Ethical-Sugar

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# An Exclusive Engine of Growth:
# The Development Model of Brazilian Sugarcane

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**About Ethical Sugar**

This research was undertaken for Ethical Sugar, an NGO that seeks to enhance dialogue within the sugar-ethanol industry with a view to improving its social and environmental development.[1] Trade unions, companies, civil society activists and academics are all brought together as part of this dialogue, which allows Ethical Sugar to construct a more rounded vision of the different situations and positions that pertain in the industry and facilitate a multipartite form of Corporate Social Responsibility.

The recent growth in ethanol consumption is seen as an opportunity to affect this CSR as corporations in different countries are brought closer together through the influx of foreign direct investment, on the one hand, and the creation of new supply chains to export fuel, on the other. Ethical Sugar believe that as consumers come to recognise the close links forged across national boundaries, it is incumbent upon producing companies to surpass minimal legal standards of production and lay down a long-term strategy to avoid negative publicity and reassure their partners about their business ethics. In mature markets such as the EU or North America, this strategy has a longer history and typically invokes a strong element of social monitoring. To ensure this concern for high social standards is also carried into emerging markets, Ethical Sugar has launched its own social auditing service to help companies engage in 'sustainable profit making'.

Based on the dialogue recorded between key stakeholders, more than 120 criteria have been chosen by Ethical Sugar to comprise their audit. Completing this audit provides a sign of commitment on the part of the audit holder toward improvement, an objective report on the social, community and environmental conditions that pertain in and around their business, and a tool by which they can effect concrete recommendations to improve workers' livelihoods. Ethical Sugar is ready to work with the professional sector. Please contact them for further information about their services and new auditing system.

[1] http://www.sucre-ethique.org/Corporate-social-responsability

## 1. Introduction

This paper provides a contemporary and critical assessment of the development being fostered in the Brazilian sugarcane industry. It looks in particular at the effects that the rapid expansion, modernisation and consolidation of the industry have had on labour and peasants in the country – groups of people often overlooked in a debate marked more by global environmental and food security concerns – and offers three key insights. First, it maps out the markets into which sugarcane has been sold, and through this shows how the discourse of environmentalism and food security have fed into state rhetoric on the industry and in doing so deflected attention away from the employment and self-sufficiency of the rural poor. Second, it illustrates the active role that state elites played in facilitating the growth of the industry and suggests how corporate concentration and 'knowledge-driven productivity' have accelerated during the succeeding gold rush of domestic and foreign investment. Third, it reveals how this particular confluence of factors has created a kind of 'development dualism', whereby the fractions of relatively skilled labour are benefiting but many others, including peasants, have lost out. It notes, also, how this dualism has had a regional manifestation as the expansion of sugarcane and potential next generation biofuels risks reinforcing the disparities between the country's prosperous Centre-South and the stagnant and technologically less developed Northeast. In sum, we show why the Brazilian sugarcane industry should thus be considered an exclusive engine of growth.

The purpose of this discussion paper is exactly that: to stimulate discussion and to provide the concepts and arguments necessary for civil society to demand that state officials, industry associations, and individual companies find ways to make the benefits of the industry less exclusive. We consider that the distribution of the benefits of economic growth remains a resolutely social and political question. It is partly for this reason that we maintain a degree of scepticism about the ability of certification and standards setting schemes to insulate actors in the industry from wider questions about income equality and power imbalances. While these schemes – such as the Better Sugarcane Initiative for example, of which Ethical Sugar is a member – are apt to ensure that the industry enhances its sustainability across a range of indicators, they are unable to fully account for those producers who refuse to sign up to the letter or spirit of the protocol, and, perhaps more importantly, account for those people, like the newly

unemployed or peasants, who have been ring-fenced outside the industry.[2] The dialogue of development should be an ongoing one and it is important to remember that, while they are important tools of change, certification schemes cannot exhaust this debate. We hope that this paper will encourage the informed opinion and political mobilisation necessary to engage in this debate and help reshape, through constructive dialogue, the model of development in the industry.

**2. Ethanol-led Expansion: The Scope of Production**

Since the turn of the 20th century, Brazil has experienced unprecedented growth rates in cane production. Between 2001 and 2008, cane output increased 11% year on year, the highest among all major sugarcane producers.[3] A common reaction has been to see this as 'good growth' twice over. Not only does it constitute the relocation of tropical commodity production to a developing country, thus correcting the imbalance caused by years of developed country protectionism, but it also delivers significant global environmental benefits, given that the ethanol produced from Brazilian sugarcane generates less $CO_2$ emissions than petrol and other sources of biofuel. Indeed, the country's President, Luiz Inácio Lula da Silva, has constantly been on stump to make such points.[4]

We begin by disaggregating this recent sales boom in order to find out a little more about the characteristics of the individual sugar and ethanol markets – both products, of course, which can be processed from the sugarcane plant. Up until 2006, additional planting in cane was evenly split between sugar and ethanol production, building on the country's already sizeable raw and refined sugar output. Such has been the scale of this increased planting that Brazil has now come to dominate the world trade in sugar. As UNCTAD have noted, since 1995, while the structure of the world sugar market on the import side has remained fairly constant at around 0.115 (with 1 representing a perfect monopoly and 0 representing an equal distribution of market share), on the export side

[2] For more on the limits of certification, see the 'Call for an Immediate Moratorium on EU Incentives for Agrofuels, EU Imports of Agrofuels and EU Agroenergy Monocultures' by a host of environmental and Global South NGOs. Available at Hwww.econexus.info/biofuels.htmlH

[3] Leonardo Bichara Rocha, 'Brazil's Sugarcane Output Growth: Current Drivers and Outlook', *International Sugar Organization Market Report*, 2008, p. 2.

[4] Luiz Inácio Lula da Silva, 'Join Brazil in Planting Oil', *The Guardian*, 7 March 2006.

there has been significant structural change.[5] In 1995, the concentration index stood at 0.197 but by 2005 it had grown to 0.224, essentially due to Brazilian exports. As Figure 1 reveals, these exports increased over 500% during the period in question.

**Figure 1: International Sugar Trade, 1994-2005**

| **Largest Exporters, million tones** | | | **Largest Importers, million tonnes** | | |
|---|---|---|---|---|---|
| **1994** | **2000** | **2005** | **1994** | **2000** | **2005** |
| Australia 4.52 | Brazil 6.50 | Brazil 18.40 | India 2.63 | Russia 5.23 | Russia 3.57 |
| Brazil 3.60 | EU 6.20 | EU 6.66 | Russia 1.96 | EU 1.90 | EU 2.42 |
| EU 3.26 | Thailand 4.34 | Australia 4.24 | Japan 1.70 | Japan 1.61 | USA 2.07 |
| Cuba 3.19 | Australia 3.77 | Thailand 3.31 | China 1.24 | Indonesia 1.56 | Indonesia 2.00 |
| Thailand 2.72 | Cuba 3.42 | Guatemala 1.57 | USA 1.13 | Korea 1.46 | Algeria 1.92 |

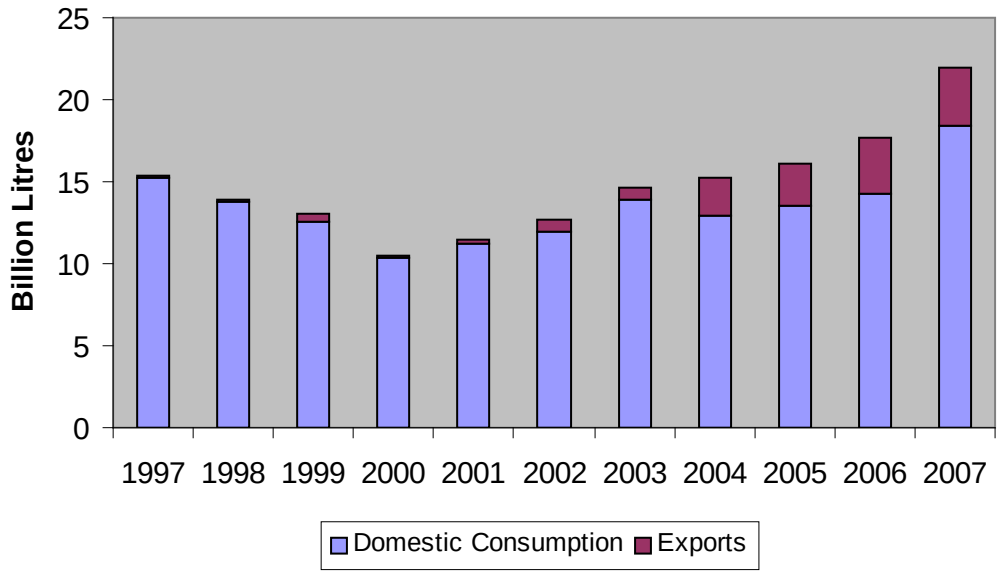
Source: International Sugar Organisation, *Statistical Bulletin,* Vol. 60, No. 11, 2001, p. iii and Vol. 65, No. 12, 2006, p. iii.

One of the most interesting things about the reshaping of global sugar supply is that it has come about in the absence of any significant liberalisation in trade. Although the commodity was brought into the remit of the World Trade Organisation in 1995, market access continues to be tightly controlled. To illustrate, in the 12 years since the Uruguay Round of trade talks was concluded, imports of sugar as a percentage of consumption increased by only 0.3%.[6] The dominance of Brazil on the world market, then, came not through a decline in protectionism but rather because of expanding demand for raw sugar by refineries in the Middle East, and falling output from the traditional heavyweight exporter Cuba (and since 2007, the EU too).

[5] UNCTAD, *Handbook of Statistics, 2006-07* (Geneva: UNCTAD, 2007), pp. 185-191.
[6] In 2007, imports of sugar as a percentage of consumption was 33%. F. O. Licht, *International Sugar and Sweetener Report, 1998/99-2007/08* (F. O. Licht: Ratzeburg, Germany, 2008), pp. 4-8.

Not only did the volume of exported sugar from Brazil increase, so did its value. Responding to shortages brought on by rising demand for sugar in Asia and crop failure in Thailand and Australia, sugar prices were bid up sharply during 2005. Another crucial component of this price rise was the increasing diversion of cane into the domestic ethanol market in Brazil for had this cane been processed into sugar and exported into the world sugar market, it would have significantly dampened prices. While the production of Brazilian ethanol for export has arguably received the most press coverage, it is in fact the domestic market that has been driving demand, as illustrated in Figure 2 below. In fact, so rapid has this sales rise been that the vast majority of new sugarcane planted is now done so with the ethanol market rather than the sugar market in mind.[7]

**Figure 2: Brazilian Ethanol Production, 1997-2007**



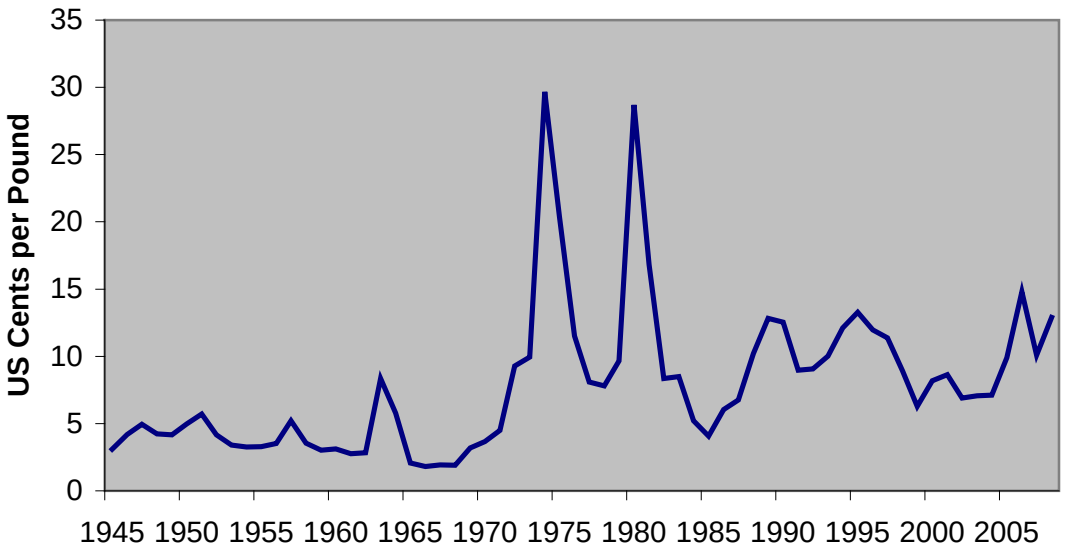

Source: Leonardo Bichara Rocha, 'Brazil's Sugar and Ethanol Industries', *International Sugar Organization Presentation*, 25 September 2008, slide 18.

The expansion in domestic ethanol demand was triggered by the introduction of the "flex-fuel" cars in the Brazilian market in 2002. In contrast to the traditional 'gasohol' vehicles which could only take up to 20-25% added anhydrous ethanol, flex-fuel vehicles

[7] In 2006 3.1m ha were dedicated to sugar production and 3.1m ha to ethanol. By 2018, this is project to increase to 4.1m ha to sugar production and 7.7m ha to ethanol. See Andre Meloni Nassar *et al.*, 'Prospects of the Sugarcane Expansion in Brazil: Impacts on Land Use Allocation and Changes', Presentation by the Institute for International Trade Negotiations at the Chatham House Biofuels Roundtable, London, 14-15 April 2008, slide 6.

can take any percentage of ethanol, thus vastly increasing their consumer appeal as drivers can mitigate against rising oil *and* ethanol prices at the pump. By 2005 the number of new flex fuel cars sold in the country exceeded the number of new petrol-only cars for the first time. There are now six million flex-fuel vehicles on Brazilian roads and this is set to treble over the coming decade, a result of both high oil prices, general economic growth and a recent 2% reduction in sales tax. Further, ethanol exports are also expected to grow considerably, near tripling between 2008 and 2015 due to rising demand predicted in the US.[8] Given that Brazilian ethanol is thought to be competitive with petrol at oil prices as low as $45 per barrel domestically and $50 internationally, it would take an astonishing fall in petrol prices to shock this trend off course.[9] So in sum, because of supply gaps in sugar and expanding demand in ethanol, the Brazilian sugarcane industry has been able to increase production without placing significant amounts of downward pressure on prices. Figure 3 shows the temporary peak in prices that accompanied this boom and its comparability to the two large price spikes in 1974 and 1982 experienced in international markets during the first 'commodity crisis'.

**Figure 3: Nominal World Price of Sugar, 1945-2008**




Source: UNCTAD Price Commodity Database, Accessed 6 January 2009. Price is FOB Caribbean.

[8] *Gazeta de Ribeirão*, 'Etanol em Expansão', 21 November 2008. Translation authors' own.
[9] Trading Markets, 'Brazil Ethanol Competitive Despite Lower Oil Prices', 11 November 2008. Available at Hwww.tradingmarkets.com/.site/news/Stock%20News/2014689/H Accessed 2 December 2008.

The attention drawn to the previous commodity crisis is apposite as the Brazilian sugarcane boom has taken place in the context of rising food prices across the globe. From the mid-2000s onward, sugar rose in price along with corn, cereals, soybeans, dairy products, meat, and edible oils, promoting incendiary debate about a second global food crisis as the cost of foodstuffs rose beyond the means of many of the world's poorest and most hungry people and sparked riots in countries across the world. While the first crisis was linked to the two OPEC oil price rises and the sales of grain from the USA to the USSR as part of détente, at the heart of this debate has been the impact of changing dietary patterns in Asia and the dramatic increase in the production of biofuels in reducing the historic glut of crops on the world market and pushing up prices.[10] Consequently, there has been a U-turn in much development commentary, from once suggesting that low agricultural prices were the cause of poverty to now opining that high prices are the problem.[11]

While the issue of what has caused prices to rise is of central importance, following the aforementioned commentary what we focus on here is the relationship this commodity boom has held to development. To consider this, it is necessary to put the crisis in its proper historical context and to disaggregate the food crisis according to feedstock, in doing so highlighting the limited impact high sugar prices have had on poor consumers worldwide. First, without dismissing the fact that prices have risen, it is important to acknowledge that, adjusted for inflation, the price rises would be far less severe than those experienced during the mid 1970s commodity crisis, and lower indeed, than those experienced in the mid 1990s. Second, we maintain that it is reduced access to staple crops is the principal reason for hunger and malnutrition; to the extent that sugar is felt to be a necessity, this is typically the case for people on higher incomes, who are less likely to be affected by rising food costs.[12] And third, it is worth noting that the *indirect* impact of sugarcane production on these staples has also been minimal. Ethanol production

[10] On the first commodity crisis see Harriet Friedmann, 'The Political Economy of Food: The Rise and Fall of the Postwar International Food Order', *The American Journal of Sociology,* Vol. 88, Supplement: Marxist Inquiries, 1982, pp. S248-S286.
[11] See Jeffrey Sachs, 'G8 Leaders are Able but Unwilling to Act', *The Guardian*, 24 July 2008.
[12] A valid rebuttal to this point is that sugar is a necessity in low-cost sugar producing countries, providing a cheap source of calories and a stimulant to work. Yet this argument has been less important where the debate has focused on the effect of rising prices in low-income food-importing countries – the majority of which are not major sugar producers. Moreover, this argument actually chimes with our own: that Brazil's model of sugarcane development has endangered food security more in its own country than it has abroad.

from sugar has not taken place at the expense of staple crops (as it has in the US) as Brazilian cane planting has mainly moved into degraded pasture areas occupied by cattle ranchers and, to the extent it has replaced land occupied by soybean, maize and orange growers, the total amount of land dedicated to these crops has grown overall, thus suggesting that total agricultural production volume has not been 'squeezed' downward.

Refuting this indirect link has been one of the pre-eminent claims of the predominant sugar industry association in Brazil, UNICA. UNICA was formed in 1997 in the wake of deregulation and brought together the remaining producer associations in São Paulo. It now represents about a third of the country's sugar mills, typically the biggest and most dynamic producers, so that they can rightfully claim their members as responsible for over half of Brazil's sugar and ethanol production. UNICA has been key in disseminating information about the industry abroad and, in this way, legitimising its domestic growth and international exports. While it has played a crucial role in refuting the idea that increased cane planting would have been a major source of food insecurity, it has been yet more active in refuting the idea that cane planting has had a detrimental impact on the environment. UNICA has gone to great lengths to harness the environmental discourse, in its own words, "to promote the image of Brazilian sugarcane ethanol abroad as a clean fuel from a renewable source", and has now established offices in Washington DC and Brussels to reiterate this point at close quarters to its major import markets.[13]

In relation to land expansion, then, UNICA makes two points. First, sugarcane is neither grown near the Amazon nor does it push other land users into the rainforest and thus is delinked from deforestation. Second, UNICA argue that sugarcane cultivation actually has a positive environmental impact as the amount of carbon held in the biomass of unburned sugar fields is higher than that in the pasture and soybean plantations which it replaces. Coupled with the impressive claim that Brazilian sugarcane industry is soon to become a net consumer of carbon[14] – meaning it will take in and capture more greenhouse gas than it emits, thereby allowing it to sell carbon credits – the dynamics

[13] UNICA, 'About Us' webpage. Available at Hwww.english.unica.com.brH. Accessed 21 November 2008.
[14] Alfred Szwarc, Senior Adviser to UNICA, 'Brazil's Future Road Map', Speech at the International Sugar Organization conference, London, 19 November 2008.

through which its green credentials and attendant sales into developed country markets have been forged become apparent. Relating this back to the international relations of biofuels and their detrimental affect on poverty, President Lula has thus suggested that it is the distribution of food rather than the amount produced that lies at the heart of the food crisis, citing in support Amartya Sen's argument that "nobody stops eating because of a shortage of food, people stop eating due to a lack of income".[15]

### 3. Consolidation, Modernisation and Development Dualism: The Mode of Production

The defence of biofuels by Lula serves as our route into the paper's key arguments. To begin, it worth noting that this rebuttal to agro-fuel critics is not merely an exercise in development theory but also as a campaign in support of the Brazilian ethanol industry; a campaign indicative of the close relationship that successive governments in the country have had with cane. As in Australia and Thailand, two other low-cost producers of sugar, Brazil has obtained, and to an extent retains, its globally competitive position through detailed government support.

The state has throughout history acted as guarantor to the sugar and ethanol industry as a whole and to the Northeast sugar elite in particular. The São Paulo sugar and alcohol industry used to exercise its power largely through the state's sugar and alcohol producers' cooperative, Copersucar, which secured it a direct access to decision-making at the federal level. The Northeast sugar elite, in turn, has had two main avenues for exercising political power. First, the Sugar and Alcohol Institute (IAA) was ever since its creation in the early 1930s until its closure in 1990 a major defendant of the interests of especially the independent sugarcane growers in the region.[16] Second, the Northeast sugar and alcohol sector has had an indirect access to political power at the national level, through its close links with the regional political elites. During the military rule (1964-1985), the sugar elite were an important ally of the military government in regional

[15] Benedict Mander, 'Chávez seeks to Defuse Brazil Rift on Ethanol', *Financial Times,* 18 April 2007.
[16] Through its national cane improvement programme, PLANALSUCAR, the IAA played a key role in developing cane varieties adapted to the conditions of the Northeast, while Copersucar's development activities focused on cane varieties and production technologies for the Southeast.

politics.[17] The close relationship between the Northeast 'sugar barons' and policymakers also ensured that the implementation and enforcement of the slowly emerging labour and environmental regulation of the sector remained weak. Indeed, the willingness of the state to act as the ultimate guarantor and bail out the debt-ridden Northeast producers in times of trouble has often been put forward as an explanation for the absence of productivity improvement in the region.

Production quotas, price controls and subsidised credit were all used to govern sugar production before fiscal deficits triggered by the 1970s commodity crisis encouraged the state to launch its Proálcool ethanol programme in 1975 to reduce its oil bill.[18] Under this programme, initial opposition from domestic oil and automotive industries was overcome as these groups had no alternative answer to the imminent crisis and the government provided them with substantial incentives to alleviate their concerns.[19] The sugarcane industry was thus forcefully integrated into the Brazilian energy regime and ultimately saved the country billions of dollars in oil imports. Direct intervention was finally phased out in the early 1990s when the IAA closed and ethanol and oil prices were essentially freed from government control. However, the state has maintained its influence through demand-side regulation on ethanol and continued, if somewhat reduced, manipulation of retail petrol prices.[20]

In the last decade, the opening of new markets in ethanol has become the priority of the Brazilian government in relation to sugarcane, with Lula promoting the trade and technology of the industry at every opportunity. Of particular note in this respect is the 'Western Hemisphere Energy Compact', signed by President's Lula and George W. Bush to coordinate biofuels production, research and infrastructure throughout the region. This pact seeks to wed energy security to economic growth and cement the

[17] See F. Joseph Demetrius, *Brazil's National Alcohol Program: Technology and Devlopment in an Authoritarian Regime* (New York: Praeger, 1990).
[18] For example, over the last three years the price of petrol at the pump has swung between plus and minus 10% of its expected value based on world prices due to the pricing practices of Petrobrás. Plinio Nastari, President of DATAGRO, Speech at the International Sugar Organization conference, London, 18 November 2008.
[19] J. A. Puppim de Oliveria, 'The policymaking process for creating competitive assets for the use of biomass energy: the Brazilian alcohol programme', *Renewable and Sustainable Energy Reviews*, Vol. 6, No. 1-2, 2002, pp. 129-140.
[20] This influence includes altering the required ratio of ethanol-to-petrol to be sold at the pump, setting lower tax levies on ethanol than petrol, and using auctions where the state-owned oil company Petrobrás can buy up ethanol.

position of the two countries as the leaders of ethanol and biodiesel providers. Already the US and Brazil have agreed to speed research into 'second generation' cellulosic ethanol and to invest around $4 million in stimulating biofuel projects in the Caribbean.[21] In addition – and in contrast to its initial hostility of the company toward rival fuels – Petrobrás, the state-controlled oil company, has secured long-term export markets for Brazilian ethanol, agreeing with Japan's state oil company in 2005 to export 3.5 billion litres per year by 2011 to Japan. And, finally, though direct agricultural support may have waned, industrial credit lines have remained resolutely open to sugar processors. According to Dow Jones, Brazil's National Development Bank (the BNDES) was to invest up to $2.9bn in sugar and ethanol projects in 2008 at interest rates set at 2.7% below the central bank's benchmark rate.[22]

Government support has therefore greatly shaped the evolution of sugar and alcohol industry. At present the sugar/ethanol industry in Brazil is largely fragmented, with around 350 mills processing cane. However, it is increasingly possible to discern just a few corporations that are coming to control greater numbers of these mills, building on the last wave of consolidation after deregulation in the 1990s forced many smaller mills to subsume themselves within larger entities to protect against price uncertainty. Between 2000 and 2005, 37 mergers and acquisitions took place within the sugar/ethanol industry.[23] Chief among these controlling corporations are the recently privatised Copersucar, which groups 33 mills together, Cosan, which groups 18, and Crystalsev, which groups nine. And though they may not yet dominate the market, such is the size of Brazilian production that they constitute huge agro-industrial operations nonetheless. In the 2006/07 harvest for example, Copersucar posted revenues of $2.3bn and Cosan $2.1bn.[24]

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[21] Reuters, 'US and Brazil to Speed up Cellulosic Research', 21 November 2008.
[22] Better Sugarcane Initiative, *Newsletter*, Spring 2008, p. 5.
[23] Between 2000 and 2005, 37 mergers and acquisitions took place within the country's sugar and ethanol industry. Cosan was responsible for 7 of these, adding 18mt of processing capacity to its group. Grain, *Seedling*, July 2007, p. 17; figures on Cosan from Unibanco Report on Cosan IPO. Available at Hwww.maraluquet.globolog.com.br/Cosan%20unibanco.pdfH. Accessed 29 May 2008.
[24] Crystalsev is a looser affiliation of independent factories but as of April 2008 was actively seeking formal merger of its shareholders. Revenue calculation based on exchange rate Rs0.6 to $1. See Hhttp://www.copersucar.com.brH; Hhttp://www.cosan.com.br/enH. Accessed 21 May 2008.

Unlike the public or cooperative ownership structure seen in the sugar industries of most developed countries, production in Brazil remains closely tied to the traditional 'sugar families', members of which now dominate the Board of Directors at UNICA. In the case of Copersucar it is the Filho family, for Cosan it is Rubens Ometto Silveira Mello, the first 'ethanol billionaire', while in the Crystalsev group it is the Biagi family that is the major shareholder (and who also own, incidentally, Coca-Cola bottling companies and two cane equipment providers). These families have also played their part in nurturing the 'close relationship' with the government. According to Brazil's Superior Electoral Court, the Ometto portfolio of companies contributed $269,000 to Lula's 2006 re-election campaign, and the Biagi family $135,000. In addition, Maurílio Biagi is also a member of Lula's Council for Economic and Social Development and Rubens Ometto is said to frequently accompany Lula on his state visits abroad.

Having mapped out the elite interests at work in the Brazilian cane industry, we now turn to the manner in which they have shaped its recent trajectory. Due to the volumes and values of sugar and ethanol being traded, a number of Initial Public Offerings on the stock exchange, and the ability of the integrated mill-refineries to switch between sugar and ethanol production with ease (thereby ensuring the most lucrative market is always targeted), the leading Brazilian corporations have found themselves awash with capital.[25] This has been further augmented by the huge amounts of foreign investment pouring into ethanol production and expectations of increased production and marketisation of bioelectricity, in what we might choose to call 'the gold rush in green oil'. Given that raw cane sugar for ethanol cannot be bought in the open market but must be transported from nearby fields, and because of the political power held by traditional elites, for the overseas investors looking to take part in this 21st century gold rush, partnership with existing plantation owners has been a necessary conduit for their capital.[26]

[25] For example, after listing on the São Paulo stock exchange in November 2005, raising about $400m, Cosan then filed for Wall Street listing on the NYSE in 2007 raising $2bn. In 2007, São Martinho (part of the Copersucar group) followed Cosan's lead and launched an initial public offering on the Brazilian stock exchange raising $176m. See Jonathan Wheatley, 'Brazil's Cosan files for Wall Street Listing', *Financial Times*, 25 June 2007.

[26] For an example of this power, Copersucar noted in its 2006 Management Report 'the company's successful efforts to obtain a reduction in the value added tax on hydrated fuel ethanol from 25 % to 12 % from the São Paulo state government'. See Copersucar, *Management Report: 2005/06* (São Paulo: Copersucar, 2006), p. 29.

Investment funds established by banks like Credit Suisse and Société Générale, oil companies like BP, agro-industrial corporations like Cargill, Tate & Lyle and Tereos, and commodity traders like Czarnikow, ED&F Man, Global Foods, Louis Dreyfus and Sucden have all sought a foothold in Brazilian cane. The big domestic producers have welcomed this 'prospecting', seeing the injection of foreign capital as the means to modernize the industry and consolidate their position at its heart. The Chief Commercial Officer of Cosan, for instance, recently commented that, "We have 350 players in Brazil. It would be better to have 20 of those companies expanding in the market because the discipline of those guys is so much better".[27] What we are witnessing is thus the conglomeration and concentration of the Brazilian industry, and, reading between the lines of the remarks of the Cosan representative, a trend which is seen as expedient in removing factionalism in the industry and embedding a more coherent coalition of like-minded producers.

Such a view on concentration also reflects the disagreements between the São Paulo and Northeast sugar and ethanol producers. The São Paulo industrialists have for a long time perceived themselves as the spearhead of the sector's modernisation, considering the government support to their Northeast counterparts as an unjustified distortion of markets and an impediment to modernisation. In recent years, however, the dividing lines have shifted as the most resourceful among the Northeast sugar elite have started investing in the Centre-West and Southeast regions in search of greater profitability. This may further accentuate regional disparities, as the Northeast is left with the least entrepreneurial fractions of industry, many of which have already closed down due to large debts and low profitability.[28]

For sure, the relationship between these international fractions of capital has not been entirely concordant. Many potential investments have fallen through as Brazilian mill- and landowners have quoted exorbitant selling prices, lacked reliable accounts or are

[27] Ethanol Statistics, 'Cosan's Strategy for Future Growth', Expert Opinions, Available at Hwww.ethanolstatistics.comH Accessed 16 April 2008.
[28] See Cavalcanti, C., A. Dias, C. Lubambo, H. d. Barros, L. Cruz, M. L. C. d. Araújo, M. Moreira and O. Galindo, 'Programa de apoio ao desenvolvimento sustentável da zona da mata de Pernambuco – PROMATA', *Trabalhos para discussão*, No. 135/2002, 2002, Recife, Fundação Joaquim Nabuco.

plagued by tax disputes or debt.[29] Even the partnerships that have been completed – Cargill investing in Crystalsev, and Tereos and the Kuok Group in Cosan – have constituted double-edged swords for the traditional sugar families.[30] To avoid hostile takeover pressure mounting following its stock market floatation, for example, Cosan had to undergo a complex restructuring to keep its founder at the helm. Indeed, one stock market analyst cautioned that, "if he [Rubens Ometto and by implication his family] gave up voting control, boom, they would get taken out". But, despite the differing traditions that are exposed by the meeting of national capitals and management techniques (and the board room bravado that exists in any environment where mergers and acquisitions are rife), the gold rush has continued apace, bearing dramatic consequences for the contemporary patterns of ownership and accumulation in sugar.[31] To give some context to this rush consider that in August 2007 the sugar consultant DATAGRO reported that overseas groups and investors had more than doubled their control of cane crushed in Brazil, taking the total to 12% of the harvest or 51mt – an amount nearly *twice as big as the entire US cane crop*.[32] This must surely constitute the biggest foreign investment in sugar since the colonial era in the Caribbean and suggests a seismic shift in the source of profits for the sugar producers in the developed world, who have hitherto depended on tightly regulated and protected national markets for revenue. Ruptures in this nationally-ordered regime can only further encourage the liberalisation of trade barriers within the industry.

Further, this increase in market control is set to continue. Although undermined by the high cost of borrowing associated with the recent tightening in international lending, as of November 2008, and accounting for inward as well as foreign direct investment, 92 new

[29] Chronic indebtedness has been an enduring problem especially among the Northeast sugar and ethanol producers. Antonio Regalado and Grace Fan, 'Ethanol Giants Struggle to Crack Brazil Market', *The Wall Street Journal,* 10 September 2007.
[30] Of Cosan's total capital 58.4 % is controlled by Rubens Ometto de Silveira Mello, the group's president. The rest is divided between the French groups Tereos (6.3%) and Sucden (1.7%), China's Kuok (4.1%) and international investors in the stock market (29.5%). Ometto also owns São Martinho, and thus a significant stake in Copersucar. Translation from *Valor Economico* by Ethablog website. See 'Foreign Investments on Rise in Brazil', 12 June 2006. Available at Hhttp://ethablog.blogspot.comH. Accessed 17 April 2008.
[31] For example, the recently founded Brazilian Renewable Energy Company (BRENCO), which is building eight new sugar mills, counts among its investors Bill Clinton, Vinod Khosla, Ron Burkle, Steve Case and James Wolfensohn.
[32] Ethanol Statistics, 'Top 10 Ethanol News Items, 2007' Available at Hwww.ethanolstatistics.comH Accessed 16 April 2008.

plants were expected to come on stream during 2009-2010.[33] As suggested above, this has been used in to fund mergers and acquisitions as well as a host of internal expansionary projects. These include Greenfield developments into the states of Paraná, Mato Grosso do Sul, Mato Grosso, Goias and Maranhão states, the expansion of existing factories in São Paulo, and infrastructure projects such as the Cosan-Copersucar-Crystalsev pipeline, designed to channel ethanol from the hinterland to the coast for export and mitigate dependency on the state-owned pipeline.[34] Moreover, through investment into plant efficiency, these companies also stand to gain significant share of the national electricity market by selling back to the grid the excess power generated through burning 'waste' cane trash. UNICA estimates this share will be 15% by 2015.[35]

The growth of the Brazilian sugar/ethanol industry, therefore, has been truly remarkable. By 2006 it already contributed 2% to national gross domestic product, 17% of agricultural output, and 21% of total agricultural exports – the majority coming from Centre-South.[36] On the face of it, this stands as a perfect example of the neoclassical theory of comparative advantage in action: as production has gravitated to the most cost effective supplier, the industry in question has acted as an engine to economic growth. In the following sections, we delve more deeply into the strategies of accumulation prevailing in the industry and interrogate the specific practices on which this low-cost production has been dependent – in other words, question the causal relationships between growth and development. The findings present a mixed picture. Growth in sugar and ethanol production has not translated into an unequivocal boon for development, not least because of its increasing capital intensity and its ensuing complex relationship to land and labour.

To begin our analysis of how the improved fortunes of sugar and ethanol producers can both add to, and detract from, the quality of life of its employees, we discuss in greater detail the modes of production that currently constitute the two major sites of cane farming in the country, the Northeast (especially the states of Pernambuco and Alagoas)

[33] Szwarc, 'Brazil's Future Road Map'.
[34] In March 2008, these three companies set up a new holding company, Uniduto Logistica S.A., to build and operate an ethanol pipeline
[35] Szwarc, 'Brazil's Future Road Map'.
[36] Constanza Valdes, 'Ethanol Demand Driving the Expansion of Brazil's Sugar Industry', *USDA Economic Research Service Report,* SSS-249, 4 June 2007, p. 31.

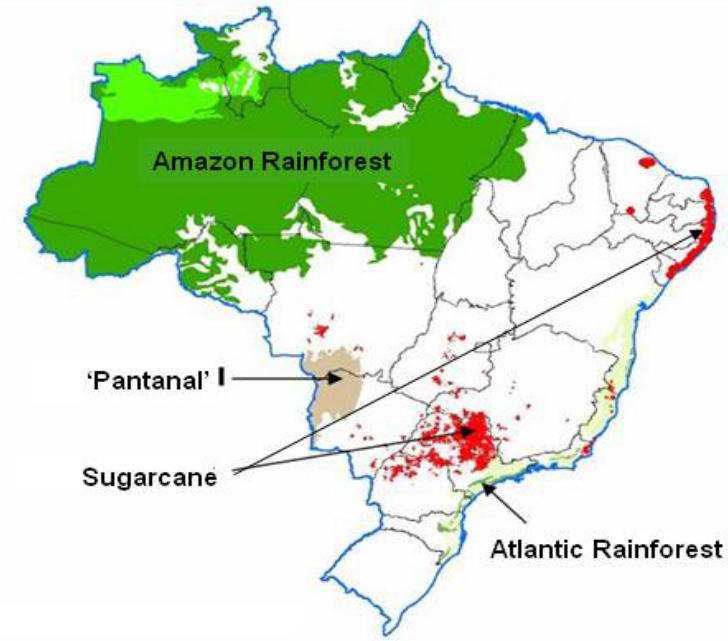
and the Centre-South (mainly São Paulo). Sugar production in the Northeast was born of slave labour and nurtured by continued repression, resulting in a 'bad faith economy' in which mutual suspicion came to characterise the relationships between management and workers.[37] This led to conflict and low productivity, as the 'sugar barons' have been more interested in retaining power within the family than in increasing productivity or economic profitability. The sugar and alcohol sector's modernisation programmes in the 1950s and the 1960s transformed the structure of the industry by further accentuating the advance that São Paulo already had over the Northeast, by virtue of its more favourable natural conditions and socio-economic structures. The modernisation also led to an increasing 'proletarisation' of the agricultural work force, as wage labour came to replace the previous semi-feudal systems still widespread in the Northeast in the early 1950s. This change transferred a large share of the burden from the private to the public sector as the poorly resourced municipalities had to take on a large part of the duties of social protection (workers' subsistence, healthcare, education, etc.) previously performed by the industrialists and landowners. The stagnation of productivity levels and the absence of improvement in social indicators in the Northeast cane growing coastal zone can therefore be considered a result of the reliance on state aid and the excessively close relationship between the sugar and alcohol industry on the one hand, and the regional political elite on the other. The room for productivity improvements has also been limited because the undulating terrain has made the uptake of farming equipment difficult.[38]

Compare this to the Centre-South, where agricultural labour shortages meant that European immigrant wage labour worked alongside slave labour from the 1850s onwards. For this reason, the region was open to the introduction of labour-saving machinery in the late 19th century as workers were more familiar and owners more trustworthy with it. In turn, the wage labour system led to growth in demand, from which the planters were able to benefit and thereby begin to accumulate greater amounts of capital, establishing a relatively entrepreneurial culture within the region.[39] Further, the climatic conditions and terrain have also proven suitable for significant expansion in rain-

[37] Gina Porter, Christine Rufino Dabat and Hermino Ramos de Souza, 'Local Labour Markets and the Reconfiguration of the Sugar Industry in Northeast Brazil', *Antipode,* Vol. 33, No. 4, 2001, p. 843.
[38] Mechanisation depends on the topography because harvest machines can only be used in areas with a slope of up to 12 %.
[39] Porter *et al.*, 'Local Labour Markets', p. 832.

fed cane planting.[40] Thus the Centre-South sugar industry has benefited from its natural geography, its relatively recent emergence, and the fact that it was less embedded in disadvantageous historically uneven social context. In the 2007/08 season, the region accounted for around 88% of sugarcane farmed, with most of the land expansions also taking place in the region. Figure 4 illustrates in more detail the geography of the Brazilian cane economy.[41]

**Figure 4: Types of Land Use in Brazil, 2007**




Source: Heloisa Lee Burnquist, 'Brazilian Sugarcane, Sugar and Ethanol Markets: Modeling Issues and Perspectives', Presentation by CEPEA at the Farm Foundation and ERS Workshop, Washington, 28 February 2008, slide 12.

The problem of this ascendant strategy of accumulation, from a labour point of view, is that the mechanisation of production has been so successful that it has reduced demand for jobs on the farm. Three dynamics have encouraged this. First, it is simply more cost effective as harvesters reduce employment expenditure and, where once the barrier of high capital outlay stood in the way, now the ready finance available in the industry makes such investments manageable. Second, manual labour has become more

[40] Peter Zuurbier, 'Food and Energy: Impacts on Land Use', Presentation at Conference on Biofuels and Sustainability: Brazilian Perspectives, British Academy, London, 8 October 2008, slide 13.
[41] Rocha, 'Brazil's Sugarcane Output Growth', p. 4.

impractical because of changing regulation. When cutting cane by hand, to make the stalks weaker and to rid the area of snakes, the fields are usually burned beforehand. Responding to environmental and health concerns (field burnings are closely linked to local respiratory problems), the Brazilian government has encouraged this to be phased out. In São Paulo, cane burning has gradually decreased from 82% of the harvested area in 1997 to 63% in 2004 and harvesting done by machine has risen accordingly.[42] And third, some employers responded to the relative successes of the organised labour movement in the 1980s by seeking to substitute labour. As the manager of the Usina da Pedra sugar mill has put it, "the great impulse for mechanisation was the strikes, labour indemnities, the whole social problem of working with sugarcane cutters".[43]

**Picture 1: Cane Fields during Burning**

Source: Patrick Prio, 2008.

[42] The São Paulo state Agricultural Economy Institute research showed that about 130.6mt were harvested by machine from a total of 319.6mt of cane. See Edward Smeets, Martin Junginger, Andre Faaij, Arnaldo Walter and Paulo Dolzan, 'Sustainability of Brazilian Bio-Ethanol', Commissioned Study by Netherlands Agency for Sustainable Development and Innovation, Report NWS-E-2006-110, Utrecht, August 2006, p. 48.

[43] Sérgio Lúis dos Santos, quoted in Cliff Welch, 'Globalization and the Transformation of Work in Rural Brazil: Agribusiness, Rural Labour Unions, and Peasant Mobilization', *International Labor and Working-Class History*, No. 70, 2006, p. 46.

It is worth bearing in mind that the industry has offset this falling labour demand per hectare *to a degree* simply by farming more hectares (recall the ninety-two new sugar/ethanol projects). However, it has not been enough to tip the scales. By way of illustration, between 1993 and 2003, the area of cane harvested grew from 3.4m hectares to 4.6m hectares, while employment on the farm fell from 617,000 to 449,000.[44] While we do not expect manual cane cutting to entirely disappear in the immediate future – at the very least, labour will serve as the low-risk option for harvest expansion and will also continue to work the hillier areas on which cane is still grown – this general trend is expected to continue. According to figures produced by UNICA, between 2010 and 2021 around 114,000 net jobs are expected to be lost in São Paulo alone.[45] Despite the professed efforts of the industry to prepare some of these workers through retraining and requests made to federal and state government for job absorption schemes, with little concerted action apparent at the time of writing, the outlook for wholesale re-employment looks decidedly dim.

The distribution of employment and wages is also conditioned by the ownership of land, as smaller farms tend to employ more labour per hectare than do bigger farms (as well as dispersing income streams between more land-owning beneficiaries). According to the Brazilian Ministry of Agriculture, the majority of sugarcane cultivation takes place on properties that belong to the leading mills, refineries and distilleries in the industry – thereby revealing its high degree of vertical integration and concentration – with just 27% of the production coming from the 60,000 independent growers that plant in areas smaller than 150 hectares.[46] But while these independent planters may act as a bulwark against a rampant inequality, it is equally important not to romanticise them as bastions of justice for the rural poor. For a start, many of these 'growers' are often people who live in urban areas and rent their land for sugarcane production, not necessarily working as

[44] Area figure from Troy Schmitz, James Searle and Peter Buzzanell, 'Brazil's Domination of the World Sugar Market', in Andrew Schmitz, Thomas Spreen, William Messina and Charles Moss, eds., *Sugar and Related Sweetener Markets: International Perspectives* (New York: CABI Publishing, 2002), p. 125; employment figure from Smeets *et al.,* 'Sustainability of Brazilian Bio-Ethanol', p. 57.

[45] Some jobs will be created in processing the leaves of sugarcane and operating and maintaining the machinery. Rede Social, 'Direitos Humanos e a Indústria da Cana' (São Paulo: Rede Social, 2008), p. 10. Translation authors' own.

[46] Specifically for São Paulo, there is a clear trend that the amount of land owned by independent farmers is declining. In the Northeast this has been evident since the 1960s, and the independent planters were already in the late 1980s considered as a 'disappearing class'. See See de Andrade, M. C. 1988. *Area do Sistema Canavieiro*. Recife, SUDENE, Estudos Regionais 18.

family farmers. And further, the working conditions in the fields owned by independent planters (f*ornecedores*) are often worse than those on larger landowners' land.

Turning now to these conditions that characterise employment in the sugarcane industry, it is apparent that while it offers much needed employment, instances of physical and structural exploitation remain endemic. Most notably, incidences of what the Brazilian Labour and Employment Ministry refers to as contemporary 'slave labour' have been all too common, with over 2,000 cane cutters being freed from forced labour during 2007 alone; a phenomenon made possible by the geographic isolation of many production sites and the inflation by overseers of costs incurred by migrant workers who are then trapped into working off their indebtedness.[47] The government's 'anti-slavery' programme, instituted largely in response to decades of activism by civil society groups such as the Comissão Pastoral da Terra (the Pastoral Land Commission) has in recent years focused increasingly on responding to such abuses in the sugarcane sector. Since 2003, the federal government has published a 'dirty list' of firms that have been cited for the use of slave labour. Firms on the dirty list are punished by losing access to official lines of credit such as that provide by BNDES. Taking advantage of the dirty list, the NGO Reporter Brasil carried out a study of supply chains and facilitated the creation of the National Pact to Eradicate Slave Labour. The National Pact was signed by over 80 firms in 2005 committing them to eliminate forced labour from their supply chains; fuel distributors such as Chevron Texaco, Shell, Ipiranga, Repsol, and Petrobrás are among the signatories to the Pact. There have been some deficiencies in this approach: it takes around two years from inspection to even place a company on the list, and due to legal challenges over the legality of a public dirty list, companies have been able to forestall this further by obtaining injunctions. Nevertheless, significant progress has been made. Eight companies in the sugar sector have appeared on the dirty list at some point since its institution (with four currently on the list at the time of writing this article) and the federal inspectors continue to improve the veracity of their investigations.

While the 'ethanol slaves' have dominated the headlines, systematic but more quotidian abuse ('structural exploitation') remains endemic.[48] Alongside the dangerous working

[47] Reuters, 'Amnesty condemns forced cane labour in Brazil', 28 May 2008.
[48] See Tom Phillips, 'Brazil's Ethanol Slaves: 200,000 Migrant Sugar Cutters who Prop Up Renewable Energy Boom', *The Guardian,* 9 March 2007.

conditions and inadequate housing facilities, the output expected of cane cutters has become increasingly demanding. This has been linked to the competition that labourers now face from mechanisation and the piecerate system of pay that ties the amount they earn to the amount they cut. While there is a minimum wage paid regardless of output, it tends to constitute a small proportion of the final pay packet with the majority still determined by the amount of cane cut.[49] Thus the average tonnage of cane cut per day in the São Paulo region has doubled from 5-6 tonnes in the 1980s to 10-12 tonnes today – a physical feat that requires around 12,000 strikes of a machete to achieve.[50] The severity of this demand is illustrated in figures produced by São Paulo state's Regional Delegation of Labour which in 2005 registered the deaths of 416 workers in the sugarcane industry, though industry leaders deny excessive labour and exhaustion as the cause in these cases.[51] It can surely be no coincidence, however, that extensive field research has reported the prevalent usage of anti-inflammatory drugs and painkillers among cane cutters, nor that reports of cane cutting shifts totalling 70 uninterrupted days have surfaced.[52]

In defence of the industry, monthly salaries do reflect the length and intensity of cane cutters' workdays (though arguably not adequately so). In the late 1990s workers in sugarcane production in São Paulo were receiving, on average, total monthly wages that were 80% higher than those in other agricultural jobs, 50% higher than those in the service sector, and 40% higher than those in the industrial sector.[53] This is the major source of attraction for the unemployed and unskilled migrants from the Northeast and Minas Gerais who work as cane cutters (76,000 in São Paulo alone) but who may find it difficult to support their families once the inflated transportation and housing costs have been deducted from their wages. Despite these problems it remains apparent the

[49] Francisco Alves, 'Work Processes and Damage to the Health of Sugarcane Cutters', *Interfacehs: Journal on Integrated Management of Occupational Health and the Environment,* Vol. 3, No. 2, 2008, pp. 1-22.
[50] Silvia Noronha, Lúcia Ortiz and Sergio Schlesinger, *Agribusiness and Biofuels: An Explosive Mixture* (Rio de Janeiro: Friends of the Earth, Brazil, 2006), p. 14.
[51] See Isabella Kenfield, 'Brazil's Ethanol Plan Breeds Rural Poverty, Environmental Degradation', *Americas Program Discussion Paper*, Agrofuels Volume, No. 2, 2007; and Marcos Jank, President of UNICA, quoted in 'Bloomberg's 'Deadly Brew' Report Infuriates Brazil's Sugarcane Industry', *Brazzil Magazine*, 26 January 2008.
[52] See Alves, 'Work Processes and Damage to the Health of Sugarcane Cutters', p. 9; and International Union of Food Workers, 'Investigation by Labour Ministry into Death of Juraci Barbosa', *Press Release,* 19 June 2007.
[53] Smeets *et al.*, 'Sustainability of Brazilian Bio-Ethanol', p. 60.

populations in the Northeast that depend on these domestic remittance economies stand to be seriously displaced should this seasonal migration cease to operate. The fact that many cutters liberated from slavery, desperate for money, have in fact returned to the sector, lends support to this argument.[54]

**Picture 2: Transporting Cane to The Mill**

Source: Patrick Prio, 2008.

To recap then, the demand for labour within the sugar industry is being scaled back as a steady shift to capital-intensive production maps on to an existing distribution of holdings skewed in favour of the large farms (*latifundio*). Yet the transformation of the Brazilian sugar/ethanol industry cannot be considered unequivocally detrimental for labour. Most notably, while there may be fewer jobs in the field (and fewer overall), the jobs that do remain are more formal, more safe, and, specifically for those in the factory, increasingly

[54] Based on fieldwork conducted by Siobhan McGrath in 2008.

well paid.[55] This change in employment conditions is linked to the knowledge needed to run a modern sugar/ethanol industry and the tight (skilled) labour markets with which it is confronted. As a result, the industry has had to offer greater incentives have been offered to attract and retain employees within the industry. The dynamic effect of this has been that the share of skilled workers in the sugar growing and processing sectors has grown rapidly relative to the rest of the economy, with local universities now even running MBA classes specifically targeted at the industry. Consequently it is the more educated workers that can be expected to capture the biggest percentage of wage increases as the factory owners and independent growers try and attract the human capital necessary to enhance the rate of return on their physical capital. This trend, it should be noted, also reinforces racial and gender divisions within the country as those who possess such qualifications tend to be white, urban males.[56]

Furthermore, these intellectual and technical demands within the industry will continue to grow as the locus of profit-making strategy increasingly centers on scientific advances and its attendant market creation. Such strategies include the breeding of more resilient and ethanol-specific genetically modified variants of cane, the transformation of 'waste' plant matter into cellulosic ethanol, and the development of bio-diesel and 'green' plastics from cane-derived ethylene.[57] Feeding back into the state-market relationship mapped out earlier on, we note how this shift has also buttressed the enthusiasm of Brazilian state elites for the sugar industry as it is manifest in the Centre-South. No longer is it seen merely as a foreign exchange earner or a means to generate rural employment but instead viewed as the vanguard of the country's knowledge economy.[58] Indeed *The Economist* has gone as far to say that that the sugar-ethanol industry will be a foundation of growth domestically as it was in countries like Finland (Nokia first made its name in wood pulp).[59] In turn, industry owners have been quick to sense the opportunities linked to this material-discursive transformation and have begun to

[55] In 2002, the amount of formal jobs was counted as 368,000 in cane farming, 302,000 in sugar production, and 95,000 in ethanol distillation, each of which had risen considerably since even two years prior. See Smeets *et al.*, 'Sustainability of Brazilian Bio-Ethanol', p. 57.
[56] Ekaterina Krivonos and Marcelo Olarreaga, 'Sugar Prices, Labour Income, and Poverty in Brazil', *World Bank Policy Research Paper*, No. 3874, April 2006, pp. 8-9.
[57] No GM organisms are used at present in Brazil (they have yet to be submitted to the federal bio-safety council) but UNICA have acknowledged that they will be "necessary in the future". Cellulosic ethanol is thought to be a commercial possibility within 5-10 years. Szwarc, 'Brazil's Future Road Map'.
[58] See Kirsten Bound, *Brazil: The Natural Knowledge Economy* (London: Demos, 2008).
[59] *The Economist,* 'The Harnessing of Nature's Bounty: Brazilian Agriculture', 5 November 2005.

promote the possibilities of patent and technology exports alongside physical commodity exports. For example, in the context of cheap currency, Crystalsev shareholder Maurilio Biagi Filho argued that, “at the current rate of exchange, Brazil should be exporting everything, even ideas”.[60]

**4. Bringing the Landless Back In: The Borders of Production**

Thus far the analysis of poverty reduction and inequality has taken place in the context of the industry itself, investigating how wealth is generated and shared within the sugar/ethanol worker-owner hierarchy. This is a common enough starting point for an account of the likely development effects of growing agro-industry, but what is often overlooked is the effect that growth in the industry has on the people already on the margins of production: peasants. Peasants are understood here as those rural dwellers that are largely engaged in small-scale farming for subsistence and local markets, which may take place under informal economic conditions, i.e. farming without land deeds and employing without contract. Thus to say they are on the margins of production is to give a geographical, economic and ideological description of their relationship to cane and to the dominant elites. They reside on the fringes around current cultivation, in the lands into which sugar seeks to spread, and, in cases where land is given over to cane production, receive dwindling opportunities to re-enter it as waged employees or service providers. Their low education level, in turn, increases their dependency on the powerful political economy elites, not only in material terms, but also with regard to societal and political norms, values and visions.

[60] Elizabeth Johnson, ‘Sugar Rush’, *Latin CEO: Executive Strategies for the Americas*, October 2001.

**Picture 3: Guaraní Employed as Cane Cutters**


Source: Patrick Prio, 2008.

The issue of land reform in Brazil has a long and contested history that we do not have time to explore in full detail here, suffice to say that opportunities for peasants to gain legal access to existing land has been limited under the Brazilian agrarian reform programme. This programme has facilitated the sale only of small- and medium-sized farms either under-utilized or abandoned, thereby leaving the redistribution of the *latifundios* to one side.[61] Not that all attempts to gain control of land have been market-led. In many instances, peasants have sought to assert their right to land through squatting and protest – a particularly dangerous form of acquisition which, according to the Comissão Pastoral da Terra, has resulted in a total of 1,548 deaths of rural labourers between 1988 and 2002.[62] The expansion of sugarcane serves to exacerbate these problems further.

[61] Market-led agrarian reform has been tried in Brazil under *Projeto Cedula da Terra* since 1998 alongside the state-led INCRA-implemented (Institute for Rural Settlement and Agrarian Reform) land reform. See Saturnino Borras Jr., 'Questioning Market-Led Agrarian Reform', *Journal of Agrarian Change,* Vol. 3, No. 3, 2003, p. 378.

[62] Human Rights Watch, 'Brazil', *World Report 2003.* Available at Hhttp://www.unhcr.org/refworld/publisher,HRW,,BRA,3e28187a2,0.htmlH Accessed 30 May 2008.

With respect to legal purchases, the growth of the industry has put land at a premium: average prices of cane land in São Paulo state have more than doubled from $1,152 per hectare in 2003 to $2,705 per hectare in 2008, with some of the prime sites actually quadrupling in value.[63] Peasants who would be able to farm this land profitably are thus priced out the market. The higher prices offered for land is also likely to encourage the owners of suspect land deeds to use physical violence against protestors and/or fraud to re-assert their right to the land and its attendant value. Further, there are also knock-on effects to the expansion of sugarcane as indigenous people become confined by the spreading estates into smaller territories, resulting in eruptions of internal violence as has happened amongst the Guaraní people in the Mato Grosso do Sul state.[64]

It in this environment that the Movimento dos Trabalhadores Rurais Sem Terra (MST) – translated as the Landless Rural Workers Movement – has attempted to redress the unequal access to land. The organisation's history is closely bound with sugarcane. It was established in the mid 1980s and traces its ideological roots back to the *quilombos* communities of runaway slaves from sugar mills and the Peasant League societies that sprang from the waged sugarcane workers in Northeast Brazil.[65] More recently, it has been in the face of expansion by Brazilian agro-industry, and sugarcane and soya in particular, that MST has become increasingly radical, switching its target from the occupation of unproductive land to the occupation of commercial crop land.[66] By way of example, in 1999 more than five thousand MST families took over forty-one sugar plantations in the Pernambuco state, and, in 2007, MST invaded the Cevasa ethanol mill in São Paulo (owned in part by Cargill) to disrupt production and a month later invaded 6,000 hectares of land, also in São Paulo, torching 30 tonnes of unplanted sugarcane in the process.[67]

This 'democratisation by appropriation' approach of the MST has tested its relations with both state elites and rural waged labour, two sets of agents with which it has sought to

[63] AgraFNP, Biofuels Brazil, No. 37, 21 October 2008, p. 14.
[64] Mario Osava, 'Brazil: Land Shortage Provokes Murders of Indigenous People', *Inter Press Service*, 14 January 2008.
[65] Wendy Wolford, 'Producing Community: The MST and the Land Reform Settlements in Brazil', *Journal of Agrarian Change,* Vol. 3, No. 4, 2003, p. 505.
[66] Sue Branford and Jan Rocha, *Cutting the Wire: The Story of the Landless Movement in Brazil* (London: Latin American Bureau, 2002), p. 10.
[67] Reuters, 'Brazil Peasants Storm Farms, Torch Sugar Plants', 13 April 2007.

work to effect change. In respect to the former, MST has presented itself to the rural populace as an effective counsellor to a corruptible and predatory state, appreciative of Lula's acceptance of peasant agrarianism relative to his more dismissive predecessor Fernando Henrique Cardoso, but wary of his reluctance to destabilize the foreign exchange earnings of the *latifundio*.[68] All the same, the ambition of the movement has not been to replace the state, but rather to work through it, cajoling its leaders into making the rule of law compatible with greater territorial autonomy.[69] Geraldo Fontes, an MST coordinator, has suggested how this is possible:

> When we occupy *latifundio*, large landholding, it is not because we are against Lula's government. We are occupying to help Lula's government to apply what the constitution says in order to change this model, which they are using now. [70]

The constitution to which Fontes refers is the 1988 ruling on agrarian reform, which affirms that only 'rural property that is not performing its social function' should be expropriated. To reconcile this stipulation with the occupation of working farms, MST have argued that the function of land is to provide jobs and improve living standards, something the *latifundios* prevent and which can only be provided through the democratisation of property and the sharing of natural resources.[71] When MST uses the concept 'jobs', it does so with a particular type of job in mind, namely, those linked to smallholder production and food sovereignty, emphasising choice over the way in which food is produced and traded and incorporating such issues as land rights, biodiversity and seed-saving. In binding itself to this notion of agrarian citizenship, MST has thus risked antagonism with those rural workers who depend on the *latifundios* for waged jobs. To overcome this, the concept of *Sem Terra* (landlessness) has been used to make a connection between the two social groups based not on modes of production but on similar experiences of poverty and exploitation.[72] The MST thus encourages workers

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[68] Welch, 'Globalization and the Transformation of Work in Rural Brazil', p. 44.
[69] Wolford, 'Producing Community', p. 517.
[70] Geraldo Fontes, 'Interview with Nic Paget-Clarke', *In Motion Magazine,* 2 September 2004. Available at Hhttp://www.inmotionmagazine.com/global/gf_mst_int2.htmlH. Accessed 21 April 2008.
[71] MST, 'The Perverse Nature of Agribusiness for Brazilian Society', MST Informa 109, February 2006. Available at Hwww.mstbrazil.org?q=book/print/276H. Accessed 10 April 2008.
[72] Luca Fanelli and Sarah Sarzynski, 'The Concept of Sem Terra and the Peasantry in Brazil', *Journal of Developing Societies,* Vol. 19, No. 2-3, 2003, p. 334.

*and* settlers to maintain links to the movement's landless community, even after they have secured jobs or land deeds.

For its part, the government has defended its record on land access by denying the challenge of the landless movement to industries such as sugar/ethanol. For example, the Minister of Agrarian Development, Guilherme Cassel, has argued that:

> In Brazil we have two models: agribusiness, based on large extensions of land and monoculture farming, and the family farm model, based on land reform settlements, crop diversification and protection of the environment. [Lula has] supported both models, and both were very effective.[73]

Yet to the extent that the family farm model has worked, it has only been by resettling landless farmers away from the borders of agro-industry in the Amazonian region: 65% of new settlements have taken place here according to the MST.[74] In this way, the government has been able to bypass the central question posed by the MST about the social function land should serve.

Further, the government has also noted that labour productivity on the country's farm has soared in recent years, suggesting that this will in turn lower the cost of food domestically and reduce the need for land reform.[75] But while the supply of food in Brazil has been augmented, it has not necessarily resulted in more being available for the rural poor who still lack the resources to acquire it. In fact the hungry in Brazil are increasingly dependent on the 'Zero Hunger' state initiative that incorporates such programmes as the 'Family Fund', which transfers direct cash payments to families as a reward for attending school or medical clinics, and the national school meals project, which constitutes the second main source of food for poor families. Chronic malnutrition in children has nearly halved from 1996 to 2006 as a result of these programmes but 20% (2.3 million) of the recipients of the Family Fund hand-outs still go without food once

[73] Frayssinet, 'Brazil: David, Goliath and Land Reform'.
[74] See Fabiana Frayssinet, 'Brazil: David, Goliath and Land Reform', *Inter Press Service,* 13 June 2007.
[75] Andrew Downie, 'As food Prices Soar, Brazil and Argentina React in Opposite Ways', *New York Times,* 27 August 2008.

every three days.[76] With this in mind, the argument made by Lula that 'lack of income not biofuels cause hunger' takes on a depressing irony. Biofuels are linked with hunger, but not because the land used to produce cane ethanol could otherwise have been grown food for needy mouths, but because the way they are produced – indeed, the way most export commodities are produced in Brazil – denies people in Lula's own country the land or wage labour to feed themselves.[77] As Fred Magdoff has argued, though the conditions of the countryside may be harsh having some land on which to grow food does at least provide a degree of protection against hunger.[78]

**5. Conclusion**

Assessing the extent to which the growth of domestic and international commodity markets, aided by the liberalisation of trade barriers, would lead to development, the case of Brazilian sugarcane offers some interesting insights. The intended effects of this process are to increase output, employment and wealth generation in sectors such as sugar/ethanol in which developing countries have a comparative advantage. While this has certainly happened in the Brazilian case, the outcomes stack up in a somewhat ambivalent fashion. In striking parallel to the unfolding of the sugar industry in Florida, stricter environmental legislation and capitalist imperatives – specifically in São Paulo and its neighbouring states – have overseen a large landowning class with vertically integrated operations slowly push informal and intensive labour production to the margins of the industry. In turn, concerns related to exploitative practices such as under-payment have been amplified by the external pressure of mechanization reducing the need for such labour in the first place. Leading corporations, meanwhile, have assumed greater control over the political management of land expansion and market creation. Since the rural sugar unions have fragmented, having organised no unified strikes since 1990, and because Brazil's vast land reserves has provided the opportunity to assuage land reform demands, this power balance has assumed even greater asymmetry. Yet the benefits of this model of development cannot be denied. The industry has

[76] Mario Osava, 'Brazil: Hunger Beats a Retreat', *Inter Press Service*, 16 October 2008.
[77] This runs contrary to Lula's own claim that 'biofuels generate income and employment, especially in rural areas'. See Luiz Inácio Lula da Silva, Speech given at the Thirtieth Regional Conference for Latin America and the Caribbean, Palácio Itamaraty, 16 April 2008.
[78] Fred Magdoff, 'A Precarious Existence: The Fate of Billions', *Monthly Review,* Vol. 55, No. 9, 2004.

successfully addressed many of its environmental shortcomings such as cane burning and effluent run-off and has greatly galvanised the country's technical and intellectual human capital. The outcomes we find in Brazil suggest that agro-industrial growth has been no unequivocal 'good' or 'bad' thing but rather a process of 'dualistic development'.

To begin to equate the vanguard rural economy with a pro-poor form of development though, the state must begin to harness this growth to rectify the huge inequalities that mark Brazilian society. Yet its ability to redistribute through growth in cane production is constrained on two fronts. First, the model of growth is one that discounts the poor from employment and, moreover, channels revenues to historically wealthy landowner-industrialists, thereby impeding a 'natural' dispersal of income. Second, various tax incentives are offered to the sugarcane industry, thus denying the government greater tax receipts to redistribute the wealth generated as welfare payments.[79] Further to these two points, it is evident that the institutional make-up of the state itself is such that it lacks the ability to challenge and change this relationship. Brazil is the only country in the world with two agricultural ministries, but the one that deals with agrarian reform is notably weaker than the one that deals with agricultural trade and commerce.[80] It is these constraints over redistribution, coupled with the mode of dualistic development itself, which causes us to characterize the sugarcane industry as an *exclusive engine of growth* and points us toward the political and ideational agency shaping this phenomenon.

As noted in the introduction, certification could be a crucial tool for enhancing the social credibility of the Brazilian sugarcane industry by bringing on board the perspectives and interests of the new and international actors with a stake in the Brazilian sugar and alcohol sector. Indeed, it can be no bad thing that in response to such pressures UNICA have already signed an agreement with the rural union FERAESP to improve working conditions. But the broader arc of development – which places the industry in its fuller social context alongside the landless and the unemployed, and indeed the taxpayer and

[79] For example, in the 1st Quarter of 2007 Ernst and Young placed Brazil at the top of their 'Ethanol Attractiveness Index', based on its favourable tax regime for investors. Ernst and Young, 'Biofuels Country Attractiveness Indices', Renewable Energy Group, Q1 2007, p. 4.
[80] See Elisa Reis, 'Brazil: One Hundred Years of the Agrarian Question', *International Social Science Journal,* Vol. 50, No. 157, 1998, pp. 419-432; and Welch, 'Globalization and the Transformation of Work in Rural Brazil', p. 51.

the consumer – cannot be managed by certification alone. Ultimately the definition and delivery of sustainability has to be developed in the public realm and made plausible through a fine-grained analysis of the prevailing power structures. This paper hopefully serves as contribution to this analysis and inspiration for an active political critique of the conditions within which biofuel certification and new biofuel technologies are now being implemented.

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