

# Biofuels jeopardize future



OLMO CALVO RODRIGUEZ/SUBS.COOP

Soy plantations are eating up Argentina's arable land.

## LATIN AMERICA/CARIBBEAN

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## Biofuels: Are they viable?

### Massive biofuel production may put region's food security at risk.

The United States and European Union have set their sights on Latin America to help feed their voracious appetite for biofuels as these countries try to reduce their use of fossil fuels. But rarely does either side of the equation look at the negative impacts that the massive production of these fuels — produced from food, usually — has on a social level, or the threats it poses to biodiversity.

As a signatory of the Kyoto Protocol — which obligates governments to reduce emissions of greenhouse gases by 5.2 percent between 2008 and 2012 — the European Union intends to reduce its use of fossil fuels by 5.75 percent by 2010 and by 10 percent by 2020, replacing them with biofuels.

According to the Organization for Cooperation and Economic Development (OCED), to substitute 10 percent of the European Union's current fossil fuel demand, 70 percent of the region's farmland must be dedicated to fossil fuels. Germany is Europe's largest biofuel producer (rapeseed and sunflower seed oils), with a production of 2 billion liters a year. But this only covers 2 percent of the country's fuel consumption. Currently, 10 percent of Germany's farmland is dedicated to biofuel crop production. So the region has turned to biofuel exports from the South's countries, such as Brazil, Colombia and Nicaragua.

As international oil prices climbed above US\$100 a barrel, the United States sees ethanol — corn-based alcohol fuel — as a welcomed alternative to reduce the country's dependence on crude without reducing its energy consumption. Ethanol production in the United States, which is also the world's largest producer, comprises 4 percent of its national fuel consumption. President George W. Bush intends to raise that proportion to 20 percent by 2017.

But like Europe, the United States does not have sufficient agricultural lands to produce enough corn and soy for its biofuel goals.

"This means that if all of the country's corn harvest was used to make ethanol, it would displace 12 percent of our gas; all of our soybeans would displace about 6 percent of the gas," Brian Tokar wrote in a 2006 article in the US magazine *Counter-Punch*.

From here, the United States has turned to Brazil, which has more than three decades' experience producing ethanol from sugar cane. The United States and Brazil make up 70 percent of the world's ethanol production. In March 2007 the US and Brazilian governments signed a bilateral cooperation agreement to create an international market for this

alcohol-based fuel. An increased demand would require production increases in Central American, Caribbean and African countries.

### Meeting the demands of "El Norte"

Some Latin American and Caribbean governments are eager for the creation of an open ethanol market, and view it as an opportunity to have new energy exportation that generates jobs, attracts investment to rural areas and strengthens economic ties with the United States and Europe.

Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador and Paraguay all have policies in place to help move this trend along.

Also, keeping in line with the Kyoto Protocol, these and other countries in the region have established the obligatory use of a percentage of biofuels in their markets. In Peru, starting on Jan. 1, 2009, 2 percent parts biofuel must be mixed with diesel fuel, a percentage that will increase to 5 percent in 2011, creating an internal demand for biofuels.

The annual sugar cane ethanol production in Brazil, which is currently 15 billion liters, is expected to triple by 2016, based mainly on foreign demand.

But Brazil has a great advantage: the cost of biofuel production is a third less than in the United States and half of the cost in the European Union, according to the study "Opportunities and Risks in Bioenergy," by the Economic Commission for Latin America and the Caribbean and the United Nations Food and Agriculture Organization (FAO) in 2007.

In February of that year, Nicaragua entered the exclusive list of ethanol exporting countries by making its first shipment of the fuel to the European market of 3 million liters. It was worth around \$3 million.

In Peru, Maple Energy has one of the most ambitious ethanol projects after Brazil. The Dallas, Texas-based company plans to grow sugar cane for ethanol production in the important farming department of Piura, on Peru's northern coast. It says it plans to farm some 8,000 hectares (20,000 acres) and is planning to export it to the United States and Europe as early as 2009.

### Threats abound

"Even though this is presented as an opportunity for the economies of the South, reality has shown that monoculture for biofuels, such as palm oil, soy, sugar cane and corn, creates major destruction to the biodiversity and the livelihood of the rural population, and this undermines food security even more and causes serious impacts on water, soil and the regional climate," some 200 representatives of social movements and nongovernmental organizations said in a letter to the European Union in January of last year.

Many activists, farmers and environmentalists have warned about the threats that biofuels represent for not only the environment, but the populations of the poorest countries.

"The big problem with producing ethanol on the coast [of Peru] is that its lands and water are limited. To dedicate a great part of these lands to this kind of crop implies displacing the small-scale farmers. Sugar cane crops need a lot of water," said Peruvian economist Pedro Francke in an interview for the daily *La República*.

One hectare of palm oil consumes at least 4,753 liters of water. In one year, more than 300,000 hectares (741,000 acres) of palm in Colombia will have consumed 525 billion liters, according to the magazine *Biodiversidad, Sustento y Culturas*. "That water could supply half the population of Colombia for 50 days instead of destining it to feed cars," the article added.

Numerous studies have found that biofuels can be much more contaminating than hydrocarbons and could require much more energy to produce than the energy they provide when used.

Ethanol made from pastures in the United States produces 50 percent more greenhouse gases than gasoline, according to a study published in the US magazine *Science*. Ethanol produced with corn requires 29 percent more energy from fossil fuels than the energy it produces; biofuels produced with soy require 27 percent more and biofuel from sunflower seed oil requires 118 percent more.

For the production of biofuels to be profitable, intensive agricultural methods, including heavy fumigation and fertilization, are necessary. Large-scale production requires vast swaths of land, which is causing a displace-

**"Food products will increase between 20 and 50 percent in the next 10 years because of the growth of the biofuel industry."**

— OCED-FAO study



Workers on a sugar cane plantation collect next year's harvest in Brazil.

ment of food crops for massive monoculture. Deforestation is also a direct effect.

International ecological organization Greenpeace has accused the German government of destroying native forests in Argentina for the farming of soy for biofuel. According to a report it presented in early April, a quarter of Argentina's biofuel exports were sent to the European Union — the rest went to the United States, which resold some of it to Europe, mainly to Germany.

*Science* says for biofuels to compensate for the emissions of greenhouse gases produced by the deforestation in the Amazon, they will need to be consumed for 319 years.

Greenpeace proposes the establishment of a quality standard that requires the study of a biofuel's life cycle to determine whether it generates a reduction in greenhouse gases by a minimum of 60 percent compared with the fuel it is replacing.

The increased use of food for the production of fuel is also driving up food costs as it has become a raw material. Such has been the case with the staple crop of corn in Guatemala and Mexico.

Food products, particularly grains and milk products, will increase between 20 and 50 percent in the next 10 years because of the growth of the biofuel industry, said a 2007 OCED-FAO study.

The production of biofuels competes with the production of food, creating a threat to the food sovereignty for the region's populations. Also, an increased production of biofuels translates to more production of transgenic soy and corn.

### Reducing demand for fuels

Some sectors have warned about the risks that the massive production of biofuels poses to the environment and the population's well being.

"Biofuels can become part of the solution on a local scale," said international organization Friends of the Earth, referring to the potential re-use of used oil or the use of certain crops when sustainability criteria are met. "But it doesn't make sense if it is not within a proposal based on the reduction of the demand for fuel."

To achieve this, a reduction in energy consumption is required, a stop to the consumerist lifestyle, the promotion of public transportation. Agriculture will need to be oriented toward the internal market and local ecological agriculture must be developed. Furthermore, sustainable economic development on an environmental and social level must be fostered. □

### USEFUL WEB SITES

Americas Program <http://americas.irc-online.org/am/4558>  
Biofuelwatch <http://www.biofuelwatch.org.uk>  
CounterPunch <http://www.counterpunch.org/tokar11012006.html>  
GRAIN <http://www.grain.org/seedling/>  
World Rainforest Movement <http://www.wrm.org.uy/>

# Leading in ethanol production

## Country touts itself as top biofuels producer.

President of the European Commission, José Manuel Durão Barroso, in his visit to Brazil in March to President Luiz Inácio Lula da Silva, promoted joint action in diverse issues of global interest, such as the fight against warming brought on by greenhouse gases.

“With Brazil’s leadership role on biofuels, we are working together to guarantee that biofuels are sustainable, good for the environment, good for reducing greenhouse gases and, therefore, to guarantee the quality of life on our planet,” Barroso said.

Barroso’s visit to discuss a possible association between Brazil and Europe for biofuels, among other things, is just one of the various actions taken by the Brazilian government to promote the country’s conversion into a world power in the sector, beginning with ethanol — a renewable biofuel that Brazil is already a leader of worldwide.

Indeed, Brazil does not lack the necessary conditions to increase its biofuel production. With plenty of available farmland, a favorable climate and an abundance of water — home to 12.5 percent of the world’s reserves of freshwater (*LP, Oct. 31, 2007*) — the country can easily increase production and contribute to the international effort to prevent and mitigate global warming by replacing other fuels that create greenhouse gases.

Biofuels are sources of renewable energy, produced by cultivating crops like sugar cane, oleaginous plants and forest biomass, as well as other sources of organic material. They can be used independently or together with conventional fuels, such as biodiesel and ethanol.

### Three decades of experience

Brazil leads the world in the production of ethanol from sugar cane, partly due to its advanced infrastructure that started up in the 1970s (*LP, May 2, 2007*). Two years after the 1973 energy crisis, in which fuel prices rocketed, the military government (1964-85) launched a nationwide program to promote the production of anhydrous alcohol made from sugar cane that could increasingly be added to gasoline, as well as hydrated ethyl alcohol (or ethanol) to be used in vehicles with motors equipped to use it.

In 1975, the alcohol production in Brazil reached 700 million liters. More than three decades later, the country now produces more than 15 billion liters annually out of the 25 billion liters used annually for energy all over the world in a current pool of 350 alcohol factories, the number of which is growing.

Sugar cane derivatives already represent

nearly 14 percent of Brazilian energy and 17 percent of the fuels used for vehicles, versus 54.5 percent of diesel petrol — the most common for trucks — and 25 percent pure gasoline. The three remaining percent is natural gas for vehicles.

Likewise, Brazil has developed a flexible fuel technology that allows a vehicle to use both gasoline and ethanol. According to the National Association of Automobile Manufacturers, cars with this technology represented 53 percent of sales in Brazil in 2005.

The spectacular increase in ethanol production is, among other factors, due to the expansion of areas where sugar cane is planted. There are currently more than 6 million hectares (15 million acres) of sugar cane planted in the country. Almost two-thirds are in the state of São Paulo, where most ethanol factories are also located.

### Environment and food security

However, there is a fear that the increasing expansion of land dedicated to growing sugar cane in other Brazilian states could lead to deforestation of native forests or the substitution of areas originally used to raise food crops.

“If it were done correctly, there wouldn’t be any problems with raising sugar cane. Brazil produces a lot of food; but there isn’t enough purchasing power and for that reason it’s fundamental to extend social policies that generate more income and reduce inequality,” claimed Evaristo Eduardo Miranda, head of Embrapa Satellite Monitoring of the state-run Brazilian Agricultural Research Corporation.

According to Miranda, one of the ethanol experts in the country, what’s lacking in Brazil is “greater coordination and articulation” of sustainable ethanol expansion policies. If this occurred in a planned manner, the country could easily be a great power in renewable energy, contributing to the global effort to reduce greenhouse gases. Miranda stresses that Brazil has 200 million hectares (494 million acres) of pasture, where sugar cane farming is expanding.

But all the care taken cannot be exaggerated, environmentalists and other societal groups say. Town councilor Euclides Buzetto, of the ruling Worker’s Party, considers it fundamental, for example, to finish with the practice of burning, still commonly used on sugar cane plantations to facilitate the harvest.

“We must be insistent with the government so that it signs agreements with all the factories, so that they make a commitment to sustainable agriculture without increasing burnings that are so damaging to the environment and human beings. And, additionally, so that they reserve a great percentage of the sugar cane area for the farming of basic cereals in order to feed our people, with accessible prices, as has been happening in recent years,” says a Buzetto, town councilor from the city of Piracicaba in São Paulo’s interior, one of the principal producers of ethanol and other biofuels in Brazil. □

“With Brazil’s leadership role on biofuels, we are working together to guarantee that biofuels are sustainable, good for the environment.”

— José Manuel Durão Barroso

### Principal crops used to produce biofuel in Latin America and the Caribbean

- Sugar cane (bioethanol)
- Soy (biodiesel)

Also used:

- Palm oil, corn, rapeseed oil, sunflower seed oil, sorghum, wheat, tapioca, among others.

## ARGENTINA

Hernán Scandizzo in Buenos Aires

# Biofuels take over

## Exponential growth of soy production aimed to satisfy foreign demand.

"The external demand of biodiesel is going to generate strong pressure for soy to take over the land surface destined to other food crops," María Eugenia Testa of Greenpeace Argentina, wrote in the *Página/12* newspaper.

She says this trend will cause a reduction in native forests and a replacement of other crops because soy is so profitable.

The statistics back her up. In 1997, 11 million tons of soy were grown on 6 million hectares. Ten years later 47 million metric tons of soy were grown on 16.6 million hectares.

Argentina has become the world's second-largest soy producer after the United States, and the world's top soy oil exporter — the oil-producing crop comprises already 60 percent of the country's agricultural production, displacing livestock farming and replacing wheat, corn, sunflower, lentil and peas, among other crops.

In 2006, Argentina exported 4,958 tons of biofuel valued at US\$4.5 million, while in 2007 319,093 tons were exported totaling \$268 million.

According to the Argentine Biofuels and Hydrogen Association, the eight companies that export biodiesel have a production capacity of 600,000 metric tons a year. Seven new plants will begin producing as well this year, increasing the capacity to 1.7 million tons. Exports in 2008 are estimated to total 1.1 million tons.

The breakneck growth of biofuel production is not just based on external demand; internal needs are also pressing. A May 2006 law gives biofuel producers tax incentives and establishes that starting in 2010 the gasoil sold in the country will have a minimum 5 percent natural or "bio" component.

- To fill a car's 50-liter tank with biofuel, 200 kilograms of corn is needed, an amount that can feed a person for a year.

- Some 10 hectares (24.7 acres) of food producing land destined for subsistence crops can employ seven to 10 farmers, while the same area used for sugar cane employs only one person.

— Jean Ziegler, UN Special Rapporteur on the Right to Food

## Sugar cane and jatropha

Soy is not the only crop used for biofuels. In the north-central province of Tucumán, ethanol is produced with sugar cane. Along El Impenetrable, a 40,000-square-kilometer (15,000-square-mile) dense forest in the northeastern Chaco province, the jatropha, a brush plant with medicinal properties native to Central America whose seeds can produce oil, is promoted by entrepreneurs, with government backing, as an alternative to produce "environmentally-friendly fuels" and create jobs in indigenous communities.

The agroindustry also is aiming at Patagonia. Investors eye its vast areas of land, plenty of water resources, and Atlantic Ocean ports.

In the Negro River valley, where fruit and vegetable products are traditionally grown in irrigated lands, farming businesses are evaluating whether to start biofuel crop cultivation, including soy, rapeseed and safflower.

The government of the Chubut province last year invested in studies to produce biofuel from algae.

## Forests lost

According to Greenpeace Argentina, "in the last nine years, more than 2 million hectares of forests have disappeared in the hands of agricultural businesses especially driven by soy."

In December 2007, after several postponements in Congress — under pressure from soy producers' lobbyists — an environmental protection law was approved to preserve native forests. The law set a 1-year limit for provinces where the natural resources are found to determine which areas of the land can be used in agriculture, livestock farming, protective areas and others, a step that must precede the authorization for new land clearings.

The struggle to conserve native forests had two high points last year: the determination of the Wichí community in the northwestern Salta province to stop the destruction of their lands, and the health and food crisis that plagued the Chaco province and killed 21 members of the Toba-Qom people, according to the local Nelson Mandela Center, a human rights organization.

The advance of the soy plantations into the Chaco sped up slash and burning in El Impenetrable forest, which is an important food growing and medicine zone for the Toba-Qom community. It pushed out crops such as cotton, whose harvest was a source of income for indigenous families.

Big agro-businesses also pushed out indigenous and *campesino* communities from the central and northern provinces in the country at a greater pace. The trend triggered the passage of a law in November 2006 that banned evictions of indigenous people for four years, during which time there should be a land regularization with the participation of the affected communities.

Both laws brought temporary relief but the question remains of what will happen when their validity periods expire. □

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