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## Who does the biofuel business benefit?

There are some 800 million automobiles in the world, consuming over 50 percent of the energy produced in the world, making individual vehicles the prime cause of the greenhouse effect. Although there is consensus that climate change is a fact, there is no serious intention of changing the life-style causing it and instead, technological solutions are being sought to enable the companies benefiting from this model to maintain their profits.

In this context, over the past years biofuels have started to be promoted as an alternative to global warming.

European countries - in their eagerness to comply with their obligations within the Kyoto Protocol - are determined to switch their energy systems based on fossil fuels to biofuels, but their production is insufficient to cover their needs. Although the United States has enough farmland, the consumption of energy is so high that they will also have to depend on imports to cover their demand.

Where will these biofuels come from? Well, from regions such as Latin America, Asia and Africa. In many countries, farmlands or natural ecosystems will be used for the production of crops used to produce biofuels.

Biofuels will compound problems caused by soya bean, oil palm and sugar cane monocultures because of world voracity for energy and still not resolve fundamental ecological and social problems.

The Brazilian Minister Dilma Rousseff (Civil House) stated that biofuels express “a marriage between agro-business and the oil industry.” In this marriage the biotechnology industry must also be included.

Perhaps the most paradigmatic example is the new association set up by the BP oil company and the DuPont biotechnology company. Together they are going to develop, produce and put on the market a new generation of biofuels to increase global fuel demand for renewable transport. The two companies have been working since 2003 and will be introducing on the British market a new product: biobutanol as a bio-component of gasoline.

The companies are benefiting from DuPont's biotechnology capacity and BP's experience and know-how in fuel production. They hope to become world leaders in the development of advanced biofuels which, according to their estimates, could involve as much as 20 percent as blends in transport in some key markets.

The biotechnology industry has found an opportunity to increase its business through biofuels, mainly because they will enable it to remain on the market for a long time, in spite of opposition by consumers all over the world who have rejected transgenic crops as sources of food.

The incorporation of transgenic crops in the preparation of biofuels will help the biotechnology industry to improve its image which had resoundingly deteriorated over the past years. After many

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promises made by this industry that it could never have fulfilled, today it is offering to develop new transgenic varieties better adapted to the production of energy.

The RR soya bean will be the main raw material used in the production of biodiesel in the Southern Cone and possibly in other countries of the region. The RR soya bean already covers vast areas in Argentina, Paraguay, Uruguay and Brazil.

The use of transgenic soya beans in the production of biodiesel was presented by President Lula as a way out of the polemics on the use of transgenic soya beans in Brazil. He said that instead of people eating transgenic soya beans they will be used to make biodiesel because cars will not reject it.

Monsanto is the company that will most benefit from this business as it collects royalties from the sale of its patented transgenic seeds and the product of its harvests (in this case, biodiesel) already the case of soya oil made from RR soya beans, and other companies such as Cargill, Bunge, ADM, which will market biodiesel.

Furthermore, no doubt a large part of the maize used in the distillation of ethanol in the United States comes from transgenic crops. Each litre of ethanol that is sold increases the income of biotechnology companies holding the patents for transgenic maize seeds. These companies include Monsanto, Syngenta, Bayer and Dupont.

Another oil-seed used in making biofuels is colza. The European Union's Confederation of Food and Beverage Industries has requested the European Commission to authorize imports of new varieties of genetically modified colza for the biodiesel industry.

Additionally, they are starting to test new transgenic varieties specifically designed for the production of biofuels. Syngenta has developed transgenic 3272 maize that expresses the alpha amylase enzyme mixed with conventional maize in the process of elaborating ethanol from maize. The alpha amilasa enzyme has been identified as triggering important food allergies. If the genes synthesizing it manage to infiltrate the food chain we will be facing a protein with unthought-of effects on human physiology.

US food companies are opposed to the introduction into the environment of transgenic crops that are not intended for food because they fear possible genetic contamination of their products with these genes.

Another sector benefiting from biofuels is the oil industry. Oil companies, and above all, European oil companies, have decided to enter the business of "environmentally friendly" products to satisfy their consumer needs and to adapt to the new goals of the European Commission regarding renewable energies. Some of the companies having best diversified their business are Total, BP and Shell.

The French company Total obeys the policies of that country strongly promoting renewable energies. France is the second largest producer of biodiesel and ethanol in Europe (it has 4,500 service stations in that country) and has a considerable market in Spain and Italy, where it has 1,740 and 1,400 service stations respectively. It is currently planning to open up new plants in Africa and South America.

The case of BP and Shell is different as neither Holland nor England is engaged in promoting biofuels but they have service stations in countries where consumers demand them. For example, BP has

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2,700 service stations in Germany (the largest producer of biodiesel in Europe). Shell has 2,200 service stations in Germany and 1,000 in France.

Royal Dutch Shell intends to develop a second generation of biofuels and has been experimenting with the refining of bio-ethanol from lignin and pulp in cooperation with the Canadian company, longen. Another of Shell's strategic partners is the Choren Industries (Germany), with whom it has been working on the production of diesel from forestry biomass.

Among the US companies, Chevron has set up a business unit in advanced technologies to take advantage of the opportunity to produce and distribute ethanol and biodiesel in the United States. This unit is located in Galveston (Texas) with a production capacity of 100 million gallons per year of biodiesel. Chevron processes 300 million gallons of ethanol per year in the United States.

In Latin America, in spite of its considerable oil reserves Venezuela is preparing to join Brazil and Argentina in the development of fuels originating from plants as an energy alternative. The search for technologies to produce alternative fuels, among them biodiesel, is also included in an agreement recently signed by Venezuela and 13 other Caribbean countries to set up Petrocaribe. Most of the fuels containing pure alcohol or mixtures in Brazil are produced by Petrobras refineries, the State company.

The Spanish company, Repsol that already produces biodiesel in Spain, will invest 30 million dollars in a first biodiesel plant in Argentina, that it will start building in 2007. During a first stage, production capacity will be 120,000 cubic metres per year mixed with gas oil in a proportion of 5 percent.

Finally we have the automobile industry. This industry is responsible for the greatest consumption of fossil fuels and for the greenhouse effect on a world level, but it is also adapting to the new wave of biofuels.

Already in Brazil all the major international automobile companies have adapted themselves to making vehicles that run on alcohol. Half the vehicles sold in Brazil in 2004 were designed to use pure alcohol or alcohol in mixtures.

In other parts of the world, these companies have entered into partnerships, joint ventures and joint projects with various companies to improve their image, achieve technological transformation and continue doing business for a long time yet. For example, there is the announcement made by the Germany company, Volkswagen AG to extend the guarantee to automobiles using biodiesel (B5) added to the fuel. This announcement is part of a joint initiative lasting 2 years with the trans-national food company, Archer Daniels Midland Company (ADM), after the two companies had assessed this biofuel for a year.

For its part, the Japanese company, Toyota announced a strategic cooperation with BP for the production of ethanol from pulp waste in Canada.

This is the route that other companies have also followed. They are not concerned about the future of the planet, but must adapt themselves to the new demands made by their consumers and by international obligations that some countries have acquired with the Kyoto Protocol.

The use of biofuels is being promoted all around the world and various countries have launched national biofuel programme, making laws favouring this sector, and consultative councils have been set up on the subject, etc. The justifications given, among others, are that the proliferation of energy

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crops such as sugar cane, oil palm, soya beans and other crops may become an important factor in rural development and that the substitution of fossil fuels by biofuels will contribute to lessen global warming.

However, the biofuel business will help to position the biotechnology industry, to recycle the oil and automobile industry and to expand the profits of industries marketing biofuels.

This does not imply that all that has been said is applied to the use of vegetable oils, cane bagasse or other agricultural or forest waste to supply the energy needs of small local communities. The problem we are now facing is one of scale. We refer to the problems that arise when we have to satisfy the demands of consumers who want to continue enjoying their standard of living based on squandering, but who also want to have a clear conscience when they put into the tank of their vehicle 5.75% of biofuel that may come from the Amazon forest of Brazil or from Paraguayan lands from which the peasant population has been violently displaced or from their own farmlands.

Unless we can change the development model and initiate a transition towards a post-oil society, where the energy consumption patterns are changed, biofuels cannot be a solution to curb climate change.

With this in mind, we must continue to work towards a society that promotes and respects everybody's food and energy sovereignty.

By Elizabeth Bravo, Acción Ecológica, e-mail: [ebravo@rallt.org](mailto:ebravo@rallt.org),  
<http://www.accionecologica.org/webae/index.php>