SOCIOECONOMIC IMPACTS OF BIOFUELS PRODUCTION IN BRAZIL

Rome, 15th November 2012
SUMMARY

1. BRAZIL OVERVIEW

2. AGRICULTURE IN BRAZIL

3. BIODIESEL IN BRAZIL

1. ETHANOL IN BRAZIL
1. BRAZIL OVERVIEW
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Social Indicators

Brazil has been experiencing a major social and economic transformation:

- An increase of 27.7% in GDP per capita ⇒ **US$ 12.7 thousand** (2003 to 2011 – Ipea data).

- A reduction in income inequality: richest increased by 16.6% ⇒ the poorest rose by 91.2% (2003 to 2011 – Ipea data).

- More than 30 million people have risen from the poverty level to the middle class bracket ("New Middle Class").

- An increase of 30% in the number of new homes over the past ten years (IBGE).

- A reduction in illiteracy: from 11.4% in 2004 to 8.6% in 2011 (IBGE).

HIGHER DEMAND FOR BASIC SERVICES
PRESSURE FOR EXPANSION OF ENERGY PRODUCTION

Source: Institute of Applied Economic Research (Ipea) / Brazilian Institute of Geography and Statistics (IBGE)
Brazilian’s GDP: US$ 2.4 trillion (the world's sixth largest economy).

GDP’s Growth: 2.7% (in 2011); 1.54% (in 2012); and 4% (in 2013 - BCB).

Inflation Target: 4.5% per year (2012, 2013 and 2014) – with a 2% “margin”.

Inflation Forecast for 2012: 5.44% (BCB – 01/11/2012).

Average Unemployment rate: 5.3 % (August/2012) (IBGE).


(FDI) Direct Foreign Investments in 2012: US$ 60 billion (BCB).

Exports: US$ 264 billion/year (Forecast for 2012 of the MDIC).

SUSTAINABLE GROWTH IS ONLY POSSIBLE WITH THE EXPANSION OF ENERGY PRODUCTION

Source: Brazilian Central Bank (BCB) / Brazilian Institute of Geography and Statistics (IBGE) / Ministry for Development, Industry and Commerce (MDIC)
3. AGRICULTURE IN BRAZIL
AGRICULTURE IN BRAZIL

- The average share of the Agricultural GDP in Brazilian GDP was 24%.

- Brazilian’s agribusiness exports were record in 2011, with sales of US$ 94.6 billion, 24% higher than in 2010.

- Valuable supply chains in Brazil developed from basic agricultural business: soybeans, sugarcane, corn, coffee, cassava etc.

- These chains have been strengthened as the country gained competitiveness in agricultural production.

**Agricultural Sector’s Share in Brazilian GDP (R$ million 2010)**

Source: Brazilian Central Bank (BCB)
4. BIODIESEL IN BRAZIL
The National Program of Biodiesel Use and Production (PNPB) was created in 2004.

Objectives of the Program are the development of an alternative energy source and the establishment of a production chain, creating jobs and improving income.

Since the beginning, the Brazilian’s biodiesel production is growing fast (Ex. rate of growth between 2006 and 2011: 84% per year.

In 2008, Brazil has introduced the mandatory mixture of biodiesel to petroleum diesel - 2% (B2).

2010: such proportion increased to 5%.

Source: National Petroleum Agency (ANP)
ADVANTAGES OF USING BIODIESEL

- Renewable energy source
- Low explosion risks
- High potential of creating jobs and improving income
- Great lubricant for engines
- Less polluting than petroleum diesel
- Enables the use of carbon credits
Soybean oil is the main source for biodiesel production in Brazil, around 80% of vegetal oil used in the Brazilian biodiesel production comes from soybean.

This number is expected to change given the incentives concerning the production of other oleaginous.

Diversification

Such incentive was created after the introduction of the Social Fuel Seal as an stimulus to the diversification of the biodiesel supply chain.

Other oleaginous crops with the great potential:

- Peanut
- Canola
- Sunflower
- Castor Beans
- Cottonseed

As a result, it is estimated a gradual increase in the insertion of other oleaginous in the biodiesel composition, at a rate of 1% per year, in order to reach 70% by 2020.
Midwest (MT and GO) and South (PR and RS) regions concentrate 81% of production.

Source: National Supply Company (CONAB)
Biodiesel family producers are receiving incentives from the Federal Government as technical assistance to farmers (increase productivity) and the guarantee of the productions purchase.

This initiative has helped to modernize the agricultural activities and generate income, for every direct job in the countryside, 12 jobs are generated in the agro-industrial segment.

In such context, we can estimate that 1.3 million jobs are generated in the biodiesel production chain.
In 2006, around **US$ 35 million** were spent on raw material acquisition from family farming.

In 2010, such number reached more than **U$$ 0,5 billion**.

In 2011, the **number of farmer families** in the Brazilian National Account (PNPB), 70% higher than in 2009, i.e., **over 103 thousand families increased their incomes**.

We can say that The Seal Program has **improved the well-fare of over 270 thousand families**.
As a result of biodiesel program, Brazil has stopped spending US$ 3.4 billion in diesel imports.

We can already find around 69 biodiesel industries in Brazil.

The Brazilian production capacity is cerca 6 billion m³ per year.

The next step is the possibility to meet the demand for the B10 mix (10% of biodiesel added to petroleum diesel).

2010: Brazil produces fossil biodiesel and imports around 9 billion liters of diesel. With the B10, US$ 6.8 billion could have been saved.
5. Ethanol in Brazil
In 1975, the “Pró-Álcool” program was created, in order to decrease the country’s dependence on oil imports.

In 2003, Brazil has reinforced the ethanol program.

Brazilian ethanol production rate of growth between 2003 and 2011: 10% per year.

Ethanol demand is a result of the expansion of the fleet of flex fuel cars.

Nowadays, Brazil is the biggest ethanol producer in the world and second largest world ethanol exporter.
Brazilian ethanol industry facts

- 401 sugarcane mills in Brazil.
- 8.8 billion liters will be exported.
- 95 of them are exclusively ethanol producers.
- 292 produce both sugar and ethanol.

By 2019, Brazil will produce 58.8 billion liters.

2011: Brazil produced 28.8 billion liters of ethanol.

Source: Ministério da Agricultura
ETHANOL AND SUGARCANE

- Brazilian ethanol comes essentially from sugarcane.

- 2011: the sugarcane industry was responsible for the employment of 750 thousand people in different segments of its production chain.


- In average, 15% of the Brazilian fertilizer sales are directed to the sugarcane industry.

- Ethanol and sugarcane production have significant impact over other productive segments.

- Exogenous shocks in demand in the biofuels industry cause impacts on the sector itself, on the chemical sector, pharmaceutical, cosmetic, food and refined oil.

80% of the Brazilian sugarcane production is concentrated in the Center-South Region (GO, MG and SP).

Source: National Supply Company (CONAB)
Between 2002 and 2011 there was an increase of 120% in the number of formal workers in the ethanol production segment.

In average, such workers have in average 8.3 years of education, superior to the workers of sugarcane plantations, with an average of 4.9 years of education.

Workers in the ethanol industry earn 58% more than those from sugarcane plantations.

ETHANOL: SOCIOECONOMIC BENEFITS

<table>
<thead>
<tr>
<th>Increase in the Consumption of Hydrous Ethanol</th>
<th>Number of Jobs Generated per Year</th>
<th>Increase in Salaries (R$ million per year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>39 thousand</td>
<td>79</td>
</tr>
<tr>
<td>10%</td>
<td>78 thousand</td>
<td>157</td>
</tr>
<tr>
<td>15%</td>
<td>117 thousand</td>
<td>236</td>
</tr>
</tbody>
</table>

- An increase of 5% in ethanol consumption: **39 thousand new jobs.**
- An increase of 5% in ethanol consumption: **Increase salaries in R$ 35 millions.**

Thank you

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