

Assessing the Biofuels Option
Sponsors' Highlights
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- Biomass is a widely abundant but underutilized renewable energy resource. There is high potential to increase the sustainable production of biomass for energy and even higher potential to increase the efficiency of its use.
- Many factors are converging globally to encourage greater biofuels production and use:
 - High oil prices and energy security considerations
 - Agriculture and trade reform
 - Provision of energy to the rural poor and associated economic and social benefits
 - Local and global environmental challenges
 - New, more efficient conversion technologies
 - Compatibility with current vehicles and infrastructure
- The response to these forces has been a remarkable upsurge of new policies to expand biofuels production and use, in both developing countries and industrialized countries. This has been coupled with a great amount of new investment in both biofuel production, as well as innovations of new conversion and application technologies.
- With oil prices at \$50 per barrel and above, renewed attention is being given to biofuels. In some cases, even at lower prices, ethanol from biomass can be directly competitive with gasoline without subsidy. Brazil has demonstrated the feasibility of large-scale production of ethanol from sugar cane, and that experience could be replicated quite rapidly elsewhere in the developing world, utilizing a variety of feedstocks. Under a robust policy regime, ethanol alone could replace 10 percent of world gasoline use by 2025 and 30 percent in 2050. Some countries could become oil independent altogether.
- Biodiesel is another biofuel option, and can be made from many kinds of crops, including palm, rape, soy, and jatropha. In the right circumstances, it could be a low-cost, locally produced fuel for electric power generation or transport. It is most likely to be especially competitive in countries and areas where the price of diesel is affected by high transportation costs.
- Bioenergy offers diverse solutions depending on region and climate; therefore care must be taken to select appropriate local crops. However, most countries have the potential to undertake biofuels production. Experience has shown that for many a good initial target may be to displace up to 10 percent of domestic motor fuel use, as at this level no changes need to be made to fuel distribution or car engines.
- The benefits include:
 - Increased farm income and employment.
 - Increased energy security and economic development through creation of a domestic transportation fuels industry.
 - Rural development and poverty reduction.
 - Improved trade balances, if oil imports are reduced by biofuels use or export.
 - Reduced pollution resulting in improved public health.
 - Reduced greenhouse gas emissions.

- New technologies are under development that will propel an even greater use of biofuels in the future. Biorefining of cellulosic materials has the potential to increase dramatically the production per hectare – by as much as four times over today’s production – and also produce chemicals, fibers, fertilizers, and electricity.
- Large-scale conversion of biomass to liquid transportation fuels for use in flexible-fuel vehicles could transform the world’s fuel markets, empowering consumers with competitive options and reducing both the demand for oil and the economic and security risks associated with it. Addressing this issue, multilateral institutions, including the IEA, UNCTAD, UNDP, the World Bank, and others are invited, consistent with their various mandates, to more closely interact among themselves, as well as to cooperate with Southern agencies, focusing on:
 - Macroeconomic analysis of the interaction of fossil fuel and biofuel markets.
 - National cost/benefit analysis (including effects on food prices) and best practice policy development.
 - Research agenda for technology development and adaptation.
 - Trade barriers, especially import tariffs and agricultural subsidies.
 - Determination and dissemination of best practices drawn from global biofuel experiences.
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- There is a unique mutual interest in fostering South-South, as well as North-South, cooperation to expand biofuels production and use in energy applications for cooking, agriculture and other energy services. Such cooperation should address:
 - Technological and market challenges of developing countries including especially the engagement of the private sector.
 - Best practices for environmentally sustainable production.
 - Information sharing with special focus on tropical climates.
 - Best practice policies to scale out, as well as to scale up.
 - A locus for dialogue among developing countries and their industries.
 - Sharing Brazil’s experience with other developing countries, including the possibility of new partnerships where appropriate with the participation of multilateral organizations.
 - The contribution that biofuels industries can make to rural economies.
 - A research agenda focusing on technology innovation and ecological systems.
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- Increased international trade in biofuels will benefit both Northern and Southern countries. It is in the interest of IEA countries to diversify fuel supplies as a strategic fuel hedge as well as to reduce greenhouse gas emissions. These countries should consider partnerships with producing countries – either directly or through joint energy facilities to accelerate the cost-effective use of biofuels. Regional banks should be invited to take a lead in this effort.