Bioenergy on the International Agenda

Melinda Kimble
Senior-Vice President
United Nations Foundation
Biofuels: More Talk than Reality?

• Attention to Biofuels Stems from
  – Interest in Energy Security
  – Diversification of Energy Supply
  – Prospect of Local Production
  – Reversal of Agricultural Price Trends
  – Greenhouse Gas Reductions
Biofuels are a small component of a much larger Bioenergy/ biomass contribution to total primary energy supply.

NOTE: Shares are out of 2004 total 11.2 billion tons of oil equivalent, or 470 exajoules (joules 10^18).

Perceived Problems

- Biofuels accelerate deforestation
- Biofuel feedstock production displaces food production
- Biofuel demand is responsible for the “food price crisis”
- Biofuel production contributes to land and water degradation.

*Much the same could be said about other nonfood crops.*
Starting in the Middle

- Biofuels are the only near term alternative to petroleum for transport sector
- Blends with other liquid fuels; compatible with fuel distribution infrastructure
- Rapid oil price rise since 2003 accelerated interest in liquid biofuels
- Dependency on OPEC fed public policy debates
- Brazil’s success in making ethanol a part of overall energy supply proved attractive
- Efficiencies in ethanol and oilseed production relative to petroleum costs made a shift enticing
- Gasoline and diesel demand are the primary drivers of oil imports in both the US and Europe
- Opportunity to diversify supply with home-grown products added to political support
Can Mandates Create Markets?

- EU and US determined that blending mandates were the best way to stimulate production – this initiative helped European and US farmers – and created new demand.
- Globalization of markets – meant that if rapeseed and corn were used for biofuels; demand for substitute products increased.
- US and EU also protected their markets from imports; reducing efficiencies of demand and supply.
What we know about biofuels

• To optimize energy availability, processing must be done at the point of harvest
• Transporting any volume of biomass is likely to add to costs
• Some forms of biofuels can only be commercially viable with new systems in place
• Vegoil is the product that can be most easily integrated into current trade
Reality of Biofuels

• Two biofuels dominate the current global market: ethanol and vegoil (mostly palm and rapeseed)

• Most biofuels are produced and used locally

• International trade is limited
**Current Biofuels Consumption is Relatively Low**

WEO Reference Scenario: World biofuels consumption (Source: WEO 2008)

Use of biofuels is projected to climb from about 0.6 mb/d in 2006 to 3.2 mb/d in 2030 – equal to about 5% of total road-transport fuel demand.
The Promise and the Hype

Competing with petroleum-based fuel is a challenge given its unique
   – Energy density
   – Portability
Vegoils have similar energy density, but producing them in the volumes required demands either more land or higher yields per hectare.
Sugarcane ethanol provides a good option for gasoline, and efficient producers (e.g. Brazil) can compete with oil at $30/bbl.
Corn is a much less efficient option, but still provides some gains vis-à-vis a petroleum-based fuel.
Though For Developing Countries, Obstacles Exist

- Food Constraints
- Water Access
- Land use and Land Ownership
- Vulnerability of Agricultural Markets
- Goals and Scale of Production
- Governance

So Do Opportunities—
A number of developing countries are exploring biofuels
Rethinking the Paradigm

• Promise of biofuels is one of second generation feedstocks.

• Goal should be to use crop-based fuels in the most efficient way.

• Using food crops for fuel will increase food prices and impact land use without significantly increasing productivity.
Cumulative energy-supply investment in the Reference Scenario, 2007-2030 (Source: WEO 2008)

Investment in the Biofuel Sector is Small Compared to other Energy Sectors

Investment of $26 trillion, or over $1 trillion/year, is needed, but the credit squeeze could delay spending, potentially setting up a supply-crunch once the economy recovers.
Biofuels Requires Engagement of Multiple Players to Achieve Multiple Objectives

Benefits
- Soil protection
- Biomass
- Carbon sequestration
- Watershed management

Activities
- Farmers associations
- Land-use administration
- Agriculture/Forestry Administration
- Farm workers, Landless

Actors
- NGOs
- International Organisations
- Energy Administration
- SMEs
- Including farms
- Science
- Environment Administration
- Industry
- Industry Administration
- Energy Administration
- Export & Competition
- Innovation
- Investment
- Development costs
- Transaction costs
- Non-CO2 emissions
- Indoor air pollution
- Source: Gustavo Best 2008
Do we have sufficient land?

- IEA Task 38 highlights constraints on land
- Can we sustain highest yields? Can we improve yields in Africa, South Asia?
- OECD study estimates – we could need as much as 300 million hectares more for all agricultural production.
- Do we want to certify production or manage land use?
Thank You!