GBEP - Executive Capacity Development Seminar
Sustainable bioenergy: sowing the seeds of sustainable development

Sustainable Bioenergy & Economic Aspects

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ABOUT UNICA

- The Brazilian Sugarcane Industry Association (UNICA) is the leading sugarcane industry association in Brazil. Its more than 140 member companies, voluntarily engaged, represent over 50% of the ethanol and 60% of the sugar produced in Brazil.

- UNICA has around 60 staff and its expertise covers key areas including the environment, energy, technology, international trade, corporate social responsibility, sustainability, regulation, economics and communications.

- It has offices in five locations: São Paulo (headquarters), Ribeirão Preto (in the heart of the sugarcane producing region), Brasília (Brazilian capital), Washington D.C, and Brussels.
**KEY NUMBERS OF BRAZILIAN SUGARCANE SECTOR**

- **Sector Revenue**: More than US$ 50 billion
- **Foreign revenue (exports)**: US$ 13.8 billion (2010)
- **Number of mills**: More than 434 nationwide
- **Sugarcane growers**: 70,000
- **Job creation**: 1.28 million
- **Share of Brazilian energy use**: 18% (2nd source, > hydroelectricity)
- **Avoided CO₂ emissions**: > 600 million tons since 1975

Elaboration: UNICA.

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**BRAZILIAN ENERGY MATRIX**

- **Energy Supply Structure**
  - Brazil (2010): 47.5% [Nonrenewable], 52.7% [Renewable]
  - World (2010): 18.6% [Nonrenewable], 81.4% [Renewable]
  - OECD (2010): 7.2% [Nonrenewable], 92.8% [Renewable]

- **Sources of Energy**:
  - **Sugarcane**: 18.1%
  - **Petroleum and bi-products**: 37.9%
  - **Other renewable sources**: 3.9%
  - **Natural Gas**: 8.8%
  - **Wood and other biomass**: 10.1%
  - **Hydroelectricity**: 15.2%

WHAT DO WE PRODUCE TODAY

<table>
<thead>
<tr>
<th>Product</th>
<th>2010/11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugarcane production (million t)</td>
<td>620.1</td>
</tr>
<tr>
<td>Sugar (million t)</td>
<td>37.9</td>
</tr>
<tr>
<td>Internal market and stocks</td>
<td>10.4</td>
</tr>
<tr>
<td>Surplus Export</td>
<td>27.5</td>
</tr>
<tr>
<td>Ethanol (billion l)</td>
<td>27.4</td>
</tr>
<tr>
<td>Internal market and stocks</td>
<td>25.5</td>
</tr>
<tr>
<td>Surplus Export</td>
<td>1.9</td>
</tr>
<tr>
<td>Bioelectricity (MW average)</td>
<td>1.800</td>
</tr>
<tr>
<td>Bioelectricity in Brazilian energy matrix (%)</td>
<td>3%</td>
</tr>
</tbody>
</table>

Note: Potential production of surplus electricity has been calculated based on the utilization of 75% of the available bagasse and 50% of the available straw, and considering the sugarcane production during most recent harvest. Source: UNICA, MAPA, Copersucar, Koblitz and Cogen.
EVOLUTION OF SUGARCANE, SUGAR AND ETHANOL PRODUCTION IN BRAZIL

Sources: UNICA and MAPA. Note: 11/12 - estimated data.

Proalcool Program
FFV

1st phase: Proalcool
Flex Fuel Vehicles

Strong government intervention
Pure ethanol vehicles & distribution

Automakers decision

NATIONAL LIGHT VEHICLE FLEET

Today, 12 automakers offer over 90 models of flex fuel vehicles, which already account for almost 50% of the Brazilian fleet of light commercial vehicles.

Source: UNICA
ONS data indicate a 4% savings in reservoirs for every 1,000 MWa of bioelectricity generated during the dry season (April-November).

BIOELECTRICITY AND HYDROELECTRICITY ARE COMPLEMENTARY

Source: Nivalde J. de Castro et. al. From CCEE and EPE.

FUTURE

New Products

- Bus (E95)
- Planes (Ipanema)
- Motorcycles (Flex)
- Alcoolchemicals (i.e. bioplastics)
- Bio-hydrocarbons (i.e. cane diesel, cane jet fuel)
A TYPICAL SUGARCANE INDUSTRIAL PLANT IN BRAZIL: SUGAR, BIOELETRICITY AND BIOENERGY (ETHANOL AND MORE TO COME...)

INDUSTRY COMPETITIVENESS AND OUTLOOK FOR EXPANSION

The Government Agroecological Zoning

1. Forbids:
   - Sugarcane cultivation in the most sensitive biomes - Amazon, Pantanal and Upper Paraguay river basin.
   - Production expansion over any native vegetation (cerrado, field...)

2. Authorizes:
   - Cane expansion in 64.7 million ha, equivalent to 7.5% of the Brazilian territory

Today sugarcane is cultivated in 0.9% of the area
Response to the process of mechanizing the sugarcane harvest to eliminate burning

Project to train and re-qualify 3,500 workers/year for jobs in sugar mills and ethanol plants as well as to work in other sectors

Similar programs are now being adopted

Voluntary agreement between UNICA and government of state of São Paulo (2007)
- end the use of fire in sugarcane harvesting
- adopt other conservation measures, such as the protection of riparian areas.

260,000 ha of riparian areas are already protected by the sector and 70% of the cane is to be harvested mechanically in harvest year 2011/12.

A “trilateral” agreement - Government, Private Sector and Labor Unions - which sets around 30 better work practices that goes beyond legislation demand.

It is an agreement of voluntary participation where verified companies will be placed in a “Positive List” in the website of the General Secretary of the Presidency of the Republic.

UNICA was the first agribusiness association in the world to publish a sustainability report following the Global Reporting Initiative Framework.

In its last version (2010) it achieved an “A+ Grade”. Dissemination of the practice within the Sugarcane sector: around 75 mills have now their own GRI Sustainability Report!
An international *multi-stakeholder* certification of best sustainability practices

Some Bonsucro members

UNICA is a member of Bonsucro and sits on the board of directors

As of now, 8 associated members already certified!

**CONCLUSION**

- Brazilian sugarcane ethanol can help countries to reach their environmental and climate change targets
  - Highest GHG emissions savings
  - Environmental practices are a global benchmark
    - The industry is committed not only to demonstrate compliance with the EU’s sustainability requirements, but to go beyond the established criteria
    - Brazil is a particularly relevant case study
  - Competitive with gasoline and scalable

- But trade barriers must be removed!
Thank you

www.unica.com.br
www.sugarcane.org