



## **Are biofuels a luxury?**

**Over the past few months, biofuels have come under strong fire, especially against the background of rocketing food prices. Nevertheless, it is inappropriate to demonize this energy form per se.**

From February to April 2008 alone, global market prices for rice and wheat surged 75% and 120% respectively. This phenomenon has manifold causes including: soaring demand in India and China; rising oil and fertilizer prices; and a weaker US dollar.

Cultivation of plants for biofuels, however, is also blamed for these price increases, with people feeling the price pressure in rich and poor countries alike. While international aid organizations are rendered impotent in fulfilling their duties, World Bank president, Robert Zoellick, brings the problem to the point: "While many are worried about filling their tanks, many others around the world are struggling to fill their stomachs."

Climate change and the looming scarcity of crude oil have helped fillip the popularity of biofuels as an energy source over the past years. Proponents maintain that it helps counter climate change and reduce man's dependency on crude oil. Particularly in the automotive industry, biofuels offer a real alternative to mineral oil products. The United States, for example, is planning to cover 15 percent of its conventional fuel consumption with biofuels by 2017, while the European Union is aiming at ten percent by 2020. Although these goals are reflected in the ever rising – but hitherto unquestioned – global cultivation of soya, maize, sugar cane, palm and castor, we have recently started seeing a fundamental change in public opinion, driven by a global rise in food prices.

Undisputed is the sharp – often government subsidized – increase in land used for biofuel cultivation across the globe. Brazil, for example, covers almost 45 percent of its fuel needs with ethanol produced from sugar cane, while the United States uses around 20 percent of its maize for ethanol production.

### **Vast need for land**

Are biofuels justified in times of spreading food shortage? Biofuel production does, after all, consume vast amounts of energy in the form of fertilization, transport and processing. Vast areas of land are also taken up, with almost 10m<sup>2</sup> needed to produce just 1kg of biofuel. And although it is true that the emissions released in combustion are carbon dioxide neutral, this advantage is partially reversed by the named energy requirements. Ultimately, chemical fertilizers release vast amounts of carbon dioxide and methane and – together with monocultures – contribute towards soil lixiviation. Further disadvantages lie in the destruction of rain forests, both in South America and Asia.

Although deforestation in the Third World may be an abstract concept for some Europeans, this is certainly not the case for rising food prices at the checkout. Consequently, today's sharpest criticism of biofuels is aimed at its competition with food cultivation and usage competition. Price increases at German supermarkets dwindle into insignificance, however, when compared to the looming calamities elsewhere in the world: the UN World Food Program, WFP, for example, estimates that 100 million people are threatened by hunger because it no longer has adequate funds to buy food.

Rising costs are also a challenge for biofuel producers due to the sharp price increase of any necessary raw materials also suitable for human consumption. Prices can only be kept in check with the help of subsidies and tax breaks, neither of which is in the market's or consumer's interests.

Biofuels can certainly not be branded an epochal panacea if their production consumes unreasonable amounts of energy and competes with food cultivation. In the light of improving living standards in many parts of Asia and a growing global population, we can assume there is no future for conventional, 1<sup>st</sup> generation biofuels.

There are, however, alternatives: in particular, the cultivation of raw materials that do *not* compete with food has to be stepped up. This is viable and already implemented by some companies. Hardy castor and jatropha plants – which require neither chemical fertilizers, nor good soil, nor artificial irrigation – can be grown in Africa, for example, without competing with local agriculture. The extracted oil is suitable for biofuel, as well as for the cosmetics and pharmaceuticals industries. Furthermore, the ensuing rise in local income is not eradicated by higher food prices caused by the oil seed cultivation.

So often, the enormous social responsibility of organizations active in the Third World is overseen. Benefits including the setting up of a working infrastructure – roads, clean drinking water, and good medical care – are of advantage both to the indigenous population and enterprise alike.

### **Second generation in demand**

An alternative technical approach – emerging under the buzzword “2<sup>nd</sup> generation” – aims at boosting energy efficiency through the use of biomass. Second generation biofuels will be produced from the entire plant, as well as from straw and wood. An important process, biomass to liquid (BTL), was developed in Germany as early as the 1920's and serves to liquefy

biomass. In April 2008, the world's first large-scale BTL facility for converting wood into high grade biofuel was opened in Freiberg. The benefit of BTL is that produces high quality, environmentally friendly biofuels without having to compete with food production. Consequently, wood waste and plant remains can also be used as raw materials.

If the used biomass is available at competitive prices without impinging on food production and the environment, biofuels do *indeed* have a rosy future ahead of them. Germany has technological leadership in this area. It would be desirable if this advantage could be extended and make a major contribution towards securing the world's energy supplies. Against this background, inflated expectations are just as incongruous as downright rejection.

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