New roads to the same old place: the false solution of agrofuels

Cover photo: sergiop.cruz /teia Area of sugar cane plantation around of the Xapuri's region / Acre/ Brazilian Amazon.

Cataloguing of International Data at Source

N945 New roads to the same old place: the false solution of agrofuels/ Lucia Ortiz... (et al) – Porto Alegre; Núcleo Amigos da Terra/Brasil, 2008. 36 pgs.

1. Agribusiness; 2) Agroenergy; 3) Agrofuels; 4) Sustainable Development 5) Energy Development; 6) Environmental Management. I. Ortiz, Lucia

CDU 620.91

Catalogued by:
Evelin Stahlhoefer Cotta – CRB 10/1563

New roads to the same old place: the false solution of agrofuels

October, 2008

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Copies: 5.100

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Presentation

The unconditional defense of the supposed sustainability of Brazilian ethanol, in particular, and of agrofuels, in general, within the context of worldwide financial, food, energy and climatic crises hinders a true debate and thus the advancement of an energy transition process, a necessary step towards a society more in tune with the planet's ecological limitations. The Brazilian government's mega-propaganda, together with the sugar-cane industry, in its eagerness to conquer export markets introduces a series of palliative, even innocuous, instruments and measures to safeguard the expansion of energy agribusiness.

In the present work, the elements of this strategy are deconstructed as part of a pathtowards real solutions for the enormous social and environmental challenges which we face, as well as to effectively minimize the existing impacts on land areas.

In the midst of reversals on the international debate on agrofuels and the expansion of energy monocultures in Brazil, the text analyses the relationship between the increase of production and ethanol intrnational trade expectations, the price of food, climate justice, the demand and impacts of the automotive industry and territorial conflicts. The text attempts to demystify the rhetoric of agroenergy as 'furthering rural development', as well as the availability of so-called 'degraded' land areas, the agro-ecological zoning guarantees within the context of agrarian conflicts, of certification within the scope of the increased international trade, of second generation agrofuels as an alternative promise, and the frustrated expectations of social inclusion in the agroexporting model, which increases and replicates with the fever for agrofuels.

THE TEXT ANALYSES THE RELATION BETWEEN INCREASED PRODUCTION AND THE EXPECTATIONS OF WORLD ETHANOL TRADE AND ALSO, THE PRICE OF FOOD, DEMAND FOR CLIMATE JUSTICE, IMPACTS OF THE AUTOMOTIVE INDUSTRY AND DISPUTE OVER TERRITORIES

Lastly, the text points out ways and challenges of an energy transition that requeires transformation of the agricultural model, the revision of patterns of consumption, a process of localizing economies and the shortening of distances between the producer and the consumer, as well as building peoples's sovereignty over the destiny of their territories.

We present this document to foster the debate

PART I

Reversals in the agroenergy offensive

Lately, various facts have led to increased concerns regarding the effects of agri-fuel production on the environment and society. The most recent preoccupation is the worldwide rise in food prices. Various factors have contributed to this: steep increases in petroleum prices, continued increase in consumption - especially of meat – in countries like China, climate changes that increasingly cause problems for agricultural production. And, for the first time, many official sources all over the world recognize that the use of food as fuel is a decisive contributing factor in this crisis, which could be aggravated by the worldwide financial breakdown.

Even in the U.S., where the government still refuses to admit that climate change are aready occurring, the ethanol program is being opposed by important sectors. In 2008, 25% of all corn produced in that country was set aside for ethanol production, and plans show that in 2010 this proportion will reach 33%[1]. As the U.S. are the largest world producers and exporters of corn, which not only is an important food item for humans but also the basis for many animal feed, the increase in corn prices has provoked a chain reaction of global proportions.

However, in Brazil, crises are viewed as opportunities for accelerating economic growth, based on increased exports of natural and energy resources which are scarce in the rest of the world, with no regard for the gravity of this situation, and the need to correct the course of its development.

The World: New studies, new positions

In this scenario of crisis, many governments and international institutions have started to voice their concerns with the effects of increased agrofuels production and consumption. The year 2008 started with the publishing of important scientific studies which attacked the foundations of agrofuels promotion themes[2]. Besides demolishing the "positive" energy balances by showing how much energy these in fact, consume, in relation to what they can generate considering the entire production process – these studies showed that industrial agrofuels are not the solution to the grave problem of global warming. On the contrary, they brought evidences on how agrofuels can aggravate climate change, pointing out their impacts with scientific proofs, which were later published by non-governmental organizations who presented studies of concrete cases of these impacts[3].

According to a report by the OECD and FAO on the Agricultural Outolook for the period 2008-2017, agrofuels were responsible for approximately one third of grain and vegetable oil price increases in 2007/2008. The OECD and FAO estimated that vegetable oils prices would continue to be sky high, 80% above the average price between 1998-2007; corn, wheat and powdered milk should remain between 40% and 60% higher and beef and pork, about 20%. These forecasts take into

1 WORLD BANK's 2008 World Development Report
2 SEARCHINGER et al., 2008; FARGIONE et al., 2008
3 **See among others SMOLKER et al, 2008 and BAILEY, 2008**

consideration the double of the present agrofuels production, high fuel prices in general and the resulting increase in food production and transportation costs, as well as a greater demand for food and animal feed in developing countries[4].

With a more severe analysis, the IMF estimates that agrofuel production was responsible for approximately half the price's increase of the main food products in 2006-2007[5]: "the demand for biofuels resulted in an increase not only of corn prices, but also that of other grains, meat, poultry and milk products". Among the "other grains" the demand for soy, another component of animal feed, can be singled out. To estimate how great this impact is, we must consider that approximately 70% of all the corn produced worldwide is consumed as feed to the industrial production chain of pork, poultry and egg, and this grain is the most important item in the composition of animal origin products.

Practically all multilateral organisms, agencies, scientific institutions, organizations and governments in their analyses defended the cane ethanol differential emphasizing the singularity of Brazilian experience. And, in the absence of more in-depth Data on other experiences, the Brazil-ian government, in turn, lost no time in stressing the "sustainability" of its national model.

México, 2007: a disaster announced

the first case with international repercussions on the competition between food and fuel was the so-called "Tortilla Crisis", in Mexico due to dependence on U.S. corn imports: in the first months of 2007 the price of a tortilla, the basic staple food item of the Mexican population, rose 40% in one month.

Haiti, 2008: hunger overthrows a prime minister

in Haiti, the continent´s poorest country, a 50 kg sack of rice jumped from US$ 35 to US$ 70 in just one week. Street protests by famished Haitians led to fall of prime minister Jacques Edouard Alexis in April of 2008.

4 OECD-FAO Agricultural Outlook 2008-2017
5 BUTLER, 2008

by: Lúcia Ortiz/NAT-Brasil

Brazil: blind faith in exports

In spite of all the scientific evidence and the campaigns by environmental and human rights groups, among others, the government and ethanol industry continue to negotiate the consolidation of this new agroenergy commodity market. In trade negotiations, the government demands the removal of existing trade barriers, in order to consolidate its leadership in the export of these products.

Its official representatives also try to hinder debates on the problems caused by agrofuels in different international forums. During the most recent Meeting of Parties of the Convention on Biological Diversity, held in May 2008 in Bonn, Germany, amidst the booing of the public, they blocked any proposal to address the subject of agrofuels from the perspective of loss of biodiversity. This was also the Brazilian attitude in the 30th Regional Meeting of FAO held in Brasília, in April of 2008. The government alleges it acted thus to "avoid the creation of unreasonable barriers" to free trade.

ITS REPRESENTATIVES TRY TO HINDER IN MANY INTERNATIONAL FORUMS, THE DEBATE ON THE PROBLEMS CAUSED BY AGROFUELS

Following this strategy, the Brazilian government organized an international congress on agrofuels in São Paulo, in November 2008. This encounter, which was fully supported by the U.S., the European Union, China, India and South Africa, sought to promote the supposed sustainability of agrofuels (or at least of ethanol) and, through an agreement on international standards and specifications, opened the way for the product's certification.

Meanwhile, the production and export of Brazilian ethanol rapidly increased. In 2007, Brazil exported almost 3,5 billion liters of ethanol. Even with a decrease in prices, the value of ethanol exports practically doubled in comparison with 2005. The main purchasers are the U.S., Japan, Holland and Sweden. The perspectives are that within four to five years exports of Brazilian ethanol should triple. In spite of the surcharge applied to Brazilian ethanol, exports to the U.S. increased 577,7% in 2006 alone, in comparison with 2005, jumping from 260,7 million to 2 billion liters of ethanol. Part of this volume was exported directly and part through the Caribbean Basin Initiative agreement, which allows up to 7% of the American demand for ethanol to enter the country without the US$ 0.54/gallon surcharge. In 2008, according to Unica forecasts, ethanol exports from Brazil should reach 4,5 billion liters[6].

6 GLOBO, 16/05/08: Exports may reach goals this year. Flávia Oliveira

by: Lúcia Ortiz/NAT-Brasil

The European Union's "low profile" partnership

The European Union (EU) has been acting dubiously. In order to please its civil society, it has adopted a critical rhetoric, supposedly preoccupied with the negative consequences of agrofuels production. In practice, however, countries like Holland, Germany and Sweden have been signing bilateral trade agreements with Brazil, in their eagerness to guarantee their supply of fuel in times of high petroleum prices and scarcity.

Attempting to present to the public supposed guarantees through sustainability standards and certification schemes under development, the EU eased up on, but did not abandon, its goals for the progressive substitution of agrofuels for its vehicles: the initial objective of 5,7% by 2010 to 10% by 2020, retreated to maintaining mandatory 4% of "renewable energy sources for transport" as from 2015 (which would include agrofuels among other renewable options).[7]

Certification or change?

The understanding of the government as well as of the sugar-cane sector that the conquest of new markets for ethanol will require environmental certification led to an immediate reaction. The Ministry for Agriculture announced the developing of ecologic-economic zoning, restricting and delimiting areas for sugarcane plantations. The simple announcement of just a few of its aspects is already causing serious controversy. At present, the authorization of areas at the Pantanal for plantations is the main concern.

In promoting measures such as zoning and certification, the government is not considering an extremely important fact for our future. The expansion of cane and other energy plantations, such as soy and eucalyptus, is already displacing various other crop cultivations, as well as part of the cattle raising activities, into new areas. Ironically, the Amazon, which is the center of international concerns, is also the region where cattle raising is most rapidly expanding. The increase of cattle herds in the Amazon States remained constant between 2003 and 2006, at annual increase rates of between 14% and 48%, while the average national rate remained at 5,9%.[8]

Therefore, forbidding the planting of cane in the Amazon is not an effective measure against deforestation. The almost always forgotten region of the Cerrado, our second largest and richest biome, is also already paying a high price for this generalized expansion of the exporting agribusiness.

The polices creating by laws compulsory markets in Northern countries, and the Brazilian government's aggressive policy to expand its own production and that of the other Southern countries, aiming at global markets, have supplanted the real, necessary, discussion. It is time for public debate of deceleration and reduction of fuel consumption. It is crucial that we find solutions favoring changes towards greater transport efficiency, prioritizing public and collective transportation instead of individual cars. It is necessary to have public policies that ensure food production and distribution in diverse, decentralized and energy self-sufficient systems. Palliative measures such as zoning or certification only block the building of real solutions.

7 The U.S. have even more ambitious objectives. According to forecasts of the Renewable Fuels Standards and Energy Bill of 2007, their mandatory objective is 28,4 billion liters of agrofuels for transport vehicles by 2012, with 35 billion galoons forecast for 2022

8 ASSIS & ZUCARELLI, 2007

Brazil: cane or food?

Brazil is the largest world producer of sugar-cane, followed by India, Thailand and Australia.[9] The area planted in 2006/2007 was over 7 million hectares, representing an increase of 1,47 million hectares in comparison with 2004/2005 harvest. Over the last three harvest years, cane plantations occupied an area 26,3% larger; presently it occupies 10% of the total farmed areas.[10] It is estimated that in 2015/2016, Brazil's cane plantations will expand approximately 50%, reaching 12,2 million hectares.[11]

This expansion is concentrated mainly in the southwest region of the State of Goiás, eastern and southwestern areas of the State of Mato Grosso do Sul, in the Triângulo Mineiro (State of Minas Gerais), and western São Paulo State. Official studies argue that new areas will be expanded mainly into the Cerrado biome, which would have approximately 90 million hectares "free" for the production of agrofuels.[12] The demarcation of these territories, chosen for their extensive flat areas of land which facilitate mechanization, does not take into account the importance of the chapada (tableland) region's predominant ecosystems, which are responsible for the renewal of Brazil's most important river basins.[13]

The arguments of thefederal government's also confirm the existence of "free lands" for energy producing monocultures within a scenario of a global food crisis and increased social conflicts over agrarian reform. Just as an example, in the State of Mato Grosso do Sul, one of the pivotal areas of agrofuels expansion, the disputes over land – that are actions for the possession, use and ownership of land – increased 143% between 2003 and 2006, raising from 16 to 39 confrontations.[14]

The expansion of agrofuels has transformed Brazilian territorial occupation and set in motion a new driving force to expand agricultural frontiers. The expansion of sugar-cane is made easier by a socially and legally unstructured land market, resulting in lower production costs, while at the same time concentrating land ownership in the hands of a few to the detriment of family farming. In this process, the States of Minas Gerais, São Paulo, Mato Grosso do Sul and also Maranhão, which offer better logistical and export infrastructures and/or are closer to consumer centers, have favorable conditions for new plants, while their traditional agricultural and cattle raising activities are being transferred to lands into the agricultural frontier. All over the country social and environmental impacts are multiplying: increased conflicts over land, exploitation of indigenous peoples as work force and slave work[15], decreased production of food crops, displacement of cattle raising activities, increased deforestation and eviction of peasants from their land.For many nations, integration into global free trade markets led to a greater dependence on nature and to an erosion of national development projects.[16] Exploitation of natural resources is converted into economic advantage and destroys the enfranchisement of an autonomous society, with its own distinctive needs for endogenous development. What then exists is a vacuum conducive to profitable exploitation.[17] Brazilian agrofuels production confirms this dependency and perpetuates a colonialist project that is founded on a capitalist exploitation of nature, as is the case of ethanol exports, accelerated since 2003.

OVER THE LAST THREE HARVEST YEARS, CANE OCCUPIED AN AREA 26,3% LARGER; PRESENTLY IT OCCUPIES 10% OF THE COUNTRY´S TOTAL FARMED LAND AREAS

The participation of foreign capital in cane production processes increased from 5,7 to 12% between 2005/2006 and 2006/2007, or 110% in one year alone. Of the ten largest sugar-cane industry companies, four already have foreign capital: Cosan, Bonfim, Guarani and LDC Bioenergia.[18] He declarations of the Brazilian government proclaiming ethanol as the solution for the problem of climate change, must give way to the threats to food and energy sovereignty that are becoming reality with increasing conflicts over territories. In this unequal fight, farmers have lost control over their lands, and have suffered the bitter experience of being ousted by sugar-cane agribusiness.

9 UNICA, 2008
10 IBGE, 2007; MAPA, 2007
11 TORQUATO, 2006
12 MAPA, 2006
13 MAZZETTO, 2005
14 CPT, 2006

15 During 2007, during operations by the Grupo Móvel do Ministério do Trabalho (Mobile Labour Ministry Groups)5,974 workers in conditions of slavery were released, 52% of them, or 3,131 Brazilians, worked under degradant conditions in sugar plants (CPT, 2007)
16 CORONIL, 2003
17 PÁDUA, 1987
18 REVISTA EXAME, 2007

IBGE data for the period 1999 to 2006, shows a decrease in the production of foodstuffs brought about by the expansion of sugar-cane plantation areas, which increased by over 2,7 million hectares in the period. In the municipalities with an expansion of sugar-cane plantations of over 500 hectares in this period, 261,000 hectares of black bean cultivation and 340,000 hectares of rice were reduced[19].

This reduced area could produce 400,000 tons of beans, or 12% of national production, and 1 million tons of rice, equivalent to 9% of the country's total production. Also, the production of milk in these municipalities was reduced by 460 million liters, with a loss of 4,5 million head of cattle.

The State of São Paulo has witnessed a continued decrease of areas where diverse crops were farmed –in 2007-2008 this reduction was 19%. Among grains, the area planted with beans was reduced by 13.2% in the summer harvest, and 25% in winter harvest. In 2007, these facts contributed to doubling the price of Brazilian beans, with a 123.8% accumulated increase. Thus, even though it is not an export item, the price of black beans is indirectly associated with high global costs of food.

Although this expansion is concentrated mainly in São Paulo State, where sugar-cane already occupies 70% of farmed areas, the same situation applies in the States of Paraná, Mato Grosso do Sul, the Triângulo Mineiro region (in Minas Gerais State), Goiás, Mato Grosso and Maranhão. In these States, the agricultural areas of food production decreased, and cattle raising activities were pushed towards the Amazon region. In this process, the expansion of agrofuels is responsible for a continuing decline of food production.

The production of the three main staple foods in Brazil – rice, beans and manioc – has not increased since the 1990´s, and Brazil has become the largest world importer of wheat[20].

19 Folha de São Paulo, 17/04/2008: Agrofuels and the production of foodstuffs. Ariovaldo Umbelino Oliveira
20 idem

by: Lúcia Ortiz/NAT-Brazil

New roads to the same old place ...

PART II

Deconstructing the agribusiness rhetoric for agroenergy

The food crisis: half truths, half lies

It took a long time for Governments, specialists and internationally important organizations such as the World Bank, to recognize one fact. But after continuous price increases over an extended period, almost no-one refutes the fact that the use of food crops as fuel is a major contributing factor of price increases.

After sugar-cane, corn, beetroot, soy and many other foodstuffs began to be used as fuels, many were the voices raised denouncing increased hunger in the world. Because of this, the European Union is today being pressured to review its ambitious objectives for the substitution of fossil fuels.It is a known fact that Europe lacks the natural resources to meet these objectives with its own agriculture.And that countries like Brazil could supply a significant part of the agrofuels needed by Europe to fulfill its objectives.

In its eagerness to export large quantities of agrofuels, the Brazilian government and agribusiness representatives make a point of denying the fact that the production of ethanol or biodiesel in Brazil is in any way related to the crisis. In September 2007, at the opening of the U.N General Assembly in New York, President Luiz Inácio Lula da Silva declared that " Brazil's experience over three decades reveals that agrofuels production does not jeopardize food security. The problem of hunger in the world is not a result of lack of food, but lack of income that affects almost one billion. It is quite possible to harmonize together biofuel and food production with environmental preservation[21]".

The global availability of food would certainly be sufficient to supply the entire world population. At the same time, however, many factors contribute towards the increase of production costs, consumption, and reduce the supply of various food products.With the recent price increases, the purchasing power of people also decreases, especially the ability to buy food with the same income.

If it is true, as president Lula declares, that the problem of hunger is related to income, higher food prices are fatal to a majority of the world's population who, living on less than US $ 2 a day, cannot wait for the day when prices go back their historical levels.

Not only the Brazilian government, but also the industrial and financial sectors argue, blaming other sectors, not always correctly. Let us analyze a few of these:

AFTER SUGAR-CANE, CORN, BEETROOT, SOY AND MANY OTHER FOODSTUFFS BEGAN TO BE USED AS FUELS MANY VOICES WERE RAISED DENOUNCING THE INCREASE OF HUNGER IN THE WORLD

European and American food subsidies are to blame

It is argued that these subsidies discourage food production in countries like Brazil. However, besides not being a new fact, on the contrary, Brazil's agribusiness production and exports are increasing year by year. In spite of subsidies, the European production of beef, for example, has stagnated. And in spite of trade barriers, Brazil is now the largest world exporter of beef and poultry. Taking away these restrictions would not increase global food production. It would only transfer a significant part of this production to Brazil, and other so-called "developing" countries.

21 O Globo, 26/09/07: Lula announces environmental plan. Marília Martins

Humans are to blame, especially the Chinese who are eating more

In fact, the Chinese have not been lacking for food for many decades. The truth is that people's income in China, and in many other countries, has increased thereby changing food habits. Meat has become an important item in their diets, and as a portion of the cattle are raised in feedlots, the consumption of soy and corn also increases. And the transport of these products around the world also requires increased fuel consumption.

Petroleum prices are to blame

We know, for a fact, that petroleum prices as well as those of other basic products such as food and minerals, have risen sharply over the last few years. Increased income and consumption in many countries has led to increased demand for petroleum. Financial speculation – negotiating the product in futures markets – also is a decisive factor in the high petroleum prices. It is clearly evident that the world has entered a period of maximum production of this finite resource – known as the Peak Oil – with new discoveries and worldwide reserves declining year by year in comparison with consumption[22]. This fact causes increased food transportation costs, which in turn increases consumer prices.

Petroleum is also used for producing pesticides and fertilizers, thereby raising production costs of food. But production costs is far from being a determining factor of food prices. If this were the case, how to explain, for example, that international sugar prices during the same period actually declined?

Speculation is to blame

It is true that was never was there so much speculation with food and raw materials in general, as today. According to the O Globo newspaper, the futures commodity markets which negotiated US$ 70 billion at the beginning of 2006, accumulated in the second semester of 2008, US$ 235 billion[23]. However, we must consider that speculation only exists where there is some basis for it. In the case of global food stocks, as well as those of the Brazilian government, were at an all time low in 2008, which prevents any attempt to balance supply and demand.

The harvest shortfalls are to blame

Droughts in Australia and Brazil, excess rainfall in Vietnam and the U.S. and other climatic problems that have occurred are undoubtedly responsible for jeopardizing food production. What apparently escapes the awareness – or interests – of many people is the frequency of worldwide climate problems, which are particularly damaging to agricultural production. Little is said also, of the relationship between the expansion of monocultures, intensive cattle raising, deforestation, global warming and harvest shortfalls, as well as the probably higher capacity of adaptation to extreme climate phenomena (and less impact) of diversified systems of food production by family farming, in comparison with monocultures.

Certainly, none of these factors alone could explain the sharp increase of food prices. It is therefore, necessary to analyze their interconnections. Thus, increased income of a segment of the population raises beef consumption and, consequently that of feed. Increased agrofuels consumption results in more and more land being destined for monocultures and cattle raising. With this, the production of other foodstuffs on family farms decreases, as is the case with beans. Deforestation is also stimulated, aggravating climate changes. These, in turn, cause harvest shortfalls, reducing the availability of foodstuffs which lead to price increases. This opens the door to speculation on foodstuffs, and so it goes on, and on.

One can thus conclude that the use of agrofuels is not, in itself, responsible for this scenario, but it definitely contributes to aggravating the food crisis, insofar as it reduces the availability of foodstuffs, hurts family farmers, directly or indirectly stimulates deforestation, and promotes speculation of stocks.

22 A convergence of global petroleum forecasts by scientists indicates the period between 2006 and 2017 as being the peak of petroleum production. HEINBERG, 2004; MURPHY, 2008

23 O GLOBO, 19/06/08: Reality and Speculation. Economic Panorama. Débora Thomas

Agrofuels, aggravating climate injustice

The principle of Climate Justice claims that the creators of this problem, and not those who contributed less to it, should assume the responsibility for the necessary measures to adjust the climate crisis. However, the greatest victims of climate changes today, are precisely those who least contributed to its worsening effects. It also declares that in accordance with the principles of a just transit-ion, neither the environment or thecommunities should pay for the costs of a search for solutions to global warming[24]. In this respect agrofuels are the most striking example of climate injustice.

At the beggining of the 1990´s, the adopt-ion of the principle of common though differentiated responsibilities,by the U.N. convention seemed a great step forward, in recognizing the historic Ecological Debt of the north-ern hemisphere countries, in their super exploitation of nature worldwide, especially of atmospheric resources.

However, in 1997, the Kyoto Protocol even though faithful to the principle, when it established mandatory objectives only for the industrialized countries for the reduction of green house gases emissions, legalized the commercialization of the atmosphere. From then on, through flexibilization mechanisms, the countries with greater responsability for these effects – because of their history of industrialization and patterns of consumption and production which exceeded the planet's capacity limits – had two comfortable options to fulfill their obligations without having to undergo real changes in their economy or ways of life. On the contrary, they benefited from the supposed solutions to global warming.

THE KYOTO PROTOCOL, EVEN THOUGH FAITHFUL TO THE PRINCIPLE OF ESTABLISHING MANDATORY OBJECTIVES FOR REDUCING GREEN HOUSE GAS EMISSIONS ONLY FOR INDUSTRIALISED COUNTRIES, LEGITAMIZED THE COMMERCIALIZATION OF THE ATMOSPHERE

The first, unofficial benefit, is the industrial sector's search for "efficiency", by the simple means of transferring their dirtiest and most intensive carbon emitting technologies and processes in the use of energy and natural resources – such as water and minerals - to countries in the southern hemisphere. This is the case of the transference of the aluminum industry to South America, and of coal thermoelectric power plants when these were

24 Bali Principles of Climate Justice: http://www.indiaresource.org/issues/energycc/2003/baliprinciples.html; e Towards Climate Justice in Asia - Summary report of the Climate Justice Conference, Bangkok 12-14 July 2008 www.focusweb.org/climatechange

abandoned in France and Great Britain in the 1980´s, upon the adoption by these countries, of environmental programs, and the recent boom of the steel sector in the region. In this way, those countries can fulfill part of their gas emission reduction goals, transferring their local climate and environmental impacts to the more vulnerable countries which are less responsible for these damages. In exchange, the less developed countries only have the right to pollute.

There are, indeed, some developing countries that claim the right to increase their emissions, supposedly to promote the development aspirations of their populations. However, in the case of South America, and especially Brazil, the increase in green house gas emissions has had the opposite effect to so-called sustainable development, and the benefits have bypassed their populations in their territories. In Brazil, which today is in fourth place of the countries with the greatest green house gas emissions, 75% of its contribution to global warming result from land use changes. In other words: from the expansion of the agribusiness sector, where we include agrofuels. Due to deforestation, burning of the rainforest and its low population density, the Amazon is one of the regions with most carbon gas emission per capita in the world. Its population, besides not benefiting from any improvements, suffers from these impacts which threaten their life style dependent as it is on the forests. Therefore, in claiming the right to not limit its emissions goals for Brazil is not synonymous to Climate Justice. The intensity of carbon emission must not be seen as an indication of development, much less of sustainable development. The differentiated responsibilities of the industrialized countries must be to do all in their power to implement domestic measures to change their consumption patterns, without transferring the onus of those changes, and to pay for a just transition to a cleaner and more efficient world energetic and economic model.

The second option officialized in the Kyoto Protocol, and baptized as the Clean Development Mechanism (CDM) (since the first mechanism would be dirty development), gives industrialized countries the opportunity to fulfill up to 50% of their emission reduction targets with lower costs, through projects developed outside their frontiers which in some way would prove a reduction in gas emissions in comparison with a non-achievement option, thereby gaining "carbon credits" in their favor. The premise that these projects result in a reduction of emissions as well as "sustainable development", in the locations where the project was installed, a criteria generally used by the countries or companies interested in obtaining the credits, does not guarantee the defense of communities affected by "clean energy" projects, such as the construction of small or large dams or monocultures of exotic trees planned to capture carbon. So, the CDM has become another expedient used by historically more responsible countries to do not implement real transition measures towards less carbon intensive and less natural resource exploiting economies.

Finally, there is a new, third form of transfer of responsibility: agrofuels. Dressed as green propaganda, the substitution of fossil fuels by agrofuels in developing countries is, ironically, treated as a domestic means to reducing emissions. But what is done "at home" is only the exchange of fuels in pumps. The impacts of agribusiness expansion are felt by the rural populations that endure in the south. And the Brazilian government has already declared to the international public that Brazil has no reason for concern when it comes to climate vulnerability of its national energy sources, because well adapted, resistant species and forms of production have already been developed by the cane agribusiness[25].

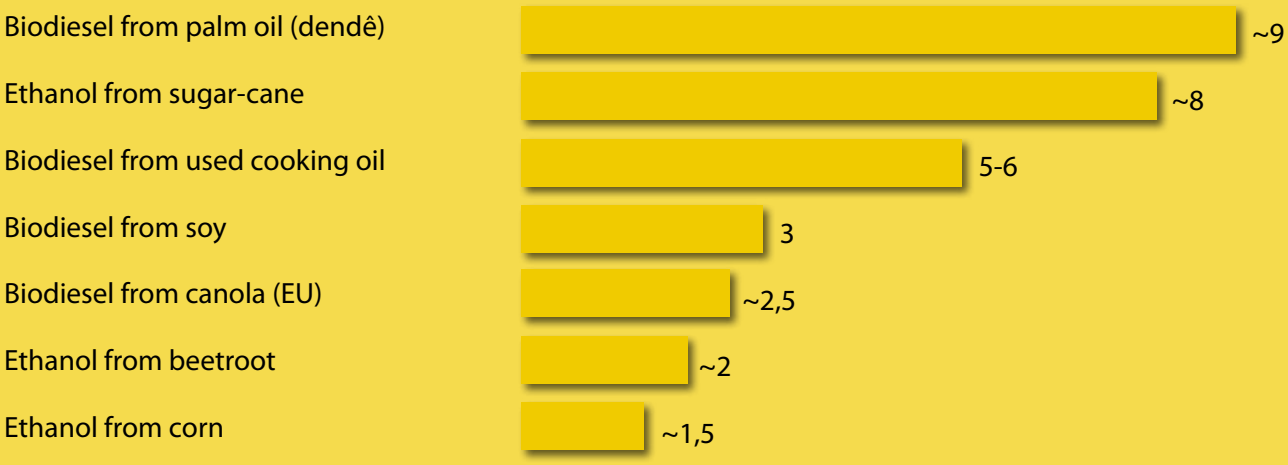
There are many doubts regarding the potential of agrofuels for reducing greenhouse effect gas emissions. We know that corn requires more than one unit of fossil energy to produce one unit of renewable energy, so it therefore presents a negative balance for energy, or carbon. Palm oil seems to be much less efficient in terms of production, with a balance of 1:8-9 close to that of sugar-cane ethanol. However, an analysis of the list of the countries with the greatest greenhouse gases emissions, together with the burning of fossil fuels and of soil covering, shows that right after the U.S. and China are the small islands of Indonesia, in third place, followed by Brazil, as being among the "greatest polluters of the planet."

Until recently there were no studies quantifying the indirect relationship between the expansion of energy monocultures and the substitution of economic activities. One of the first studies presented on the impact of global agrofuels production on the use of land and atmospheric carbon emissions, was carried out by Searchinger et al (2008)[26].

25 PPE/COPPE/UFRJ, 2008
26 SEARCHINGER et al., 2008

Fossil energy balance of different sources of agrofuels

Quantity of estimated renewable energy based on one unit of fossil energy used in its production



Source: WWI summary, 2006

After analyzing various crops used for agrofuels production, the researchers concluded that the production of cane ethanol in Brazil from converted areas of the Cerrado requires at least 17 years of production to recuperate the carbon lost into the atmosphere. Whereas the conversion of Amazon Forest areas for the cultivation of soy – the main crop used for Brazilian biodiesel – will require 319 years to revert carbon emissions.

The study analyses other indirect relations. While the U.S. substitutes soy plantations with corn for the production of ethanol, demand for soy feed increases and in Brazil soy plantations are advancing into the Amazon, where only in the last months of 2007, 7,000 km2 were devastated, principally in the State of Mato Grosso, the country's largest soy producer. Fargione et al (2008) conclude that the conversion of forests, turflands, woodland-savannah areas or pastures in Brazil, Southeast Asia and the U.S., generates a carbon debit 17 to 240 times more than fossil fuels[27].

Within the overall complicated global emission count, it is also necessary to calculate the emissions from the use of by-products and raw materials used in the production and distribution of agrofuels within the framework of agribusiness; those associated with the necessary expanding infrastructure, including highways, waterways, trucks, alcohol ducts, tanks and ports; as well as with the growing automotive industry whose expansion continues apace even in the midst of petroleum crises, thanks to the strong marketing propaganda of agrofuels and, ironically, to "save the climate" campaigns.

The "for whom" equation of agrofuels production also makes a difference in this calculation. An analysis of the ethanol life cycle concludes that there is a reduction in the balance of 1 to 8-9 if produced and used in Brazil, 1 to 5-6 if exported to Europe[28]. This analogy holds true also for the production of biodiesel from used cooking oil, a residue with large under-utilized stocks available in all cities worldwide. However, the cases studied by Unica recognize a maximum efficiency of 80% in gas emission reduction when the impact of transport in global trade is incorporated[29].

Undoubtedly, there are many solutions advocated in the search to reduce global greenhouse effect gases, central among which are energy efficiency and waste reduction. Therefore, bringing the energy source closer to the consumer and using the available residues locally are basic criteria for energy, environmental and climatic sustainability, which are not considered by the agro-exporting strategy of the Brazilian government.

27 FARGIONE et al., 2008
28 LANGER, 2006
29 MACEDO, 2007

More liquid fuels: for what and for whom?

The total substitution of petroleum derivatives by agrofuels – ethanol or biodiesel – is absolutely impossible given the scale of arable land this would require. The main challenge imposed on us by the energy and environmental crisis is the redefinition of the present world production and consumption models. As pointed out by Leroy (2007) the industrialized countries display an unparalleled hypocrisy in proposing their model of development to the world, knowing well it is impossible to extend its privileges to all, since this model presupposes that a portion of humanity will be kept in inequity.

The offer of renewable energy, especially agrofuels, can be summed up as a capitalist strategy taking advantage of the new environmental wave and nothing more. There is no change in the model of development when, under the seal of sustainability, cars and trucks that can run on ethanol or biodiesel are offered. This continues to be based on individual transport and intensive use of natural resources. If on the one hand we save on fossil fuels, on the other, we continue to waste energy to produce steel and vehicles.

Data of the ANFAVEA[30] shows that Brazil´s auto industry has been growing steadily and the production reached 2,4 million cars in 2007, in comparison with the 2,1 million produced in 2006, 2,0 million in 2005 and 1,4 million in 2000. In other words, automobile production increased over 75% during the last 7 years, greatly increasing the problems of mobility in major Brazilian cities. This has led to increased environmental pollution due to carbon monoxide emissions which cause air acidity and many respiratory illnesses, and more traffic accidents and deaths.

Ethanol only helps to mitigate these problems. According to data in 2005, the country was burning anually 6,2 billion cubic meters of hydrated alcohol, the carburate with a mix of 96% alcohol and 4% water. Besides this, 7,8 billion cubic meters of anhydrous alcohol were added to gasoline in a proportion of 22 to 25%[31].

Hydrated alcohol production volumes are variable, due to the uncertainties of Proálcool over the last thirty years. The 1989 fuel crisis marked by the intermitent lack of the product in the country´s major cities, started in April of that year and did not spare even the fuel pumps located in the regions of Ribeirão Preto and Sertãozinho, where 40% of São Paulo State´s alcohol is produced.

Hydrated ethanol production was restarted as from 2003 when flex fuel cars, which use gasoline and/or ethanol in varying proportions, began to be manufactured. Table 1 shows the recent evolution of car manufacture in Brazil, according to the fuel used:

1

Distribution of car production in Brazil, according to the fuel used:

Year	Gasoline	Diesel	Hydrated Ethanol	Flex
2000	1.315.885	36.408	9.248	-
2005	1.151.069	41.306	43.278	776.164
2006	815.849	26.334	758	1.249.062
2007	646.344	25.340	3	1.719.667

Source: ANAFAVEA Anuário da Indústria Automobilística Brasileira, 2008

30 SEARCHINGER et al., 2008
31 FARGIONE et al., 2008

When added to gasoline, anhydrous ethanol acts as an anti-detonator which allows the substitution of poisonous tetra-ethyl lead. The cocktail of emissions composed of carbon monoxide, hydrocarburates, nitrogen and sulphur oxides, as well as heavy metals like lead, would pose a much worse health hazard to people living in large Brazilian urban centers, were it not for this gasoline/ethanol mixture.

Still according to ANAFAVEA (2008), the national vehicle fleet (including cars, pick-ups, trucks and buses) in 2006, was estimated at 24,1 million, for an international fleet of 954 million. Table 2, below, shows the prevalence of individual transport:

2

Distribution of vehicle production in Brazil according to fuel usage:

Mode of Transport	Municipalities Total	Municipalities over 1 million inhabitants	Municipalities 60-100,000 inhabitants
City Bus	22,3	22,1	23,1
Metropolitan Bus	4,0	6,7	-
By Rail (trains/ subway)	3,0	5,7	-
Public Transport - Total	29,3	34,5	23,1
Motor Vehicle	27,2	28,7	18,1
Motorcycle	2,0	1,2	4,2
Individual Transport Total	29,2	29,9	22,3
Bicycle	2,7	0,7	9,7
On Foot	38,9	34,9	44,9
Total Non-Motor	41,5	35,6	54,6
TOTAL	100,0	100,0	100,0

Source: ANTP-Associação Nacional de Transporte Público-Relatório Geral de Mobilidade Urbana: 2005-2006

The participation of pedestrian traffic is high due to the high costs of transport, especially for the lower income population. The participation of bicycle transport is still low (2.7%), and still lower in large cities (0,7%).

A study carried out in 2006 by the Instituto de Pesquisas Tecnológicas da USP (IPT) (Institute for Technological Research of USP) for the Instituto Brasileiro de Siderurgia (IBS) (Brazilian Steel Institute) indicates that the amount of steel necessary to manufacture automotive components and parts is approximately 83-85% of the vehicle's total weight. The study took, as reference, two car models considered to be representative of the Brazilian fleet: the VW Gol 1.0 (basic, popular); and GM Astra Hatch 2.0 (complete model).

Considering the production of 2,4 million cars in 2007 and the average amount of steel necessary to manufacture each vehicle (880 kg), the steel used in the two car models mentioned above, totaled 2,1 million tons.

The table below shows the calculation of materials used in steel production for the manufacture of cars, taking as a reference the specific consumption of each resource and the total amount of steel used for the manufacture of cars in 2007:

3

Consumption of materials in the manufacture of cars in Brazil-2007

Material	Specific consumption	Total
Iron Ore	1,7 ton/ton	3.577.466 ton
Coke	1.151.069	41.306
Manganese ore	815.849	26.334
Fuel oil	646.344	25.340
Electric power	500 kWh/ton	1.052.196 thousand kWh

Source: Prepared by Berman, C. Based on data for the consumption of raw materials by the steel industry. In: SGM/MME Anuário Estatístico do Setor Metalúrgico, 2007 (Yearly Statistics for the Metallurgy Sector)

These numbers show the scale of consumption of raw materials and energy by the Brazilian automotive sector. It consumes over 3,6 million tons of iron ore, and more than 35,800 tons of manganese ore per year. The consumption of coke for pig iron, an intermediary phase in steel production, reaches 768,100 tons. In terms of energy, this is more than 9 thousand tons of fuel oil, and approximately 1,05 billion kWh of electrici-/ty, equivalent to the average yearly consumption of 2,292 million Brazilians[32], or the average yearly consumption in 674,200 homes [33].

Therefore, if Brazil maintains its present automotive production rhythm, the large-scale introduction of agrofuels in the country will not alter significantly the negative consequences of this expansion.

Other "solution" to dodge the main question should be mentioned: on the one hand, reorientation towards collective and rail, river and coastal transportation; on the other, the urgent need to reduce production and marketing cycles which are extremely energy consuming and destroy local and regional economies

Considering the specific CO2 emission (carbon dioxide) one of the main greenhouse gases, in the production of raw steel is about 1,3439,000 per ton[34], its use in the manufacture of cars is responsible for around 2,828,000 tons of CO2. Just this impact would be enough to eliminate all emission reduction efforts proposed by PROINFA, the largest governmental program of Incentive to Alternative Energy Sources, that estimated it could prevent the equivalent of 2,5 million tons of CO2 per year through the generation of electric power using wind, biomass and small hydroelectric plants (PCHs).

32 cf. MME/EPE, 2007 o consumo médio anual é de 459 kWh/habitante
33 cf. IBGE, 2007 o número médio de habitantes por domicílio é de 3,4 para 2006
34 MCT - Primeiro Inventário Brasileiro de Emissões Antrópicas de Gases Efeito Estufa - Relatórios de Referência, 2006

The agricultural model: what rural development is this?

Soy and sugar cane are the two main raw materials used for agrofuels in Brazil. Together, these crops occupy approximately 29 million hectares, an area approximately the size of Italy. Also important are the so-called green deserts, eucalyptus and pine monocultures, the wood of which is partly used for fuel. Steel plants are the main consumers of this charcoal, as well as that from native trees.

In terms of area cultivated, these artificial forests today occupy the fourth place in Brazil, after soy, corn and sugar cane. In 2007 they covered 5,56 million hectares and their plantations are rapidly being expanded.

The monoculture model is characterized by the occupation of large continuous areas, artificial alterations through transgenic crop plantations, use of industrial fertilizers, intensive use of herbicides and pesticides, of heavy machinery, and agricultural aviation. Their presence is responsible for a long list of damaging consequences to the environment, among which we can mention: the pollution and decrease of available water sources, soil contamination by pesticides and herbicides, soil compacting by heavy machinery, destruction of native vegetation areas, contamination of rivers and springs, atmospheric pollution due to clearing cane plantation areas through burning, and destruction of biodiversity.

Increased mechanization is also reducing jobs. As well, these monocultures frequently occupy areas previously farmed by family farmers, who, as is well known, generate more jobs per hectare. Monocultures compromise not only the rural worker's income but also the production of his own food supply.

More and more foreign capital is being invested in the production chain of these crops, often in associations with Brazilian companies. The largest multinational food companies – Bunge, Cergill, ADM and Dreyfus, who for decades have dominated soybean production, are now investing in agrofuels, as are the large petroleum companies and international financial speculators.

Soy and sugar-cane are the two main agrifuel raw materials produced in Brazil. Together they occupy about 29 million hectares, an area approximately the size of Italy

Sugar-Cane

In the case of sugar-cane, areas closer to processing mills are generally leased to companies, who plant and harvest the crop themselves. With increased mechanization it is fair to assume that this process of concentration of large areas, and of smaller, leased areas, will continue. The issue of work conditions of cane cutters leads to a great dilemma. On the one hand, living conditions of the workers are often very precarious, and the work itself is grueling, endangering their health after only a few years. On the other, growing mechanization of this activity, in the absence of governmental policies to re-use this manpower, generates great unemployment.

In a recent study, José Marangoni Camargo of Unicamp´s Economic Institute, shows that between 1970 and 2000 tha agricultural sector of the state of São Paulo eliminated approximately 700,000 jobs – equivalent to 40% of the existing jobs at that period - and this tendency is still in course. According to the author the greatest effects were felt as from 1990. One of the most affected sectors, according to this study, was the sugar and alcohol sector. In the last fifteen years the use of machinery, especially harvesters, has greatly increased. A harvester does the job of one hundred workers. "In other words, any change in this segment's productive process may strongly impact agricultural indicators as a whole"[35].

Not only sugar-cane but the agricultural model based on monocultures and large-scale cattle raising yield alarming numbers, even for those who are aware of Brazil's social reality. In March 2007, the prisoners in Ribeirão Preto numbered 3,813, according to data of the State Penal Administration Secretariat (SAP). This is much greater than the rural population of approximately 2,000. "There has not only been an increase of slum areas, but also of agribusiness agricultural villages", denounces Edivar Lavratti, Regional Director of Ribeirão Preto´s, Landless Rural Worker Movement (MST)[36].

Defending against the invasion of sugar-cane

In the absence of any territorial planning or studies of impacts from the part of the federal government, some municipalities located in the areas where sugar cane plantations are expanding, are making their own legislation to regulate and reduce the negative effects of this expansion.

The municipality of Rio Verde, in Goiás, is an example of this. According to its mayor, Paulo Roberto Cunha, where there is cane, jobs are "fewer and the work harder". As informed by the Correio Braziliense, the town's authorities regulated this activity, determining that only ten percent of its arable land could be occupied by sugarcane plantations. The municipality is concerned in maintaining the cultivation of existing crops such as corn, cotton and soybeans that supply feed to the Perdigão industrial complex and generate more jobs and taxes in the region[37].

In Sacramento, located in the Triângulo Mineiro of Minas Gerais, legislation approved by the City Chamber in 2006 limits the sugar plantations to 20% of the municipality's total land area. Among other norms, it also establishes a minimum distance to springs, licensing norms, and also forbids the clearing of ground cover by burning in areas less than 10 kilometers from the town and less than five kilometers from any community, among other restrictions[38]. In Mato Grosso do Sul, the state government also restricted the planting of sugarcane in the Paraguay river basin.

35 Jornal da Unicamp, 10 a 16/09/08: Mecanização ceifa 700 mil empregos na agricultura nos últimos trinta anos em SP. Manuel Alves Filho
36 Agência Brasil de Fato, 01/04/07: Presos superam população rural em Ribeirão. Eduardo Sales de Lima
37 Correio Brasiliense, 29/04/07: Cana muda eixo da economia no Centro-Oeste. Luciano Pires
38 O Estado do Triângulo, 09/07/06: Lei limita a 20% a área a ser plantada de cana-de-açúcar no município

The States of Goiás and Paraná also plan to increase controls over sugar-cane expansion. In Paraná, the government announced that it will create an agricultural zone for sugar-cane, in order to prevent it from expanding into other crop areas and forests.

The clearing of cane plantations through burning, which occurs on approximately 80% of these, is the most visible environmental problem of this sector. The objective is to make manual harvesting easier, to reduce transportation costs and to compensate losses of up to 20% in the harvest. The greenhouse gases emissions resulting therefrom, together with particle elements and aerosols, exert great pressure on the climate and may contaminate distant regions from cane plantations. Consequently, the burning of cane plantations not only represent a grave environmental impact, but also are a health hazard to the population of neighboring municipalities[39].

Soy

Except in the South, soybeans are grown in Brazil on large plantations, with a growing concentration of ownership and use of land. There has been a growing tendency in the State of Mato Grosso – the largest national soybean producer –which has intensified over the last three years of crisis in the sector, namely the growing concentration of land in the hands of large farming and cattle raising groups that lease land owned by medium sized producers. The Mato Grosso Association of Soybean Producers (Agrosoja) foresees this type of activity will increase rapidly, with lease contracts for ten or more years

The volume of soybean production dominated by the large trading companies, allows them to amply control international prices. Argemiro Luis Brum, professor or Unijuí says that "these companies form a type of purchasing oligopoly and stipulate market prices". For him, the Chicago Commodity Exchange may even serve as a reference, but when it comes to the actual prices, these companies determine the trade margins. "This happens not only in their own businesses but basically, in all markets. In determining the bases of an operation formed with the cooperatives, they are also fixing the prices to be paid to the members of these institutions". These companies dictate the rules not only here, but in the U.S., Europe and in Asia as well [40].

The fundamental factors for the domination of grain markets by these large transnational companies is their capacity to finance grain production – including the purchase of seed, pesticides and equipment – and the fact that they have no logistic or distribution problems.

Bunge is the largest food company in Brazil, with an annual sales volume of US$ 9 billion. In this scenario, Brazilian soybean companies also have started to deal with multinational groups. Even the cooperatives, especially the ones with a lower exporting capacity such as those formed by family farmers in the South, depend on negotiations with these multinationals in order to access foreign markets. The same situation will probably develop with ethanol, since the Brazilian government has repeatedly been pressuring to make it a negotiable commodity in world markets. With this, the relative control the Brazilian government may exercise over ethanol prices in the internal market will also suffer. And so there is another large monoculture in Brazil under the control of multinational companies.

39 LASCHEFSKI e ASSIS, 2006
40 Folha de São Paulo, 06/03/05: Multinationals controls 55% of soybean harvest

Territorial conflicts: water and biodiversity

The transformation and utter destruction of complex and diverse ecosystems such as those of the Cerrado and Mata Atlântica is, sadly, what characterizes the sterile sameness of sugar-cane plantations, while at the same time is a warning scream against the unbridled expansion of agrofuels. In the present national scenario, where many speeches have been made in defense of ethanol production, it is necessary to understand the territorial problems and conflicts caused by the sugar-ethanol sector, such as: illegal deforestation, suppression of riparian areas, the practice of burning to clear land, contamination of water resources and excessive use of water.

The expansion of sugar-cane plantations is forcing the occupation of legal reserves, forging a new rural spatial order and reducing the availability of water due to its excessive use in plantations and mill operations. The amount of water used in washing cane, in the condensers and for cooling the vats represents one of the worst environmental impacts of cane agri-industry.

The sector, on average, consumes 1.83 m_ of water to process one ton of sugar-cane[41]. Thus, in order to achieve the enormous production of 2007/2008, approximately 895,196,962 m_ of water were consumed. Compared with the average household and commercial consumption in São Paulo State, one of the highest in the country with approximately 168 m^3/year[42], this volume is sufficient to supply over 5,329,000 households during one year, or approximately 18,650,000 people[43].

Water also plays an important role in agriculture since its scarcity significantly reduces productivity even of fertile soil. When used in irrigation, water guarantees yields in soils with lower chemical elements[44]. It is necessary to consider that crop expansion will require increased water consumption for irrigation or increased industrial processing of sugar-cane.

Besides this, the burnings on sugar-cane plantations lead to greater water consumption in urban areas, as confirmed by the data of the Ribeirão Preto Department of Water and Sewers, which show a 50% increase in water consumption during harvest periods due to the ashy soot dispersed through the air, which forces people to continually wash yards, sidewalks and clothes which get dirty as they are hung out to dry[45].

Therefore, agrofuels production can be perceived as representing the asymmetrical allocation of natural resources and the perpetuation of an excluding model in favor of capital gains, and makes environmental preservation and population welfare impossible.

Regarding the mandatory maintenance of a natural reserve area by the cane agri-industry, there is no systematic data on rural estates that obey this legislation. The only data available is INCRA´s registry of rural estates, based on information from the property owners themselves[46].

However, a study by Gonçalves (2005) found that, of the sugar-cane plantations analyzed in the Mogi-Guaçu river basin in São Paulo State, none respected the legal requirement to maintain a 20% of the property as a natural reserve area. The argument used by the plantation owners for disregarding the legislation, included a speech on the need to exploit more productive areas and preserve zones beyond their properties such as the Amazon, the Pantanal and national parks and protected areas.

The constant search for profits will thus lead the sugar-alcohol sector to commit major atrocities against the natural environment.

Similarly, in field studies carried out in areas of sugar-cane expansion, Assis & Zucharelli (2007) found that it is common practice in the sector, to ignore the legal requirements for maintaining permanently protected conservation areas, as witnessed by the following reports:

41 NETO, 2005
42 SNIS, 2006
43 This projection is based on the 2000 Census that counted 37,032,403 inhabitants for São Paulo State, and 10,364,152 households, or an average of 3.5 people to a home.
44 PRADO, 2005
45 MATTOS & FERETTI FILHO, 2000
46 BACHA, 2005

"Here you have a legal reserve buried in the midst of the plantation. So, with every burning during harvest, a little more of what should be preserved, disappears. You see no birds in these cane areas, this is an untouchable, poisonous, space". (Interview with a representative of the Rural Workers Union – Rio Brilhante/MG 01/12/2006).

"The sugar mills come in and finish everything off. By day you see the peppertree (aroeira), the Brazilian wine-palm (Mauritia vinifera= buritizeiro), and bits of woodland. Then comes the preparation of the land. By nightfall, everything has been cut down and buried." (Interview with P., a small rural producer - Uberaba/MG, 26/11/2006)

The expansion of cane monoculture, coupled with the lack of legal reserves, jeopardizes the reproduction of species and threatens the maintenance of the ecosystem's biodiversity. In a research carried out in the Ribeirão Preto region, one of the largest Brazilian cane producers, Ramos Filho & Pellegrini (2007) found that on one cane plantation, the woodland area had declined from 33,8% in 1962 to only 5% in 2003, while cane production doubled in the period. The data shows that cane expansion has caused innumerable impacts in the region, among such as: forest vegetation only exists in non-mechanized areas; soil erosion is visible with sediments being carried off to waterways and, finally, riparian woodlands and areas of permanent preservation are degraded or entirely deforested.

For these reasons, the practices adopted by the sugar-ethanol sector are very distant from the production of a socially just and environmentally sustainable fuel, as the sector's businessmen and government representatives would want us believe. The expansion of sugar-cane monoculture over large areas reorders land occupation dynamics and has negative impacts on the environment, the rural population's way of life and the use and allocation of natural resources. In this arena of struggles, Brazil excels in examples of extensive use of rich natural resources followed by the draining of the environment and rapid loss of profits due to this predatory economic activity. The model implanted for ethanol production has reproduced many of these errors, as well as making it impossible for rural communities to maintain their social and economic way of life.

Is sugar cane expanding only over degraded areas?

Concerned with defending itself against possible restrictions to exports of agricultural products, the Brazilian government and the associations of rural producers affirm that agriculture in general, and sugar cane in particular, will expand only into pasture and degraded lands.

Although there are no known serious studies on the matter – for example, where these degraded areas are located, what their situation is, how can they be recuperated and to what end - the numbers referring to such areas escalate, seeming to prove the existence in Brazil, of millions and millions of hectares of degraded land.

According to Embrapa, for example, there are 200 million hectares of degraded land areas in Brazil[47].

Are there plans for recovering the original vegetation? Absolutely not! According to Reinhold Stephanes, Minister of Agriculture, Brazil has approximately 70 million hectares of degraded land areas available for agricultural and cattle raising activities[48]. "Over 70% of the sugar-cane plantation expansion which occurred in the last few years, was in areas of under-exploited pasture land""[49].

And the Ministry for the Environment, through its director of territorial zoning, Roberto Vizentin, estimates there is a total of 30 million hectares of degraded land areas that could be destined for the expansion of ethanol production.

The Ministry of Agriculture recently launched

47 EMBRAPA, In the original: Embrapa technologies held in the recuperation of degraded areas www.embrapa.br – accessed on 01/08/08
48 O Estado de São Paulo, 02/07/08: Recuperation of pastures and sustainable agriculture will have R4 1 bi. Reuters
49 Folha Online, 24/06/08: BNDES to make available R$ 1 bi for soil recuperation program

the Agribusiness Sustainable Production program, with the objective to include "under-exploited areas in the productive process". For this, BNDES will make available R$ 1 billion during 2008/2009 to finance the owners of this land with subsidized interest. Since there is no precise definition of what is a degraded land area, the Ministry entrusted Embrapa with the evaluation of this matter, so that landowners could obtain the financing.

In so far as the existing agricultural model in Brazil is concerned, this "plentiful" areas of degraded land will only increase. In an abandoned area in the municipality of Santa Isabel, Pará State, Alfredo Homma, an Embrapa researcher, has this story to tell, just as an example: in the 1950´s the forest was cut down for timber. In the 1960´s, manioc and black pepper were planted. In the 1970´s and 1980´s extensive cattle raising occurred there. And since the 1990´s, the area has been abandoned[50].

According to the Instituto Brasileiro de Geografia e Estatística (IBGE) (Brazilian Institute of Geography and Statistics- IGS) between 70% and 80% of deforested land becomes pasture. This is due, in large part, to the government itself, that up to the end of 2007, gave credit to cattle raisers without any environmental control measures.

Cattle raising in Brazil, is one of the greatest causes for degradation. It is estimated that this activity presently occupies 200 million hectares, not counting abandoned areas. From 2003 to 2007, the Fundo Constitucional de Financiamento do Norte (FNO) (Constitutional Financing Fund of the North) made available R$ 1,9 billion through subsidized loans, to cattle raisers wishing to invest in pastures or cattle. A good part of cattle raising in the Amazon still expands into public lands. The invaders cut down the forest and take their cattle there in so as to guarantee occupation and latter, squatter ownership rights.

These areas with irregular squatters total 42 million hectares in the Amazon, equivalent to the combined areas of the States of São Paulo, Rio de Janeiro, Espírito Santo, Paraíba and Sergipe. Embrapa studies suggest that, due to the large offer of cheap, even free, land, it costs R$ 800 to deforest and form a pasture. It costs R$ 1,200 to increase the productivity of a similar sized plot of land. Deforestation is, therefore, "good business".

Today, we don't see neither manioc or black pepper planted in the newly devastated Amazon and Cerrado areas, but soybeans. The large monocultures in Brazil among which the largest are soy, sugar-cane and eucalyptus, cause the degradation not only of the areas cultivated, but neighboring areas as well.

This occurs even while sugar cane plantations seek to expand into more valorized areas, close to large consumer centers with existing or expected infrastructure, to transport the product. A good example is the State of São Paulo, where the Atlantic Forest disappeared years ago. If the concept of degraded land includes any area where the original vegetation no longer exists, then sugar-cane in São Paulo has truly expanded onto degraded lands, be they pasture lands or not. There are practically no more areas available in the State for new farming activities, and the expansion of one crop occurs in detriment of others. But is not only sgarcane that expands over larger areas in Brazil: soy, eucaliptus, corn and cattle are other agribusiness commodities which production has grown continuously. And this is now occurring in cheaper land areas, especially in the North, Northeast and Midwest.

In terms of fuels, individual transport corresponds to 75% of total consumption, while collective transport corresponds only to 25%, divided between bus (21%) and rail transport (4%).

During a field study in the State of São Paulo, Marcelo de Carvalho Dias, owner of the Cia. do Sal, producer of animal feed, and cattle raiser in Barretos, SP, was interviewed and confirmed this tendency: "One cow can graze on one hectare of degraded land in Brazil, even as degraded as it is, with the climate we have. Even so, 8 to 10 million head of cattle could be grazed in São Paulo. As soon as cane comes in, cattle goes out. The solution is to enclose the cattle, feeding it with products grown in the region, such as cane, orange and peanut residues, as well as sorghum and corn".

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50 Época magazine, 01/03/08: Why doesn´t anyone use this land? Juliana Arini

orange and peanut residues, as well as sorghum and corn".

The official numbers on the Brazilian herd confirms these declarations. The IBGE´s Study on Municipal Cattle Production published in 2006 refers to 2005 data. The numbers reveal that, while Brazil's herd as a whole increased 1,3%, relatively to 2004, those of various South Southeastern States like São Paulo, Minas Gerais, Paraná and Rio Grande do Sul, decreased.

4

Brazil: cattle herds by region (heads)-1995 to 2005

	1995	2005	% Variation
Brazil	161.227.938	207.156.696	28,5
North	19.183.092	41.489.002	116,3
Midwest	55.061.299	71.984.504	30,7
Southeast	37.168.199	38.943.898	4,8
South	26.641.412	27.770.006	4,2
Northeast	23.173.936	26.969.286	3,4

Source: IBGE

Data on beef exports from São Paulo State also confirm this view. Up to 2005, São Paulo exported 61% of the country´s beef. According to Carlos Cogo Consultoria Agroecômica, this participation fell to 49,9% for the ccumulated period from January to August 2007[51]. In the first six months of 2008, in spite that São Paulo also exports beef from other States, this participation again fell, to 46,7%.

Agro-ecological zoning: Identifying possibilities and hiding conflicts

The implantation of ZEE-Zoneamento Ecológico-Econômico (Ecological-Economic Zoning) is a fallacious attempt to harmonize capitalistic exploitation of nature with environmental preservation. Making use of scientifically based discourses to legitimize arbitrary territorial divisions and classification, it defines in practice forms for the use and appropriation of natural resources. The ZEE is based on ecological modernization – as understood to be the process through which political institutions internalize ecological preoccupations looking to reconcile economic growth and environmental problems, prioritizing market economy, technical and scientific management and the belief in a consensus for resolving conflicts[52].

Although the agroecological zoning of sugarcane has been announced by the federal government as a planning tool for expansion with scientific neutrality, in fact, it deals with supposed environmental, economic and cultural vocations of the areas which, in practice, are disputed between cane monoculture, other farming/cattle raising and key rural agricultural activities[53].

51 Gazeta Mercantil, 08/09/07: According to Consultancy, Brazil will be international agribusiness "next target".
52 ACSELRAD, 2000
53 Idem

A study carried out on zoning practices in the northern Brazilian States of Acre, Rondônia[54], and Amapá by Gutberlet (2002) concluded that this procedure was unable to anticipate or accompany local "development" expansion dynamics. The social and environmental transformations were so rapid, that the surveys became obsolete even before they were concluded or published.

Contrary to planning and containing territorial occupation, the diagnostics supply important information on the potentials of the regions studied such as agricultural capability, productive vocation, mineral resources, existing and/or planned infrastructure, soil declivity, among others. Considering that the zoning method of execution continues to follow the pervading static and homogeneous view of land, it is possible to view the agri-ecological zoning for sugar cane, as a method that, far from restricting the expansion of this monoculture, will act as a guideline for investments to exploit nature. Thus, it is impossible to accept the simplistic idea that specific ecological areas must perfectly correspond and be totally adjustable to economic spaces[55].

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The economic and ecologic zoning in Brazil was carried out as a technical interference project in land areas, and in general, neglected to include the participation of local communities, non-governmental organizations and social movements[56]. This is repeated in the case of sugar cane zoning practices, which are being done based on an economic-instrumental viewpoint directed at obtaining the maximum production capacity from a given area, at the same time ignoring social participation and the various existing ideas on the exploration and use of environmental resources.

The objectives of zoning for cane production is not to restrict the expansion of this monoculture, limit deforestation or concentration of land in the hands of a few. On the contrary, it is a map which through a single abstract-imaginary stroke, enables better investment possibilities to be visualized, serves as a guide for public financing, and creates an ecologic shielding for agrofuels. As the production of ethanol is linked to existence of infrastructure and closeness to consumer markets – both of which are located in the Center-South region, it is possible to see that plans for the expansion of sugarcane, following other zonings, will act much more towards a symbolic legitimization of ethanol than towards consolidating new forms of territorial occupation. Thus, it is clear that the Brazilian government must choose between a strategy that reduces zoning to purely economically based ends or another which serves as an instrument for constructing an all encompassing environmental justice[57].

In summary, recourse to zoning must be analyzed as a superficial, media oriented and symbolic answer to the profound impacts unleashed by the production of agrofuels. In this sense, the announced ban on the cultivation of sugarcane in the Amazon is rather a publicity response than a measure capable of curbing the conflicts in the region resulting from the displacement of farming activities, especially of cattle raising and soybeans, caused by the sugar alcohol expansion.

In the context of ethanol production, zoning is a means towards allaying naive international criticisms, preoccupied with processes for management and product certification in a scenario of increasing conflicts and threats to food and energy sovereignty. So, entry into world markets which becomes ever more feasible with the adoption of these environmentally accommodating measures can be identified with the overthrow of a truly autonomous and emancipating national project.

54 According to INPE data, in spite of the ZEE (zoneamento socioeconômico-ecológico) carried out by PLANOFLORO –Plano Agropecuário e Florestal de Rondônia, from 1991 onwards, deforestation in that State tripled on average between 1989-91 and 1992-95, when there was strong financial support for zoning, conservation units and environmental fiscalization (ACSELRAD, 2000)
55 AB'SABER, 1989
56 GUTBERLET, 2002
57 ACSELRAD, 2000

In like manner, the Zoneamento Ambiental da Silvicultura (ZAS) (Forestry Environmental Zoning) in the State of Rio Grande do Sul, has changed from being a guiding technical tool for plans for territorial and environmental licensing policies, to an instrument for political pressure and bargaining.

In 2005, due to the unprecedented expansion of eucalyptus monocultures following plans for occupying the Pampa biome on the part of three large pulp producing corporations – Aracruz, Votorantim and StoraEnso – the State government announced the development of ZAS. Soon after its publication at the end of 2006, it was attacked and questioned by associations and companies of the sector. Not because it restricted the size of sought after areas, but because it recommended limits to the size and spacing between the huge tree plantations, as well as regulating land use in accordance with the vulnerability of the "landscape units" so as to preserve them.

The year 2007 was marked by attacks by the media on ZAS and the technicians of environmental organs, by meetings of businessmen with the governor, by working groups formed solely by the government and the companies to present a counter proposal to ZAS. And finally, by a decision orchestrated in the Conselho Estadual do Meio Ambiente (CONSEMA) (State Environmental Council), to totally strip the proposal of its original characteristics, and approve an inoffensive ZAS that set no environmental limits for the plantations and forestry activities.

In 2008 legal battles caused the ZAS to be returned to CONSEMA for analysis of the scientific studies and suggestions of the State technical environmental organs. So the document is now going through legal channels, while in practice, the licensing and planting of huge areas of exotic tree monocultures have become a reality to fulfill company objectives and economic interests, completely sidestepping any of the guidelines suggested by the original ZAS document[58].

Today, the politicians of Rio Grande do Sul and of other States, are bargaining with the chief of staff cabinet for other thousands of hectares being considered for the national sucar-cane zoning, since this will also serve as further public financing that the States may apply for[59].

58 Núcleo Amigos da Terra/Brasil, 2008
59 Jornal do Comércio, 06/08/08: State to be included in sugarcane zoning – to take part in the national project does not mean that the gaúchos will have federal government insurance and credit.

Certification of agrofuels: a smokescreen to cover up unsustainable consumption

Despite the innumerable social and environmental problems analyzed up to now (and there are still many more), various agrofuels certification schemes are under way. In view of the obvious scale of their impacts, certification is presented as the magic formula, capable of guarantee agrofuels sustainability to international markets, or at least, not cause the loss of credibility of its good intentions.

More than this, based as it is on verification of product or production processes that conform with so-called "sustainability criteria", certification throwing the responsibility that agrofuels will live up to their promise of becoming a sustainable solution, to the producer countries. Therefore, it creates the myth that the responsibility for non-sustainability of agrofuels would lie with the incapability of the backward Global South for being responsible, sustainable and clean, satisfying best practices. In other words, this emphasizes the issue of climate injustice since it forces those countries less responsible for climate change to environmentally adapt themselves to a supposed solution so that industrialized countries can reduce the emissions of their transport sector, without reducing their consumption.

Besides the direct interest of the governments of exporting countries, such as Brazil, there are other segments involved, not to speak of the growing "industry" of certification institutions.

In the case of sugar cane, the industries benefitting most from the growing market of environmental adaptation are: agriculture equipment industries because, through increasing mechanization, they prevent the degrading manual labor involved in harvesting cane; biotechnology industries that develop new varieties capable of adapting to different regions, and transgenic species more appropriate for the production of ethanol; and also pesticide and other agrochemical inputs industries, the consumption of which increases with the agroenergy boom[60].

Here we come to a crucial point in the debate: the certification projects consider only the supposed quality of production without, however, addressing the problem of ever increasing plantation expansion. Neither do they consider the amount of land required for the production of agrofuels necessary to supply an increasing energy consumption, is at the core of the dispute between agrofuels and food.

The Inadequacies of Certification

A study carried out by the Friends of the Earth Europe, summarizes the main errors in the strategy for certification of agrofuels or animal feed commodities, based on an analysis of international proceedings such as the Round Table on Sustainable Agrofuels (RTSB), the Netherlands Cramer Commission, France's Initiative for Better Sugar and England's Renewable Transport Fuels Obligation (RTFO)[61]:

- The biggest environmental and social problems of monocultures are caused more by their present rate of expansion, than by their production processes. No certification project proposes solutions for impacts due to deforestation, loss of habitats or social conflicts caused by the displacement of cattle raising/agricultural activities to other regions;
- More far-reaching and urgent social problems such as higher food prices, caused in part by the competition between food and fuel, are not addressed by the certification projects;
- The certification schemes being developed are the initiative of consumer countries, ignored, boycotted or rejected by the great majority of people in producing countries, where communities directly affected by the impacts caused by the expansion of agrofuels are completely unaware of, and do not participate in the preparation of the so-called criteria for sustainability;
- These certification schemes are created for international markets. Thus, they do not affect monocultures or production processes which supply internal markets, as in the case of Brazil. This leads to a belief that the historic and well known problems or impacts of production processes in Brazil have been solved which further strengthens the argument that certification is a green smokescreen used to cover up the expansion of production.
- The certification projects are greatly dominated by international production and corporations involved in production and marketing corporations. The BSI, for example includes no member country of Mercosul, the world's largest sugarcane producing region, not even Brazil.
- It is questionable whether some day any of these schemes will be implemented or monitored. None of them has, until now, proposed the necessary operational requisites to guarantee that standards will be obeyed.
- Many of these projects lack transparency and information, particularly for the populations of producing countries.

60 Gazeta Mercantil, 26/03/2007: Sales records for manufacturers of sugarcane harvesters in Brazil are being broken every year; Valor Econômico 07/11/07: Sales of pesticides surprise, and Basf espects to expand 20%.
61 Summary of conclusions of the study: "Sustainability as a smokescreen – The inadequacy of certifying fuels and feed", FoE Europe, April of 2008

Because they believe that certification benefits only the above mentioned corporations, the majority of NGO´s and social movements in producing countries have decided to boycott this attempt for environmental adaptation by energy agribusiness through severe criticism.

For Brazil, whose cane based ethanol program has been in operation for over 30 years, the pressure for certification could have a positive effect. The attention focused on the country's production might lead to the adoption of long time debated social and environmental norms, erradicating with some national shames such as: the slave-like work conditions of manual harvesting, the uncontrolled discarding of sugarcane toxic residue "vinhoto" that pollutes surface and underground water sources, and the practice of burning cane straw, among others.

However, if only the sugarcane production areas are cosidered, other serious problems may also be included, such as the loss of jobs for manual harvesters with no new jobs being created, the migration of cattle raising to the Amazon and the Cerrado, the local and global increases in food prices, and many other matters discussed herein.

Bypassing all these problems and focusing only on a higher trade balance, the Brazilian government entrusted the development of the Programa Brasileiro de Certificação dos Biocombustíveis (PBCB) (Brazilian Program of Certification for Biofuels) to Inmetro. According to a draft of this Program, it is "being developed by Inmetro together with the with the participation of other segments, particularly biofuel producers and exporters, especially of ethanol, as well as various P&D and governmental bodies. This program will be coordinated by Inmetro with a view to supporting Brazilian exports of biofuels by means of voluntary and internationally recognized certification, demonstrating not only intrinsic product qualities, the percentage of energy and impurities it contains and, especially, the environmental and social sustainability aspects associated with its production"[62].

In order to understand what these certification programs are, Inmetro was also involved in the Programa Brasileiro de Certificação de Manejo Florestal (CERFLOR) (Brazilian Forestry Stewardship Certification Program), that today permits the certification of all Brazilian pulp exports. The Brazilian paper and pulp sector is one of the main targets of accusations on the part of communities, social movements and NGO´s in the country despite the ease with which the sector obtains CERFLOR or international – such as FSC (Forestry Stewardship Council) - certification seals of approval required by international markets.

Clarifying the Debate

In synthesis, the simplistic rhetoric directed towards the production of agrofuels – or its "backward" production in countries of the southern hemisphere – is what supports the proliferation of the certification industry, which requires many trips by specialists, hundreds of international meetings and consultations, the establishment of certifying companies and an entire business of certificates to validate the sustainability of industrial agricultural products and their marketing... – thereby distracting attention from the real problems that still await the urgent, in-depth transition towards a new truly sustainable civilization.

62 Cf. INMETRO, DRAFT-20/07/07, PROGRAMA BRASILEIRO DE CERTIFICAÇÃO EM BIOCOMBUSTÍVEIS-PBCP, PLANO BÁSICO

The conflicts between global and local Certification practices

An example of the conflicts resulting from certification is Plantar S/A, a company producing charcoal from eucalyptus in Minas Gerais, for the steel industry. It is one of the first companies that has sought financing through the carbon market from the World Bank's Prototype Carbon Fund – a fund created to finance pilot projects based on the Kyoto Protocol while MDL guidelines and procedures have not been agreed upon. The approval of projects for plantations is conditional on certification by the FSC. As a key requirement for solving social conflicts, the FSC has adopted the so-called "stakeholder" procedure in order to guarantee the participation of all interested parties, as well as insure the formal and traditional rights of the communities affected. Many human rights groups have associated themselves with the FSC, believing it would support a form of "fair market" initiative to benefit local communities. However, the creation of the FSC has not been developed without problems, as can be seen by the following studies:

1) The Rainforest Foundation published a report of nine case studies on certificated companies in Indonesia, Thailand, Malaysia, Canada, Ireland and Brazil, mentioning various problems.

2) The World Rainforest Movement (WRM) published another very important study on the certification of Plantar and V&M Florestal in Minas Gerais, showing that together, these companies own approximately 20% of total certified areas in Brazil.

These studies emphasize the lack of transparency and the modest and negligent application of FSC principles and criteria which are world wide considered to be the most strict. In almost all cases, environmental problems and conflicts with local communities were reported. Multinational companies, in particular, are benefitted to the detriment of traditional communities. In September 2003, of 1,276,298 hectares of FSC certified areas in Brazil, 72% were industrial plantations and 24% were areas of devastated primary forests, less than 3,8% were extractive projects of communities and indigenous organizations. The approval certificate is not, therefore, based on the traditional, comparatively less destructive, forest management.

Another problem is that, normally, the consultation activities of certification companies target representatives of governmental institutions, research organizations, unions, social and environmental organizations and opinion makers in general. This selection process is often arbitrary and does not include the different viewpoints related to certificated businesses. In countries like Brazil, this usually means the most influential groups, while directly affected local groups and individuals such as small producers and riverine populations, are excluded or simply ignored. The unequal and inadequate communication between certification institutions and local populations aggravates the situation still further. Public hearings are announced either over the internet or in newspapers, also, less frequently, over the radio. Thus, those without access to modern communications, particularly the rural populations who will be directly impacted by the projects, are not adequately informed[63].

Good intentions and disasters of the inclusion of family farming in Brazil's agroenergy policies

The Programa Nacional de Produção e Uso do Biodiesel (National Program for Production and Use of Biodiesel) launched in 2004, established various benefits to stimulate participation of family-based agriculture as well as to guarantee compliance with one of its main objectives: to generate income in rural areas. To this end, the Selo Combustível Social (Social Fuel Seal) was created and given to biodiesel producers purchasing a fixed amount of raw materials from family farms. Not only is this a requirement for participating in biodiesel auctions, it also guarantees fiscal exemptions. The mandatory mixture of 2% biodiesel (B2) with petroleum diesel as from January 2008, was altered in March of 2008, to a 3% (B3) mixture as from 1

63 ASSIS e LACHEFSKI, 2007

July 2008. The Program foresees that as from 2013, 5% of all diesel sold in Brazil will be biodiesel.

To attain the mandatory percentage an area of 840,000 m^3 was needed for B2, and now of 1,248,000 m^3 for B3, the production of biodiesel from soybeans has been increased to the present estimated 85-90% . The negative consequences of the original goal of including family farming, especially in the case of castor bean production in the Northeast, are evident. A decree of the Agência Nacional do Petróleo, Gás Natural e Biocombustíveis (ANP) (National Petroleum, Natural Gas and Biofuel Agency) greatly contributed to the exclusion of small producers of castor beans because the agency considered that this oil did not comply with the technical specifications defined by it.

The main results of the "social inclusion" may be defined as follows:

- the small producer cannot sell his harvest to different producers, being dependent on one sole buyer;
- the small producers have been invited to participate in such business ventures merely as farmers and feed stock supplier;
- an analysis of Pronaf loan portfolios shows that the government is omissive in encouraging the creation of biodiesel production cooperatives. The only objective of these loans is to guarantee the subsistence of family farmers on their property;
- the inclusion of family farming in the program was created to favor biodiesel industries. The use of family farm manpower allows these industries to operate with an additional profit margin and lower capital investments;
- there is no concrete initiative fostering the organization of small producers into de facto biodiesel producers (and not merely of raw materials), thereby achieving a more significant participation in the process– including in the technology.

One example of the disaster of the social inclusion of the PNB is described in the adjoining box:

The Santa Clara Settlement (PI)

On an area of 18,000 hectares which was donated by the government, and located between the towns of Canto do Buriti and Eliseu Martins in the south of Piauí State, the company Brasil Ecodiesel settled 630 families in 19 production cells. Each was given a house and a plot of land, 7,5 hectares of which for the cultivation of the castor palm, promising to turn over the land to the settlers after 10 years.

In the first year of the enterprise, 2005, 1,8 million tons of castor beans were harvested. Next year's harvest fell to 1,2 million tons. In 2007, a year of very little rainfall, only 643 tons were harvested. It is believed that half this tonnage will be harvested in 2008.

The settlers have no formal labor ties with the company. There are the so-called "partnership contracts", one referring to land ownership and an annual one to the harvest itself. The families sell their crop in advance and receive R$ 160 per month – the price per kilo is fixed by the company who deducts 30% for the planting done by their technicians. The settlers have all the responsibility for farming and harvesting the crop.

This practice has given rise to accusations of slave and child labor, and is being investigated by the authorities. The first investigation was filed after the company promised to adjust its policies, but a new audit has resulted in the company being charged.

Brasil Ecodiesel estimated that each partner would be able to harvest at least one ton of castor oil seed per hectare. In 2005 some farmers managed to harvest two tons per hectare. But productivity declined thereafter due to many factors including lack of fertilization and a worse quality of seeds, according to the farmers.

After the extremely low harvest of 2008, the small producers of the Santa Clara project survive on aid, depend on the basic food basket (cesta básica), and are convinced that the cultivation of the castor oil is bad business.

Brasil Ecodiesel itself is already looking for alternative crops to castor beans and is experimenting with other plants such as sunflowers and jatropha curca. But these are preliminary initiatives since there is very little detailed technical knowledge on alternative crops.

As a result of the company's failure, its biodiesel producing plant in Floriano, 260 kilometers from Teresina, Piauí´s capital, is operating at a slow pace and with the lack of castor beans, is basically using soybeans as the sole raw material. Santa Clara presents a picture of abandonment, with many families leaving the area and the houses built at the start of the project empty and roofless.

64 Sindicom- Sindicato Nacional das Empresas Distribuidoras de Combustíveis e Lubrificantes, 2008

The picture of 'social inclusion' is no different in the case of ethanol production from sugar cane. The original version of Proálcool foresaw that no plant could process more than 50% of its own cane production, and had to purchase at least 50% of the raw material used from other producers. This instrument foresaw (and prevented) what is one of the most negative points of the present Proálcool – the monopolization of land by sugar mill owners – was suppressed, in order to obtain IMF loans at the end of the 1980´s.

The 2005/2006 harvest, only 39% of producers were responsible for the total output of grounded cane (MAPA 2007). This figure must be viewed with caution because not all the cane originated from family farmers, and does not refer solely to ethanol production but to sugar cane in general – i.e. used for both sugar and ethanol production. In any case, the data shows how the original Proálcool mechanism came to be slowly abandoned in favor of monocultures.

Cane alcohol is not the only alternative to be considered. One fuel production process from biomass, originally considered manioc due to its higher ethanol content. Small producers could plant manioc for sale to a mill, and still avail themselves of carbohydrates in their diet, while at the same time, using the manioc leaves as a source of protein, the farmer could raise a few heads of cattle.

Contrary to plans of the original project, today a few large mills (325 in total) grind up approximately 420 million tons of cane (2006/07 harvest), concentrating wealth and overburdening transportation logistics.

However, a promising example of social inclusion is described in the adjoining box:

The PETROBRAS COOPERBIO Partnership (Rio Grande do Sul)

In partnership with Cooperbio of Rio Grande do Sul, Petrobras has been developing a small decentralized alcohol production project, also connected to food production, where 330 families of farmers, members of the cooperative, are participating in this initiative, each with up to two hectares of land.

The raw materials used for ethanol production are sugar cane, manioc and sweet potato. Milk and vegetables (beans and peanuts) will be produced for food. Cooperbio will also produce fuel in micro-mills for local use, with excedent production being purchased by Petrobras Distribuidora. The sub-products will be used for cattle feed and fertilizers. Additionally, seventy hectares of energetic forests will be planted (jatropha, tung, and eucalyptus) also for the production of fuel, as well as oleaginous crops combined.

Ethanol plant - COOPERBIO

archive COOPERBIO

Diversification and localization: a less dependent, more energy self sufficient agriculture - the real solution to the food and climate crisis

The food and energy crisis encouraged a series of new studies of the present model of agriculture, characterized by the high consumption of petroleum. These studies have made clear the challenges of a transition to an agricultural model where production and distribution that would consume less energy, would drastically reduce its contribution towards global warming and contribute to the preservation of natural resources such as soil, water and biodiversity.

In 2008 it was published the International Agricultural Analysis of Science, Technology and Development (IAASTD), a three year study on the state of industrial agriculture . The study proposes a new direction for the development of agriculture.

The IAASTD study demonstrates that large scale industrial agriculture is unsustainable due to its dependence on cheap petroleum, has negative impacts on ecosystems, and aggravates water shortages. Therefore, monocultures will have to be substituted by ecosystems that combine food production with the preservation of biodiversity, prevent contamination of water sources while, at the same time, assuring a food supply for poorer populations.

This study was the work of approximately 400 scientists and other agriculture specialists, in collaboration with the most important academic and business research centers as well as of international organizations such as the World Bank. The final analysis, supported by 60 countries, confirms other studies which emphasize the urgent need for changing the present model of agricultural production.

Firstly, the Millennium Ecosystem Evaluation found that 15 of the 24 planet's natural ecosystems display serious problems largely due to soil and water degradation, as a result of industrial agriculture.

Secondly, the Intergovernmental Panel on Climate Changes (IPCC) concluded that agriculture is a large contributor to global warming induced by human activities, while at the same time these changes will greatly impact farming productivity. "If we concentrate only on increasing food production, we shall merely succeed in increasing environmental degradation" [66].

Thirdly, we have the above mentioned IAASTD study that attempts to find ways to increase the sustainability of agriculture and small scale production, for which there is no financing for research. The final document is a guide for governments with respect to the future of agricultural development.

In summary, the report clearly states that the increases in productivity with industrial agriculture were achieved at unacceptable social and environmental costs. The study affirms that: "modern agriculture has led to a significant increase of food production. However, the benefits have been inequitably distributed at an ever increasing price to small farmers, workers, rural communities and the environment".

Fourthly, the World Bank's Annual World Development Report can be mentioned. After 26 years of silence, the Bank reports on the issue "Agriculture for Development". The report indicates that agriculture may have an especially important role in reducing poverty, and cites studies demonstrating that growth generated by agriculture was 2.7 times more effective than growth generated by other sectors[67].

Within the U.N. system, the IAASTD is the agricultural equivalent to the IPCC, that, as the highest scientific authority, recognized the reality of global warming and its anthropogenic cause. With the same weight, the IAASTD with its important and strong scientific arguments has recognized that industrial agriculture is not the solution to hunger, poverty and global warming.

65 IAASTD, 2008
66 WATSON, 2008

More than this, the document does not only refer to agriculture for agri-industrial exports. "The best way to reduce poverty through agricultural development is to increase the productivity, profits and sustainability of family famers". According to the authors, this presupposes improved minimum price guarantees, more public and private investments, the development of markets for this production, better access to financial services and the lower exposure to risks for the sector, strengthen producer organizations, by promoting innovation through more research and development, and making agriculture a more sustainable activity so it can provide the necessary environmental services.

The document also emphasizes that the government should actively involve itself, that the sector is castigated by multiple "market failures", and that it should be supported by more than social protection programs to stimulate output of family agriculture as well as diversified rural development, not only for the agricultural but for the non-agricultural sector. Unfortunately, as expected, the World Bank goes on to confirm that the best way to achieve these objectives is to maintain and expand free trade.

The main arguments of the IAASTD

• Certain scientists speak of a "catastrophe in slow motion". This view is explicit in the IAASTD document. The conclusion is simple: the expansion of extensive monoculture, with largescale use of chemicals and irrigation is leading humanity to structural impasses.
• Expensive and monopolized seeds, cartel trade circuits, heavy technology developed for large monocultures, soil sterilization, the depletion of aquifers; all these tendencies are presented in all their current and alarming vicious circle aspects.
• It is the model that is unbalanced and this is destroying the bases of family farming, which is still the main activity of half the world's population.
• ∑ The document's proposal supports family farming and social structures for rural survival, and reinstates the value of innovative technologies in conformity with traditional processes. It also recommends the adoption of small properties and agri-ecological forms of agriculture as a means to combat the present world food crisis and supply the needs of local communities, declaring the knowledge of indigenous and local populations as important as formal science.
• ∑ The text strongly criticizes current agricultural practices as well as the industry of biotechnology with their transgenics. A fundamental fact is that the analysis found no conclusive evidence showing that transgenic products increase productivity. This is undoubtedly why the governments of the U.S. Canada and Australia all of which are in favor of transgenics, refused to approve the study, and the biotechnology industry left the project, despite its substantial contributions from the start[68].

The need for a new energy policy in times of Peak Oil and the growing consciousness and reality of climate change is indisputable. And this must be accompanied by broad agrarian reforms, new rural/urban relations, de-urbanization – to reduce pressure on local natural resources and distribute food and energy demands over larger land areas. All this requires the development of an alternative project to a petroleum-dependent agriculture. For this, it is necessary to include the topic of energy in political debates on the organization of production and consumption for a post-petroleum era.

The failure to deal with the current world food crisis is a proof of the failure of de-regulating agricultural markets over the last thirty years. The urgency to implement rules for a trade system under new principles, guided by objectives such as the development and strengthening of local economies and local markets, agroecological agricultural systems, acceptable and healthy work conditions, and food sovereignty are real solutions that will result in a stable food production and distribution to meet global demands for healthy, culturally appropriate and accessible food.

67 World Bank's 2008 World Development Report
68 The U.S., Canada and Australia were the only countries present at the meeting not to sign the document, alleging it was "unbalanced". They accused the authors of being partial, but curiously, they only made these criticisms after the text was published – all three countries participated in the process of choosing the authors of the documents (source: Greenpeace)

PART III

Energy Sovereignty in the transition to post-oil societies

To dissipate the fantasies surrounding agrofuels and to adopt a critical view of agroenergy is the "way forward" to address energy sovereignty. It is true that building energy sovereignty demands a process of localization of the economies and decisions on the strategic direction of territorial development. And these decisions should include the participation of the respective populations. Furthermore local, renewable, decentralized and popular sources of energy should be adopted. Even if in a post-oil society various agroenergy sources are to be used, it will be necessary to broaden this debate in search of an integral view of the global energy scenario, the diversity of sources and alternatives, options and ways to handle demand as well as the social, economic and environmental implications brought about by this transition.

To overcame dependency is so radical that the great challenge at this time is to think about a post-oil civilization. We must rethink not only new social relations, but new ways of "being" in humanity over this planet. Historically, the industrialization powered by fossil energy (petroleum, gas and charcoal) has decisively contributed to the unprecedented increase of global warming emissions, climate change and global warming. Up to now, this has been undoubtedly the greatest collective danger facing the human specie and to the continuing existence of all other life forms on earth.

Energy policies cannot be dissociated from environmental policies, not in terms of minimizing impacts, but in terms of re-thinking the natural limits of our energy demands as a whole, before the planet suffers an irreversible environmental "blackout". And how do we re-think an energy policy in the midst of peak oil and growing awareness and manifestation of climate changes that impose a veritable tyranny of "energy security", and of the false, though "green", solutions?

It is necessary to reveal the illusions surrounding agrofuels. The publicizing of global viewpoints and criticisms which have so far been the subject of debate contributes to politicize the debate on agroenergy in general, and ethanol in particular. These are the elements needed to qualify the inconsistency of the Brazilian government's current energy policy.

With the recent discoveries of petroleum in the so-called pre-salt stratum, the Brazilian government has started to imagine the possibility of supplying the world not only with agrofuels, but with petroleum: the poison and the "antidote" in the same bottle.

Contradictions exist also at domestic level. In the midst of energy shortage, electrical energy intensive aluminum, steel, paper, pulp and other industries, rapidly increase their output, almost always with governmental support through the BNDES. To lessen the impacts of this unbridled growth, the government responds with mega projects, flamboyant structures to generate more energy, together with their well known negative impacts. Over half the resources of the Programa de Aceleração do Crescimento (PAC) (Program for Accelerated Growth) will be invested in the production and distribution of energy between 2007 and 2010.

In the Amazon, the government is planning the construction of projects such as the hydroelectric plants of Jirau and Santo Antonio on the Madeira river, and of Belo Monte on the Xingú river. The construction of charcoal production plants are also planned in the South of Brazil and the coast of the Northeast, associated with projects for steel mills and ports. The resuming of construction of the Angra 3 nuclear power plant was recently announced, together with an ambitious continent-wide South American nuclear program[69].

69 See: Agência Estado, 24/08/2008: Brazil and Argentina to create binational nuclear company. Accoding to the article, "the Brazilian government calculates that between 12 and 15 nuclear power plants will be operating in South America up to 2030". And it goes on: "besides the plans of Chile, Uruguay, Peru and Venezuela to install nuclear plants, Argentina today has 2 working plants (Atucha 1 and Embalse, the working life of which will be extended beyond 2011), plans to conclude Atucha 2 by the end of 2010 and build 2 other plants."

In the words of Washington Novaes, "sometimes it is difficult to evaluate political reality in Brazil, such are the contradictions between the various agents or words and actions. This is true of the present reality. Never has sustainable development been so discussed, never have so many opposite directions in such important areas been traversed"[70].

Energy from what source, for whom and for what?, we may ask. Far from being genuinely concerned about global warming, alternative sources, efficiency and decentralization, for example, in Brazil energy is becoming more and more a business venture oriented towards exports and to guarantee supply contracts for ever more avid consumers in the North –mortgaging the environment in future markets negotiations.

The illusory dictum "Brazil, the country of the future", refers to a deeply rooted image in political rhetoric (from the righ and left alike) which is fixed in people's imagination. "Development" and "growth", it must be remembered, are fabricated ideas which have become ends in itself.

To fully assume the challenge of seriously thinking-through energy and to build up energy sovereignty within the context of social movements, is an urgent and collective task, which can unite struggles, as has been the case, for more than a decade, of the development of Food Sovereignty – the guiding principle of proposals originating within social movements and civil society in the fight against the hegemony of agribusiness.

70 Estado de São Paulo, 08/08/2008. Much noise, much ado. Washington Novaes


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ABBREVIATIONS

ANFAVEA – Associação Nacional dos Fabricantes de Veículos Automotores
ANP - Agência Nacional do Petróleo, Gás Natuarl e Biocombustíveis
ANTP - Associação Nacional de Transporte Público
Aprosoja - Associação dos Produtores de Soja de Mato Grosso
BNDES - Banco Nacional para o desenvolvimento Econômico e Social
BSI - Better Sugar Institute
CBI - Carribean Basin Initiative
CDB - Convenção da Diversidade Biológica[
CERFLOR - Programa Brasileiro de Certificação de Manejo Florestal
CPDA-UFRRJ - Programa de Pós-Graduação de Ciências Sociais em Desenvolvimento, Agricultura e Sociedade da Universidade Federal Rural do Rio de Janeiro
CPT – Comissão Pastoral da Terra
Embrapa - Empresa Brasileira de Pesquisa Agropecuária
EPE/MME - Empresa de Pesquisa Energética do Ministério de Minas e Energia
EU - European Union
FAO - U.N. Food and Agriculture Organization
FASE - Federação de Órgãos para Assistência Social e Educacional
FNO - Fundo Constitucional de Financiamento do Norte
FSC - Forest Stewardship Council
GESTA-UFMG - Grupo de Estudos em Temáticas Ambientais da Universidade Federal de Minas Gerais
IAASTD - International Agricultural Analysis of Science, Technology and Development
IBGE - Instituto Brasileiro de Geografia e Estatística
IBS - Instituto brasileiro de Siderurgia
IEE-USP - Instituto de Eletrotécnica e Energia da Universidade de São Paulo
Inmetro - Instituto Nacional de Metrologia, Normalização e Qualidade Industrial
IPCC – Intergovernmentl Panel on Climate Change
IPT - Instituto de Pesquisas Tecnológicas da USP
MAPA - Ministério de Agricultural, Pecuária e Abstecimento
MDA - Ministério de Desenvolvimento Agrário
MDL - Mecanismo de Desenvolvimento Limpo
MMA - Ministério do Meio Ambiente
MST - Movimento dos Trabalhadores Rurais sem Terra
NAE - Núcleo de Assuntos Estratégicos da Presidência da República
NAT - Núcleo Amigos da Terra
OECD - Organization for Economic Co- operation and Development
PBCB - Programa Brasileiro de Certificação dos Biocombustíveis
PCHs - pequenas centrais hidroelétricas
PROINFA - Programa de Incentivo às Fontes de Energia Alternativa
RTFO - Renewable Transport Fuel Obligations
RTSB - Round Table on Sustainable Biofuels
SAP - Secretaria de Estado da Administração Penitenciária do estado de São Paulo
Sindicom - Sindicato Nacional das Empresas Distribuidoras de Combustíveis e Lubrificantes
U.N. - United Nations
ÚNICA - União da Indústria de Cana-de-Açucar
Unicamp - Universidade Estadual de Campinas
Unijuí - Universidade Regional do Noroeste do Estado do Rio Grande do Sul
WRM - World Rainforest Movement
ZAS - Zoneamento Ambiental da Sivicultura
ZEE - Zoneamento Ecológico-Econômico

New roads to the same old place:

the false solution of agrofuels

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