

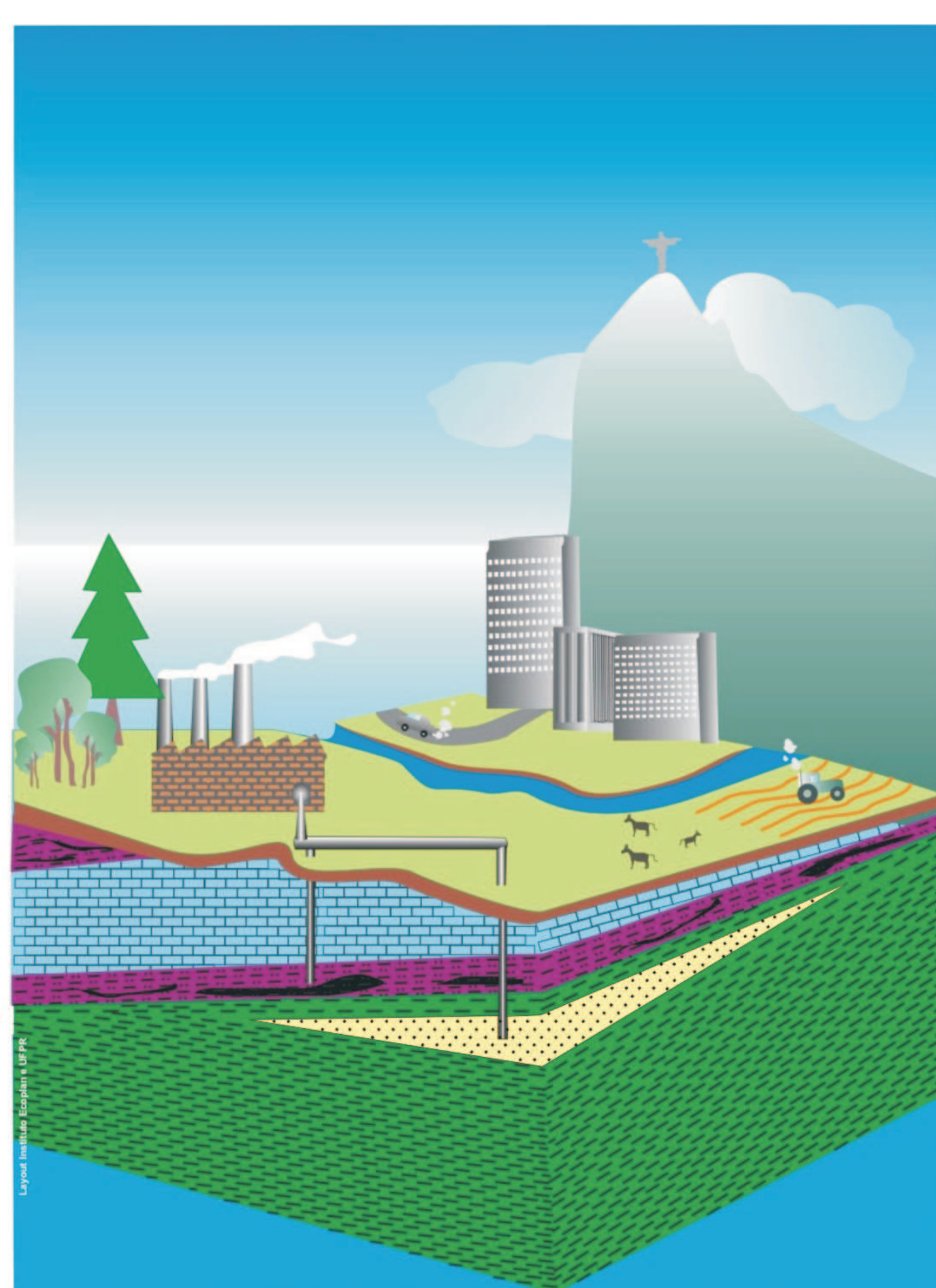
Research, Development & Demonstration of CO₂ Storage in Brazil

Brazil and Climate Change

- * Brazil has a peculiar emissions scenario, with 75% of its emissions being due to land use (deforestation and burnings);
- * Energy matrix is one of the cleanest of the world, with 77% of the total electric power generation coming from hydroelectric sources (climate change becomes a matter of energy security, due to predicted droughts in the Brazilian reservoirs areas);
- * Government agenda for the 2007-2012 period allocate US\$ 100 billions for energy infrastructure;

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Petrobras' perspectives to face climate change

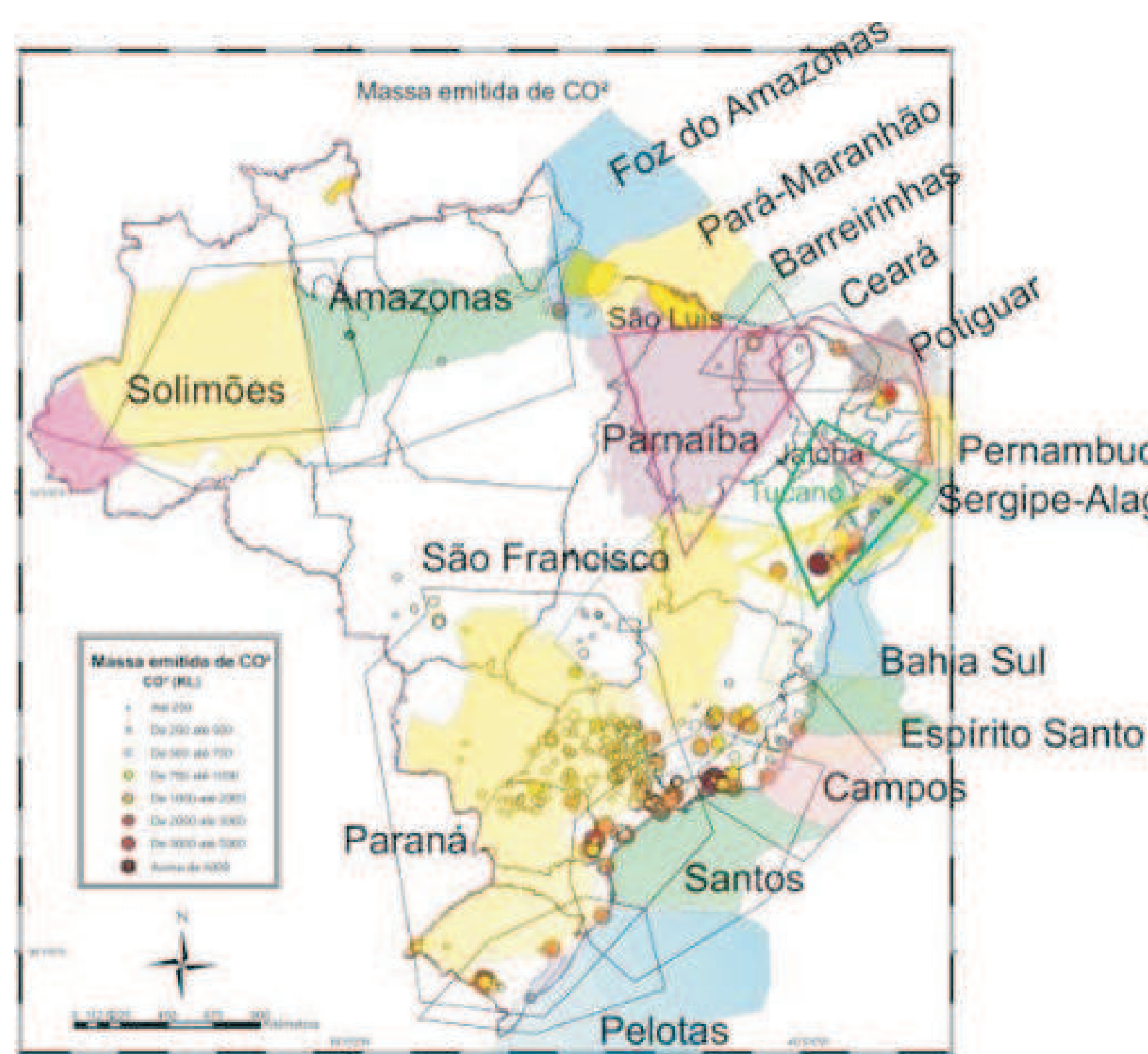
In order to begin its work in the carbon sequestration implementation challenge, Petrobras has defined in its research center (CENPES) **four strategies** for R&D:

- 1) The creation of a Carbon Sequestration Technologies Group for Climate Change Mitigation;
- 2) The establishment of a Carbon Sequestration Project in the Environmental Technological Program PROAMB;
- 3) The implementation of a Climate Change Mitigation Technological Network;
- 4) The realization of the 1st Carbon Sequestration and Climate Change International Seminar, in Petrobras, October 2006, and some other Brazilian Seminars and courses for capacity building.

Carbon Sequestration Technological Development in Petrobras

The Carbon Sequestration Project in the Environmental Technological Program **PROAMB** has as general goals:

- * To develop carbon sequestration technological routes until 2008, in the climate change mitigation context, to make new technologies available for the company, considering life cycle, sustainability and carbon credits potential;
- * To understand the climate change phenomena and its environmental impacts within Brazilian territory, specifically those aspects that affects Petrobras' business;
- * To evaluate Petrobras' business vulnerability in a climate change scenario, defining the need for adaptation actions.

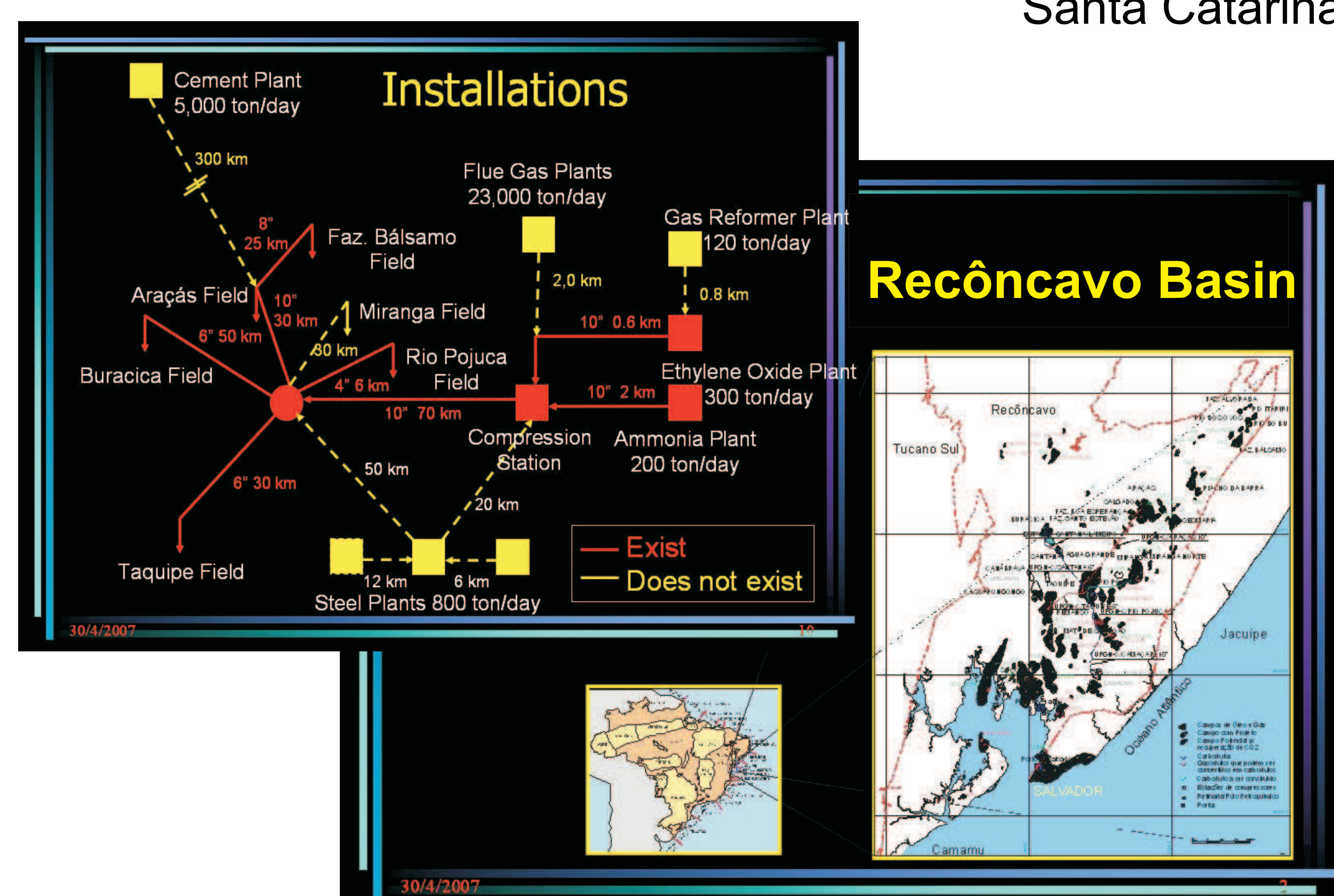


- * CARBMAP Project Brazil's CO₂ source-sink matching work;
- * Evaluation of Brazil's potential for the use of clean solid fossil fuels related with CO₂ storage in deep unmineable coal seams and in situ gasification;



Brazilian infrastructure projects in R&D

- * CO₂ Storage Research Center, which will study the CO₂ capture and geological storage phenomena in geological formations, in Rio Grande do Sul State;
- * Implementation of a Clean Coal Technology Center, in Santa Catarina State



Brazilian projects for demonstration of CO₂ storage feasibility

- * Enhanced Oil Recovery (EOR) in the Miranga Project CO₂ captured from an ammonia industry with injection in the onshore Miranga oil field, in 2009;
- * CO₂ storage in saline aquifer in Recôncavo Basin Project;
- * Carbometano Brasil Project: Enhanced production of Coalbed Methane (ECBM) from unmineable coal seams, by CO₂ injection;
- * CarboGis Project: In-situ gasification, with CO₂ capture and storage, and assessment of its feasibility when applied to Brazilian coal seams characteristics.