“Sustainable bioenergy: sowing the seeds of sustainable development”

November 10-12, 2011
• Argentina: facts and figures.

• Energy sector in Argentina.

• Reasons for the development of biofuels in Argentina.

• Law Nº 26.093: main objectives.

• Availability of raw material for biofuels production.

• Recent developments in the Argentine biofuels sector.

• Actions for sustainable production of bioenergy.

• Conclusions.
Chief of state: Cristina FERNANDEZ DE KIRCHNER
Capital: Buenos Aires
Area: 3.7 million sq km
Population: 41.5 million inhabitants
GDP (purchasing power parity):
• US$ 590 billion / Oficial: US$ 370 billion
GDP - per capita (PPP): US$ 14,000 / Oficial: US$ 9,300

Source: CIA-The World Factbook and INDEC
ARGENTINE ENERGY CONSUMPTION BY SOURCE

Source: Department of Energy, Argentina

Argentina imports 8 to 10% of total diesel oil
• Comparative advantages of Argentina in the production of oil crops: large and fertile extensions of land available for oilseed production.

• Flexibility for the implementation of oilseed crops from natural and artificial irrigation.

• An abundance of varied ecosystems fueling the growth of diverse crops.
# World Soybean Production 2010:

<table>
<thead>
<tr>
<th>Country</th>
<th>Production (million tons)</th>
<th>Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>91,0</td>
<td>35%</td>
</tr>
<tr>
<td>BRAZIL</td>
<td>70,0</td>
<td>27%</td>
</tr>
<tr>
<td>ARGENTINA</td>
<td>52,7</td>
<td>20%</td>
</tr>
<tr>
<td>CHINA</td>
<td>15,0</td>
<td>6%</td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>228,7</strong></td>
<td><strong>88%</strong></td>
</tr>
<tr>
<td>REST</td>
<td>30,0</td>
<td>12%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>258,7</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: SOYSTAT - USDA - MAGyP
REASONS FOR THE DEVELOPMENT OF BIOFUELS IN ARGENTINA

- One of the main exporters of vegetable oil in the world.
  - The oil industry in Argentina is export-oriented, sending 95% of its production to the foreign market. (2010 crushing capacity: 160,000 tons/day).

<table>
<thead>
<tr>
<th></th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOY OIL</td>
<td>7.0 Million Tons.</td>
</tr>
<tr>
<td>SUNFLOWER OIL</td>
<td>1.1 Million Tons.</td>
</tr>
<tr>
<td>OTHERS</td>
<td>0.1 Million Tons.</td>
</tr>
<tr>
<td>TOTAL</td>
<td>8.2 Million Tons.</td>
</tr>
</tbody>
</table>

Source: CIARA
ARGENTINA IS THE No 1 EXPORTER AND No 3 WORLD PRODUCER OF SOY OIL

THE No 1 EXPORTER AND No 2 PRODUCER OF SUNFLOWER OIL IN THE WORLD
• The Argentine Congress approved in 2006 a law aimed to promote the use and production of biofuels in the country.

• 5% mandatory use of biodiesel and ethanol in all diesel oil and gasoline consumption, January 1st, 2010. Currently 7% biodiesel (10%).
AVAILABILITY OF RAW MATERIAL FOR BIODIESEL PRODUCTION IN ARGENTINA
ARGENTINE GRAIN PRODUCTION

- in million tons -

Source: Ministry of Agriculture, Livestock and Fisheries of Argentina
Argentine total grain production in 2009/2010 reached 93.3 million tons. SOY, CORN and WHEAT account for almost 90% of total grain production.

### Total Grain Production 2009/2010 season:

<table>
<thead>
<tr>
<th>Grain</th>
<th>Planted area</th>
<th>Production</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>million hectares</td>
<td>million tons</td>
<td>%</td>
</tr>
<tr>
<td>SOY</td>
<td>18.3</td>
<td>52.7</td>
<td>55%</td>
</tr>
<tr>
<td>CORN</td>
<td>3.7</td>
<td>22.7</td>
<td>24%</td>
</tr>
<tr>
<td>WHEAT</td>
<td>3.6</td>
<td>8.9</td>
<td>9%</td>
</tr>
<tr>
<td>SORGHUM</td>
<td>1.0</td>
<td>3.6</td>
<td>4%</td>
</tr>
<tr>
<td>SUNFLOWER</td>
<td>1.6</td>
<td>2.2</td>
<td>2%</td>
</tr>
<tr>
<td>OTHERS</td>
<td>3.0</td>
<td>4.9</td>
<td>5%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>31.2</td>
<td>95.0</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Ministry of Agriculture, Livestock and Fisheries - Argentina
**Soybean Production**

**Campaign**

2009 – 2010

52.7 million tons

**Argentine Soybean Production**

- in million tons -

- 3.8
- 10.9
- 20.1
- 40.5
- 46.2
- 52.7

**Source:** Ministry of Agriculture, Livestock and Fisheries of Argentina.
With the implementation of the 7% mandatory use of biofuels, the needed production for 2011 is projected at:

- **Biodiesel:** 700,000 tons
- **Vegetable oil:** 720,000 tons. (9% of total current production).
- **Soybean seed contains 18% oil, and 77% protein meal.**
**RECENT DEVELOPMENTS**

30 Biodiesel plants

Total production capacity: 3.0 million tons
4.0 million tons in 2013

Total Investments: US$ 900 million

### Argentine Biodiesel Markets

- **Domestic**
- **Export**

<table>
<thead>
<tr>
<th>Year</th>
<th>Domestic</th>
<th>Export</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>168</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>725</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>1150</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>1360</td>
<td>500</td>
</tr>
<tr>
<td>2011 (*)</td>
<td>2360</td>
<td>700</td>
</tr>
</tbody>
</table>

*Source: Department of Energy and CARBIO  
(*) Projected*
With the implementation of the 5% mandatory use of ethanol, the needed production in 2011 is projected at:

- **Ethanol**: 250,000 tons.

- **Quantity of corn/sorghum needed** = 550,000 tons (2.5% of total current production)

Currently total production of Ethanol is from Sugar Cane
PROBIOMASA

Project to promote the use of Biomass for Bioenergy.
- **General Objective:** To increase the production of bioenergy from Biomass in rural, provincial and national levels.

- **Partners:**
  - Ministry of Agriculture
  - Secretariat of Energy
  - FAO

- **Duration:** 3 years
PROBIOMASA: EXPECTED IMPACTS

- Increase in the use of biomass: 12,000,000 tons annually
- Foreign exchange savings: USD 2,000 millions annually
- Investments estimated: USD 750 millions
- Creation of new jobs.
- Improvement of energy security in at least 30 populations located in marginal areas.
- Emission savings: 9.5 million tons of CO2eq annually.
The law establishes:

- A moratorium on any natural forest cutting until each province produces a Native Forest Land Inventory and Land Management Plan.

- An obligation to produce an environmental impact study and hold a public hearing before approving any clearing.

- Respect for the rights of rural communities over forests they use.

- A prohibition on open burning of forest cuttings waste.
Argentine provinces have begun enacting land zoning policies under the Forest Law’s land management provisions, laying out areas where agricultural expansion is banned due to environmental concerns and areas where agricultural expansion is permissible.
CONCLUSIONS
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• Argentina has ideal growing conditions for the sustained development of the raw materials needed for the production of biofuels.

• Argentina has immediate availability of the raw material needed to cover the 7% of mandatory use in all gasoline and diesel consumption.

• Argentina has already become one of the major producers of biofuels worldwide.
CONCLUSIONS

- From the economic and social point of view, the development of the Argentine biofuels industry is:
  - Creating a new industry in our country.
  - Adding value to grain and vegetable oil production since Argentina exports 70 percent of the corn and 90 percent of the vegetable oil that it produces.
  - Having a favorable impact on the environment.
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THANK YOU