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THE STATE OF THE BIOFUELS MARKET



REGULATORY, TRADE AND DEVELOPMENT PERSPECTIVES



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Executive Summary

This reports updates the initial study carried out by UNCTAD on the state of the biofuels markets, which was first published in 2006. In doing so, this 2013 update attempts to cover the main developments since 2006 in the biofuels sector, examining issues of production in key countries and regions, international trade, consumption trends, as well as evolving regulatory and political debates on this important theme.

During the 2000s there was an unprecedented increase in public and private interest for liquid biofuels, driven by a number of factors. Those included uncertainties about the price of petroleum products, the finite nature of fossil fuels, and ever growing environmental concerns, especially related to greenhouse gas emissions. It included also interest in novel ways to promote development and growth which could deliver "green" jobs in non-carbon intensive sectors of the economy. Biofuels were discussed at one of the potential tools to allow a level of decoupling between development and environmental degradation.

While in 2006 the biofuel market was only starting to become truly international, by 2013 bioethanol and biodiesel have already become established commodities traded daily in all continents. Their market increased based primarily on demand from the transport sector, especially road vehicles, which use biofuels either in pure form or as blend into conventional fossil fuels (e.g. diesel or gasoline). Another important development, which occurred since 2006, was the emergence of alternative markets for liquid biofuels, beyond their core usage in road transport. Biofuels started being used in larger scale for aviation, electricity generation, cooking energy and even maritime transport. Policy focus of many countries also migrated from a limited scope of liquid biofuels towards broader notions of bioenergy (solid, liquid and gaseous energy products). In addition, concepts such as bioeconomy now embody a systemic view, in which systems must consider the usage of biomass not only for energy, but for food, feed and fiber as additional outputs.

Since 2006 several developed and developing countries have established (and continue to pursue) regulatory setups for biofuels, including blending targets, sustainability norms, as well as research and deployment strategies for advanced biofuel technologies which hold great promise of reducing social and environmental risks associated to their production and usage. While subsidies and incentives continue to be provided, biofuel industry as a whole seems to be more self-reliant in 2013 than it was in 2006. This is perhaps one of the factors behind a relative stabilization in demand for biofuels (and overall rate of growth in the industry) after 2010.

The emergence of better science around the issue of land use change associated to production and usage of biofuels brought doubts on the strength of 1st generation biofuels as a tool to mitigate greenhouse gases (GHG) emissions. Yet, the merits of biofuels have somehow shifted towards arguments about green jobs, energy security, and overall improvement of agricultural returns, which are in dire need in many developing and least developed countries.

The large increases in production, use, and international trade of biofuels which were seen after 2006 have contributed to mature the industry, giving it a professional standing in line with other major tradable commodities. Still, the basket of producing countries has not changed substantially since our first assessment was published in 2006. While in the policy front quick progress has been carried out by many countries, investments maintained the trend towards traditional producing areas that offer more predictable business landscapes for entrepreneurs.

A large potential remains to be exploited in the sustainable production of 1st generation biofuels in developing countries. Efficiency considerations continue to indicate that feedstock and biofuel production can be done most favorably in developing countries, where the climate to grow them and low-cost farm labor continue to exist. Energy security considerations, however, have prompted less-efficient countries to engage in biofuel production irrespective of economic and environmental considerations.

Bioethanol and biodiesel continue to be the primary forces behind international biofuel markets. Developing and developed countries, particularly the United States (US), Brazil, the European Union (EU), China, Argentina and Malaysia have benefited from that dynamism by distinguishing themselves in the sector. In addition to biofuel trade flows between the EU, US and Brazil, South-South trade and transfer of technology are also taking place, especially as capacity flows – albeit at a slow pace – towards new production frontiers such as in many African countries. At the same time, there has been little international trade in bioethanol feedstocks, partially due to the non-tradable and perishable characteristics of some feedstocks (e.g. sugarcane), and to the dual role that some countries have as both producers of feedstock and consumers of biofuels (e.g. cereals-ethanol, sunflower-biodiesel in the US and in the EU). Biodiesel production outside of the EU has grown since 2006, but most imports in the region still take form of vegetable oil, from countries like Malaysia, Indonesia and Argentina. The 2nd generation of biofuels, which has started to be marketed at commercial levels in 2013, could change this panorama by allowing larger trade of feedstocks such as cellulosic and waste material, in line with practices adopted in the pellets and pulp & paper industries.

International trade in biofuels remains important to provide win-win opportunities to all countries, as several countries need the trade route as a way to guarantee the attainment of self-imposed blending targets. It has been noticed over the years that the successful cases of biofuel strategy implementation involved first the creation of domestic markets, with regional and international trade emerging from it. Export-oriented production models have not been the main trend adopted by the industry, as it became clear that reliance on fast-changing foreign regulations made risky the adoption of business models heavily reliant on exports. Instead of viewing export markets as primers for biofuel industries in developing countries, those have now the possibility to look for other sectors beyond transport such as cooking energy, electricity generation, and niche fuels such as aviation biodiesel as ways to start small, but in more solid ground.

While the market has grown more liberalized since 2006, biofuels still face tariffs and non-tariff measures. Brazil and the US both struck down their respective bioethanol import tariffs, primarily due to a mutual dependency to cover short-term demand needs from each other. The EU, on the other hand, maintained its applicable tariffs for bioethanol unchanged since 2006, but offered some waivers in the case of E85 (85 percent bioethanol blend with gasoline) imports by Sweden. While tariffs were somehow reduced, domestic subsidies continued to exist, and in some cases were strengthened such as in Brazil during 2012-13 as the country launched a plan to revitalize its bioethanol industry.

With a considerable increase in biofuels trade since 2006, sustainability certification became a new norm in the industry, as well as a prerequisite for market access. After intense debate on the formulation of sustainability regulations, certification, and labeling of biofuels and feedstocks, the sustainability criteria for biofuels has evolved mainly via voluntary schemes which adhere to legislation adopted in major markets (e.g. US and EU).

With the eyes towards the future, some specific challenges for developing countries include: (i) striking regulatory setups for bioenergy tailored to each country, which do not antagonize food and energy supply, but instead enhance agricultural productivity, rural income and worker's skills; (ii) design strategies to avoid the emergence of a technological gap between 1st generation (land-intensive) and 2nd generation (capital-intensive) biofuels; (iii) find ways to ensure that the cost of sustainability certification is spread along supply chains in a way that protects small farmers from undue cost burdens; (iv) promote a continuous inflow of private investment and production and process technologies to developing countries, especially through predictable business environments; (v) prioritize research and deployment of advanced technologies that can convert non-edible biomass into bioenergy products, doing so in cooperation with other countries to reduce costs; and (v) facilitate trade by engaging in consultations and adoption of sustainability practices which are compatible with major sustainability schemes adopted in the US, Brazil and the EU.

Conscious decisions, sharing of information and data collection, organizational strategies, government support services, technical and financial assistance will continue to be needed to guide developing countries towards the right decisions in this highly dynamic market.

UNCTAD, through its work on biofuels and renewable energy, is providing developing countries with access to economic and trade policy analysis, capacity-building activities, and consensus-building tools to help them address those and other challenges.

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