

# Rio 02

## RIO CLEAN DEVELOPMENT 1999-2001

*Fernando Peregrino*

# The state of Rio de Janeiro

- The GIP (Brazil): R\$ 1.0 trillion
- GIP (Rio de Janeiro): R\$139 billions (13.9%);
- Unemployment (Brazil): 6,47% (2001)
- Unemployment (Rio de Janeiro): 4,54% (2001);
- Monthly income ICMS (average-2001): R\$778 million (10% of national addition ICMS);

# The State of Rio De Janeiro

## As income source of ICMS

- Communication: 16,5%
- Eletrical energy, Water, Gas: 16,7%
- Petroleum:16.46%
- Pharmaceutical Products: : 4,83%
- Beverages: 5,86%
- Chemistry: 2,96%
- Mechanical metal:: 2,69%
- Supermarket : 3,34%
- Food Production: 3,24%
- Road Transportation: 3,33%

# Others aspects of the State of Rio De Janeiro

- Better education of the work force (8 years);
- Great Scientific Complex (second in size) with 8,000 researchers in activities and more than 90 entities of science and technology;
- Main Sectors: technology of the information, biotechnology and petroleum;
- Major center of cultural production: cinema, theater, music, television, etc.

# RIO CLEAN DEVELOPMENT

Launched by the Governor: September of 1999, as first state effort of alignment with the Protocol of Kyoto and the position of Brazil. Main goals:

- To promote the implantation of economic and social projects in the state related with mitigate greenhouse gases in a perspective of autosustentable social and economic development.
- To make Rio de Janeiro an International Center of reflection on causes and effect of emission of greenhouse gases and its consequences.
- To spread out information on climatic changes through seminars and workshops.

# Motivations

- The participation of Brazil and other countries in Rio-92 in relation to the responsibility of the developed countries in the emission of effect greenhouse gases;
- Conference of Kyoto (Japan), 1997, Clean Development Mechanism (CDM), proposal of Brazil;
- The fulfilment of the stated period of 2000 for implantation of the CDM established for the Convention in Buenos Aires, 1998;
- The themes: climatic changes, alternative power plants, clean technologies had always been present in the agenda of studies of the scientific community;
- The scientific community of the state of Rio de Janeiro was always distinguished for its technical support to the Brazilian diplomatics delegation.

# Organization.

- It involves public sectors guests:
- AEB, Brazilian Mission to the Climate Convention, City halls;
- State Secretariats: Planning, Economic Development and Tourism, Environment, Energy and Naval Industry, International Science and Technology, Health and Foreign Relations;
- Not Governmental Agencies: FIRJAN, CEBDS and Public Services Companies and Private Industries.



# Coordination

- International Institute of Global Changes (COPPE); Technician-scientific support to the initiatives of the Program and to the Brazilian Mission in the Convention of Climate;
- FAPERJ institucional and financial support for studies and research



# FAPERJ

- Foundation that finances studies, research and formation of human resources, tied with the Government of the State.
- From 1999 to 2001 FAPERJ has invested R\$196 million, being R\$12 million related to projects for the area of Environment.
- FAPERJ created and supports 5 Programs, among them: thematic areas, technology of information, technology for small and average companies, public policies.
- In 2002, FAPERJ will invest R\$162 million.

# Virtual Instituts of FAPERJ

Network of thematic Researchers on strategical for the state:

- Climatic changes (COPPE)
- Fluminense Economy (UFF)
- Social State of the Nation and Rio de Janeiro (IUPERJ)
- Turism (COPPE)
- Bio-informatic (LNCC)

# Virtual International Institutes of Global Changes (COPPE / FAPERJ)

- Network of Researchers of the COPPE, UFF, PUC, UERJ on the following subjects:
- Climatic changes
- Changes of Technological Paradigms
- Changes of the Sector of Energy
- Multidisciplinary Center of Reflexion, (currently studying):
  - Alternative sources; recycling of lubricant, CDM, Emission of Greenhouse gases, Electric Generation for battery Combustible, Ethical Stack and Equity, Inspection to propagate, Ambient Risk, Energy Efficiency in transportations.

Resources of FAPERJ, in 2 years, R\$425 thousand.

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Rio Clean Development  
Results of the efforts of public,  
private and scientific sectors  
(1999 the 2001)

## *SOME EXAMPLES*

- Use of alternative sources of electric energy generation, as Thermoelectric to the Natural Gas. Seropédica and Macaé; more two are in construction: Macaé (2002) and Termorio (Duque de Caxias 2002)
- In development: small hidroelectric power plants (PCH), Paracambi, Bom Jardim, Itaocara and Simplicio.
- Expansion of more of half of the national automobil fleet to natural Gas, .
- Recuperation and expansion of railroad services to transport passengers (expansion of the subway, integration boat-bus, improvement of the trains, etc)
- Inspection of Control of the Polution of vehicles. Rio De Janeiro is the first state to implant the System of Control and has already inspected 2 million vehicles (Detran, Feema).
- Recover forest in 13 cities of Baixada Fluminense (IEF)
- Solar Energy in the north of the state of Rio de Janeiro.

## CONTINUING

- Use of the Biodiesel, with new or used oil, and animal fat, with sulphur reduction in 98% and 78% of Co<sub>2</sub>, for the COPPE Phase: test.
- Other benefits: generation of agricultural activity in the production of mamona, industrial processing and distribution. Example of Partnership.
- Studies on the domestic trash recycling and generation of electricity from metano(CH<sub>4</sub>)
- Aeolian Generation, experiment in the north of the state



## Other A mbiental Projects of the State

- Our Trash, collects, handling and final disposal in 47 cities.
- Agreements with Thermoelectrical Plants for support to the State Parks: Desengano (Sta. Maria Madalena) and Pedra Branca(Rio).
- Recuperation of Lagoons (30), removal of hindrance of the water courses, emissary of Ipanema (recuperation), emissary of Barra (construction), despolution of Guanabara Bay with reduction of oil oustings falling of 7 t/dia for 1.3 t/dia, despolution of Rio Paraíba
- Total Investment of the State in Environment is of R\$1,0 billion (1999. 2002), being R\$650 million for the despolution of Guanabara Bay.



# RIO CLEAN DEVELOPMENT

Developed projects	description	Local benefits
Bio diesel	Recycling of vegetal oil for use as fuel.	Less pollution & jobs generation
RIOBUS	2.000 buses replaced for 1.000 more efficient.	Less pollution
Recycling of domestic trashes	Use of the trash as industrial insume generation of electricity from the CH4	Less pollution & jobs generation

# RIO DESENVOLVIMENTO LIMPO

Developed projects	Description	Local benefits
Fires in the Humid Tropical Forest & Prevented Deforestation	Identification of the causes, quantification of the prevented emissions and benefits of the conservation	Less pollution & jobs generation
ECOPOLO	Use of the rejected Co2 as insume	Less pollution
Small hidroplants	Potential generation when compared the allowed thermoelectrial emissions	Less pollution Thermoelectrial plant of North Of the state of Rio de Janeiro
Aeolic generation	Potential generation when compared the allowed thermoelectrial emissions	Less pollution

# Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro

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