



Intellectual Capital for Communities
in the Knowledge Economy

Intellectual Capital for Communities in the Knowledge Economy Nations, Regions, Cities and Emerging Communities



WORLD BANK INSTITUTE

*Promoting knowledge and learning for a
better world*

World Conference on Intellectual Capital for Communities
- Sixth Edition -



Intellectual Capital for Communities
in the Knowledge Economy

Innovation and Sustainability



Eduardo Rath Fingerl
Managing Director

BNDES' Figures

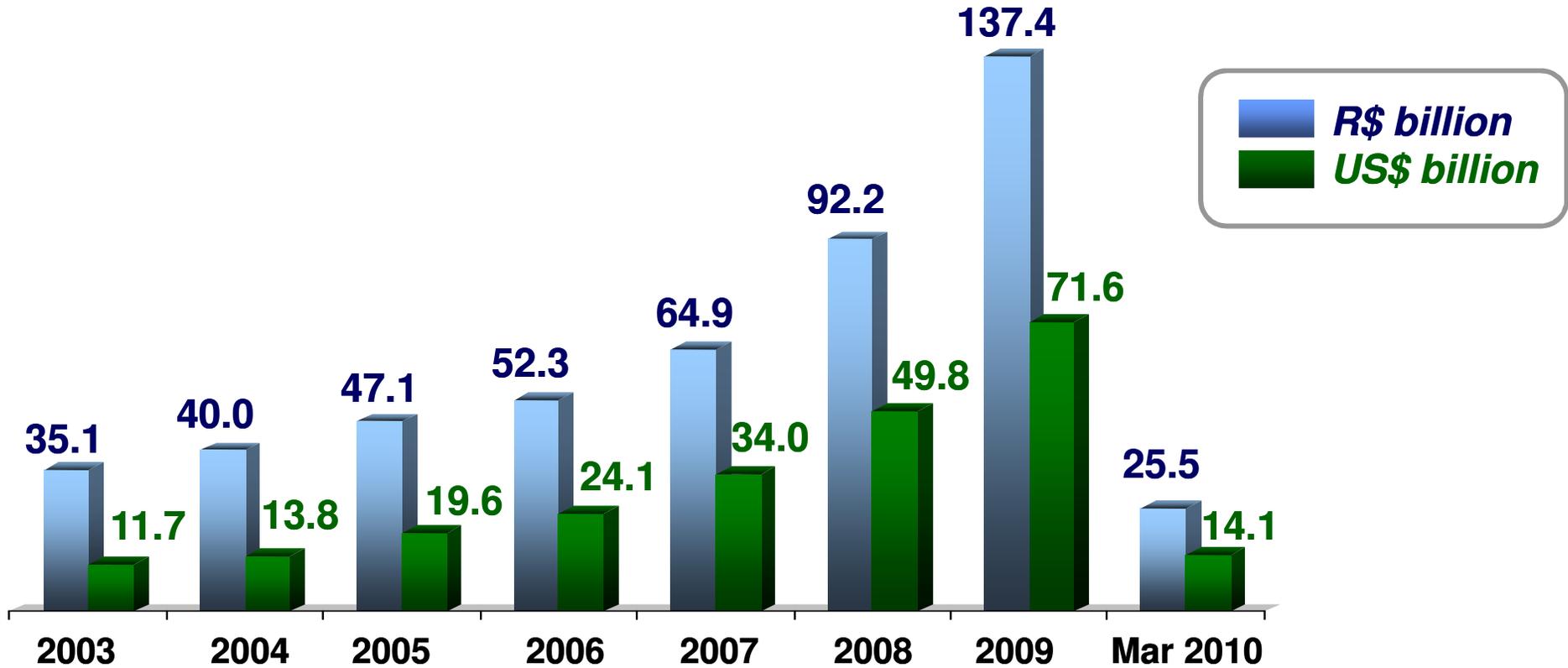
US\$ billion

	Dec 31, 2008	Dec 31, 2009
Total Assets	118.6	222.0
Loans / Onlendings ¹	92.4	162.9
Shareholders' Equity	10.8	15.9
Net Income	2.9	3.9
Taxes	1.1	1.3

¹ *Loans/Onlendings portfolio net of allowance*

BNDES Disbursements

Converted to US dollar on the disbursement dates



Innovation and Sustainability

- ✓ Sustainability as a direction for innovation: **Why?**
- ✓ Sustainability as organizer of development: **How?**



Limits to Economic Growth

Habitat destruction
Invasive species
Pollution
Population
Overharvesting

(Edward O. Wilson,
Creation)



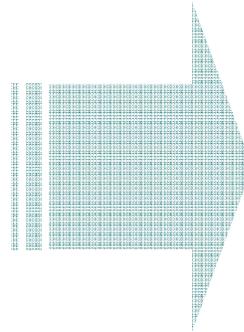
- Water pollution and fishing by trawling (*overharvesting*) cause the destruction of coral reefs (*the marine tropical forests*)
 - ▶ reduction of biodiversity
- 1/2 remaining reefs would be lost by 2030: *2 billion people, most poor*, depend on the ocean for protein



(J Diamond,
Collapse)

Limits to Economic Growth

Habitat destruction
Invasive species
Pollution
Population
Overharvesting



- Objective limits:
we consume globally 25% more than nature replaces
- Ecosystems are not capable of sustain current consumer-level
- Ecosystems are not capable of sustain global elevation of consumer patterns
(each inhabitant of US- EU or Japan consumes 32 more times than third world inhabitants)



Towards a New Economy

*“Conserving biodiversity
is the best deal to humankind,
from an economic point of view”
(E. Wilson)*

Knowledge and Innovation
will be directed towards
products and services
that save and preserve natural
resources



New basis for environmental economy

Pricing of economic activities and consumer patterns
to induce non-predatory use of nature

- ◆ Accounting of use of natural resources
- ◆ Territorial use on sustainable basis (*transports, sanitation, leisure*)
- ◆ Existing technologies that recycle raw materials and use renewable energy

Innovation will be fostered by these imperatives

2nd Generation Ethanol

- EISA – Energy Independence and Security Act of 2007 of USA Congress: the total amount of biofuels added to gasoline is required to increase to 136 billion litres by 2022, from 17.7 billion litres in 2007
- 79 billion litres of the 2022 total must be derived from non-cornstarch products
- 2nd generation Biofuel extend the amount of biofuel that can be produced sustainably by using biomass consisting of the residual non-food parts of current crops
- **2nd generation Ethanol**: The second generation ethanol can be obtained from bagasse and cane straw
- BNDES and FINEP (Federal Technology Financing Agency) will jointly fund research projects
- **Reduction of Environmental impact: reduced land use, less competition with crops**



Investments in Innovation

Investments in innovation **have:**

- (i) a microeconomic logic (*strengthens competitiveness*) and
- (ii) a macroeconomic logic (*increases the efficiency of each unit of investment, reducing the relationship Investment/GDP*)

Investments in environment and social responsibility affect positively a firm or a Country's Reputation

Investments in innovation **demands:**

- (i) risk appetite, and
- (ii) cooperation between multiple agents

BRASIL



***“Brazil is an environmental power:
biomes critical to human-kind, immense biodiversity,
abundance of water, wind regimes, insolation”***

***“The country has a strong potential for innovation with
solid knowledge resources
(institutions, companies, teams of researchers)”***

***“It is strongly permeable to new ideas
and concepts, has an active and democratic society
and state institutions dedicated to environment
preservation”***

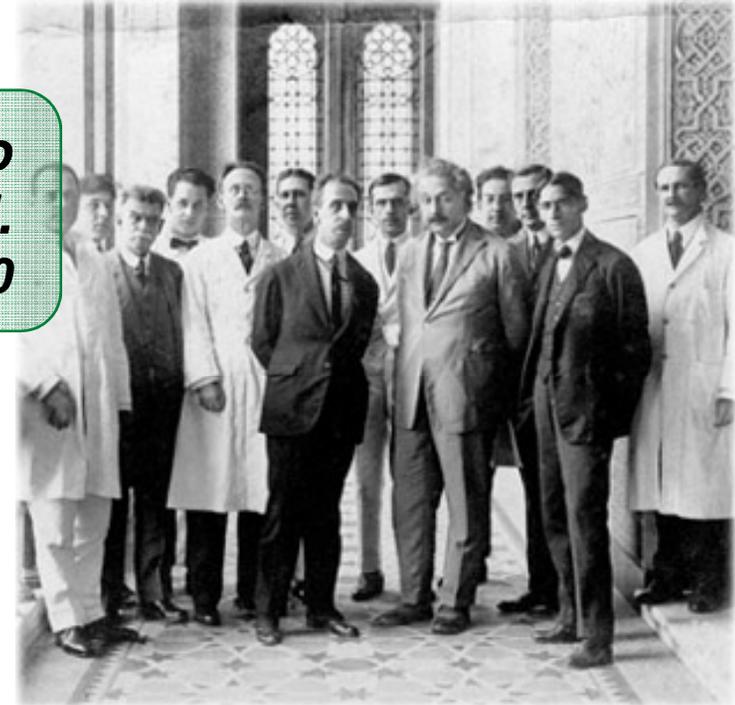
Claudio Frischtak



FIOCRUZ – Oswaldo Cruz Foundation

“A tropical country to be rich needs, first of all, to think in public health, to avoid tropical diseases”.
Jared Diamond –interview to Veja, May 2010

- Founded in 1910
- 7500 employees and collaborators
- Excellence in research on tropical diseases
- Development of new technologies for large-scale manufacture of vaccines against yellow fever and smallpox
- BNDES' support: US\$ 35 million



BUTANTAN INSTITUTE



Founded in 1898

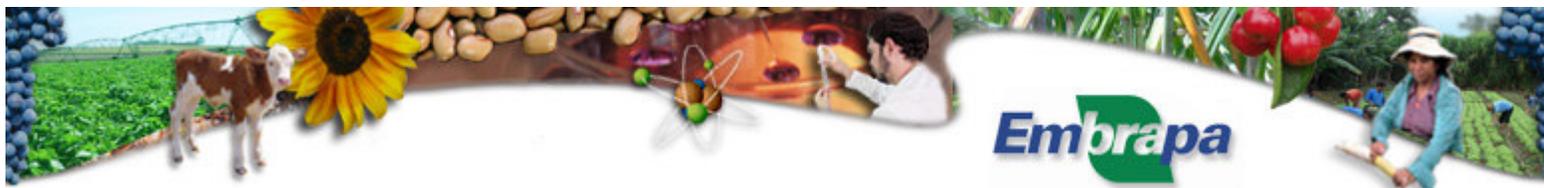
Responsible for more than 80% of vaccines and serum
produced in Brazil

Responsible for production of H1N1 vaccine

BNDES' support: US\$ 27 million



EMBRAPA: Brazilian Enterprise for Agricultural Research



- Founded in 1972
- State-owned company devoted to pure and applied research on agriculture
- 2,221 researchers
- Responsible for 52% of R & D in agriculture in Brazil
- Essential for Brazil's world leadership position in the agribusiness



Venture Capital Fund: Burrill Brasil I

Mission: life sciences

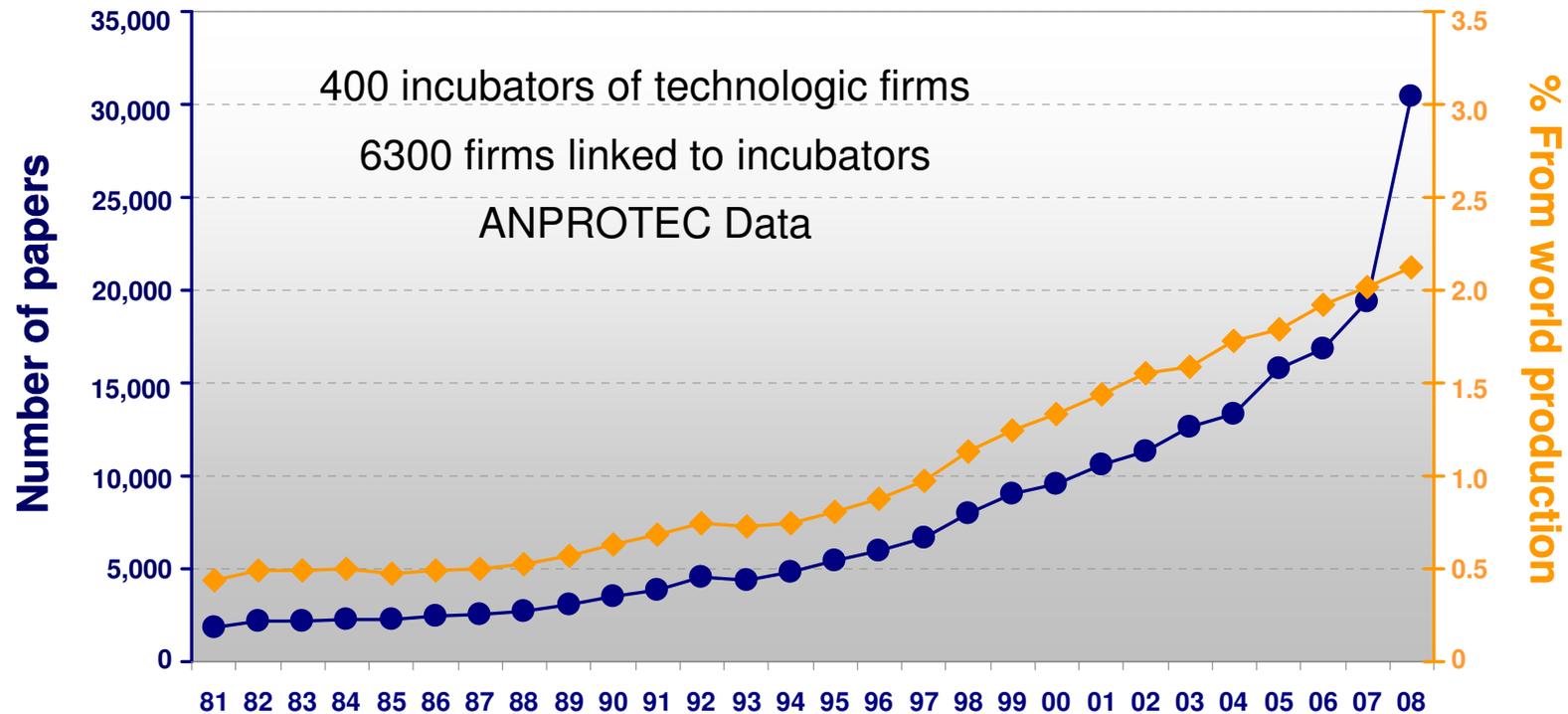
Segments:

biopharma
functional foods
and nutraceuticals
agricultural biotech
Industrial biotech
renewable fuels
Nanotech



- Estimated size: US\$ 100 million
- Target: 12 companies to be invested
- Investment policy:
 - ◆ 50% ► early stage companies
(*seed investments*)
 - ◆ 25% ► mid to late stage
(*VC size companies*)
 - ◆ 25% ► mature companies
(*low risk*)

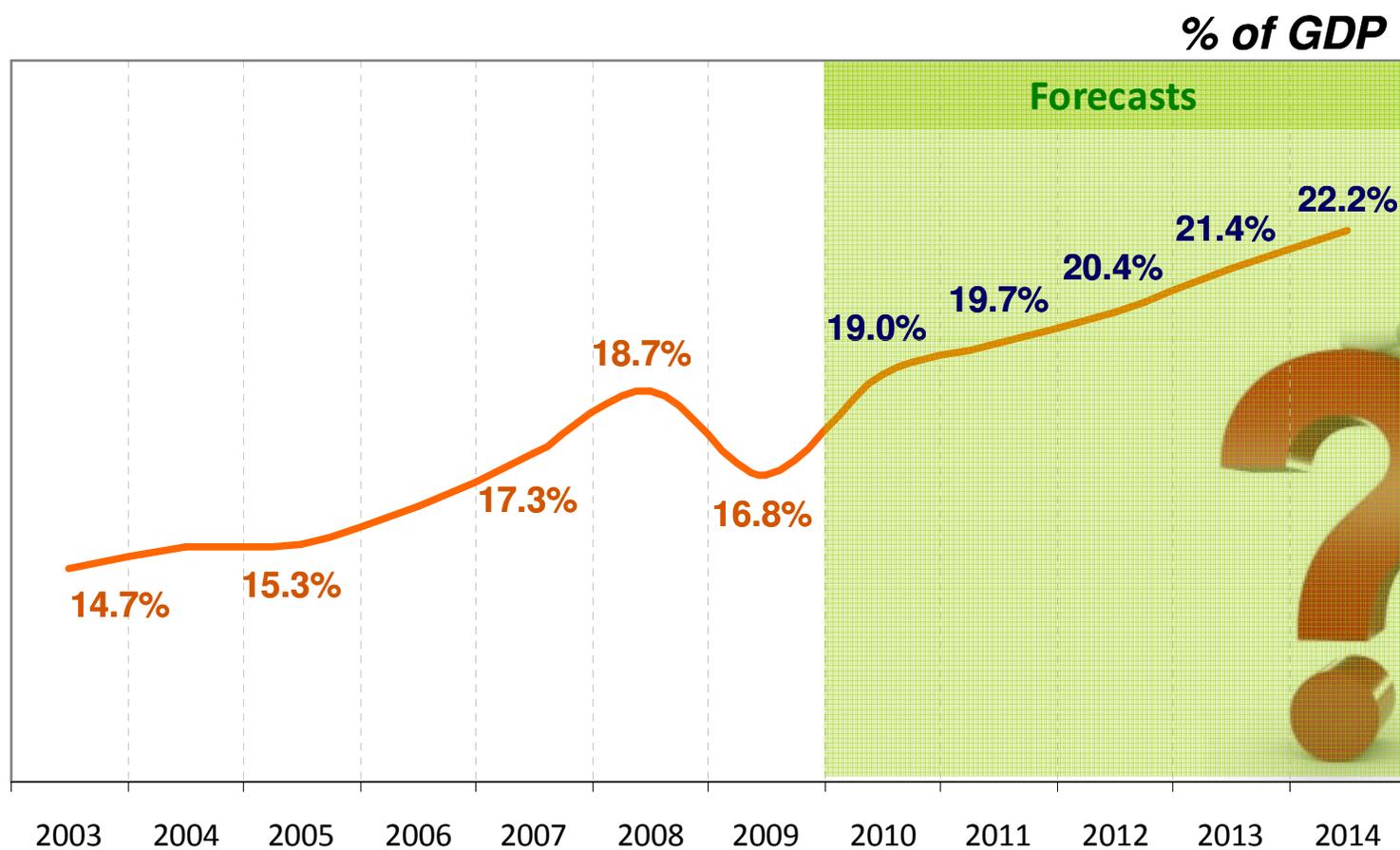
Scientific Papers, indexed at ISI – Institute for Scientific Information –



Brazil accounts for 2% of world scientific production

Source: MCT.

Brazil: Investment Rate



Source: IBGE.
Forecasts: BNDES.

Investments (2005-2008) and forecasts (2010-2013)

Sector/Area	Amount (R\$ billions)		Growth % a.a.
	2005-2008	2010-2013	
Industry	317	362	12.1
Oil & Gas	160	340	16.3
Mining	53	52	-0.6
Metallurgy	29	61	16.5
Chemical Industry	20	36	12.9
Vehicles	23	32	6.6
Car assembly plant	16	23	8.2
Autoparts suppliers	8	9	3.0
Electro-electronics	15	21	6.8
Pulp and Paper	17	19	2.0
Infrastructure	199	302	8.7
Electric Power	67	98	7.8
Telecomm	66	67	0.4
Sanitation	22	39	12.0
Railroads	19	52	22.4
Highway Transportation	21	32	8.7
Ports	5	15	26.0
Total	516	863	10.8

Group of firms representing more than 50% of investments in Brazil



BNDES

Again: changing the mindset

- ▶ **new metrics for environmental issues**

From disbursements to green disbursements



BNDES: Innovation is a priority and will benefit of multiple financial support instruments ▶ Portfolio: US\$ 3,5 billion

DEBT or Equity



- ◆ Capital Inovador ▶ **FOCUS on STRATEGY = INTANGIBLES**
- ◆ Technological Innovation } ▶ **FOCUS on the PROJECT**
- ◆ Production Inovation }
- ◆ PROSOFT, PROFARMA, PROTVD, PRO-Aeronáutica e Proengenharia } ▶ **SECTORAL**

DEBT or Equity



- ◆ Mutual Funds and Participation Funds
- ◆ Direct Investment
- ◆ CRIATEC Program (*Seed Money*)

BNDES Card



- ◆ For micro, small and medium enterprises
- ◆ Certification and conformity assessment services; innovation, design, technological extension, software

Non-refundable



- Fundo Tecnológico - BNDES Funtec**
- ▶ Support to research institutes in areas of national interest

BNDES New Environmental Area

- Operating since 2009
- Under same Managing Director as Venture Capital / Private Equity Area
- BNDES is seeking market solutions for environmental issues
 - ✓ BMF&BOVESPA Carbon Efficient Index
 - ✓ Private Equity / Venture Capital Funds



BMF&BOVESPA Carbon Efficient Index – ICO2

- Joint initiative between BNDES and  **BM&FBOVESPA**
The New Exchange
- New Stock Index based on Brazil Index 50 – IBrX-50
(IBrX-50 is an index which measures the total return on a portfolio composed by 50 stocks selected among BMF&BOVESPA's most actively traded securities)
- ICO2 portfolio based on firm's efficiency on emissions of greenhouse gases
- Present stage: collecting inventories – *real or estimated by accredited consultancy*

Change the mindset

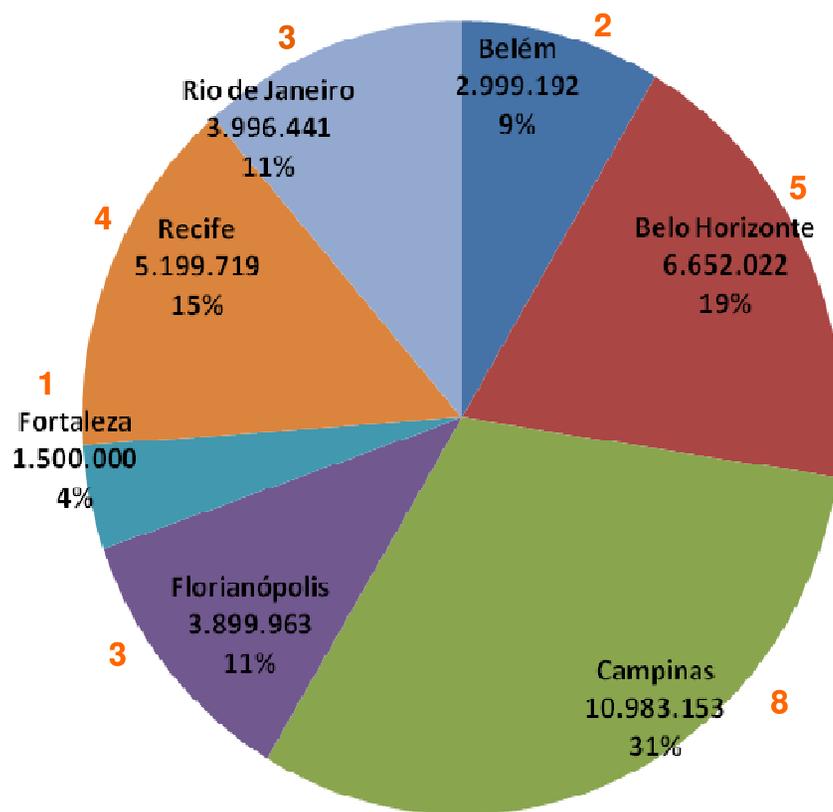
BNDES Investments in Funds

- Environmental and Venture Capital and Private Equity Areas have so far invested in 15 Innovation and Environmental Funds more than US\$ 1 billion
- Cases to be noticed:

✓  – Seed capital

- ✓ Vale Florestar – *Reforestation in the Amazon Region*
- ✓ Fundo Brasil Sustentabilidade
- ✓ VSE

CRIATEC – Approved Investments by Region



Number of Companies: 26

REGIONAL	COMPANY	APPROVED AMOUNT
Belem	Amazon Dreams	1,499,192
	Solve	1,500,000
Belo Horizonte	Rizoflora	1,252,095
	Celer	1,399,989
	InvitroCells	1,299,937
	Edetec	1,500,000
	Biocancer	1,200,002
Campinas	Magnamed	1,500,000
	Edge IT	989,985
	BUG	1,499,541
	BR3	999,951
	Vitrovita	1,498,000
	Kimam	1,500,000
	CVD	1,499,904
	Enalta	1,495,772
Florianópolis	Cianet	1,499,997
	Arvus	1,299,966
	AQX	1,100,000
Fortaleza	Usix	1,500,000
Recife	TMed	1,499,895
	D'Accord	1,199,824
	TissueBond	1,000,000
	Biologicus	1,500,000
Rio de Janeiro	Subsin	1,500,000
	Deprocer	1,496,616
	Polinova	999,825
TOTAL (R\$)		35,230,490

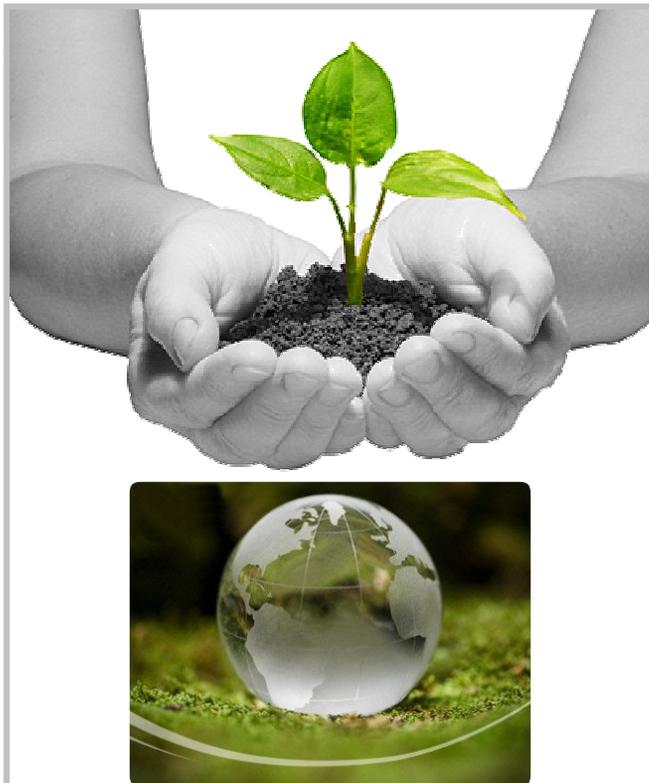
Vale Florestar

- **Private Equity Fund:** one of the largest reforestation funds in Brazil, with equity of US\$ 300 million to be invested by 2015
- Purpose: to rehabilitate deforested or degraded areas in the Amazon Region through recovery and regeneration of native vegetation combined with industrial forests plantation



Fundo Brasil Sustentabilidade

- BNDES is the anchor investor of FBS
- First *private equity* fund in Brazil exclusively focused on supporting companies with projects generating carbon credits under the Clean Development Mechanism of the Kyoto Protocol
- Provides technical expertise in implementing projects generating carbon credits
- As an innovation compared to other private equity funds, the FBS has performance fees determined not only by the financial results, but also by generation of carbon credits



VSE: Vale Soluções em Energia



- VSE: future manufacturer of power generation solutions directed towards renewable energy sources
- Controlled by VALE with a 45% BNDES' equity participation
- Partnership with Aeronautical TECH-ITA to graduate 160 engineers from 2008-2012
- 3 patents deposited and more 50 to come
- First high-tech Brazilian power systems company
- Products: Gaseifiers, Engines and Turbines
- CAPEX: US\$ 380 million

Environment and Innovation Funds – Current Portfolio

R\$ million

	Number of Funds	<u>Capital</u>		Paid in Capital
		<u>Total</u>	<u>BNDES</u>	
Initial Stage	2			
Emerging / Innovation Funds		*	*	0
Clean Development Mechanism Fund	1	*	*	0
Investment stage	8	789	202	80
Emerging / Innovation Funds	7	689	122	56
Criatec Fund	1	100	80	24
Disinvestment stage	4	56	18	18
Technological Funds	4	56	18	18



BNDES

*Brazilian
development bank*



edurath@bndes.gov.br

Thank you.