The Ecological Debt Of Agro-Fuels

Mónica Vargas Collazos[1]

> Most of us are food producers and are ready, able and willing to feed all the world's peoples...
> —Declaration of Nyéléni , Forum for Food Sovereignty, Mali, 27 Nov 2007

2007 may well pass into the history books as the year in which agrofuels shot to fame. Not only has the media boosted this "alternative" as way out of the planetary environmental crisis, but it has also received significant incentives from governments of the core countries. The combined effect of this has been an acceleration in the production of these fuels. We seek to consider this issue from a starting point that is based on a comprehensive perspective which takes into account diverse areas, as we feel this is necessary in order to carry out reflection in a responsible manner. We situate our analysis within the paradigm of ecological debt, defined as the debt contracted by the industrialized countries to the rest of the world's countries, due to the ongoing plundering of natural resources which has its roots in a history of plunder, as well as due to the environmental impacts exported and the free use of global environmental space. This debt is closely intertwined with the capitalist mode of consumption and production (Ortega, 2007: 20).

---

1 Social Anthropologist. Researcher at the Observatorio de la Deuda en la Globalización [Debtwatch]], UNESCO Chair in Sustainability (Polytechnic University of Cataluña) monica.vargas@odg.cat. This article was previously published in Spanish in the book *Agrocombustibles. Llenando tanques, vaciando territorios*, 2007, Censat Agua-Viva, Bogotá. Permission for translation and reprinting has been obtained by both the author and Censat. It was translated to English by Kolya Abramsky.

A Miraculous Solution

Perhaps one of the predominant features of contemporary globalisation is the fact that it is generating problems which concern humanity in its entirety and which are now starting to be officially recognized. Two global themes have been reiterated throughout this year, from the meetings of the G8 and the World Economic Forum to United Nations forums: climate change and hunger. After years of intense debate in which scorn was poured on even the minimalist goals established by the Kyoto Protocol, in February 2007 the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) finally formally established that human activities are responsible for 90% of climate change. Meanwhile, the United Nations Food and Agriculture Organization has stated that more than 850 million people in the world are currently suffering from hunger, and they project that by 2015 there will be 100 million more. If we are to take at face value all the talk from all those who are actively promoting the development of agrofuels,[2] it would seem as if therein lies one of the most suitable responses to these twin problems. So, what does this miraculous solution consist of? The production of biomass based fuels is currently concentrated in bioethanol and biodiesel. Bioethanol is obtained from products which are rich in sucrose (sugar cane, molasses from sweet sorghum), from substances which are rich in starch (grains such as maize, wheat or barley), and also through the hydrolysis of substances which contain cellulose (wood and agricultural wastes)[3]. Provide that motors have been previously modified, these fuels can be used to replace gasoline. Biodiesel, on the other hand, is made from vegetable oils (from oil palm, rape, soya and jatropha) or from animal fat. It is destined to replace petrol and can be used either in pure form or as part of a mixture.[4]

Based on the perception that agrofuels would not increase the concentration of CO_2 in the atmosphere, a perception which is currently under fire from many different directions, several countries have legislated in favour of obligatory use of these fuels in the transport sector. However, the necessary production capacity is not yet readily available. Preparations are afoot to make at least 30% of transport fuels in the US come from agrofuels (especially ethanol) by

2 We deliberately avoid using the term “biofuels.” Instead, we adopt the position taken by the hundreds of peasant organizations that met at the Forum for Food Sovereignty in Nyéléni which asserts that we are dealing with an industry which constitutes an aggression towards the environment.

3 Essentially this refers to second generation agro-fuels. These will be discussed later in this article.

4 For example, diesel qualified with the term B30 indicates that it contains 30% biodiesel (GRAIN, 2007).

2030. This would require an annual production of 227 million litres. The percentage of US maize production devoted to bioethanol increased from 6 to 20% between 2000 and 2006. However, it will have to devote virtually all of its crops to fuel production if these fixed targets are to be met.

For its part, the European Union has opted in favour of four types of incentives, all of which rely on public resources. These are: agricultural subsidies within the framework of the Common Agricultural Policy, tax breaks, the obligation that transport fuels must contain at least 5.75% biofuels (biodiesel or bioethanol) in their mix by 2010 and double this figure by 2020 in transport fuels, and finally the undertaking of pilot projects by public transport companies. It is striking that, given the fact that transport constitutes 30% of total energy consumption, the 5.75% target corresponds to a mere 1.8% of total consumption. This gives rise to real savings of 36 million tons of CO2 equivalent, a figure less than 1% of all European emissions (Russi, 2007). Europe currently produces 3 million tons of biodiesel, and aspires to reach 7 million by 2010. This would require 13 million tons of raw materials, and relies on the medium term capacity of second generation lignocellulosic waste-based fuels to supply 30% of these consumption needs. Furthermore, Europe does not have sufficient land to fulfill these goals. This can be seen with the example of Great Britain, which if it is to meet the 2020 target, would have to utilize virtually all of the country's cultivable lands (Redes-AT and Grain, 2007b). Thus, the EU countries will resort to importing either the raw material base or the agrofuels themselves. The European Strategy on Biofuels asserts:

> Biomass productivity is highest in tropical environments and the production costs of biofuels, notably ethanol, are comparatively low in a number of developing countries.... Developing countries such as Malaysia, Indonesia and the Philippines, that currently produce biodiesel for their domestic markets, could well develop export potential.

On top of all this, Free Trade Treaty between the European Union and MERCOSUR which is under negation is being heralded for the favourable impact which it will have in terms of opening up the bioethanol market[5]. In order to meet this demand, production of the required commodities is taking off in countries with an abundance of high quality land. This includes Brazil, Argentina, Colombia, Malaysia and Indonesia.

5 European Strategy on Biofuels, (Brussels, 8.2.2006, COM(2006) 34 final)

Toward Bio-Business

All of this clearly opens up some very juicy business possibilities. This is the only real explanation behind the fact that large transnational companies' are pursuing agrofuels from many different directions (Rulli and Semino, 2007). We are living through a moment of unprecedented convergence between different corporate sectors, including the petrol, automobile, food, biotechnology and financial sectors. And, this is despite the fact that many of these very same companies have obtained profits in the millions through generating climate change.[6] Now they are set to reap even greater profits through its "mitigation." BP has made an agreement with the biotechnology company DuPont in order to provide the British biobutanol market; ConocoPhillips has signed contracts with meat producers to produce biodiesel from animal fat or invest in jatropha crops. Biotechnology companies such as Monsanto or Syngenta are intensifying their production and research into transgenic seeds, at the same time as Ford, Daimler-Chrysler and General Motors are all preparing to sell over two million bioethanol fuelled cars in the coming decade. Wal-Mart plans to sell agro-fuels in its 380 US shops as part of its standard sales, and companies in the food sector are establishing integrated networks in order to control the entire production chain from seeds all the way to transport.[7]

In the Spanish State, Repsol YPF is flirting with the seed company Bunge together with the construction company Acciona in order to establishing a biodiesel plant at the Bilbao port. In addition to this, the Spanish petrol company, together with fourteen other companies including Acciona and Sacyr Vallehermoso, has received 22 million Euros for a research and development project about biodiesel. The money has been provided by the Spanish Ministry of Industry, Tourism and Commerce, by way of the Centre for Industrial Technological Development (Centro para el Desarrollo Tecnológico Industrial (CDTI)). In a similar vein, Abengoa has received 300 million Euros in research and development of new technologies for the production of bioethanol over the next four years, in order to make its costs competitive. Close examination of the agro-fuel production plants in this country also reveals investments by large companies such as the petrol company Cepsa (of which 48% is controlled by the French petrol company Total, 30% by the Banco Santander Central Hispano and 5%

6 According to the magazine *Revista Fortune 2007*, the profits of the ten leading transnational companies exceeded 119. 691 billion Euros (more than 10 times the GDP of the USA). Six of these are petrol companies, three are car companies and one a leading provider of commodities and foodstuffs.

7 For an exhaustive examination of the global companies with the largest investments in agrofuels, see: (GRAIN, 2007)

by Unión Fenosa) and of the food/agribusiness giant Ebro Puleva.) Thus, the five companies with the largest volume of agrofuel production in the Spanish State met in 2006 a combined total of 88% over the total of production (Binimelis, Jurado and Vargas, 2007).

However, while it may be crystal clear that agrofuels are a good business, it is far less clear whether or not these energy crops will contribute effectively to the reduction of emissions and to the improvement of living conditions of the most impoverished populations of the planet. In order to answer this question, let us (without claiming to be exhaustive in our coverage) now turn consider some of the consequences of mass production of these fuels.[8]

Agriculture and Climate Change

Agrofuels are creating a close and peculiar relation between climate change and the world-wide problem of malnutrition at the global level. The large scale production of these fuels in response to the new demand from Centre countries is inevitably resulting in a further industrialization of agriculture, and the consequent advance of the deforestation due to soya cultivation in the Amazonia. A report by NASA in 2006 actually established the correlation between the price of soya and the level of destruction of the Amazon rainforest. Similarly, the last twenty years have witnessed Indonesia lose a quarter of its forest cover to palm oil plantation, which have gone from 600,000 hectares in 1985 to 6.4 million hectares in 2006.[9]

And so, the idea of recommending boosting agroindustry in order to mitigate the effects of climate change resulting from deforestation is ridiculous. Today's agricultural model is petrol-based, from the production of chemical inputs all the way to the transport of goods. Furthermore, as the *Stern Report* drew attention to, agriculture and changes in land use (deforestation) count for 14 and 18% respectively of all greenhouse gas emissions (Stern, 2006). In particular, the conversion of the forests into cultivated lands, the use of nitrate fertilizers, the large scale cultivation leguminous crops such as soya and the decomposition of organic wastes all have been identified as responsible for emissions the third green house gas, nitrous oxide. In

8 For example, here we do not deal with the close relation between agrofuels and the growth in transgenic crops. Detailed analysis of this question can be found at the following websites: http://www.etcgroup.org , http://www.biodiversidadla.org , and http://www.grr.org.ar .

9 For some this expansion has meant excellent business. The Malayan business groups Sinar Mas and Raja Garuad are both major players in palm cultivation, biodiesel production and timber exploitation (*Biofuelwatch*, Carbon Trade Watch/TNI, Corporate Observatory, 2007).

Brazil alone, 80% of the emissions come from deforestation caused by the expansion of soya and sugar cane crops. Additionally, it is estimated that the destruction of peat linked to monocultures will give rise to the release of roughly 40 billion tons of carbon into the atmosphere (GRAIN, 2007). Finally, according to FAO, rice production is the single human activity which generates the largest source of methane. 130 million hectares of rice paddies produce between 50 and 100 million tons of methane per year. Thus, we are trapped in a vicious circle, since the FAO also has expressed its concern over the negative impacts which climate change has on agriculture and access to food in the poorest countries (FAO, 2007).

Rising Grain Prices and Speculation

According to the Coordination of Agricultural and Animal Husbandry Organizations[10] (COAG), public subsidies for energy crops drive grain producers to devote their land to agro-energy crops rather than animal and human food production. In the Core countries, this situation is particularly worrying to the livestock sector. Let us recall, 70% of the planet's agricultural lands are devoted directly or indirectly to rearing animals and the production of animal feed alone requires 33%. Cereals represent 55% of the production of animal feeds. Thus, taking the Spanish State as an example, of the 30.6 million tons of grains consumed, 23 million are for animal feed (pigs in particular). The other side of the coin is that Spanish production represents just 15% of the European total, the European Union being the world's second biggest producer of animal feeds. Cultivable lands are simply not available domestically on a sufficient scale to supply the raw material, and so a large proportion of Europe's grains are being imported from the USA (maize and soya), Brazil and Argentina (soya) (COAG, 2007).

Recent years witnessed a contraction in grain supplies owing to unstable production which was in part tied to adverse weather conditions. However, the demand has not stopped growing, particularly in the United States due to increased production of maize based bioethanol. On the other hand, the continuously rising barrel oil price is having a major impact on the logistical costs related to agricultural production (inputs and transport). In this context, the prices of grains are skyrocketing. This is especially so for maize, which constitutes the grain base in animal feed formulas. At the same time, the production of yellow maize for ethanol use has increased, to the detriment of

10 Coordinadora de Organizaciones de Agricultores y Ganaderos; COAG, Spanish State

white maize which is used for human consumption. This has made the sector an interesting market for speculative capitals. In early 2007, this resulted in the so-called "tortilla crisis." The United States has embarked on a major programme of building bioethanol factories. However, this coincided with a slight reduction of maize production and consequently resulted in a reduction of US stockpiles. These stockpiles represent 40% of the world's reserves.[11] This situation allowed the world's most important grain trader, Cargill, to speculate and sell futures in Maize to energy companies. Alarmingly, this speculation was responsible for a doubling of the price of maize tortillas in Mexico (Llistar, 2007).[12] As far as the oil consuming sectors are concerned, an unequal competition between cars and human beings is also emerging. Indonesia , which is the world's second largest oil palm producer, is a telling example. Henry Saragih, Secretary General of the Federation of Indonesian Peasant Unions (FSPI), asserts that the rise of agro-fuels means that companies such as IndoAgri and London Sumatra now expect to expand their plantations to 250,000 hectares by 2015. Approximately 1.5 million tons of palm are exported to the European Union where they are converted into agrofuels. Meanwhile, people in the producer country are faced with a shortage of palm oil for cooking with. This is one of the dietary staples in Indonesia (Saragih, 2007).

Faced with this reality, the United Nations Special Rapporteur on the Right to Food has observed that "the production of agro-fuels is inadmissable if it brings more hunger and water shortage to developing countries." He went on to recommend a fiver year moratorium on the their production (UN, 2007).

Social Impacts: From Plunder to the Destruction of Quality of Life

By its very nature, the industrialization of agriculture has proved to be a social failure in several countries. Bolivia, Guatemala, Honduras and Paraguay present us with a serious paradox: food crops make up a high percentage of the countries' exports, yet at the same time malnutrition is taking on a structural character (Gudynas, 2007).

11 It is predicted that by 2012 the volume of maize which the US devotes to agro-fuels might be double that going to export. This will mean its maize supplies will be reduced and prices will continue to rise (COAG, 2007).

12 Since the signing of the North American Free Trade Agreement (NAFTA), Mexican consumption of this basic good has been chained to US production. Mexico has increased its maize imports from half a million tons in 1993 to 7.3 million tons (tariff free) in en 2004. 2008 is the year in which the final stages of NAFTA came into effect. This will mean that Mexico will become flooded with millions of tons of US maize and beans, raising the possibility of provoking a major social and political crisis.

Agrofuels have been championed as an alternative source of work which could allow peasants in Core and Periphery countries alike to increase their earnings and achieve social well being. Yet, in reality, nothing appears further from the truth. On the other hand, the situation in the European Union is still far from clear. Some studies have claimed that 1,000 tons of agrofuels can create between 2 and 8 full time jobs, concentrated especially in refineries and ports (Biofuelwatch, Carbon Trade Watch/TNI, Corporate Observatory, 2007). However, in the periphery countries, which are ultimately set to become the major sellers of raw materials for vehicle fuels, the development of this sector is based on establishing economies of scale and an extremely centralized agro-industrial model where transnational capital and local land holding elites have increasingly intimate relations with one another (GRAIN, 2007). The inhabitants of the rural communities are becoming ever more expendable and are left with only two options: either to migrate or become agricultural day labourers. Below we will briefly consider a few examples.

The Rural Reflection Group (El Grupo de Reflexión Rural) (GRR) emphasizes that the Green Revolution that was implemented in Argentina's countryside contributed to the population's impoverishment. Thus, in a country which was known as one of the "world's granaries", the National Survey of Nutrition and Health registered in 2006 that 34% of children below the age of two suffer from malnutrition and anemia. According to GRR, this phenomenon can in part be explained by the fact that Argentina was converted into a producer of transgenic crops and an exporter of animal fodder, based in large scale Roundup Ready soya monocultures. In this context, land ownership became concentrated, ruining 400,000 small producers and provoking a rural exodus which swelled the poverty belts in the large cities (Rulli and Semino, 2007). The reality is not very different in Brazil, the world's largest bioethanol producer. The municipality of Ribeirao Preto (Sao Paulo) is known as the "Brazilian California" due to its technological development in the production of sugar cane. Yet, 30 factories control all the land 100,000 people (20% of the total population) live in *fabelas* (shanty towns), and there are more people in prison (3,813) than there are peasants (2,412) (Vicente, 2007).

During the United Nations Permanent Forum on Indigenous Peoples which was in session in May 2007, attention was drawn to the fact that indigenous populations are being displaced from their land by the expansion of energy crops. This is contributing to the destruction of their cultures and forcing them to migrate to the cities. In one Indonesian province alone, West Kalimantan, 5 million people have already been forced to leave their ancestral territories (Biofuelwatch,

Carbon Trade Watch/TNI, Corporate Observatory, 2007). Thus, the Indonesian peasants stress that the growth of agrofuels threatens to end up eroding their agricultural and food system. Land is concentrated n the hands of a mere handful of large companies, which together own 67% of the cultivable land. Palm monocultures have deepened the marginalization of the small producers. In 2006 alone, these plantations provoked 350 land based conflicts, despite the fact that land reform is enshrined in the Indonesian Constitution and the country's laws. However, this process of concentration of land and marginalization of peasants is by no means a new process. It has been going on since colonial times (Saragih, 2007).

In Paraguay, the advance of transgenic soya and sugar cane monocultures is also giving rise to a frenzied process of investors buying up the best lands. The country devotes 2.4 million hectares to soya production, but is aiming for 4 million in order to fulfill its sale commitments to the European Union. This is a country where 21% of the population lives in extreme poverty, 1% of the land owners own 55% of the land, and 40% of the producers cultivate plots that are between 0.5 and 5 hectares. In September 2006, the Supreme Court confirmed that the National Agrarian Reform Institute had illegally sold land to large soya producers. According to the organization *Sobrevivencia*, approximately 70,000 people abandon the countryside each year after coming under pressure to sell their plots. However, according to various civic organizations, these are not the only ways in which peasant livelihoods and communities are being destroyed. This year five people died and seven were injured by the agro-industry's armed guards in the Paraguayan department of San Pedro. This is one of the zones where the government is promoting ethanol production.[13] In Colombia, the Afro-descendant communities, Jiguamiandó and Curvaradó experienced an even worse fate. Military and paramilitary violence forced them to flee their lands, which were then illegally occupied by the company Urapalma (Redes-AT and GRAIN, 2007b). Those who risked harsh punishment for daring to return were able to see their houses destroyed. The jungle, previously well preserved, had been devastated by oil palm crops extending as far as the eye could see.

And, what became of those who stayed? According to the Brazilian Forum of NGOs and Social Movements for the Environment and Development [Foro Brasileño de ONGs y Movimientos Sociales para el Medio Ambiente y el Desarrollo], the monocultures failed to generate as many jobs as they had promised. If in the tropics 100

13 For more information on this see (Rulli, 2007) and (Biofuelwatch, Carbon Trade Watch/TNI, Corporate Observatory, 2007).

hectares of family farming creates 35 jobs, the same area of land devoted to eucalyptus plantations only represents one job. In the case of soya it is two, and in sugar cane and palm, ten. In many case, the cane cutters are only paid if they manage to produce a certain quota, the amount having been predetermined by the company. Needless to say, working conditions are difficult. This includes the use of agrochemicals without any protective equipment, precarious housing, lack of sanitation services and drinking water, and also even child labour.[14]

The populations who live in the vicinity of the cultivation of palm and soya find their health endangered by the application of powerful herbicides. It is estimated that in Malaysia an agricultural day labourer died every four days due to poisoning from the herbicide Paraquat between 1977 and 1997. In Argentina, urban and rural communities have come together to launch a campaign demanding "Stop Fumigating", in response to the aerial spraying of herbicides on neighbouring soya plantations. The Ministry of Health carried out a study in five cities in the Southern province of Santa Fe discovered an alarming number of cancer cases (Biofuelwatch, Carbon Trade Watch/TNI, Corporate Observatory, 2007).

Megaprojects and Agrofuels

Biodiesel and bioethanol are normally not teletransported from the fields to the petrol tanks. And, in this undeniable fact lies another aspect of the rise of agrofuels which can hardly be described as "bio": the increasing need for integration of infrastructures necessary for their transportation and export. Hence, the need for the, lamentably, resuscitated Plan Puebla Panamá (PPP) and the Initiative for the Integration of South American Infrastructures (Iniciativa para la Integración de las Infraestructuras Sudamericanas) (IIRSA).[15] These megapojects consider Latin America's rebellious geography to be an obstacle to the extraction of raw materials and the transport of goods. Their mission is to get around it by way of motorway corridors, hydroelectric dams, waterways, electric cables, oil pipelines etc. And of course, it goes without saying, these projects will bring lucrative profits to companies such as the Spanish Iberdrola and Gamesa (wind park in Mexico), ACS (management of ports and trawlers in Brazil, and even to

14 See (Biofuelwatch, Carbon Trade Watch/TNI, Corporate Observatory, 2007) and (Holt-Giménez, 2007).

15 For more information about the geopolitical dimension of both plans and their social and environmental impacts, see http://www.odg.cat/es/inicio/enprofunditat/plantilla_1.php?identif=582 .

unknown consultancy firms such as TYPSA or Norcontrol. And, despite the promises of "local development" which are being made (evoking the ideologically bankrupt "trickle down" theory), these megaprojects are in fact harmful because they are situated on indigenous territories and peasant communities, and traverse zones that are rich in biodiversity.

Although there has been no consultation with local populations in designing these megaprojects, there has been participation from the Interamerican Development Bank (BID), which bears considerable responsibility for generating the continent's debt. The BID currently promotes agrofuels in several ways. It estimates that Latin America will need 14 years to convert itself into one of the world's key biodiesel and bioethanol producing zones and that this will require 200 billion dollars. The president of the BID himself, Luís Alberto Moreno, codirects a private sector group, the Interamerican Etanol Comission, together with Jeb Bush (ex-governor of the state of Florida) and Japan´s ex-prime minister, Junichiro Kozumi. Thus, the BID supports the expansion of palm plantations in Colombia and sugar cane and soya in the Brazilian Amazon. In fact, this year the Executive Director of the BID approved the first stage of financing a private sector agro-fuels Project in Brazil to a total of 120 million dollars. This money is for Usina Moema Açucar and Alcohol Ltda. (Sao Paulo). This operation forms part of the bank´s initiative to develop structures to enable priority debt financing for five bioethanol projects, costing 997 million dollars (IDB, 2007).

On the other hand, it is crucial to ensure that commodities are able to flow freely towards the ports, not only the Atlantic ones but also on the Pacific, in order to reach Asian markets. Thus, the bank recommends that Brazil spend one billion dollars each year on infrastructures over the next 15 years. It also strives to speed up the IIRSA projects which have been rejected by civil society, such as for example the Paraguay-Paraná-Plata, the project of improving the navigability of the Río Meta, Ferro Norte (a railway network which would connect the soya states of Paraná, Mato Grosso, Rondonia and Sao Paolo), and the Río Madera complex.

The latter is one of the main projects underway within the IIRSA axis, Perú-Brasil-Bolivia and is located on the Brazilian-Bolivian border. The project currently consists of constructing two mega-hydroelectric dams in Brazilian territory, in San Antonio and in Jirau. Their combined generating capacity would be 6,400 Megawatts, and their cost 10.3 billion dollars. Construction is scheduled to start in 2008. The first will be located 190 kilometres from Bolivia, and the second 84 kilometres. Independent studies have shown that both dams will have serious

social and environmental impacts, not only in Brazil but also in Bolivia. The Banco Santander Central Hispano and the Portuguese bank Banif are both active participants in this problematic megaproject. They are establishing an Investment and Participation Fund (FIP) in order to fund the construction of the San Antonio dam. The Fund hopes to mobilize 220 million dollars. The Spanish bank advises a consortium led by the Brazilian construction company Odebrecht, the company which is bidding for the project's tender. Experts from the Brazilian Technical Service for Environmental Protection recommended to withhold granting the license until additional environmental impact studies can be carried out. The Bolivian government has also protested and demanded new studies to verify what impacts the dams would have in his country. These dams are closely linked to the growth of agrofuels, since the hydroelectric power stations will supply the energy to the Brazilian states of Rondonia and Matto Grosso, enabling an expansion of the soya industry. Soya production is particularly important in Matto Grosso, whose governor is Blairo Maggi, one of the biggest soya producers in the world[16].

Megaprojects for integrating infrastructures is, as we will see, turning out to be a crucial factor in the transportation of the raw materials for agrofuel production, such as grains. Not only does this entail increasing the external debts of the countries where these plans are being carried out, but it is simultaneously also generating a considerable ecological debt from the large companies with respect to the local populations. These populations lack any possibility to participate or to even exercise their right to being consulted, and are experiencing major social and environmental impacts from the projects.

Second Generation Fuels: From Bad to Worse

Faced with the multiple problems presented by first generation agrofuels, a new technological response is once again being offered; producing liquid agrofuels (BtL, Biomass to Liquid) which can be obtained from lignocellulosic biomass such as straw or wood chips. This includes producing bioethanol by fermenting hydrolized biomass, as well as agrofuels obtained by a thermo-chemical process, such as the bio-hydrocarbons obtained by pyrolisis, the forms of gasoline and diesel which are synthetically produced by the Fischer-Tropsch synthesis, amongst others.[17]

16 For more information see: http://www.biceca.org and http://internationalrivers.org/.

17 See: *Programa del Encuentro Biocarburantes'07* (http://www.iir.es)

The social and environmental impacts generated by the large scale production of these fuels are, for the time being, relatively similar to those associated with first generation. Gathering organic waste from fields requires the use of greater amounts of fertilizers, thus emitting greater quantities of nitrous oxide. Furthermore, the massive harvesting of dead trees will result in loss of biodiversity, given that thousands of species depend precisely on this vegetation waste which lies in the soil. This could reduce the forests capacity to absorb carbon. The other aspect is that, given break the molecular structure of the plants requires reducing the number of enzymes, the preferred raw material would originate from tree monocultures. The genetics industry is currently researching the modification of plants to produce less lignin, in order to facilitate cellulose breakdown and accelerate the plants' growth rhythm. However, release transgenic trees into the environment has unknown risks (Biofuelwatch, Carbon Trade Watch/TNI, Corporate Observatory, 2007). Enthusiasts of second generation fuels and tree plantations seem to have forgotten that a forest is not just a collection of trees, but is an ecosystem.[18] The World Rainforest Movement reminds us that in Chile tree plantations are known as "planted soldiers" (because they are green and they are killers). The plantations are occupy massive lands, threatening the traditional sources of subsistence of the areas' inhabitants. In Thailand, eucalyptus is referred to as the "selfish tree" because it monopolizes the water necessary for growing rice, the basic peasant subsistence. The model of monoculture trees that has been used by the growing paper industry is being replicated in different countries, and its social and environmental impacts are continuously being denounced.

Human Beings, Not Machines

Until now we have argued that agrofuels constitute a completely inadequate response to global problems such as global warming and hunger. Actually, the large scale production of these fuels does not represent any break with whatsoever for fossil fuels, since fossil fuels are necessary for the production of agrofuels, as well as for transporting them. Furthermore, agrofuels imply an intensification of the agro-industrial model, a model which already bears significant responsibility for the current environmental crisis and the worsening living conditions of the world's poorest populations. The only beneficiaries from agrofuels are the conglomerates of large business groupings, several of which have already contributed to generating

18 See the documentary film "Invasión verde", http://www.wrm.org.uy

climate change and an unclaimed ecological debt, by way of their participation in the petroleum, automobile, agribusiness and construction sectors. According to the FAO, the rapid transition towards a greater use of agrofuels could reduce the emissions of greenhouse gases "*only if they take into account food security and the environmental consequence*" (FAO, 2007) Based on all the elements discussed in this article, yet also set within the context of one of the central pillars of capitalist logic, the obsession for sustained growth (which itself is not sustainable), the FAO proposal places before us an equation which is impossible to resolve. Furthermore, its starting point is an over simplistic understanding of both the environment and also of effected populations.

This is due to disdain for a key parameter: human beings are still not automatons. The millions of impoverished people throughout the planet cannot be considered as machines which simply require a suitable source of energy. An indigenous leader from the Mixe Peopel (Oaxaca, México) told me that what seek is autonomy. Autonomy is a complex equilibrium which includes concepts such as: having their own food, hope, decision making power, thought, language, territory, development path, education, life and death, all of which belonged to them. For their part, the Andean communities are fighting for *Suma Qamaña* to be introduced into the new Bolivian constitution. This is understood to mean "good living," in a territory which for its inhabitants is sacred and where the diversity of nature and its divinities live together with the human species. In Mexico, maize is not simply a basic food staple for the *Wixárika*. It also has a sacred character, expressed through the collective work of sowing, deer hunting and ceremonies. The *milpa*, or cultivated land plot, is like a community where maize, beans, squash, amaranth, and medicinal plants all live together and complement one another (Redes-AT and GRAIN, 2007a). After years of studying diverse indigenous cultures in Latin America, the anthropologist Alicia Barabas says that the representations of space and the cultural guidelines of construction constitute structuring categories in a culture given that its meanings and orientations are key to the social reproduction (Barabas, 2003). As such, we need to approach dilemmas such as climate change and the contradictions generated by the capitalist system from a recognition of human's complexity and cultural diversity. In this light, the possibilities to act are numerous. Indigenous and peasant organizations have given expression to their demands in the all encompassing and comprehensive concept of food sovereignty. More recently the concept of energy sovereignty has also been adopted. Popular campaigns around food sovereignty are also taking shape to demand a halt to

energy crop plantations and a moratorium with regard to the EU policies of incentives for agrofuels, and its importation of monoculture-based agrofuels or which in some other way contribute towards the ecological debt and food sovereignty.[19]

Let us end this article by underlining a theme which is currently garnering ever greater strength and around which and ever great variety of ideas for change are gravitating towards: degrowth, understood as "the need to leave the current economic model behind and break with the logic of continuous growth" (Mosangini, 2007). Essentially the idea emerges from the thought of Nicholas Georgescu-Roegen, who developed bioeconomics. This is understood as the formulation of an economic, ecological and socially sustainable science, which seeks to reground the economy as a subsystem of the biosphere, in respect of its laws and physical limits. An example is the emergence of proposals for production on a local and sustainable scale, organic agriculture, deindustrialization, the end of the current transport model, the end of consumerism and advertizing, deurbanization, self-production of goods and services, austerity, and non-market based exchanges. Such proposals are especially urgent in the Core countries. Such initiatives, in an effort of empathy, listening and collaboration between the different resistances to the capitalist system, will undoubtedly provide a basis from which to responsibly face up to today's global problems in order to recover the possibility of a dignified life for all of us who inhabit the planet.

Bibliography

Interamerican Development Bank (BID). (2007), "BID aprueba US$120 millones para proyecto de biocombustibles en Brasil," Press Release 25th July.

Barabas, A. (2003), "Introducción: una mirada etnográfica sobre los territorios simbólicos indígenas." In: Barabas, A. (coord.) *Diálogos con el territorio*, Vol. 1, México, INAH.

Binimelis R., Jurado A., Vargas M. (2007), "La trama de los agrocarburantes en el Estado español," *Revista Ecología Política*, n. 34.

Biofuelwatch, Carbon Trade Watch/TNI, Corporate Observatory. (2007), *Agrofuels. Towards a reality check in nine key areas*, TNI-CEO, Amsterdam.

Coordinadora de Organizaciones de Agricultores y Ganaderos (COAG).

19 See http://www.biofuelwatch.org.uk/ and http://www.noetmengiselmon.org

2007. *Las verdaderas causas de la subida del precio de los cereales; consecuencias para el sector agrario*. Madrid.

GRAIN. 2007. *Seedling*. Agrofuels special issue, Barcelona.

Gudynas, E. 2007. *Bolivia: sueños exportadores y realidades nacionales*. Bolpress, 2nd June.

Holt-Giménez, E. 2007. Biocombustibles: mitos de la transición de los agro-combustibles. *Revista electrónica Biodiversidad en América Latina*, 3rd September.

Llistar, D. 2007. Guerra Norte-Sur: biocombustibles contra alimentos." *Revista electrónica Rebelión*, 19th April.

Mosangini, G. 2007. Decrecimiento y cooperación internacional. *Revista electrónica Rebelión*, 29th September.

United Nations 2007. *The Right to Food*. Report from the Special Rapporteur on the Right to Food. August. A/62/289.

United Nations Food and Agriculture Organization (FAO). 2007. *Living With Climate Change*. Press Note 10th September.

Ortega, M. (Coord.). 2005. La deuda ecológica española: impactos ecológicos y sociales de las inversiones españolas en el extranjero. *Sevilla*, Spanish State, Muñoz Moya Editores Extremeños.

Redes-AT and GRAIN. 2007a. Revista Biodiversidad: sustento y culturas, *Montevideo*, Uruguay, (50/51).

Redes-AT and GRAIN. 2007b. "La fiebre por los biocombustibles y sus impactos negativos." *Revista Biodiversidad: sustento y culturas*, (52): 16-20.

Rulli, J. 2007. Soja en San Pedro-Paraguay. Guardias emboscaron a campesinos por cazar en latifundio. *Revista electrónica de Base investigaciones Sociales*, 29th August

Rulli, J. and Semino, S. 2007. La génesis de una política agraria. De la OCDE a la producción de biodieseles de soja, article presented in the *Seminario de Expertos sobre biodiversidad y derecho a la alimentación*, Madrid

Russi, D. 2007. Biocarburantes: una estrategia poco aconsejable. *Revista Biocarburantes* Magazine, Estado español, May.

Saragih, H. 2007. It's cars versus humans. *The Jakarta Post*, Jakarta, 26th July.

Stern, N. 2006. Stern Review Report on the Economics of Climate Change, *HM Treasury*, London

Vicente, C. 2007. Interview with Joao Pedro Stedile, leader from MST and Via Campesina Brasil. *Revista electrónica Biodiversidad en América Latina*, 6th June