

*Rod Harbinson, head of the Environment Programme at Panos London, looks at some of the controversy regarding genetically-engineered biofuels and their suggested role in fighting climate change.*

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# Biofuels, climate change and GM crops - who is really benefiting?

**G**overnments, oil companies and agribusinesses all support biofuels as a way to combat climate change. Genetic engineering plays an increasing role in biofuel production. Can replacing fossil fuels with biofuels reduce carbon emissions?

Biofuels are renewable fuels produced from crops or biomass, including crops grown specifically for converting into fuel. Political leaders and businesses increasingly suggest biofuels as an alternative to declining fossil fuel reserves. One attraction is that they can reduce a country's dependence on imported fuel supplies, an increasingly important political issue.

Several countries invest in biofuels:

- Brazil leads the world in domestic biofuel production, mostly from sugar cane.
- Small-scale production helps small communities to raise an income and meet their fuel needs, for example in Peru.
- The European Union target for biofuels in the transport sector is 5.7 percent by 2010. In March 2007, the European Council agreed a binding minimum level for biofuels of 10 percent of vehicle fuel by 2020.
- The USA has recently built more than 50 ethanol refineries to meet its target of producing 5 billion gallons of biofuel each year by 2012.

Ambitious targets in rich countries have placed demands on developing countries to provide crops for biofuel, especially maize. It is not clear whether developing countries can benefit from large-scale biofuel production because growing crops for biofuel can take up water and land currently used for domestic food production. Reduced exports of crops from rich countries can also hit poor people; in 2007, there were demonstrations in Mexico about the rising price of maize from biofuel demand.

Some governments support biofuels to meet targets to reduce carbon emissions. However, biofuels have limitations as a source of 'clean' energy. Many have low or negative carbon savings, because growing

crops and the process of converting them into fuel is energy-intensive, often relying on fossil fuels. Clearing land for biofuel crops also affects natural ecosystems, particularly tropical rainforests. In the Amazon, clearing forest for biofuel crops releases more carbon into the atmosphere than the biofuels save.

Research into biofuels based on cellulose from trees or crop wastes uses genetically modified (GM) bacteria and enzymes to break down plant waste and convert it to biofuels. Other GM research seeks biofuel crops which grow faster. High-yield GM biofuels crops also require large land areas, putting pressure on natural vegetation or displacing food crops. Shared concerns, as with food crops, include the impact of GM organisms on human health and the environment, such as the risk of genetic pollution.

Biofuels are attracting increasing attention and investment as an alternative to fossil-based fuels. Before trying to meet global fuel demands and increase trade in developing countries, governments in each country must answer some important questions:

- Will the biofuel industry in developing countries support local energy needs, or just meet the demands of richer nations?
- Will biofuel crops displace domestic food production?
- Are there laws and controls in place to track any GM organisms used to produce biofuels?
- Has there been any public discussion about GM crops, and which issues do people consider most important?
- What limits are there to ensure that expanding the area of cultivated land does not damage natural ecosystems?

#### Further Information

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#### See also

Fuelling Controversy – Can Biofuels Slow the Speed of Climate Change? Panos Media Toolkit on Climate Change – No. 1, by Rod Harbinson, 2006 (PDF)  
[www.panos.org.uk/PDF/reports/climatetoolkit1.pdf](http://www.panos.org.uk/PDF/reports/climatetoolkit1.pdf)