

Europe – a new market for biofuel exports or vibrant competitor?

Speculations about the size of the European biofuels market are the topic of international conferences and newspaper articles. For a number of developing countries the option to access the European market will determine the dynamics of their own biofuel industry. Experts agree that private and policy-based standards for this new market are required in order to ensure sustainable biofuel production. Will developing countries have a chance to access this market?

Dr Elke Foerster
Elke.Foerster@gtz.de
Vera Scholz
Vera.Scholz@gtz.de
Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)
Dag-Hammarskjöld-Weg 1-5
65760 Eschborn

Dr Andre Faaij
Copernicus Institute – Utrecht University
Department of Science, Technology & Society
Heidelberglaan 2
3584 CS Utrecht, The Netherlands
A.Faaij@chem.uu.nl

Germany is the world leader in biodiesel production. The almost two million litres produced in 2005 constituted around 50 percent of global production. However, the total biodiesel production amounts to only a minute fraction of the bioethanol markets. Here, Brazil is leading with about 8 billion litres and also covers about a 50 percent market share. The EU's less than 3 percent share of the global ethanol production still amounts to more bioethanol than biodiesel. Even more interesting than current production levels are the enormous recent increases in production. Double digit annual growth rates are expected to prevail in the medium run. Still, even with biomass use doubled between 2003 and 2012 – for heat, electricity and transport – Europe's reliance on energy imports may only reduce

slightly from 48 to 42 percent – a rather meagre impact of local biomass production (*EU Biomass Action Plan*, December 2005)

Dynamics of the European biofuel market

The increase in demand for biofuels in Europe is determined politically – by blending mandates (5.75 % by 2010) and tax incentives. These blending mandates lead to an estimated demand of 19 million toe (tonnes of oil equivalent) by 2010. On the basis of the biofuel feedstock produced in Europe – sugar beets, rapeseed and cereals – about 17 million hectares of agricultural land would be needed (equal to about 16 % of arable land in the EU). An area expansion of this magnitude could



Foto: GTZ

easily be realized within Europe. However, fending off imports is politically not feasible. Furthermore, the Biomass Action Plan points out two disadvantages of European autarky in biofuels production: relatively high prices (approx. 30 % higher than world market prices) and a lack of beneficial impact on establishing biofuel markets elsewhere.

In contrast, if all duties were omitted on biofuels, the picture differs for bioethanol and biodiesel. Bioethanol demand would likely be met completely by imports, as European production is not competitive in the near future, even with European biofuels production enjoying supply incentives (46 Euro/ha on set aside land). However, a complete exemption from import duties and import barriers is – again – politically not feasible. If there is no prospect of domestic involvement in bioethanol production, it is likely that relevant domestic market players will focus their efforts on biodiesel instead – eroding the market into which developing countries hope to sell. Furthermore, in case of free trade, most of the least developed countries are likely not able to compete any better than they are currently competing on the world sugar market. That would at best limit benefits to few countries like Swaziland and Zimbabwe, current sugar exporters with production costs close to Brazil's and India's

For biodiesel, it is not price competition but the EU technical standard that is keeping oil imports other than rapeseed to less than 25 percent of the biodiesel mix. With an amendment of the current biodiesel technical standard within the EU (the «FAME» standard EN14214), the use of imported oils could be increased to 50 percent of the mix.

EU policy will pursue a «balanced approach» of imports and domestic production. The Biomass Action Plan states that the EU will maintain market access

conditions for imported biofuels that are no less favourable than those provided by the trade agreements currently in force. Thus, even in the mid-term there could be plenty of scope for imports. In 2004 just over 3 million toe of biofuels were imported into the EU, or approximately 10 percent of demand, imports could increase to 10 million toe by 2010 – covering 50 percent of demand. Future import scenarios beyond 2010 vary immensely – depending obviously on diverse assumptions for food competition and energy prices – but might easily be boosted above 20 million toe in 2020. The government in the Netherlands e.g. currently discusses a vision of a 30 percent bio-energy share of total energy supply in 2040, a scenario that would create a demand well beyond the magnitude of the biofuels sector. In any case, Europe could become a major global sink for biofuels with considerable impact on the establishment of a biofuel industry in developing countries.

When looking at the global picture, Europe is a major player, but not the only relevant market sink. Japan is moving towards large scale imports, as could likely be the case for China and India. The biofuel demand in these emerging economies could easily dwarf that of Europe. At the same time a number of major potential consumers are expanding production on a large scale (GTZ: *Biofuel for transportation. India country study on potential and implication for sustainable agriculture and energy, 2005*; and GTZ: *Liquid Biofuels for Transportation. Chinese Potential and Implications for Sustainable Agriculture in the 21st Century, 2006*).

In addition to constituting a major sink, the EU is also committed to support developing countries that wish to produce biofuels and develop their domestic markets – particularly in the context of the sugar reforms (see also EU strategy for biofuels, Feb. 2006, [2] with the main policy axes listed in the box). The creation of a 250 million euro Energy Facility is now a step towards this goal. Policy coherence is not yet achieved, but current trends are encouraging.

The need for social and ecological standards in the biofuels market

As biofuels production costs vary markedly across the globe and markets for biofuels are concentrated in few regions, international trade is the likely consequence. Both the European and the global biofuel market will continue to grow vigorously. One of the main concerns now is how Europe can expand its biofuel use without creating negative social and eco-

EU Strategy for Biofuels, 2006 – seven policy axes:

- Stimulating demand for biofuels
- Capturing environmental benefits
- Developing the production and distribution of biofuels
- Expanding feedstock supplies
- Enhancing trade opportunities
- Supporting developing countries
- Supporting research and development

logical impacts in developing countries and emerging economies. How can biofuels production be designed sustainably – covering all steps in the value chain from the production of raw materials used as feedstock through transport, processing, right to the consumer?

Currently, consumers are yet largely unaware of the issue, but a number of Non-Governmental Organisations (NGOs) – eloquently supported by the press – pointed out environmental and social risks. It requires understanding of a complex sequence of events to determine the consequences of expanded sugar and soybean plantations in Brazil on the rain forest and its users. Likewise, detailed analysis is necessary to determine the impact of a change from subsistence cropping to palm oil production on food security of a Malaysian farmer. The increased water demand from expanded biofuel production may not fulfil the need to produce more crop per drop – and may in turn have social implications. A number of initiatives are now discussed to develop social and environmental standards for the production of biofuels feedstocks (e.g. Fritsche, et al.: *Criteria for Assessing Environmental, Economic, and Social Aspects for Biofuels in Developing Countries, 2004*; Lewandowsky et al.: *Steps towards the development of a certification system for sustainable Bio-energy trade, 2005*; Smeets: *The impact of sustainability criteria on the costs and potentials of bioenergy production, 2005*). A summary of the range of criteria proposed is given in the box on page 18.

The main concerns currently relate to the production of biomass feedstock. However, the concerns reach beyond the production of feedstocks. Is the integration of small-scale farmers into viable production units threatened by agglomerations of large plantations? Can small farmers adequately maintain their market interests versus centralized processors or should they be co-owners of these processing plants? And what happens further along the value chain?

What is the impact of a change from subsistence cropping to palm oil production on food security in Asia?



Preliminary criteria proposed by Fritsche et al. *

Environmental criteria:

- (1) Conservation of natural ecosystems – excluding destruction of forests for cultivation of energy crops;
- (2) Preserving genetic diversity within energy crop plantation;
- (3) Sufficient re-circulation of nutrients into cultivated soils and woodlands;
- (4) Avoiding negative impacts of fertilizer, pesticide use, and of air pollutants;
- (5) Avoiding water pollution and critical irrigation needs in semi-dry and dry regions;
- (6) Avoiding Soil Erosion.

Social criteria:

- (7) Priority for food supply and food security for the export country's people;
- (8) Avoiding health impacts from energy crop cultivation;
- (9) Integration of landless persons in energy cropping and value chain. No displacement;
- (10) Preservation and development of jobs in rural areas;
- (11) Inclusion of local people in the distribution of economic revenues from bio-energy;
- (12) Participation of local people in decision making

Economic criteria:

- (13) Access to modern energy for all people;
- (14) Balancing possible export revenues to economic and social development of the exporting country;
- (15) Contribution of possible export revenues to economic and social development of the exporting country;
- (16) Costs of expansion and development of infrastructure and logistics for energy crop cultivation, processing and exports;
- (17) Dependence on subsidies

* (abbreviated description)

Most of the initiatives on biofuel standards are only now graduating from an initial level covering discussion in the NGO and science scene to covering a wider range of stakeholders. This is a very necessary step after a good start and main issues being further consolidated (Fritsche et al.: *Sustainability Standards for Bioenergy*, 2006) The global discussion integrating major stakeholders – the producers in developing countries – has only started on a small scale (Foerster et al.: *Application of social and ecological standards in biomass production in developing countries – discussions in India*, 2005). National initiatives integrating selective representatives of the private sector are still isolated efforts that require further regional integration (e.g. Project Group 'Sustainable Production of Biomass', J. Cramer et al.) and the integration of all stakeholders along the value chain – producers, processors, and traders has not yet taken place. Some of the existing networks – e.g. the Task 40 on Bioenergy Trade of the International Energy Agency (<http://www.bioenergytrade.org/index.php>) as well as the Renewable Energy Policy Network (www.ren21.net), could be tapped for support.

Early on, however, the integration of stakeholders from civil society and private sector in developing countries, and emerging economies together with those from OECD

countries is important in order to establish a sustainable international process. Only if producers in developing countries are involved in the process of defining standards can it be avoided that they find themselves excluded from the market by new and insurmountable barriers. When starting on this endeavour to develop standards for biofuel production and trade, it is useful to look at the experience and the instruments developed for other

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commodities (GTZ: *Social and Ecological Standards: A travel Guide to Sustainable Development*, 2004; and www.gtz.de/social-ecological-standards) A number of parallels exist between biofuels and commodities previously covered by a discussion on standards. Wood certification – e.g.

through the Forest Stewardship Council – and the Common Code for the Coffee Community (Homepage – Common Code for the Coffee Community) seem to be two interesting examples.

In the coffee sector, initial company-specific standards and certificates were gradually replaced by sub-sectoral codes of conduct. In the newly emerging biofuels market there is now a chance to directly start the development of a joint sectoral industry standards discussion and avoiding the detour via company-specific standards. And in these initiatives solutions have been found that integrate the stakeholders along the value chain. Furthermore, in the coffee sector the process of integrating all stakeholders not only into the standards discussion, but also assisting them to gradually comply with the agreed standards is a worthwhile experience to reflect on. Only by coaching especially small producers, can we avoid that they suddenly find themselves excluded from the market.

The advantage with biofuels is the fact that the market is newly emerging. The futures market for bioethanol is just picking up pace, and can be structured now before it is established, instead of entering into cumbersome negotiations for win-win situations in an existing market.

A number of the concerns raised in the discussion on production of feedstock for biofuels are well known. The discussion on food security and competition with food production reminds of the discussion on soybean for animal feed in the 80s. However, the recurrence of concerns does not prevent reaching unfounded conclusions. The establishment of a voluntary standard based on a Multi-Stakeholder-Process creates a «level playing field» in the biofuels market. This would combine development policy goals with the local interests of consumers and producers in Europe.

Commissioned by the Federal Ministry for Economic Cooperation and Development (BMZ), the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) has been actively promoting social and ecological standards. The «Programme office for Social and Ecological Standards» within GTZ combines the experience of GTZ in supporting the process for establishing voluntary standards in various sectors (GTZ – social and ecological standards: www.gtz.de/social-ecological-standards)

A full list with references can be obtained from the authors.