



# Fertilizer

Latino Americano

## New Direction in the Brazilian Mining Industry: Brazilian agribusiness and fertilizers

Secretariat of Geology, Mining and Mineral Transformation  
Ministry of Mining and Energy

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# Retaking Economic Growth

- Brazilian Federal Government is confident about resuming growth.
- Political and economic leaders of several segments have been discussing and taking steps to enable structural reforms to allow Brazil to recover stability and confidence.
- Return to attract private investment from all over the world is a key issue for Brazilian Government.
- We consider that retaking economic growth can not be able without a partnership between Government and private sector.
- Specifically about the mineral sector, we believe that resuming growth can lead us to increase our participation on Brazilian GDP from 4% to 6% in the next couple of years. This is the main goal of mineral sector government institutions.



# A New Agenda for the Mining Sector

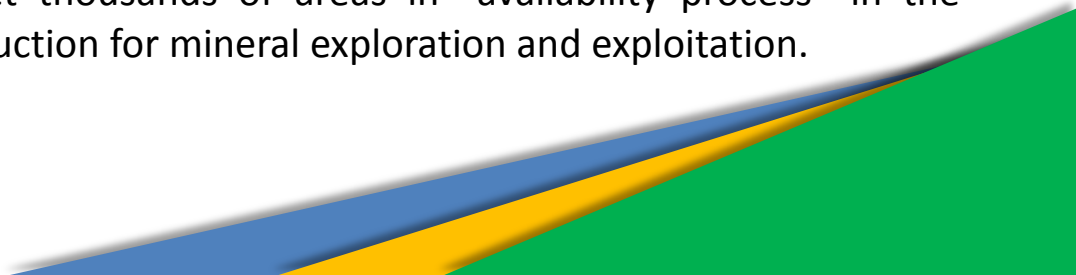
## *Main Actions and Policies*

- Increasing the number of areas available for being accessed by the private sector.
  - More than 20.000 areas (mineral rights) are waiting to be evaluated and offered.
  - Bidding exploration permits currently held by Brazilian Geological Survey.
  - Revocation of the Decree that created the Copper and Associated Elements National Reserve.
- Increasing geological knowledge of Brazilian territory and availability of the geological database.
- Establishing a policy to encourage the production of mineral fertilizers.
- Reopening the discussion about the new regulatory framework proposal, currently under consideration by Congress.
  - We believe in the stability and reliability of the current legislation (Mining Act of 1967 and amendments) and that any changes only should be made to simplify the procedures and to attract investment.



# Brazilian Mining Industry Revitalization Program

## The Main Proposals:

- Creating the “National Mining Agency” in order to improve procedures (e.g. efficiency and transparency) and sector regulation and fiscalization.
  - Extinction of “Copper and Associated Elements National Reserve”, a large area with high potential for gold and base metals. Created in 1984, mining activities are not allowed in the reserve due to lack of regulation.
  - A new royalty policy aiming at simplification, transparency and reduction of legal disputes.
  - Promoting the regulation of “Mining Code” aiming at a clearer and fairer law enforcement.
  - Selecting and offering to the market thousands of areas in “availability process” in the National Department of Mineral Production for mineral exploration and exploitation.
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# Importance of Fertilizer Industry

World population growth, rising incomes in emerging markets, and changing people's diets have created an **increasing demand for food production.**

The **trend of substitution of petroleum-derived fuels for biofuels** has also been pressing the increase in agricultural production

Agricultural resources are limited and **areas available for planting are increasingly scarce.**

Fertilizer industry is strongly related to agribusiness.

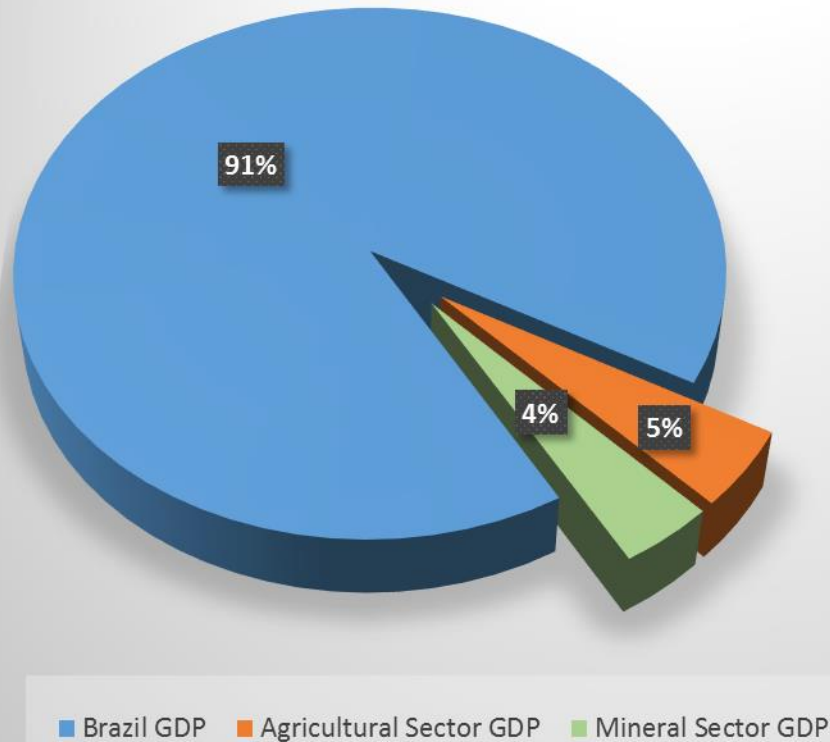


Increasing production only by expansion of the agricultural lands is no longer the best option. It is necessary to raise productivity.

- ✓ The correct application of fertilizers is essential to increase productivity.



# Mineral and Agribusiness Sector GDP



Despite the decline of 3.8% of Brazil's GDP in 2015:

Agricultural Sector GDP grew by 1.8%;  
Mineral Sector GDP grew by 2,7%.

Investment attraction policies have been adopted by Brazilian Government.

Regarding the expected improvement of the economic environment, the potential for expansion of these sectors is even greater in the coming years.

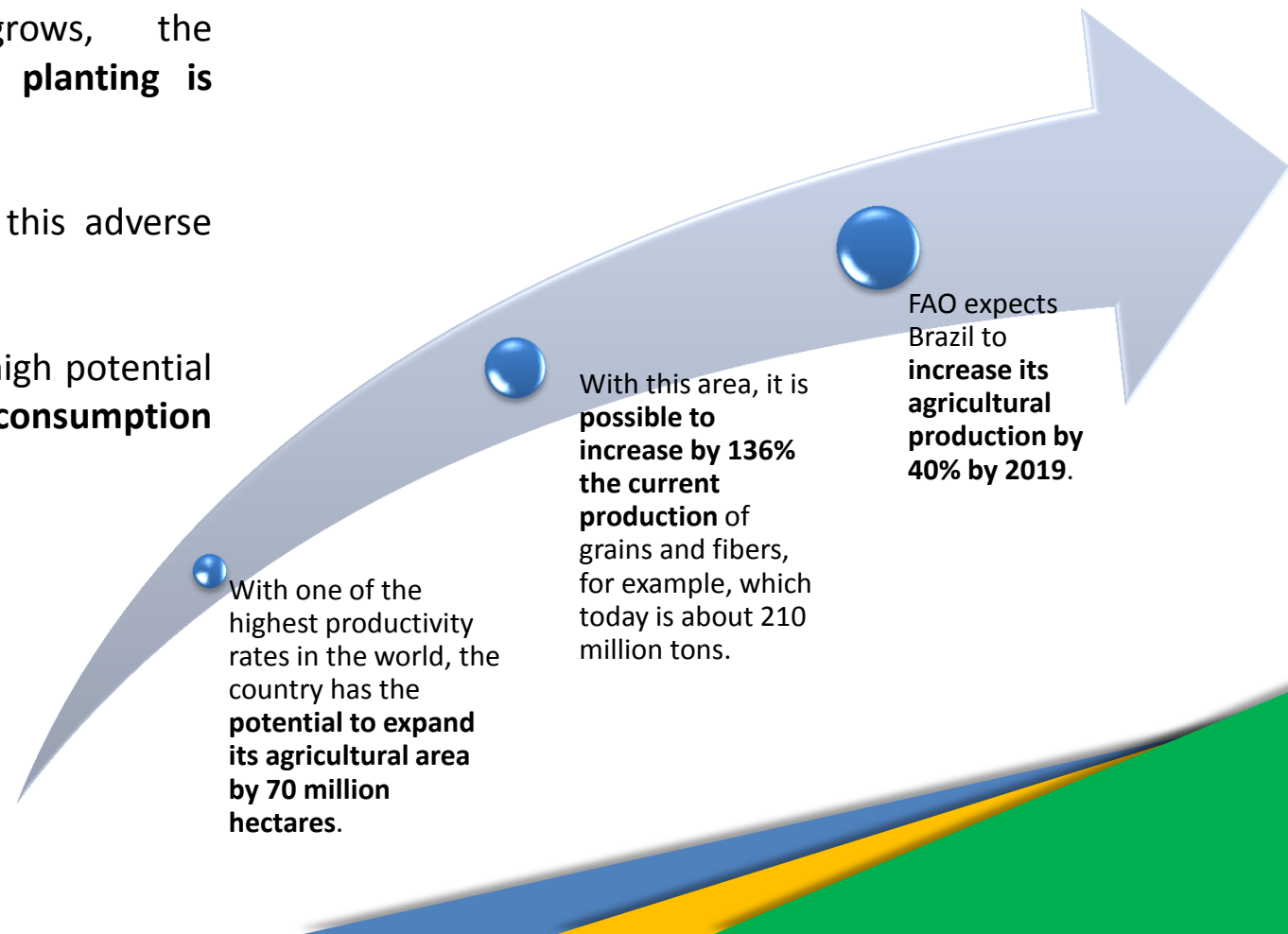


# Brazilian Agribusiness

According to FAO (2015) while the world's population grows, the **availability of lands for planting is reducing** continuously.

**Brazil is an exception** in this adverse scenario.

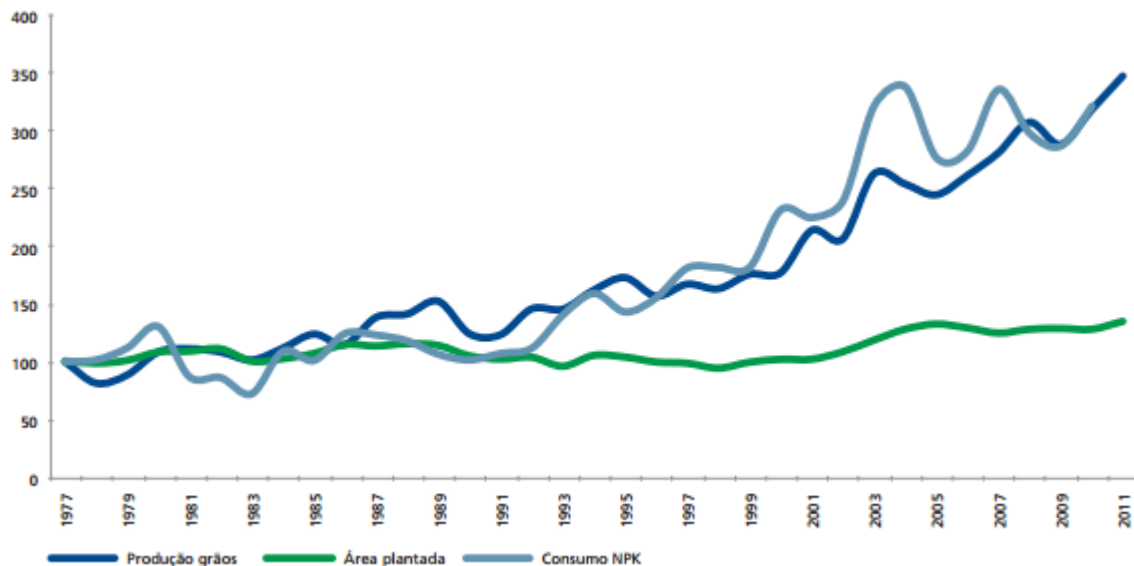
The development of this high potential requires a **high fertilizer consumption** by Brazilian agribusiness.





# Increase in Fertilizer Consumption in Brazil

## Production of grains, planted area and consumption of NPK (1977-2011)



Since the 1990s:

- ✓ Development of the fertilizer industry and the diffusion of its use;
- ✓ Increase in grain production;
- ✓ Higher fertilizer consumption while the planted area had a small increase;

Current days:

- ✓ High potential for expansion of Brazilian agribusiness.





# Production, Consumption and Foreign Trade

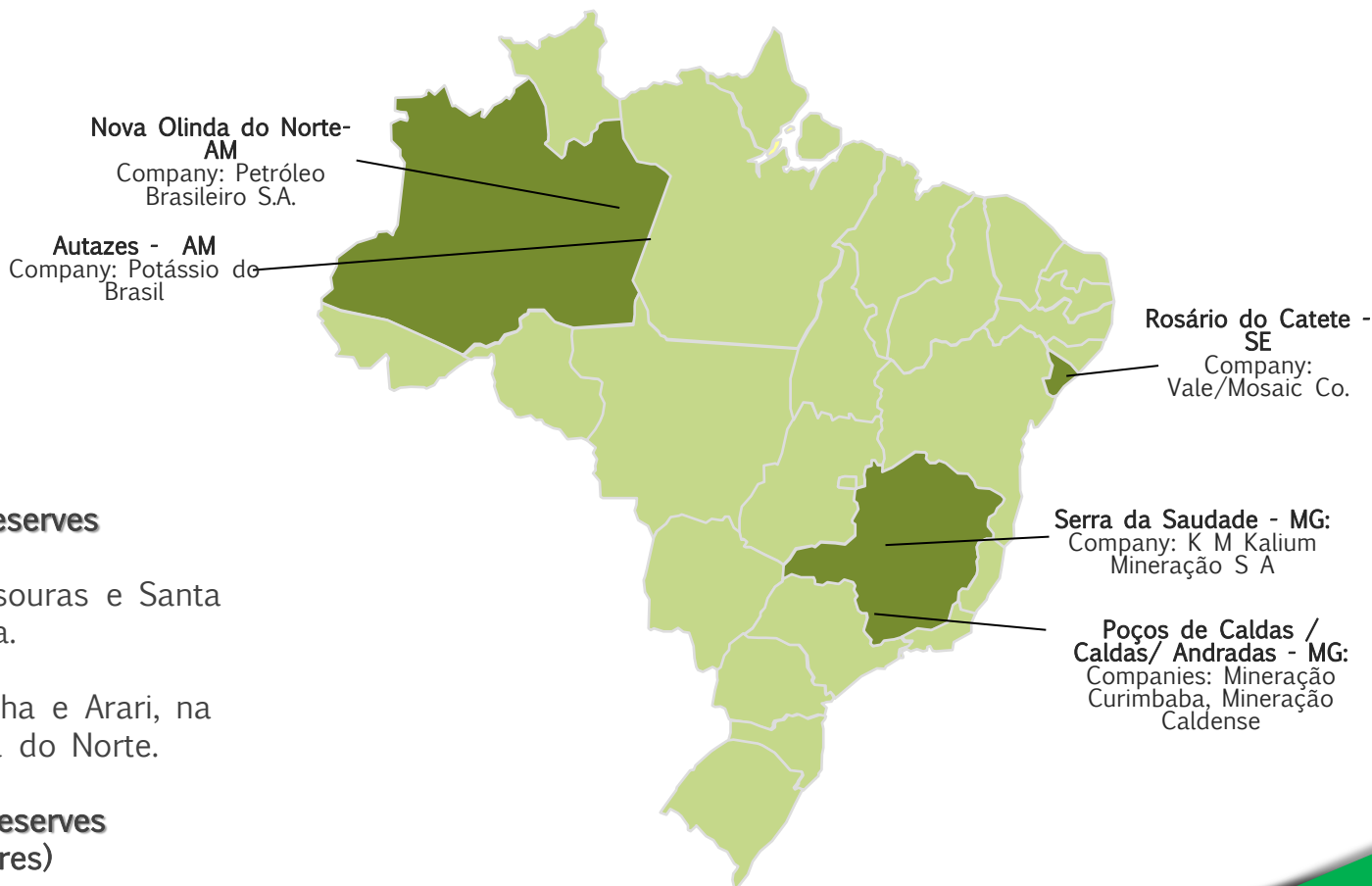
PHOSPHATE (2016)		
Brazilian Production (6th; 3,5% of World Production)	6,0 Mt	
Imports		(US\$ 152 Mi)

POTASSIUM (2015)		
Brazilian Production (10th; 1,1% of World Production)	289 Kt	
Imports		(US\$ 2 Bi)

- ✓ Brazil imports about 45% of the phosphate that is consumed and more than 90% of potassium.
- ✓ It is in fact an expressive market to be explored.
- ✓ Besides demand for this products, Brazil has also potential for new mines to be opened and for discovery of new deposits.
- ✓ Brazil has also high potential for new technologies development, highly qualified professionals and a huge consumer market.



# Potassium – Main Exploitation Grants and Projects



## Potassium Salts Reserves

**Sergipe State:** Taquari-Vassouras e Santa Rosa de Lima.

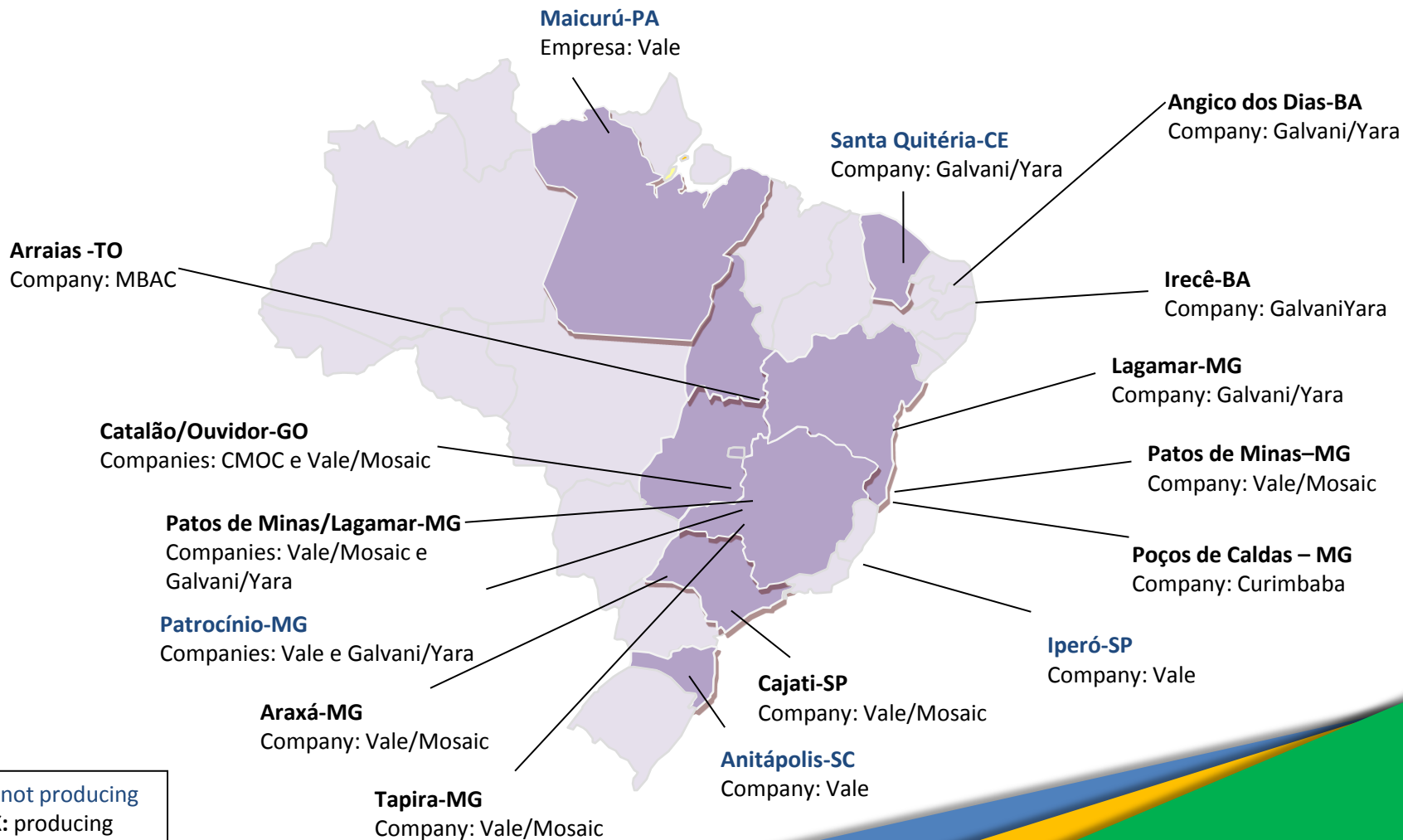
**Amazonas State:** Fazendinha e Arari, na região de Nova Olinda do Norte.

## Potassium Rocks Reserves (Remineralizadores)

**Minas Gerais State:** Poços de Caldas, Caldas e Andradas.



# Phosphate – Main Exploitation Grants and Projects





# Investment Partnership Program (PPI)

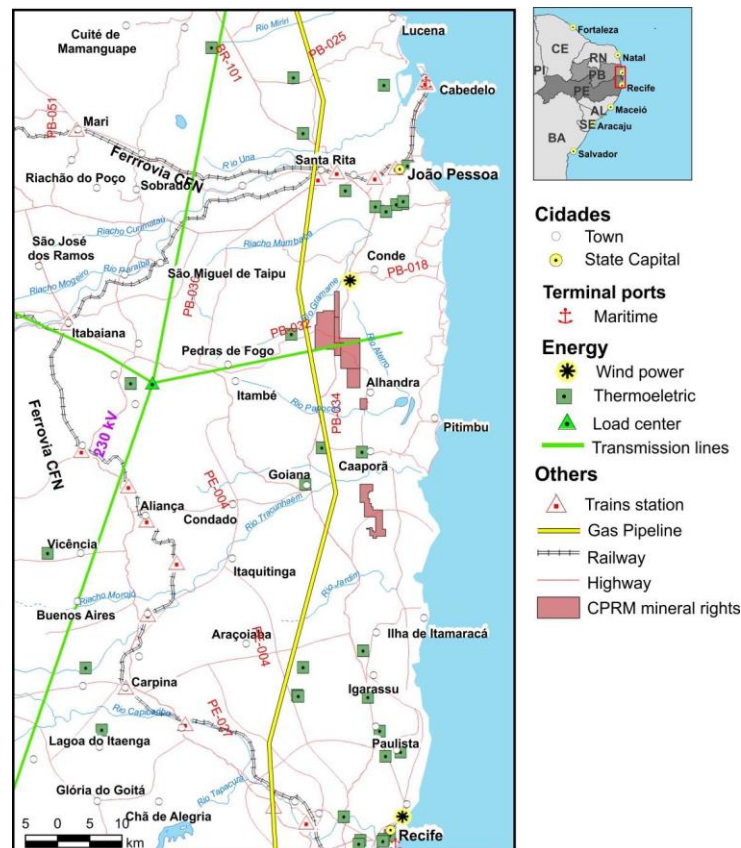
- On September 2016 **Brazilian Government announced 34 infrastructure projects** (concessions and privatizations).
- By valuing credibility, predictability and transparency in the projects, PPI aims at the strengthening legal certainty, regulatory stability and governance.
- PPI's **fundamental goal is to rearrange the economy** and, as a consequence, generate new jobs.
- Regarding mining sector, will be offered four blocks of areas (research permits with final exploration reports already approved) currently held by Brazilian Geological Survey (CPRM):
  - **Miriri Phosphate (Pernambuco e Paraíba states)**
  - Polymetallic Sulphides from Palmeirópolis Palmeirópolis (Tocantins state)
  - Coal from Candiota (Rio Grande do Sul state)
  - Copper from Bom Jardim (Goiás state)
- The bidding process is expected to start in the first semester of 2017.





# Miriri Phosphate (PE-PB)


- **Strong demand for phosphate** in Brazil.
- Deposit region is the most productive portion for agriculture at Pernambuco and Paraíba States, with **intensive demand for fertilizers**.
- **Sedimentary phosphate** (mostly phosphorites), divided in two main deposits, North and South.
- **Excellent infrastructure for the development of mining projects:** Federal and State-controlled roads, Cabedelo and Suape Ports, railway, power, surface and underground water, qualified man power.
- A preliminary diagnostics has not identified major social and environmental obstacles for a mining project.
- Seven mineral rights (7.572,84 ha) with **final exploration reports already approved** by DNPM.
- 247 drill holes for 10,763.97 meters.
- Inferred Resource: 55 Mt @ 6,35% P<sub>2</sub>O<sub>5</sub> (3% cut-off grade).





# The Future of Mining

## *The Future We Want to Brazilian Mining Industry*

- Sustainable development
  - Economic, social and environmental responsibility
  - Increase production and diversify the Brazilian mineral matrix
  - Discovery of new deposits
  - Technological development and innovation
  - Competitiveness
  - Regulatory stability
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# Thank You!

## *Contacts*

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