Presentation at the Agro-Expo, Junin, Argentina, 15 March 2007.

2 http://tinyurl.com/2j4bth

3 James Zhang, "Feedstock improvement: A biotechnology business opportunity perspective", 26 April 2007, http://tinyurl.com/2mm2dl Richard Brenneman, "Corporate academic web entangles UC–BP proposal", Berkeley Daily Planet, 23 March 2007. http://tinyurl.com/2vgs6v

4 Company press release. http://tinyurl.com/36ff47

5 Emily Heaton and Frank Dohleman, "Practical experiences with miscanthus and switchgrass in Illinois", 26 April 2007. http://tinyurl.com/39zj6r

ntrol, the sequel

xt-generation agrofuels

Table 4. Companies developing cellulosic agrofuel enzymes and their corporate partners

Diversa/Celunol	Syngenta, Dupont/Tate&Lyle, Khosla Ventures
Iogen	Shell, Goldman Sachs
Genencor (Danisco)	Tembec, Mascoma/Kohsla Ventures, Cargill, Dow, Royal Nedalco
Novozymes	DuPont, Broin, COFCO. China Resources Alcohol Corporation
Dyadic	Abengoa, Royal Nedalco

"improving switchgrass as a crop via selection of improved types but, more importantly, is bringing its proprietary genes, tools and procedures to enhance the improvements more rapidly and provide the plant with attributes ideally suited to being farmed on large acreages to produce consistently higher yields". Ceres claims to have the largest proprietary collection of fully sequenced plant genes, with patents on more than 75,000 genes.

Seed companies are also manoeuvring to ensure that the current agrofuel crops continue to serve as feedstocks as processing systems evolve. CanaVialis, the world's largest sugar-cane breeding company, and sugar-cane biotech company Allelyx, which are both owned by the Brazilian conglomerate Votorantim, are working on new GM varieties of sugar cane for ethanol companies like Cosan, one of their corporate partners. So is Monsanto. In December 2006, a Monsanto official told the Brazilian newspaper *Valor Econômico* that the company was conducting studies on new transgenic sugar-cane varieties for the Brazilian market in partnership with an unnamed company.[6] A few months later Monsanto revealed that this company was Votorantim and that they intended to commercialise GM Roundup Ready sugar-cane varieties in Brazil by 2009 (see box on the Ometto Conglomerate on page 22).[7] Syngenta, meanwhile, recently secured access to inedible sugar-cane varieties with ultra-high quantities of cellulose, developed by biotech firm Celunol when Celunol was bought by Diversa – an enzyme- and microbe-bioprospecting company controlled by Syngenta.

For its part, DuPont, the world's second largest seed company, is developing what it calls an "integrated corn-based biorefinery" with funding from the US Department of Energy and in co-operation with Diversa, Tate & Lyle, John Deere and leading US ethanol producer Broin. It will probably utilise high-starch maize varieties developed by DuPont, and a micro-organism that can convert corn stover into ethanol that Diversa isolated from the sugar sap of tropical agave plants. On the downstream side, DuPont's biorefinery should feed into the biobutanol production and marketing joint venture it has with BP and British Sugars.

Syngenta, which recently merged its North American seed business with DuPont's, is also working with Diversa to develop maize for cellulosic agrofuel production.[8] In 2008 it expects to launch a GM maize variety that produces an enzyme developed by Diversa that converts starch into sugar for ethanol. The idea behind the GM variety is to bring down the costs of the liquid enzymes used for cellulosic ethanol production—the critical blockage point in making these next generation agrofuels economically viable.[9]

It is precisely there, at the level of the enzymes, where corporate rivalry in the development of next-generation agrofuels is most intense. The research and development into these enzymes is in the hands of just a few biotechnology companies, each already part of larger corporate groupings or "teams" trying to develop fully integrated systems for cellulosic ethanol production.[10]

6 "Monsanto studies entry into Brazil transgenic cane market", Dow Jones, 7 December 2006. http://tinyurl.com/2pp6g8

7 MST, "Brasil: Votorantim e Monsanto produzirão cana transgênica", Brasil, 30 May 2007. http://tinyurl.com/3845hd

8 In April 2006, Syngenta and DuPont announced the formation of a 50-50 joint venture, GreenLeaf Genetics. See Andrew Pollack, "DuPont and Syngenta join in modified seed venture", New York Times, 11 April 2006.

9 The African Centre for Biosafety published a critical analysis of this maize variety, which contributed to the variety being rejected by South African regulators. See: http://tinyurl.com/2u2ehh

10 http://tinyurl.com/338mmo

The sugar-can

The US and Brazil are, by far, the dominant centres of global ethanol production. Together they account for about 70 per cent of the ethanol currently produced in the world. Both of these countries also dominate the global export production of the crops from which they produce their ethanol. The US, which makes its ethanol out of maize, produces about 70 per cent of global maize exports. Brazil makes its ethanol from sugar cane, and today it accounts for over half of the raw sugar traded around the world. In these two countries, then, the supply of ethanol feedstocks occurs within global commodity chains, which are tightly controlled by a few transnational corporations and influenced by trade relations.[1v]

Brazil's emergence as a major sugar exporter began at the end of the 1980s when its sugar sector was liberalised. It was then that foreign investment started to flow in, expanding the scale and area of sugar production and orientHing the industry towards exports. But it was really only during the past few years that Brazilian sugar started flooding the global market. In 2004, Brazil won a key case at the World Trade Organisation against the EU sugar regime. Brazil's victory undermined long-standing colonial trade and production routes, as well as the EU's heavily subsidised export production. Today, sugar industries in Africa, the Caribbean, the Pacific and other parts of the world, which were sustained by preferential access to the EU, are in steep decline, even as the growing markets for ethanol raise the international price of sugar. Meanwhile, Brazilian sugar production is booming: the country's share of global raw sugar exports surged from 7 per cent in 1994 to 62 per cent in 2006 and, over the past four years, its exports of sugar and ethanol increased by 243 per cent.[2]

In this new context, where sugar corporations are consolidating their operations and expanding into low-cost areas of production, Brazil has become their main target for investment. Bajaj Hindusthan, for instance, India's largest sugar producer, set up a Brazilian subsidiary in 2006 and earmarked US$500 million for immediate investment in the country. "If I need to grow exponentially, I need to be in Brazil", said Kushagra Nayan Bajaj, the company's CEO. "If an investor expects another tenfold increase out of me in the next five years, or three years, I can't do it in India."[3]

The boom in Brazilian ethanol production is therefore happening alongside a more general boom in the country's sugar production. And, as with the palm-oil nexus, the sugar producers are quickly using this opportunity to secure control over the international sugar-cane ethanol market, positioning themselves to take advantage of both the rise in global prices for raw sugar and the growing demand for ethanol.

The Brazilian government plays a key role in facilitating this corporate consolidation. President Lula and his cabinet ministers are on a seemingly constant ethanol booster tour, striking deals around the world for the supply of Brazilian ethanol and technology. Much of the government's support to the industry occurs via the state oil company, Petrobrás, which is actively developing the export infrastructure. Its latest project is a US$750-million ethanol pipeline, stretching 800 miles from Brazil's interior to the Petrobrás refinery in Paulinia and then onward to the port of São Sebastião. The pipeline will have the capacity to transport nearly half of Brazil's present ethanol production.

Petrobrás is also more directly involved in securing long-term export markets for Brazilian ethanol. In 2005, it entered into an agreement with Japan's state oil company Nippon Alcohol Hanbai, to create Brazil–Japan Ethanol, a joint venture that plans to export 1.8 billion litres of ethanol per year to Japan.[4] In March 2007, as part of an US$8-billion partnership worked out between Japan and Brazil, Petrobrás, Mitsui and Itochu agreed to set up a Brazilian joint venture that would supply ethanol to Japan for at least the next 15 years. The two sides also began negotiations for the construction of a pipeline within Brazil to facilitate these exports.[5]

The big winners in Brazil's emergence as the global sugar and ethanol powerhouse are the transnational corporations and the few families, known in Brazil as the sugar barons, who increasingly control the Brazilian sugar and ethanol industry. With foreign investors knocking on their doors, the sugar barons have been consolidating their holdings and restructuring their companies in order to attract foreign investment. Some have even put their family businesses on to the Brazilian stock exchange. Typically, what happens is that foreign investors buy up controlling interests or minority stakes, leaving the sugar barons, with their expertise in maximising productivity by exploitation, to oversee the agricultural operations.

Brazil's sugar barons have used this flood of finance, from foreign investors and the government, to take over smaller firms and expand production for export. Between 2000 and 2005, 37 mergers and acquisitions took place within the country's sugar and ethanol industry.[6] Today it is possible to discern just a few conglomerates – transnational networks of

1 Corporate control of the US maize ethanol market is discussed in Grist magazine's December 2006 special series on biofuels. See: http://tinyurl.com/2r6k5m

2 Groupes Sucres et Denrées website, "Sugar Market": http://www.sucden.com/ "Brazilian agribusiness exports doubled in four years", Anba, 11 January 2007. http://tinyurl.com/37tsql

3 Pratik Parija and Thomas Kutty Abraham, "Bajaj plans to expand into Brazil", Bloomberg News, 22 August 2006. http://tinyurl.com/2o3g32

4 http://tinyurl.com/2tjxu2

5 http://tinyurl.com/2lkdwq

6 http://tinyurl.com/2l5rz9

e-ethanol nexus

The Crystalsev conglomerate

At the centre of this conglomerate is Brazil's Biagi family, but it also involves the Junqueira family, another group of sugar barons. Both families are the major shareholders in Brazil's second largest sugar and ethanol group, Vale de Rosário. They recently increased their shares in the company when they bought up the majority shareholders to stave off buy-out offers from Cosan and Bunge. After taking control of Vale de Rosário, the owners launched a merger process with another major Brazilian ethanol producer, Santa Elisa, also controlled by the Biagi family. When the merger is complete, the combined company will crush some 20 million tonnes of cane per year. Vale de Rosário executive vice-president, Cícero Junqueira Franco, says that the merged entity will then seek partnerships with foreign players and launch a public offering on the Brazilian stock exchange. But, in truth, the conglomerate's transition to a transnational operation is already quite advanced.

Vale de Rosário and Santa Elisa are the major players within Crystalsev, an alliance formed by nine Brazilian mills to market their sugar and ethanol, and largely under the control of the Biagi family. After the merger of its two biggest mills, Crystalsev is now pursuing a more formal merger of its shareholders, which would turn it into a completely integrated producer and trader. Crytalsev is also rapidly deepening its ties with foreign corporations, Cargill in particular.

Cargill's expansion into Brazilian ethanol is happening largely through the Biagi clan. In June 2006, it purchased Maurílio Biagi Filho's 63 per cent share of the Cevasa ethanol plant in São Paulo, which brought it within the Crystalsev fold. The Cevasa plant, with a capacity to crush 4 million tonnes per year of sugar cane and to produce around 350 million litres of ethanol, will ship ethanol in its hydrous form from the TEAS ethanol terminal in Santos (which is a joint venture between Crystalsev, Cargill and two other major Brazilian ethanol exporters) to Cargill and Crystalsev's joint-venture ethanol plant in El Salvador. There the ethanol will be dehydrated and shipped on to the US, where it can enter duty-free under a preferential trade agreement known as the Caribbean Basin Initiative, to which El Salvador is party.[1]

Cargill is not Crystalsev's only foreign partner. Santa Elisa recently formed a US$300-million joint venture with the international trading company Golden Holdings, and one of the world's largest private equity firms, the Carlyle Group. The joint venture, called CNAA, intends to have at least four new sugar mills in operation, with the capacity to crush 20 million tonnes of sugar cane per year, by 2008. This would make CNAA one of Brazil's top three sugar producers. Company representatives say that its focus will be on expanding into the "newer" cane growing areas of the Centre–South, with Crystalsev handling domestic distribution and Global Holdings organising international trade.[2]

1 Henrique Oliveira, "Cargill, largest private corporation in US, acquires Cevasa in Brazil", Ethanol Brasil blog, 11 December 2006. http://tinyurl.com/2nrc6c

2 http://tinyurl.com/2mntjj

TNCs and sugar families – that control the industry. Two of the most important are the Crystalsev and the Ometto conglomerates.

Brazil is attracting more international investments in agrofuels than any other country. In 2006 alone, over US$9 billion were invested in the Brazilian ethanol industry, with US$2 billion going into the construction of new ethanol plants.[7] A number of multi-million dollar investment funds have recently been set up on foreign stock exchanges with the specific objective of investing in Brazilian ethanol (*see* table 5 on page 23). The new money is pushing sugar production into new areas, particularly on to lands that have long been used for cattle pasture. Eduardo Pereira de Carvalho, the President of São Paulo's Sugar-Cane Manufacturers' Union, predicts that as much as a third of Brazil's current pasture land will be converted to sugar-cane production in the near future. "Over the next 15 years, an extra 100 million hectares could be planted with cane, primarily on pasture land", he said.[8]

7 http://tinyurl.com/36h9a5

8 Peter Blackburn, "Brazil could double ethanol output by 2014 – UNICA", Reuters, 4 August 2006. http://tinyurl.com/ypqrrw

The Ometto Conglomerate

The Ometto Group, run by Brazilian billionaire Rubens Ometto Silveira Mello, controls Cosan, Brazil's largest sugar producer. In the 2005–6 financial year, Cosan milled nearly 28 million tonnes of sugar cane and sold over 1 billion litres of ethanol.

In recent years, Cosan has refashioned itself into a transnational corporation. First, in 1999, it sold 10 per cent of its main port operations to global sugar giant Tate & Lyle. Then it set up a joint venture in 2002 with major French sugar companies, Sucden and Tereos, which both have large presences in Brazil's ethanol and sugar trade,[1] and in 2005 struck up a partnership with the Kuok Group from Hong Kong. Sucden, Tereos and Kuok are now major shareholders in Cosan, although Ometto retains a majority stake. Kuok, a leading player in the palm-oil biodiesel story, also has an important stake in Cosan, through its agro-industrial conglomerate, the Kerry Group. More foreign investment came into the company in 2005, when Cosan made an initial public offering on the Brazilian stock exchange, the first major ethanol producer to do so, ceding a further 27 per cent of its shares to foreign stockholders. Ometto is now considering an initial public offering on Wall Street.

Ometto's sugar empire doesn't stop there. Although you won't find this information on the Cosan website, his group also controls São Martinho, which was, at least until recently, Brazil's number two sugar producer (behind Cosan) and the operator of Brazil's largest sugar mill (7 million tonnes per year). In early 2007, São Martinho followed Cosan's lead and launched an initial public offering on the Brazilian stock exchange, bringing in US$176 million in capital and a substantial foreign ownership presence. Immediately after, it began deepening its relationships with other major players. In March 2007, it signed an agreement with Mitsubishi Corporation, giving the Japanese firm 10 per cent ownership of its Usina Boa Vista – a plant still under construction, with a crushing capacity of 3 million tonnes per year. That factory was financed with US$250 million from Brazil's National Economic and Social Development Bank (BNDES). The agreement also involved a 30-year contract under which the plant will sell 30 per cent of its production to Mitsubishi for export to Japan. At around the same time, São Martinho joined Cosan to buy out the Santa Luiza ethanol plant in São Paulo, with a capacity to crush 1.8 million tonnes of sugar cane per year.

Another important element of the Ometto empire is its close connection with Votorantim, one of Brazil's largest family-run conglomerates, controlled by Brazilian billionaire Antônio Ermírio de Moraes. Besides the close personal ties between the two families, their companies recently set up a partnership in sugar-cane breeding between Cosan and Votorantim's subsidiaries, CanaVialis, the world's largest sugar-cane breeding company, and Allelyx, the most important sugar-cane biotech company in Brazil.[2] Then, in May 2007, Votorantim and Monsanto formally announced their partnership to develop GM sugar-cane, saying that they would have GM Roundup Ready varieties ready for commercial introduction in Brazil by 2009.

1 Tereos purchased Guaraní Sugar's two sugar mills in 2001, and more recently announced US$100 million in investments for a third refinery as well as the purchase of a yet-to-be-completed 40-million-litre-per-year ethanol plant in São Paulo. Louis Dreyfus is now Brazil's second largest sugar producer and trader. It first purchased the Cresciumal refinery in São Paulo in 2000, and subsquently took control of Coinbra, and of 5 mills owned by Tavares de Melo.

2 Votorantim also owns 28% of Aracruz Celulose, the largest hardwood producer in the world and Brazil's largest eucalyptus company.

The expansion of Brazilian sugar and ethanol has repercussions beyond Brazil's borders. The glut of money is spilling over into neighbouring countries, which offer even lower costs of production and/or strategic trade access to the US market. The Brazilian government recently signed a US$100-million agreement with its Ecuadorian counterpart to set up two ethanol plants in Ecuador and to introduce high-yielding varieties of Brazilian sugar cane. Ecuador has two advantages to offer foreign investors: the 10,000-tonnes-per-year quota it has for the US market; and the unlimited access it has been given to the EU market as part of a diversification programme to encourage farmers to move away from away from illegal crops such as coca. Similar deals have been forged with Caribbean countries that have trade access to the US through the Caribbean Basin Initiative (CBI).[9] The Brazilian trading group Coimex has a joint venture in Jamaica with Petrojam to invest US$7.3 million in the rehabilitation of a 40-million-gallon ethanol production plant that will import all of its raw material from Brazil and ship all of its output to the US ethanol market.

9 http://tinyurl.com/3bcp4r

Table 5. Investment funds for Brazilian ethanol

Infinity Bioenergy	Bermuda-based company listed on London Stock Exchange that was formed by about 50 investors in 2006. One of its principle investors is the American fund Kidd & Company. With over US$500 million slotted for investments in Brazilian ethanol, the fund has so far spent US$400 million purchasing controlling interests in three plants with a joint milling capacity of 3.5 million tons of sugar cane, and is investing in the construction of two new plants in the states of Espírito Santo and Bahia. Infinity BioEnergy's focus is on regions with little tradition in sugar cane, where it sees the potential for growth. Infinity BioEnergy also recently announced that it was merging with the Evergreen fund, another British investment fund targeting Brazilian ethanol with a majority interest in the Alacana ethanol plant in Nanuque. Infinity plans to export at least part of this production to the US, and is therefore investing US$20 million in a dehydration plant in the Caribbean that will provide duty-free access to the US market
Bioenergy Development Fund	Launched in early 2007 by France's third-largest bank, Société Générale, it is incorporated in the Cayman Islands. Although it has yet to make an investment, the fund raised US$200 million in its first month and, supposedly, is on track to raise a total of US$1 billion this year. Société Générale is also involved in investments in US ethanol plants.
Brazilian Renewable Energy Company Ltd (Brenco)	Raised US$200 million in the initial private placement of its shares. It is financed by several big-name investors, such as Sun Microsystems founder Vinod Khosla, supermarket magnate Ron Burkle and the co-founder of AOL, Steve Case. Goldman Sachs is its exclusive placement agent. Other investors include former World Bank President James Wolfensohn, film producer Steven Bing, and Brazilian firms Tarpon All Equities and Grupo Semc. The CEO of Brenco is Philippe Reichstul, former president of Petrobrás. Brenco's goal over the next 10 years is to reach an annual output of 3.8 billion litres, according to market sources. Brenco is incorporated in Bermuda, but has headquarters in São Paulo.
Clean Energy Brazil	Established by Numis, an English investment bank. Partners include Czarnikow Sugar, one of the world's largest sugar brokers and the broker for approximately 30% of the Brazilian sugar/ethanol market, and Agrop, owned by Brazil's Junqueira sugar family. The fund operates on the London Stock Exchange, and raised US$185 million in its initial public offering. Its first acquisition in 2007 was of a 49% stake of the Usaciga sugar group.

Jamaica is one of a number of small countries whose sugar sectors are in danger of completely collapsing when the EU Sugar Protocol begins to be phased out in 2007. And, like Jamaica, most of these countries are in a process of deep restructuring that they are carrying out with EU support. In these processes, ethanol is often proposed as a way to salvage part of the industry, but typically alongside privatisation plans that put the ethanol production and trade into the hands of foreign corporations.

Mauritius, for instance, which is the largest supplier of sugar to the EU, holding 38 per cent of the quota within the Sugar Protocol, is negotiating an assistance package with the EU to restructure its sugar industry. As it stands, the EU will provide over 300 million euros towards the formation of a sugar-cane "cluster" in the country that will essentially centralise, mechanise and consolidate the country's small-scale sugar production and reorient it towards energy production, primarily ethanol.[10] Much is made of how the cluster will serve local energy needs, but already the bulk of the island's ethanol is exported to Europe. The ethanol business in Mauritius is controlled by Alcodis, a joint venture company that is part of the Belgian shipping conglomerate AlcoGroup. The group handles about 8 per cent of the ethanol traded in the world, most of its sourced from its Brazilian operations but some also coming from both its subsidiary in South Africa, NCP Alcohols, and its plant in Mauritius. In 2004 Alcodis shipped over 3.5 million litres of ethanol to the EU from Mauritius – tax-free because of its status as an ACP (African, Caribbean or Pacific) country.[11]

Latin America's regional bank, the Inter-American Development Bank (IDB), is another major player shaping and supporting the unfolding ethanol agribusiness web. It works closely with the Interamerican Ethanol Commission to develop the global market for ethanol, through a twin strategy of expanding ethanol production and consumption. IDB President, Luis Alberto Moreno, is one of the chairs of the commission, along with former Florida Governor Jeb Bush and former Brazilian Minister of Agriculture Roberto Rodrigues, who is now president of the Superior Council of Agribusiness of the São Paulo State Federation of Industries.

10 http://tinyurl.com/3c8vxs

11 http://tinyurl.com/3x7cq2

Guyana: first stop on the ethanol express

Guyana is emerging as a particularly important destination for the spill-over of Brazilian ethanol capital. The country, which is part of the Caribbean Basin Initiative (CBI), provides a key sea-port outlet for sugar and ethanol coming from the north of Brazil. But unlike the Caribbean island countries, which only dehydrate ethanol imported from Brazil, Guyana has the potential for its own low-cost sugar and ethanol production, opening the door to much larger exports to the US than are possible in other CBI countries.[1] The minister of Agriculture, Robert Persaud, says that 202 square kilometres of land have already been identified for new sugar-cane cultivation. "We have identified virgin lands for the cultivation of a new sugar-cane variety different from the one that we currently use for the production of sugar and molasses", he added.[2]

According to Brazil's ambassador to Guyana, Arthur V.C. Meyer, Brazil's second largest producer of biodiesel, Bio-Capital, plans to invest in sugar-cane cultivation and ethanol production in Guyana. He said that the Brazilian company intends to invest US$300 million in the purchase of some 50,000 hectares of land for cane cultivation and in the construction of an ethanol distillery.[3] Bio-Capital is carrying out a similar investment in the state of Roraima in northern Brazil, which will probably transport dehydrated ethanol to its Guyana facilities for hydration and duty-free export to the US. Although Roraima consists largely of Amazon rainforest, and there are several land disputes between companies and indigenous peoples, the Brazilian government is paving the way for greater agrofuel production in the area by financing the upgrading of a road running from Bomfim in Roraima across the Takutu River to Guyana's ports.

There are also reports of a Spanish–Israeli company negotiating a US$100-million ethanol investment in Guyana. The group, Tanacama Ltd, began discussions with the Guyana Office for Investment and the Guyana Sugar Corporation in November 2006. It intends to establish a pilot ethanol plant in the Canje river basin and to open around 10,000 hectares of land to sugar-cane production using Israeli agricultural technology. The initial capacity of the factory is expected to be 80 million litres annually, and the investors are hoping to increase that amount 10-fold within a decade.[4]

1 While imports of dehydrated ethanol into the US from CBI countries are subject to quotas, there are no limitations on imports of ethanol derived from locally produced feedstocks.

2 "Guyana ponders ethanol move", BBC, 10 April 2007. http://tinyurl.com/2ocjwp

3 Miranda La Rose, "Guyana Brazilian firm set to sign deal for ethanol production here", Stabroek News, 11 April 2007. http://tinyurl.com/2lo2bm

4 "Ethanol plant for Guyana", Caribbean Broadcasting Corporation, 16 May 2006. http://tinyurl.com/37od8r

Oddly, the bulk of IDB ethanol funds are channelled into the already saturated market for Brazilian ethanol production. The IDB says that in Brazil it is "focusing on leveraging private sector investments to expand production capacity". Its Private Sector Department is currently structuring senior debt financing for three Brazilian ethanol production projects that will have a total cost of US$570 million and loans for five biofuel projects worth around US$2 billion are in the pipeline. In March 2007, the World Bank's soft loan department, the International Finance Corporation, announced a US$35-million package for the construction in Brazil's main sugar producing state, São Paulo, of a sugar mill that will source its cane from land currently devoted to pasture for cattle.

The project in São Paulo says a lot about how the ethanol industry is being shaped in the region. The mill brings together Brazil's Unialco S.A., whose major trading partner in 2006 was Cargill, with Inversiones Manuelita of Colombia and Pantaleon Sugar Holdings of Guatemala, both of which are run by notorious local sugar barons. The Herrera family controls Pantaleon and more or less all of Guatemala's sugar industry, while Manuelita, the second-largest Colombian-based sugar producing group and one of the main sugar producers in Peru, is part-owned by Colombia's most powerful sugar baron, media mogul and agrofuel booster, Ardila Lülle. Pantaleon and Manuelita are investing in these joint ventures through their Spanish-based joint holding company, Grupo Colgua.[12] The initial announcement for the project talked about serving local ethanol markets, but, with the ink on the deal hardly dry, the three companies made a subsequent announcement for another joint investment – a US$20-million factory in Guatemala that will hydrate Brazilian ethanol for export to the US

12 See Héctor Mondragón, "Los negocios del biocombustible y de la caña de nuestros empresarios y el gobierno nacional", May 2007. http://tinyurl.com/2vtkfh