



PUBLIC UNDERSTANDING OF BIOTECHNOLOGY



THE CURRENT STATUS OF THE BIOFUELS INDUSTRY WORLDWIDE

The following key policy issues have resulted in some major international countries investing funds and resources in developing the biofuels sector.

- Concerns about the reliability of petroleum supplies
- Global warming concerns
- Greenhouse gas emissions (Ruth, 2008, Memorandum of Understanding between the United States and Brazil to advance cooperation on Biofuels, 2007)
- Low incomes in the agricultural sector.

In South Africa, a draft strategy was developed by the Biofuels Task Team appointed by Cabinet in 2005, with a specific mandate to:

- Stimulate rural development thereby contributing to the government's Accelerated and Shared Growth Initiative (AsgiSA)
- Reduce poverty by creating sustainable income-earning opportunities (Biofuels Industrial Strategy of the Republic of South Africa, December 2007).

Currently, the world's leading ethanol producers are Brazil and the USA.

Current biofuel crops

- In Brazil ethanol is produced from sugarcane
- In the USA ethanol is mainly produced from maize
- Europe produces an estimated 8% of the global biodiesel from domestically grown rapeseed
- Other countries such as China, India, Kenya and Tanzania are investing their resources in the production of jatropha, a non-edible plant, to produce fuel (Biofuels Industrial Strategy of the Republic of South Africa, December 2007, Ruth, 2008).

In South Africa, the crops proposed in the national bio-fuels strategy for the production of biofuels include:

- Sugarcane and sugarbeet for bioethanol
- The Industrial Development Corporation (IDC) has indicated its intention to invest in the production of biofuels from sweet stem sorghum in Pondoland, which covers KwaZulu-Natal and the Eastern Cape (Barradas, 2007)
- Sunflower, canola and soybean oils for biodiesel (Biofuels Industrial Strategy of the Republic of South Africa, December 2007)

- The Council for Scientific and Industrial Research (CSIR) in South Africa has reported on a project which aims to develop a process for the production of biodiesel from algae (Swanepoel, 2007).

Maize, the main staple food in Africa, has been excluded from the strategy mainly based of food security concerns and the global price increase.

Financial incentives

The biofuels industry is heavily subsidised by governments (Loppacher and Kerr 2005).

Financial support for biofuel production differs in various governments, for instance:

- US producers receive tax credits (Ruth, 2008)
- The Brazilian government offers financial support to biofuels stakeholders with tax incentives ranging from 32% to 100% depending on the fuel source and use
- Kenyan farmers have received an estimated US\$30,000 from the World Bank in 2001 for growing yellow oleander as a biofuels crop, in order to drive economic development (Ruth, 2008).

In the South African Biofuels Strategy it is mentioned that clear policy regulations and incentives will be required for the development of a sustainable biofuels industry.

State owned entities (SOE) such as the Central Energy Fund and the IDC will invest in public private partnerships or play a role of investment consortium leaders. Small-scale farmers will be funded by financial institutions such as the Land Bank (Biofuels Industrial Strategy of the Republic of South Africa, December 2007).

Social issues and capacity building

In countries such as Germany, people have been trained as laboratory personnel and quality assurance specialists for research purposes in pursuit of the goal of developing a biofuels industry.

In African countries, previously disadvantaged people, including women, have been given economic opportunities by equipping them with relevant skills. For example, women in Ghana and Mali are currently using jatropha biodiesel



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for the production of shea butter and to produce soap from jatropha seeds (Araujo *et al.*, 2007).

South Africa

Contributing AsgiSA, the South African government will ensure that training programmes will be imple-

mented for capacity building of previously disadvantaged people to ensure that the biofuels industry becomes a driver of transformation and skills development, coupled with sustainable job creation (Biofuels Industrial Strategy of the Republic of South Africa, December 2007).

	Other Countries	South Africa (SA)
Labour issues	<p>Brazil - Since the development of the biofuels sector Brazil has experienced increases in the number of jobs created.</p> <p>The major concern however has been the quality of jobs (are they sustainable and will they result in more income for poor families, or merely extend their poverty?). (Memorandum of Understanding between the United States and Brazil to advance cooperation on Biofuels, 2007)</p>	<p>Biofuels has been identified as a key driver in AsgiSA for social and economic development (Biofuels Industrial Strategy of the Republic of South Africa, December 2007).</p>
Environmental issues	<p>The Kyoto protocol obliges industrialised countries to pledge to reduce their greenhouse gas emissions by 2012. (Ruth, 2008) (Memorandum of Understanding between the United States and Brazil to advance cooperation on Biofuels, 2007).</p>	<p>Although the Kyoto protocol does not commit countries like South Africa to any quantifiable emission targets, there is potential for future low-cost emission reduction options. Biofuels projects may apply for carbon emission reduction credits via mechanisms such as fuel switching (Biofuels Industrial Strategy of the Republic of South Africa, December 2007).</p>
Land use and water resources	<p>In some African countries it has been noticed that the cultivation of jatropha can reduce soil erosion and increase water retention (Araujo <i>et al.</i>, 2007).</p> <p>In the US maize has generally been rotated with soybeans to promote soil quality (Memorandum of Understanding between the United States and Brazil to advance cooperation on Biofuels, 2007).</p> <p>In the USA it has been found that corn grown in drier areas will require more water and hence put pressure on already scarce water resources (Memorandum of Understanding between the United States and Brazil to advance cooperation on Biofuels, 2007).</p>	<p>In South Africa a specific requirement for the Biofuels Industrial Strategy was to create a link between the first and the second economy, this meant developing areas such as in the former homelands where agriculture was previously undermined to a level that it will compete commercially.</p> <p>Irrigated crops such as sugarcane, which require a lot of water, will have to compete with other crops for the already scarce water resources. (Biofuels Industrial Strategy of the Republic of South Africa, December 2007).</p>

In order for bioenergy markets to develop, a coordinated approach is needed by all countries to advance research and development, share information and resources and work multilaterally to advance the development of the biofuels globally.

References

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