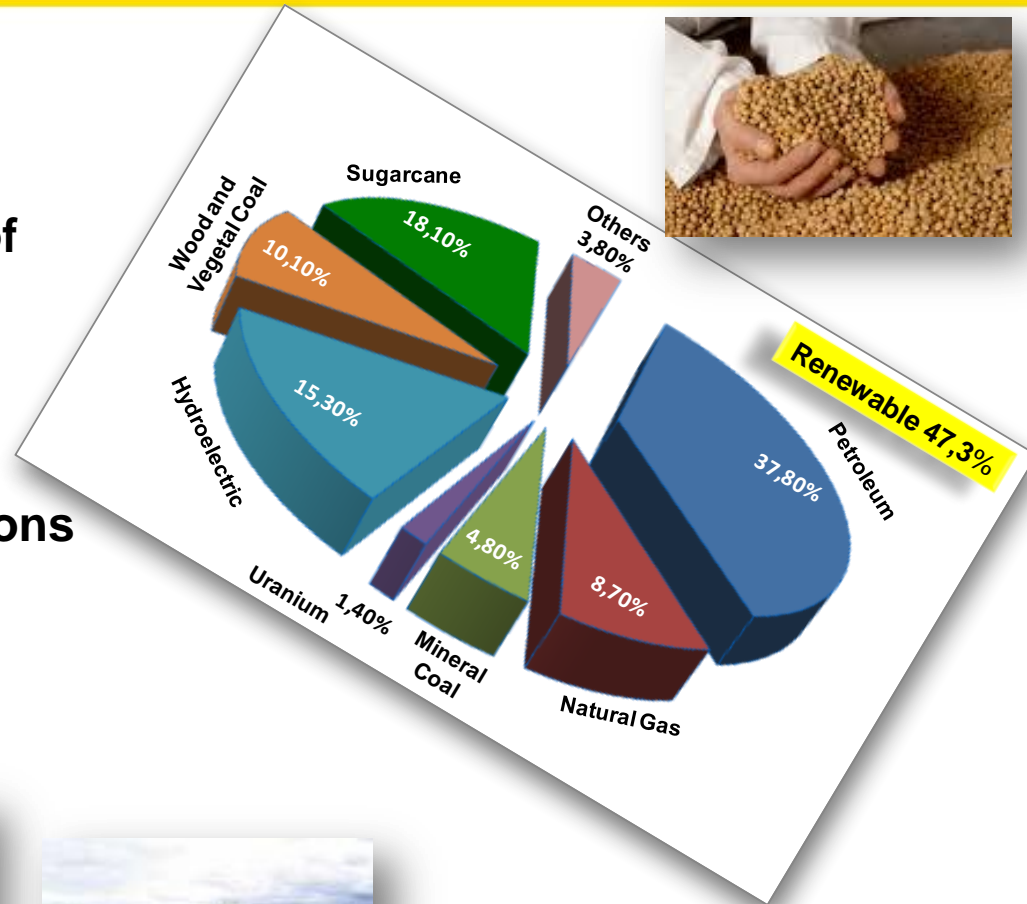


# Energy Demand by Energy Source

**Brazil has numerous sources to increase its energy supply, relying on diversity and availability of natural resources, which can be used as fuel or for electric power generation.**

**This diversification of sources tends to increase according to the projections the of the National Energy Plan 2030 (PNE 2030).**



# Biofuel

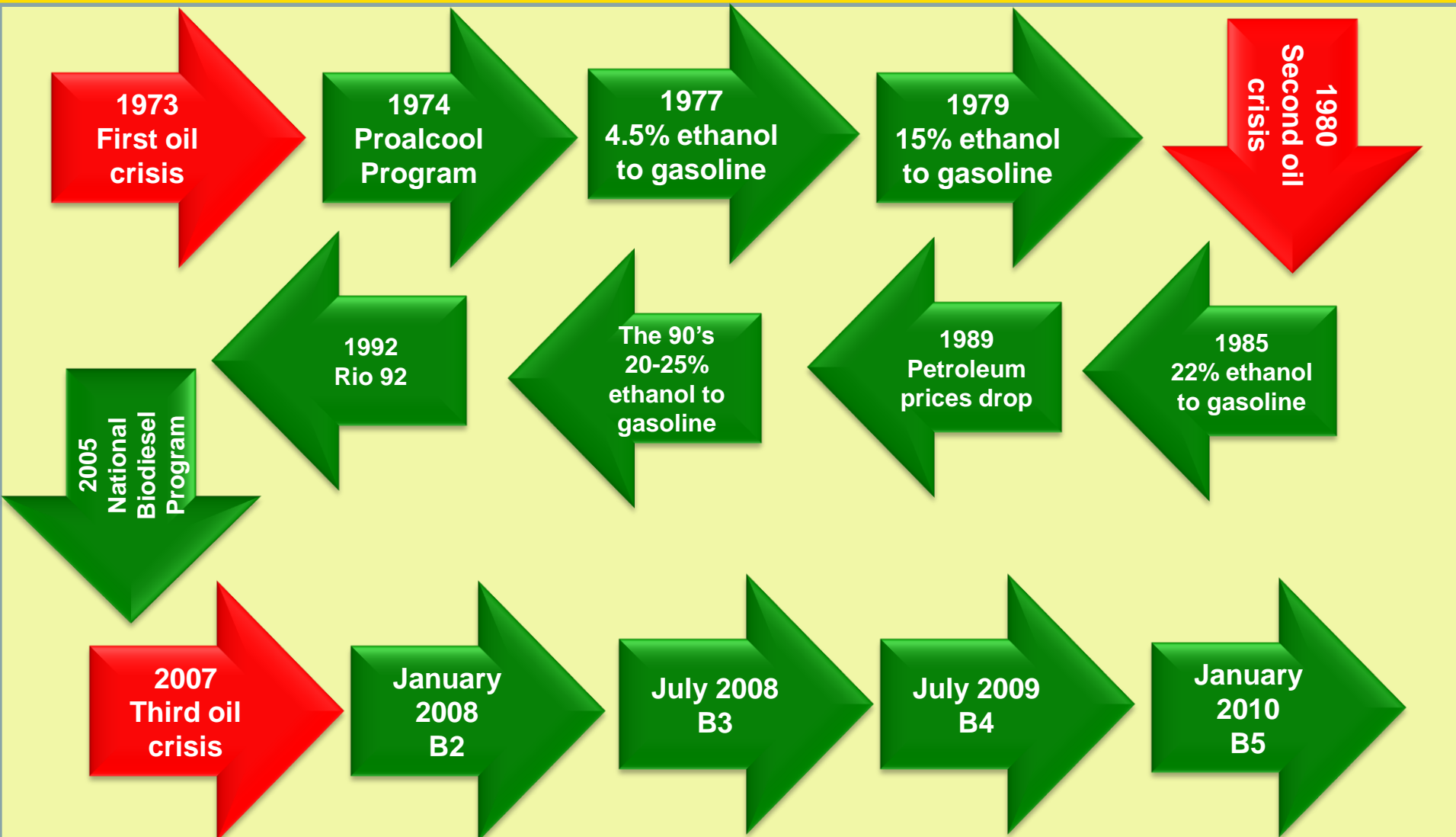
A fuel produced from renewable biomass for use in internal combustion engines or, in accordance with regulations, for other types of energy generation, that could partially or totally replace fossil fuels, (Law 11,097/2005)

From vegetable or animal biomass, they enable the development of agribusiness, family agriculture and job opportunities. Besides being renewable, they reduce emission of greenhouse effect gases. The gases produced during combustion are absorbed during the growth period of the plant.



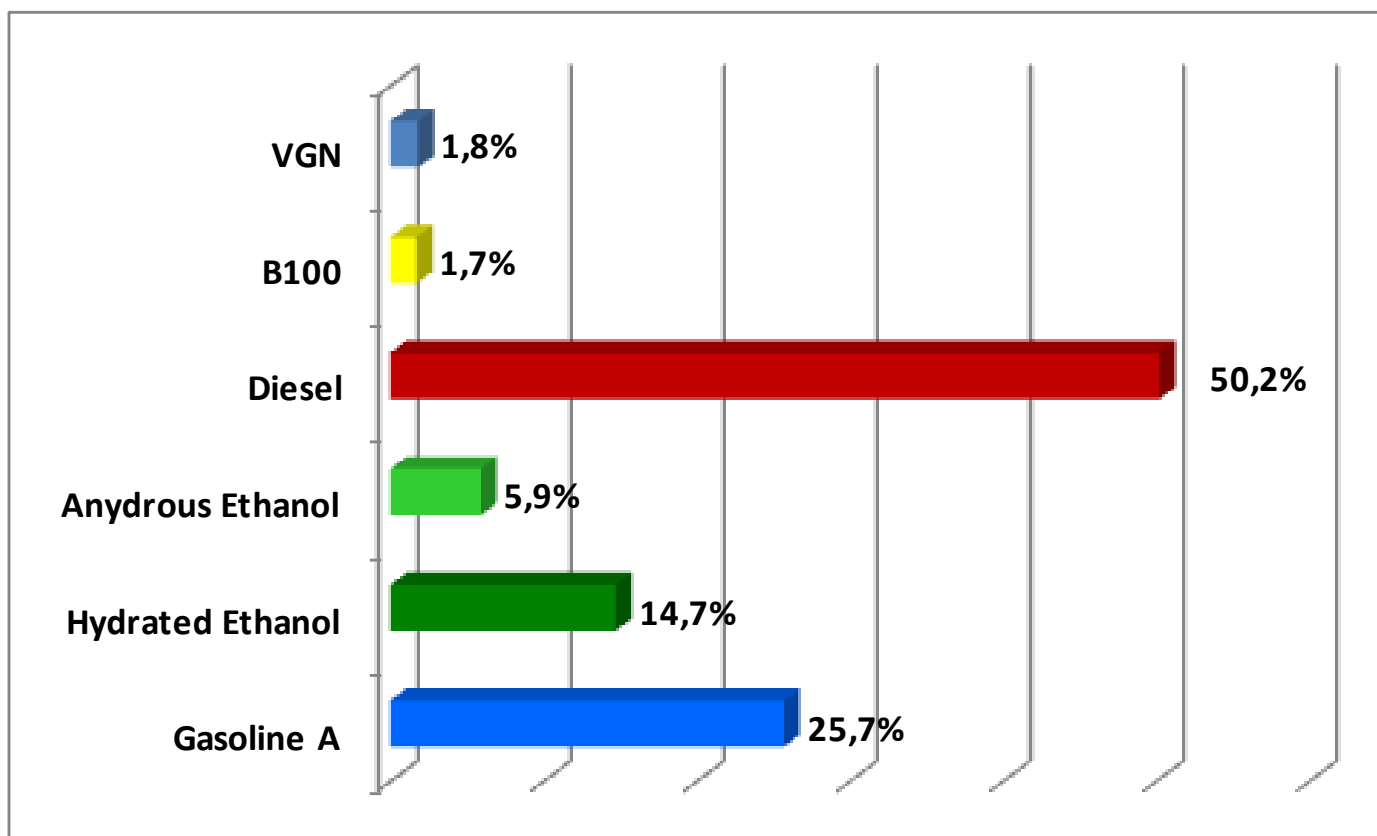
# Biofuels

## Brazil's Historical Evolution



# Renewable Participation

## Brazilian Transportation Matrix - 2009



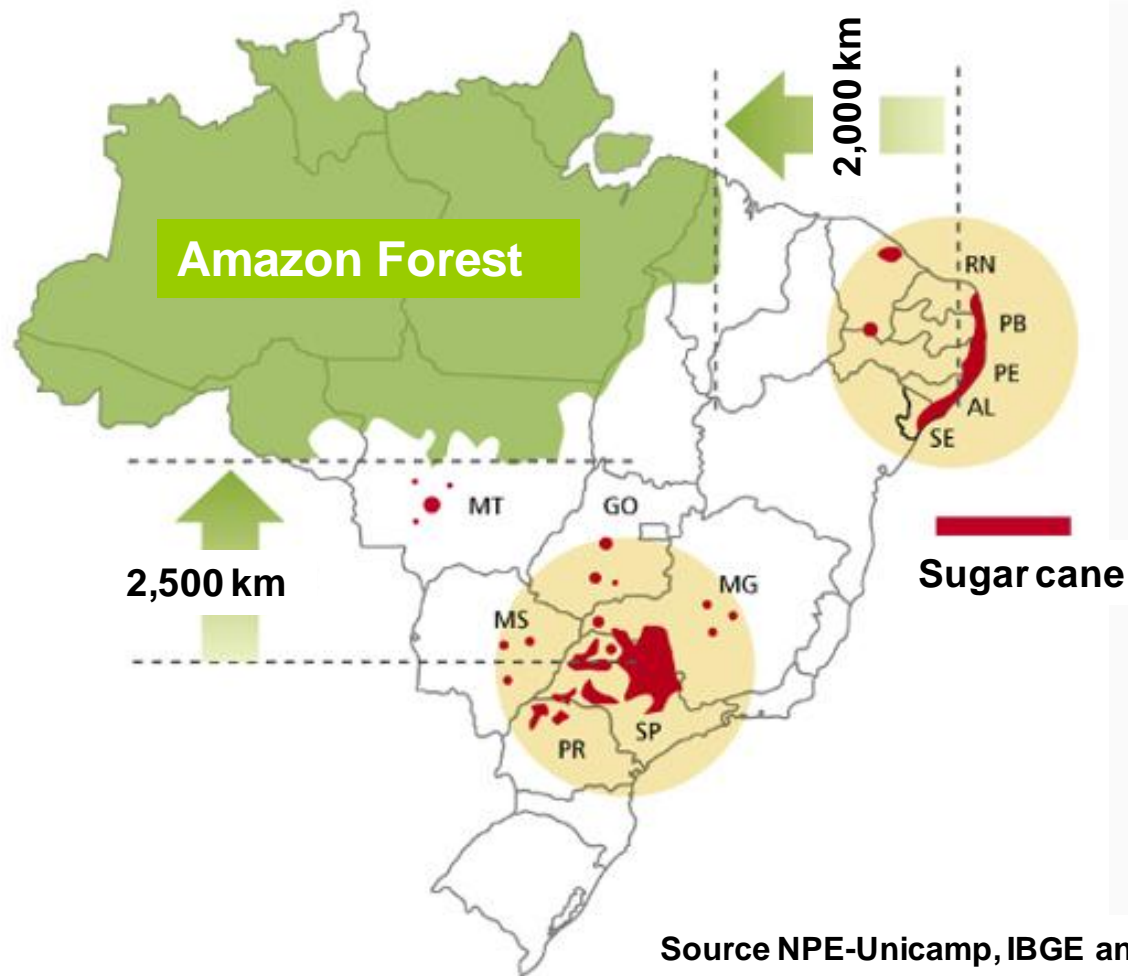
**Total Ethanol – 20,9%**

Source: ANP/SIMP



**anp**  
National Agency of  
Petroleum, Natural Gas and Biofuels

# Ethanol Production Map







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# Flex Fuel Vehicles

## Ethanol or gasoline?



- In 2003 introduction of flex fuel vehicles – a Brazilian Product;
- Fleet is being renewed creating a significant and growing potential demand for ethanol;
- 2009: sale of flex fuel vehicles represented 92% of total car sales in the country;

10 Automotive engine manufacturers settled in the country produces nowadays more than 100 different models of Flex Fuel Vehicles,



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# Flex Fuel Motorcycles

**Flex-fuel motorcycles have been gaining steadily in the Brazilian market since they were first launched in 2009, and now account for 14% of overall motorcycle sales in the country. Data from the Brazilian Association of Manufacturers of Motorcycles, Mopeds and Bicycles, compiled by the Brazilian Sugarcane Industry Association (UNICA), shows that at the end of June 2010, 165,221 flex motorcycles were registered in Brazil.**

**Brazil was the first country in the world where flex-fuel motorcycles were offered to consumers. The first model, the CG 150 Titan Mix (1), was launched in March of 2009, followed by the NXR 150 Bros Mix (2) introduced in September of 2009, both manufactured by Honda.**



(1)



(2)



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# Agro-ecological Zoning of Sugarcane (ZAE)

**ZAE is one of the most detailed studies worldwide and the most structured in the country under social, environmental and economical perspectives, and enforces the importance of planning and strategic conduction in its development so as to make Brazil a leading energy producing nation, which respects biodiversity. The proposal includes a series of environmental measures, such as:**

- Elimination of sugarcane wildfires by using mechanized harvesting.**
- Prohibition of depleting the native vegetation.**
- Proper disposal of vinasse (which as a by-product from the distillation of the alcohol fermenting liqueur from sugarcane). Today, vinasse is discarded into rivers.**
- Change vinasse into biogas and bio-fertilizers.**
- Beneficiation of sugarcane straw to produce renewable energy.**
- Prohibition of invading food-production areas.**

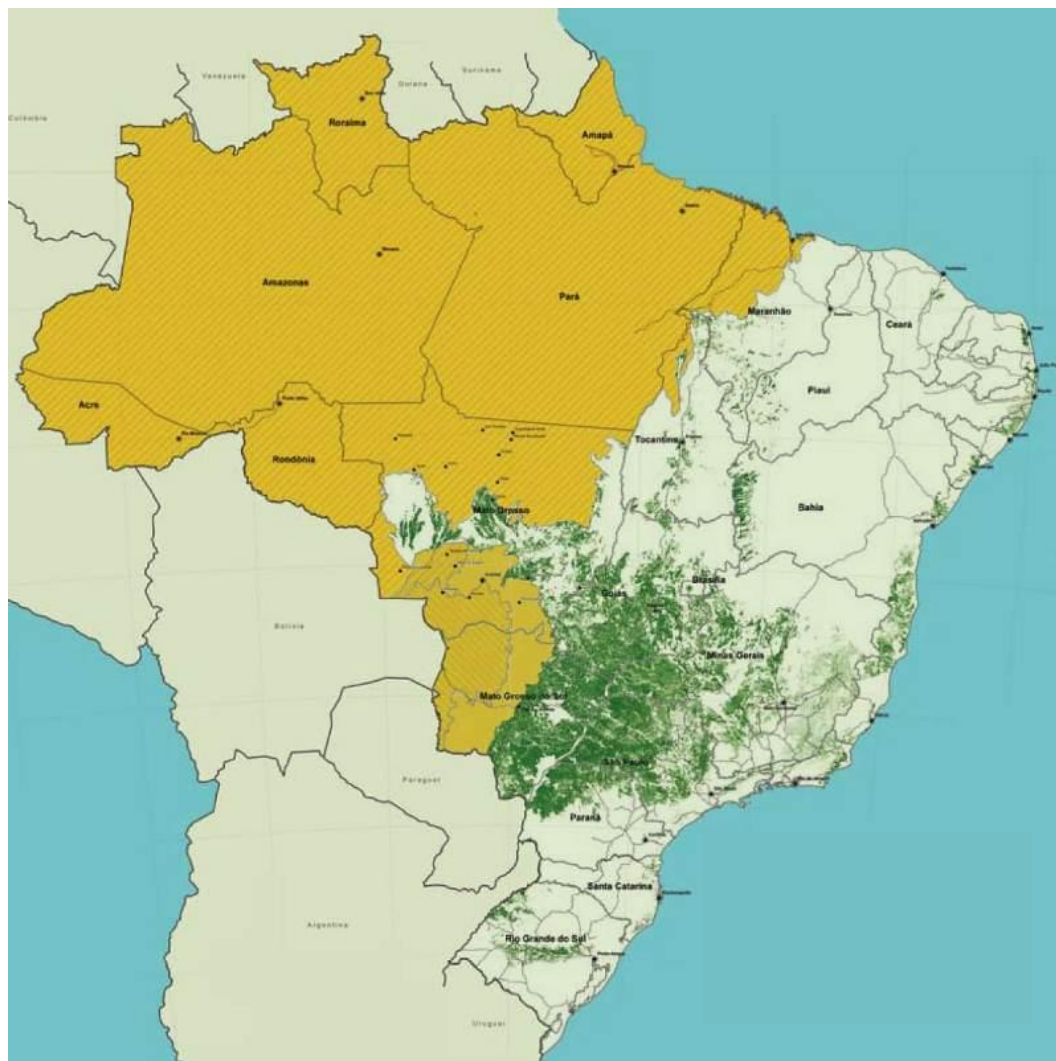






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## Agro-ecological Zoning of Sugarcane (ZAE)



suitable areas

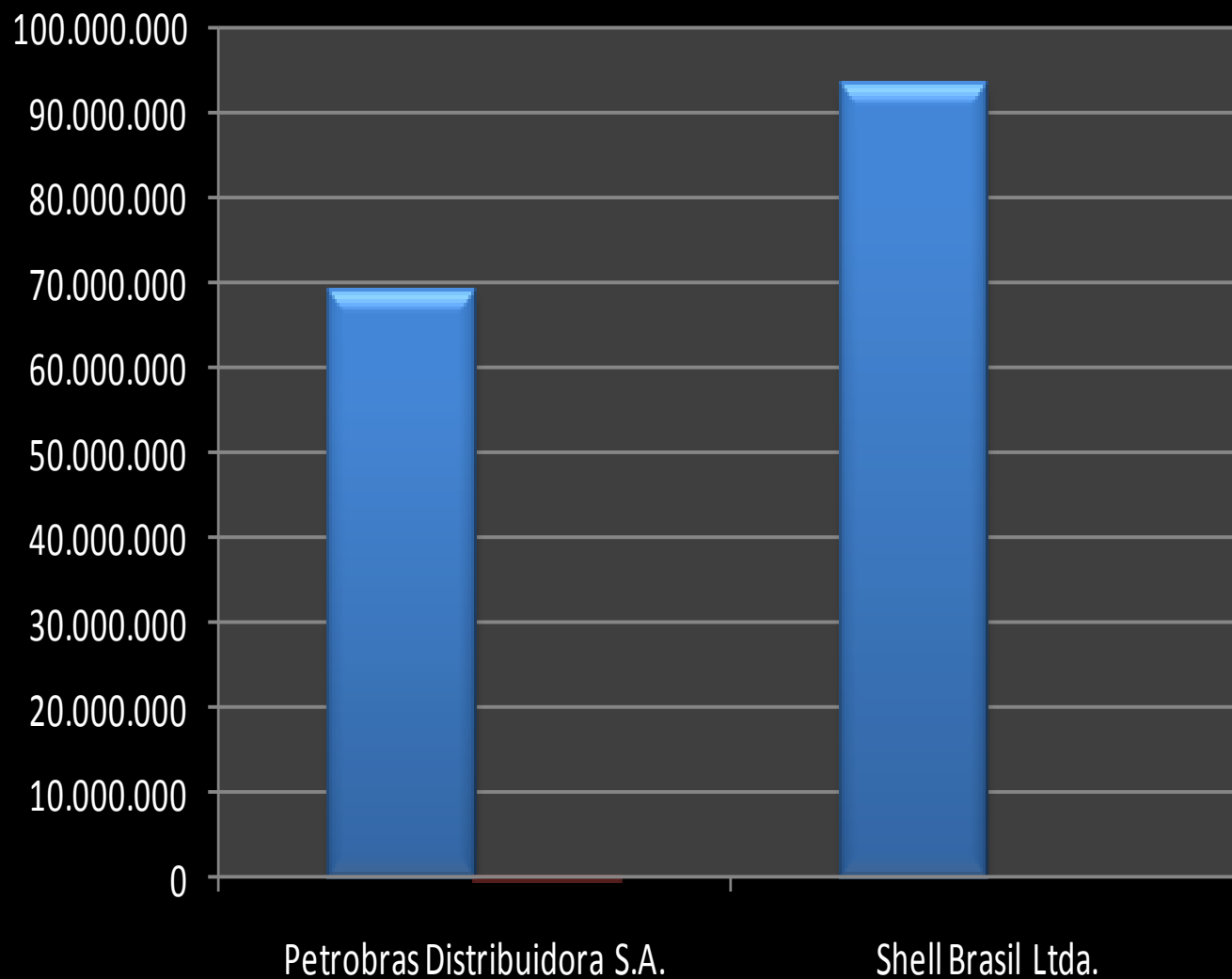


The Upper Paraguay River Basin ,  
Amazon and Pantanal biomes



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# Pipelines Transport



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