



# Biofuels

JUSTICE Briefing No 3

“The earth is the Lord's, and everything in it, the world, and all who live in it.” Psalm 24

## WHAT ARE BIOFUELS?

Also called Agri-fuels they are liquid fuels made from plant material, mostly food crops at present. They are used to power transport vehicles. Biofuels burn with lower emissions of carbon monoxide. There are different forms of Biofuel.

**Bioethanol:** Is produced from the sugars contained in cereal based crops – mainly wheat in the EU, sugar beet, maize, soybeans and sugarcane in the US and South America. Bioethanol is burned in engines either in pure form or more often as a 5% to 10% petrol additive.

**Biodiesel:** Is made by processing vegetable oils contained in oilseed rape in the EU, and palm oil in South East Asia. It is used as an additive to diesel.

The above types of fuels made from food crops are referred to as “*first generation*” biofuels.

**Second Generation Biofuels:** The goal of second generation biofuel production methods is to extract biofuel (i.e. biodiesel and bioethanol) from plant matter such as the stems, leaves and husks that are left after the food crop has been extracted, as well as non food crops, some kinds of grasses and scrubby trees that grow without water or fertilizer. The fact that some of these can grow on land not suitable for farming is also viewed as a plus in terms of land use although were second generation biofuels to become commercially viable the temptation to divert good farmland to produce them might not be resisted.

Second generation biofuels are not yet available in commercial quantities as the production process is still too costly.

**Are all biofuels the same – are there good and bad biofuels?** They are not the same and yes some are

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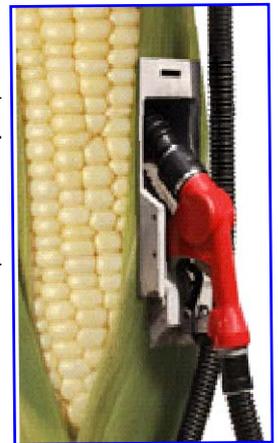
## THE CHURCH SAYS

Equally worrying is the ecological question .... In his desire to have and to enjoy rather than to be and to grow, man consumes the resources of the earth and his own life in an excessive and disordered way.... Instead of carrying out his role as a co-operator with God in the work of creation, man sets himself up in place of God and thus ends up provoking a rebellion on the part of nature, which is more tyrannized than governed by him. ... In this regard, humanity today must be conscious of its duties and obligations towards future generations.

*Pope John Paul II Centesimus Annus*

## BIOFUELS - an overview

The potential for biofuels to reduce dependence on non-renewable oil stocks has made them appear very attractive. In addition Biofuels are, in theory, carbon neutral. The plants used to produce them absorb carbon dioxide from the atmosphere as they grow. This is released back into the atmosphere as the fuel is burned. Replacement crops re-absorb this carbon thus completing a sustainable cycle. Until 2007 many environmental groups saw biofuels as a way to make road transport greener. This view was tempered by subsequent developments.



**Production targets and their effects:** In the past decade governments and big business have become very interested in biofuels. The former, due to fluctuating oil prices, worries about future secure energy supplies and the need to meet carbon emission quotas. The latter, saw an opportunity to access government investment funds for research and development and the possibility of future profits. Most countries have set targets for biofuel production that must be achieved within set time frames and have set aside funds for this purpose. The EU has a target of replacing 10% of fossil fuels with biofuels by 2020. At present there are about 120 biofuel plants in Europe. Ireland's only commercial scale plant is in New Ross Co Wexford. It produces fifty to sixty tons of biofuel per day. The US, the world's largest producer of bioethanol, has set a target of one billion gallons per year by 2013. It produced 6.5 million gallons in 2007. To meet these targets there has been a scramble to increase production levels. This has impacted negatively on the lives of millions of poor people, especially in Africa and other developing regions.

**Problems with Biofuels:** Doubts about biofuels began to appear in 2007. The main causes were a steep increase in food prices and food shortages caused by using agricultural land for biofuel production. Another worry was the long term environmental effect of land clearance and deforestation to allow new space for biofuel crops.

As more and more agricultural land was devoted to producing biofuel crops such as corn, rapeseed, palm oil, sugar cane and others the result was less food and higher prices. This in turn caused riots in fifteen countries including Haiti, Egypt and the Philippines. According to the World Bank figures food costs have almost doubled in the last three years with 30% of this increase being directly attributable to biofuel production. As a result over 30 million people have been brought below the poverty line.

**Land Grab in Africa and Asia:** Huge tracts of land in Africa and Asia have been sold or leased by foreign cash rich governments, especially Gulf States such as Saudi Arabia, the United Arab Emirates and others who wish to ensure both their food

better than others. Obviously second generation biofuels promise to be good because they do not use food material. Other factors that determine if a biofuel is good or bad are the energy and emission levels that they produce. The best performing biofuels can deliver ten times more energy (output) than the energy required to produce them and a quarter of the greenhouse gas emissions compared to their fossil fuel equivalent. Ethanol produced from sugar cane in Brazil is often given as an example of a 'good' biofuel.

In contrast, the worst performing biofuels deliver significantly less energy, and contribute to greenhouse gas emissions. Increased emissions tend to be due to indirect causes, for example, through forest fires and clearing to make way for plantations. Biodiesel produced from palm oil in Indonesia is often cited as an example of 'bad' biofuel.

### **Are biofuels the answer to the problem of replacing our dwindling fossil fuels?**

Unfortunately no. First generation biofuel production processes are limited: they simply cannot produce enough biofuel without threatening food supply and the environment. If all the maize grown in the USA was used for bioethanol it would only account for 12% of current US petrol consumption.

Some kinds of Biofuels produce only limited greenhouse gas emission savings, indeed in some cases when account is taken of emissions during production and the transport of fuels to selling points emissions from first-generation biofuels frequently exceed those of traditional fossil fuels.

### **Who are the largest producers of Biofuels?**

At present the largest producers of Bioethanol in the world is the USA (48%) followed by Brazil (42%). The next largest producer is China with 4% of production.

Collectively the EU is the largest producer of biodiesel (77% in 2006) with the USA being the next largest.

and energy needs. Forest, swamp and other land has been cleared for biofuel and food crop cultivation releasing carbon into the atmosphere and contributing to climate change. Large companies have also become involved in this land grab. The Korean company Daewoo signed an agreement with Madagascar to grow maize and palm trees on an area of 1.3 million hectares. The new government in Madagascar has said it will not honour this agreement. But similar agreements are going ahead in many other places and this land grab is displacing local farmers or else removing sources of firewood, grazing, wild fruit and materials used by local peoples. As a result local people have less than before and also the possibility for the future development of local sustainable farms and livelihoods is prevented. The produce of these industrial scale farms is for export and of little benefit to local populations. As a result local Africans and Asians suffer more while the rich, living far away, maintain their comparatively affluent lifestyles and literally enjoy the fruit that Africans are deprived of.

**Human Rights Priority:** There is a growing concern regarding the human and environmental cost of biofuel production. Many humanitarian, religious and environmental groups are calling for a more considered and balanced approach to biofuel production. This should give priority to human rights and the environment rather than the economic and political factors which in reality are the primary concerns of producers although this is masked under the cover of much trumpeted green credentials.

**Unjust Effects:** Western and rich countries are reaping the benefits of biofuel production. They can maintain their mobile lifestyles, offset carbon emissions, give the appearance of doing something about global warming and generate investment and profits for the producing companies.

Developing countries on the other hand are reaping all the disadvantages of biofuel production – are suffering the effects of the higher prices and food shortages caused by the demand for biofuel crops. People are being displaced or have lost resources previously available in scrubland and forests. While they produce little or no greenhouse gases, people in these poorer regions are already feeling the effects of the climate change caused largely by the industrial and transport pollution of the atmosphere. The land grab for biofuel crop production is a double disadvantage. **Biofuels only benefit wealthy producer countries while developing countries pay a cost that is unjust.**

**False Hope:** Many environmentalists now see biofuels as having, at best, a potential to make a small contribution in reducing greenhouse gases. Publicity around the "greenness" of biofuels is viewed as a smokescreen used by, governments, oil companies and the motor industry to continue business as usual and to avoid difficult changes that must be made to reduce global warming. Biofuels have become a false hope and a distraction from the real and immediate need to reduce consumption of fossil fuels. Ironically the current relatively low price of oil has, together with the high cost of biofuel raw materials made producing biofuels less profitable. As a result world production of biofuels has dropped, some biofuel plants have ceased production and plans to build others, including one in Ringaskiddy Co Cork, have been shelved. The US has already admitted that it will not meet its 2013 target of one billion gallons and closer to home politicians are calling for a reduction of the EU biofuel production target of 10% to 8%.

**Conclusion:** Biofuels are certainly here to stay and will be part of the effort to replace dwindling fossil fuel stocks. However, opting for short-term advantages that will only benefit the developed world is unjust and must be avoided as the long term environmental cost to us all will be great and the immediate socio-economic impact on millions of poor people in Africa and Asia catastrophic.

The carbon reduction achieved through biofuels is not as great a producer's claim. It could be matched by lifestyle changes, better public transport and other green forms of energy. The recession is forcing the production of smaller cars which will significantly reduce emissions. **The bottom line is that food, the environment and land to sustain life must take priority over fuel for transport.** Whether or not second generation biofuels improve matters significantly remains to be seen but even if they do biofuels can, at best, only be part of a much wider response needed to stop to climate change.