

# R&D in Brazil: The Role of Finep in the Federal Government

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# Historical Notes

## Brazil, 19th Century



Pedro I, Emperor of Brazil

Royal Family arrives in Br  
in 1808 as Napoleon threat  
to invade Portugal

- 1808 - Royal Press created – first legal printing machines
- 1822 – Independence of Brazil

# Historical Notes - Late start on S&

## Important institutions created

- **1808- Medical Schools: Rio and Salvador**
- **1810- Royal Military Academy- Later Engineering School (1874)**
- **1827- Law Schools: São Paulo and Olinda-Recife**
- **1887 - Agronomical Station of Campinas – (Dafert)**
- **1892 – Vaccine Institute of São Paulo and  
Inst. Bacterials - Butantã (Adolfo Lutz, Vital Brasil)**
- **1889 - Public Health Institute Manguinhos  
(Oswaldo Cruz, Carlos Chagas)**

# Historical Notes

**1934 - University of São Paulo – USP**

**1948 – Brazilian Society for the Advancement of Science –SBPC**

**1950 – Institute for Aeronautical Technology - ITA**

**1951 – National Research Council (CNPq) and CAPES**

**1962 – FAPESP begins operation**

**1962 – FUNTEC/BNDES - beginning of graduate programs**

**1968 – Reform of federal university system – full time jobs**

**1967 – Financing Agency for Studies and Projects - FINEP**

**1973 - EMBRAPA**

**1986 – Ministry of Science and Technology - MCT**

# S&T in the Federal Government

National  
S&T  
Council

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Ministry  
of S&T

Research units  
CNPq  
Finep

Ministry  
of  
Education

Universities  
Technical schools  
Capes

Ministry of  
Agriculture

EMBRAPA

Ministry  
of  
Industry

Ministry  
of  
Health

FioCruz

Ministry  
of  
Environment

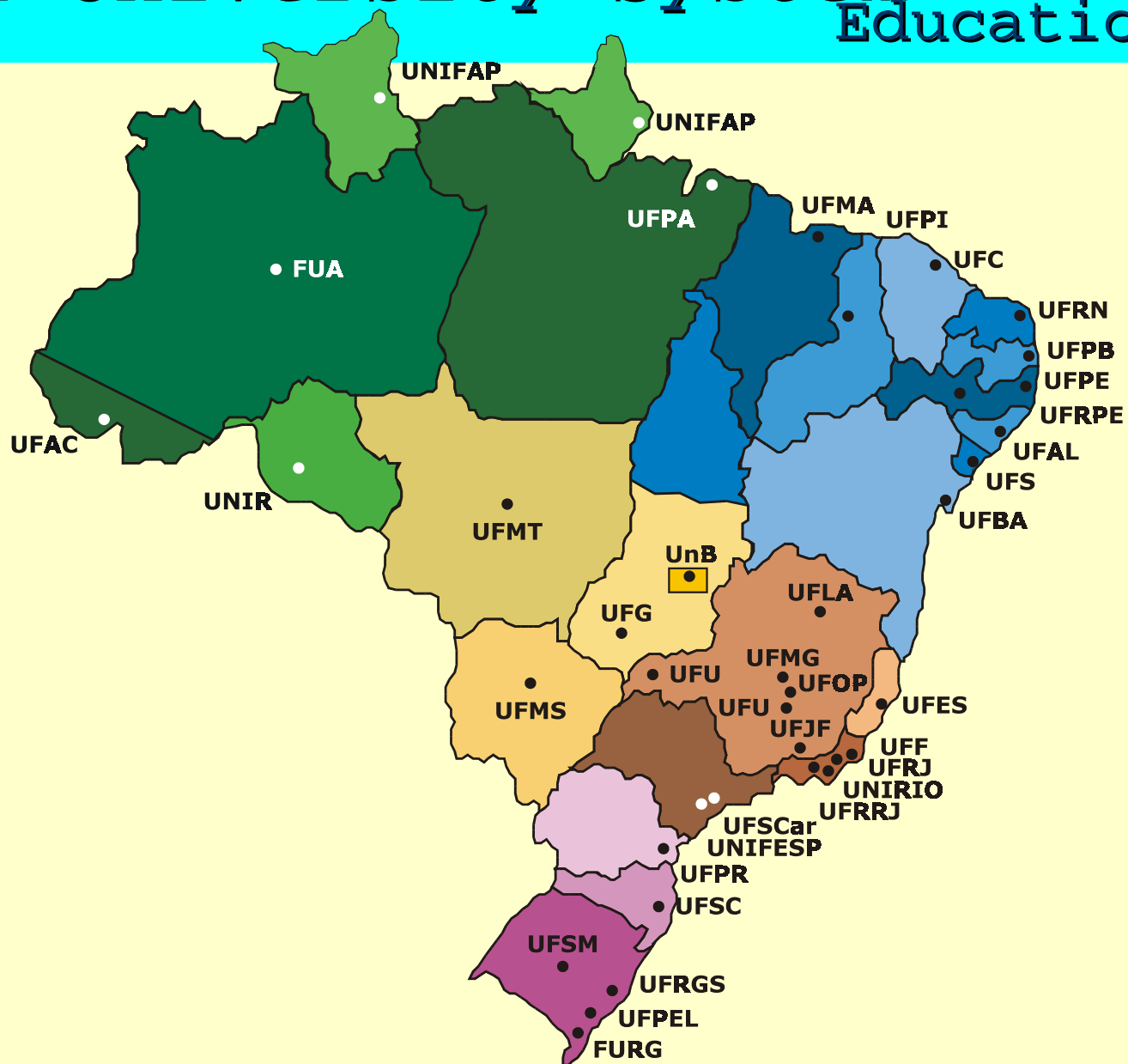
Ministry  
of  
Defense  
ITA

Ministry of  
Communication

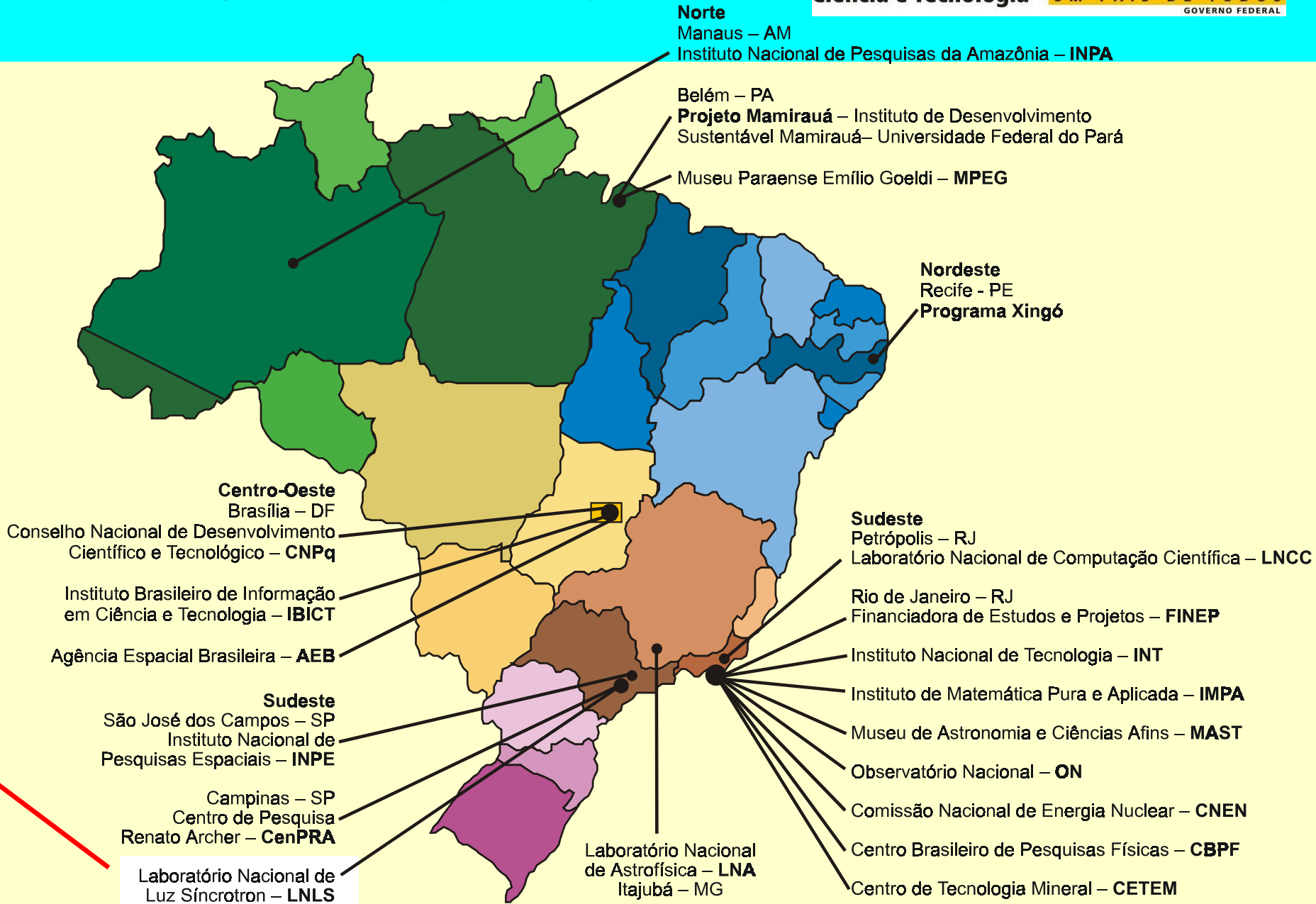
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# Federal University System

## Ministry of Education



# Units of MCT



# Synchrotron Light National Laboratory

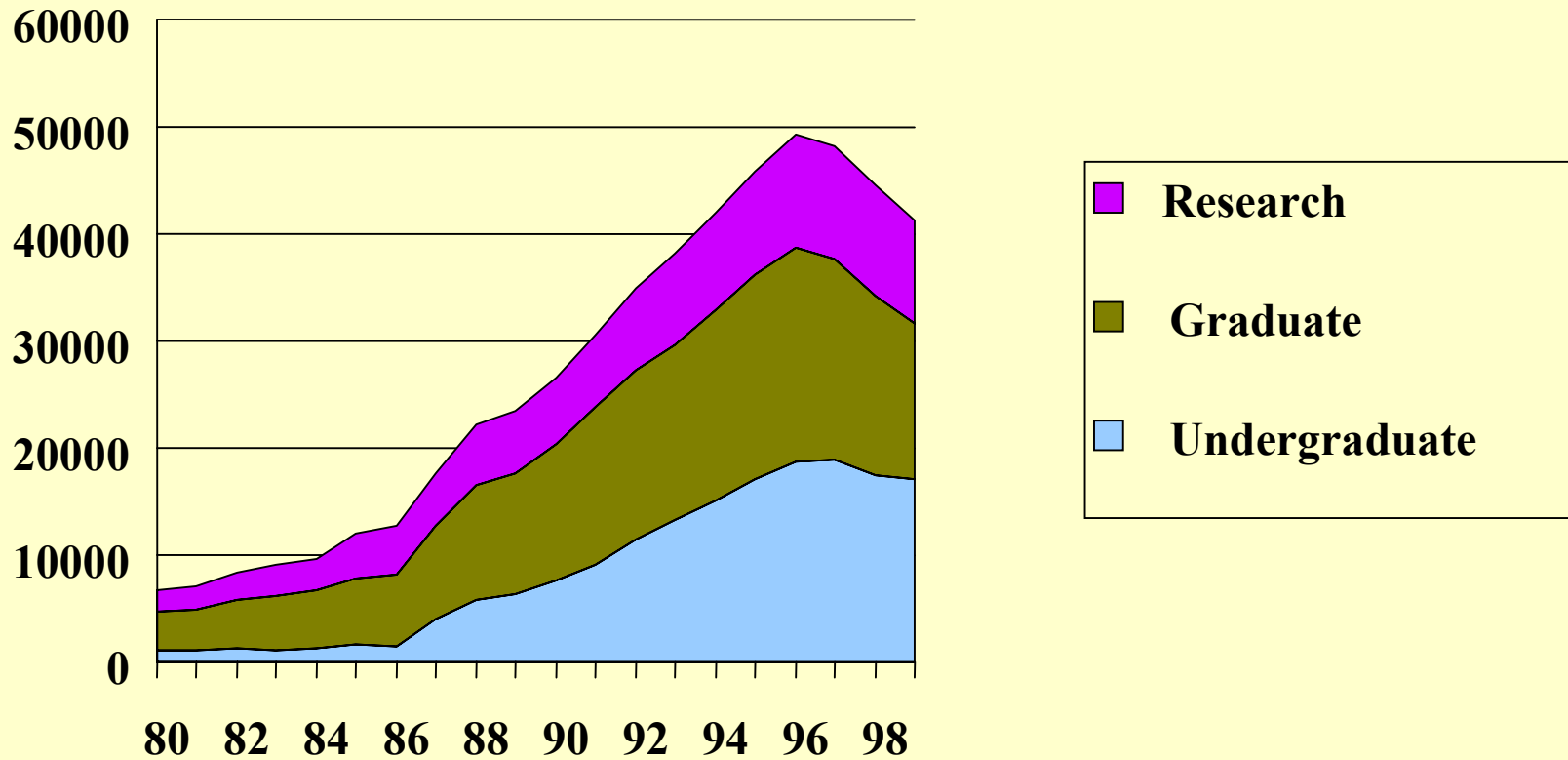
Ministério da  
Ciência e Tecnologia



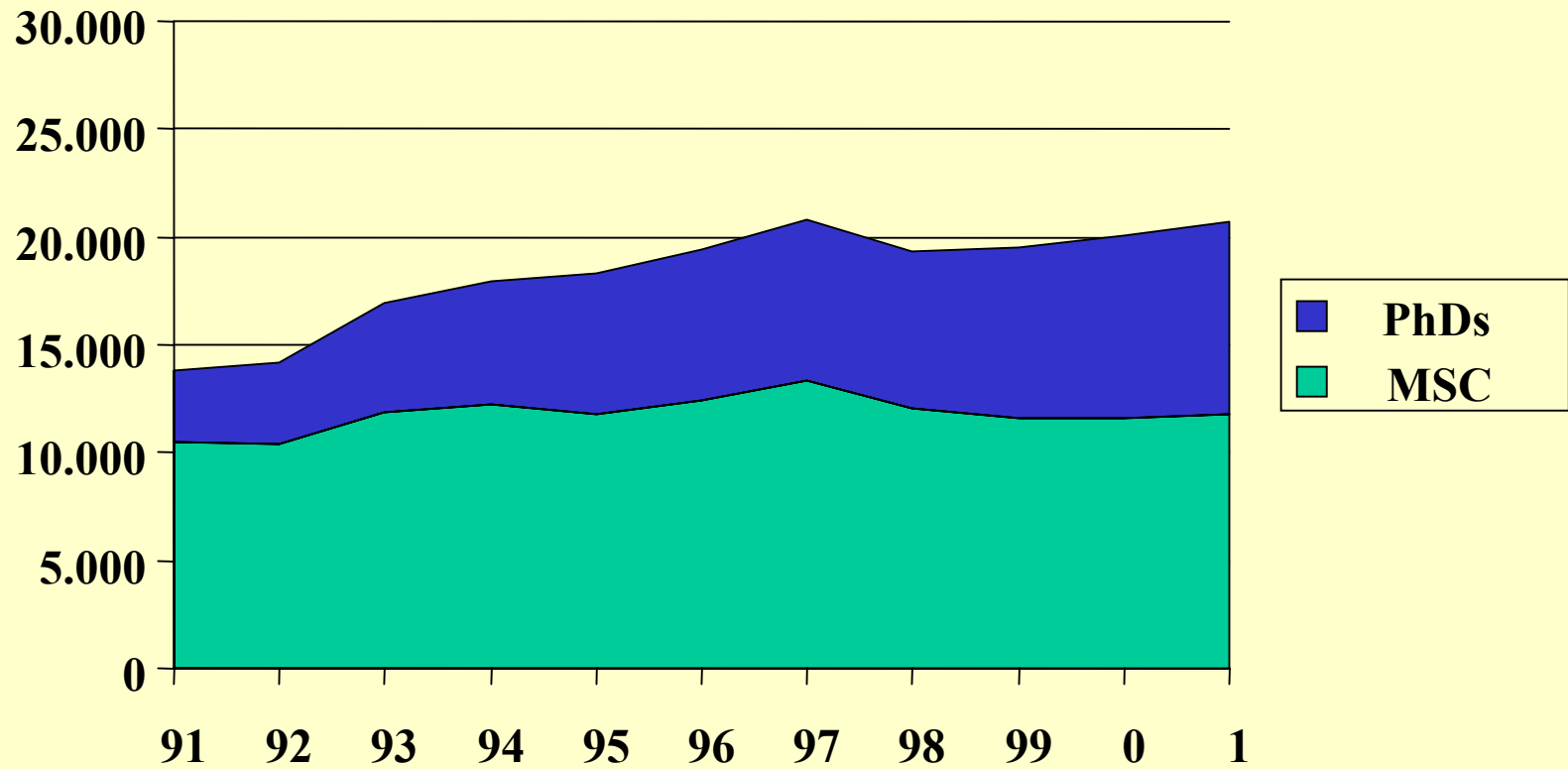


# Role of CNPq: Individual research grants; Undergraduate, Graduate and Research Fellowships

Number of fellowships

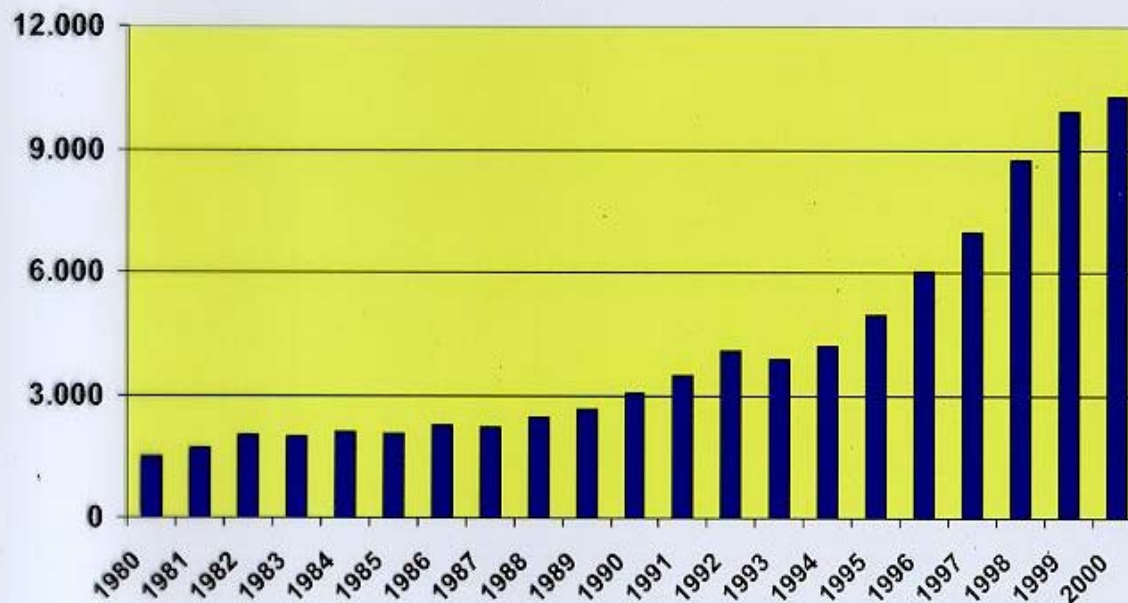


# CAPES fellowships



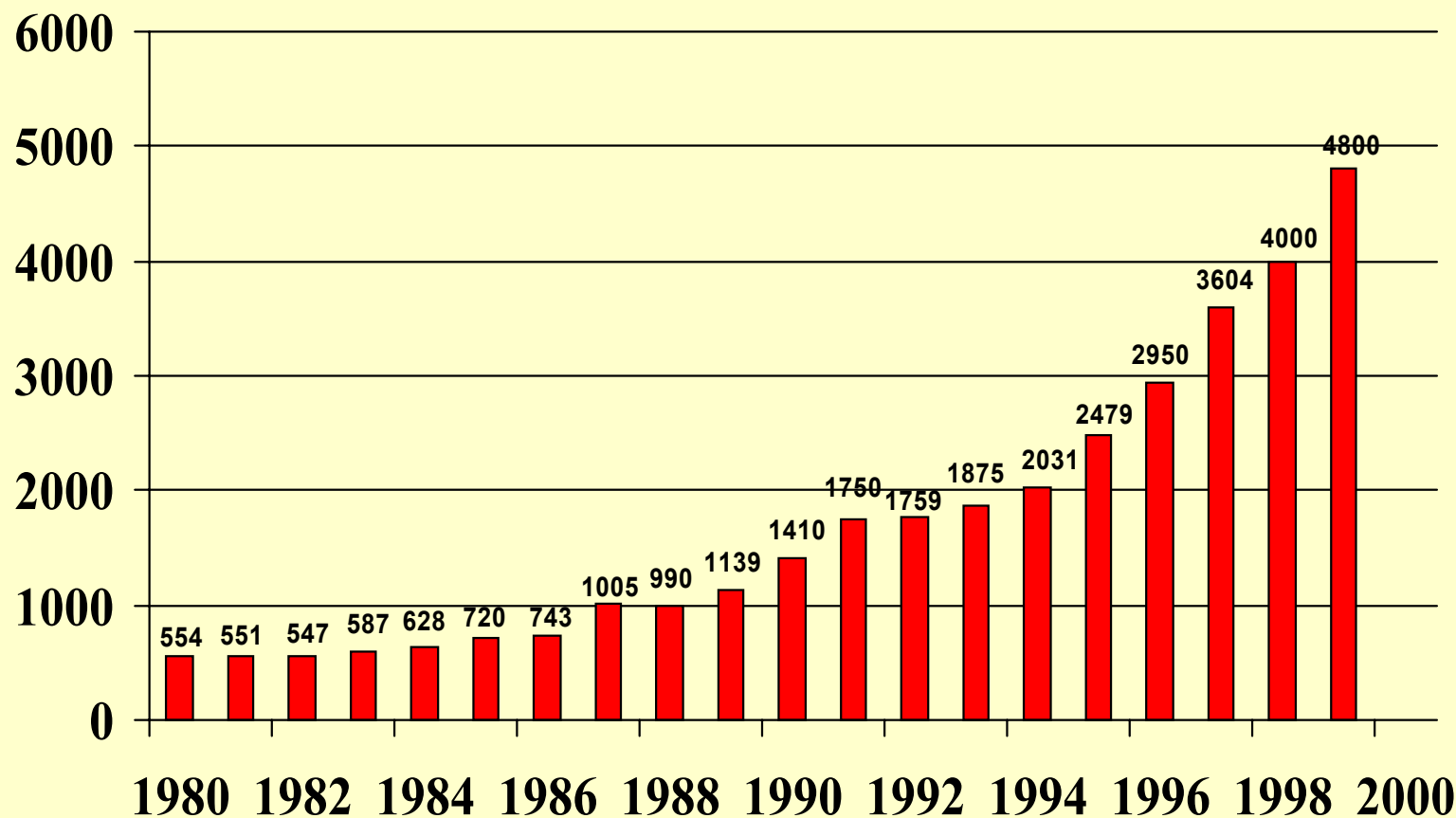
# Papers published

## *Artigos do Brasil no Science Citation Index*



Dados levantados no Web of Science, ISI

# PhDs graduation in Brazil



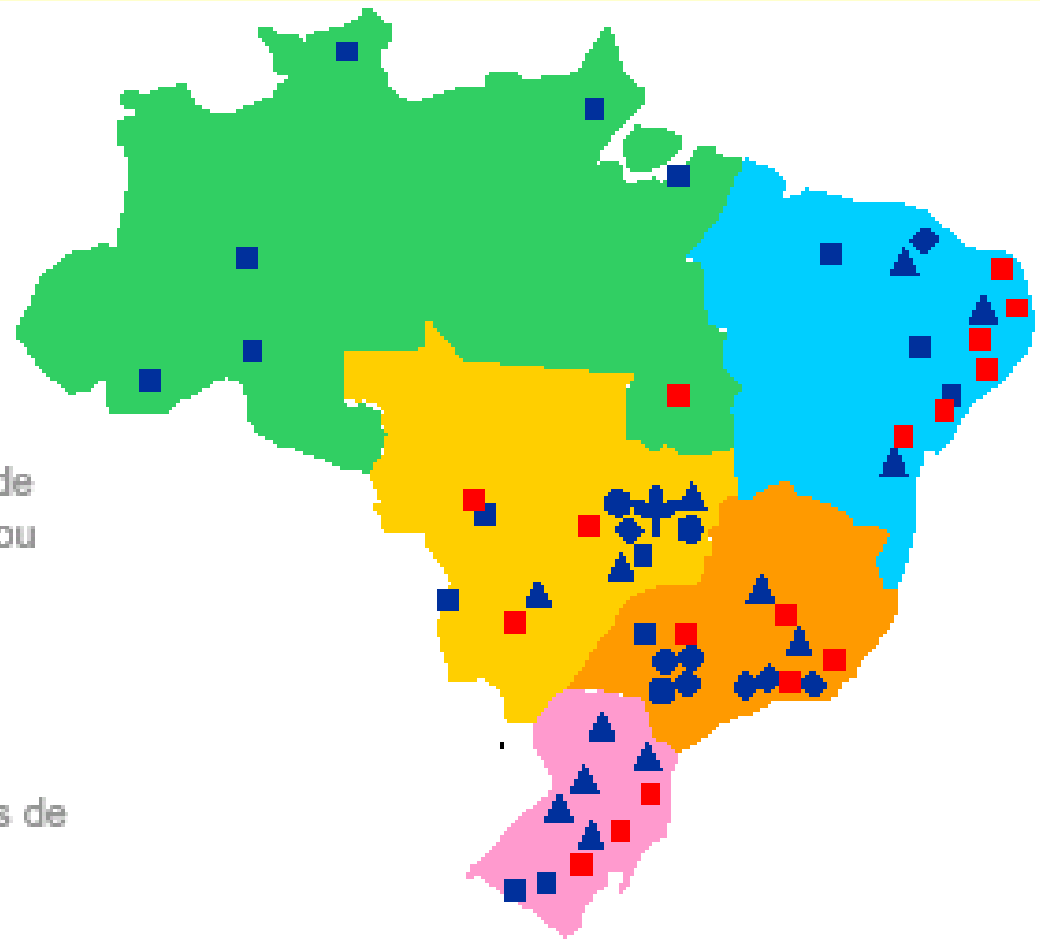
**ITA made EMBRAER possible  
Brazil begins to manufacture modern  
airplanes**



**Embraer  
planes  
become  
important  
in the  
export  
agenda of  
Brazil**

# EMBRAPA established research centers throughout the Country. Many interact with universities

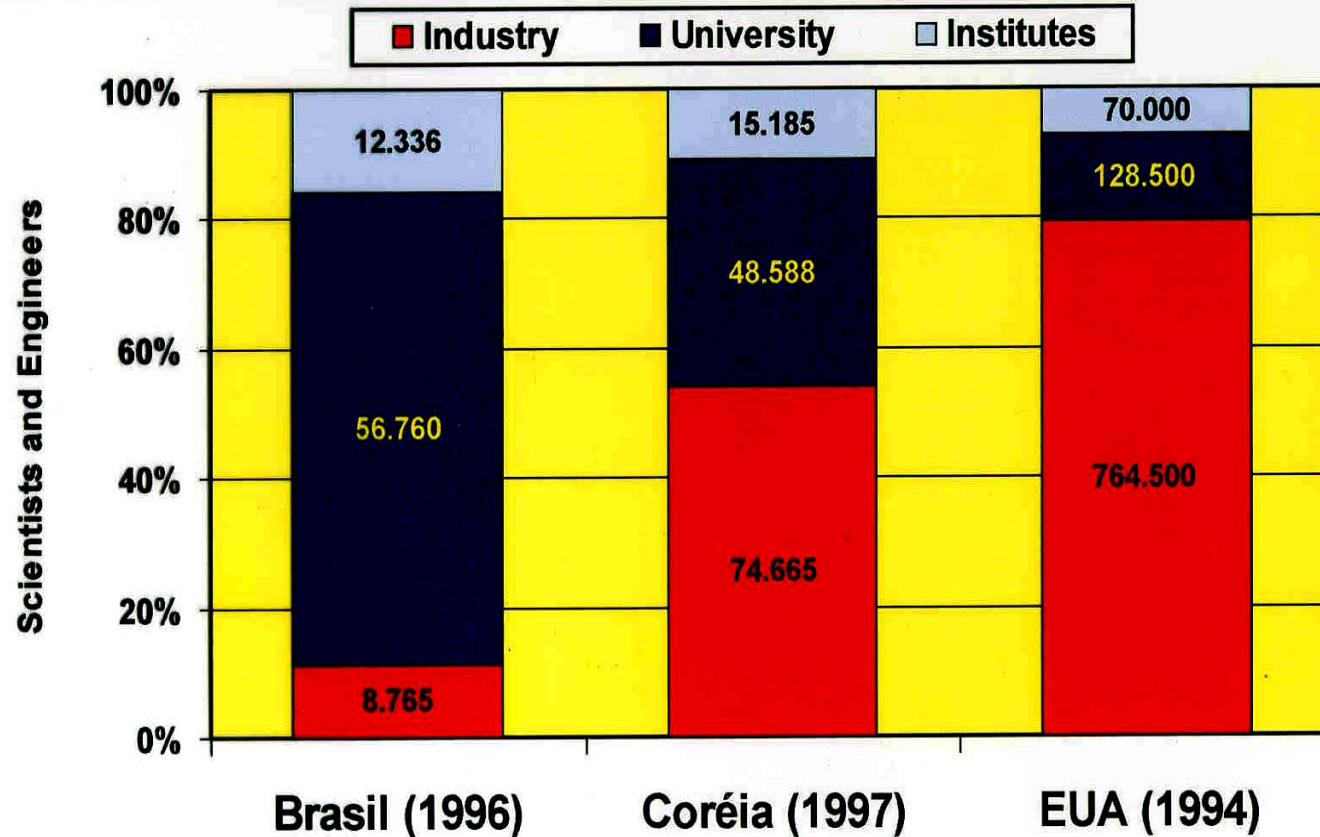
- ✚ Embrapa Sede
- ◆ 08 Centros Nacionais de Temas Básicos
- ▲ 13 Centros Nacionais de Produtos
- 15 Centros Ecorregionais de Pesquisa Agroflorestal ou Agropecuária
- 03 Serviços Especiais
- 17 Organizações Estaduais de Pesquisa Agropecuária



# Brazilian agricultural production propelled by S&T

<b>Product</b>	<b>World Rank in 2002</b>
<b>Sugar</b>	<b>1<sup>st</sup></b>
<b>Orange juice</b>	<b>1<sup>st</sup></b>
<b>Coffee</b>	<b>1<sup>st</sup></b>
<b>Soil bean</b>	<b>2<sup>nd</sup></b>
<b>Beef</b>	<b>2<sup>nd</sup></b>
<b>Poultry</b>	<b>2<sup>nd</sup></b>
<b>Corn</b>	<b>3<sup>rd</sup></b>
<b>Fruits</b>	<b>3<sup>rd</sup></b>

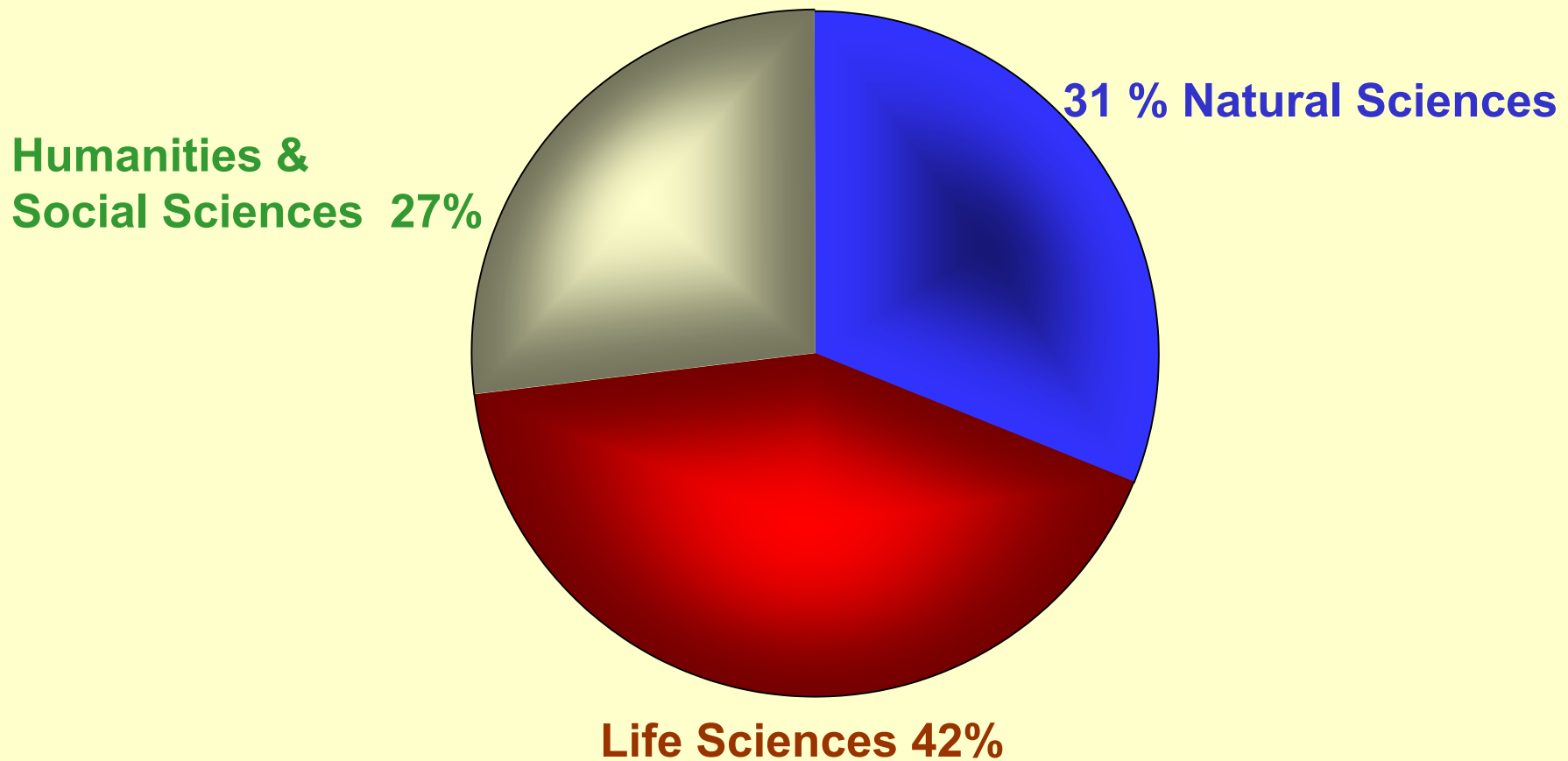
# Brazil, Korea and USA: Scientists and Engineers



<http://www.most.go.kr/research-e/3-3.htm>



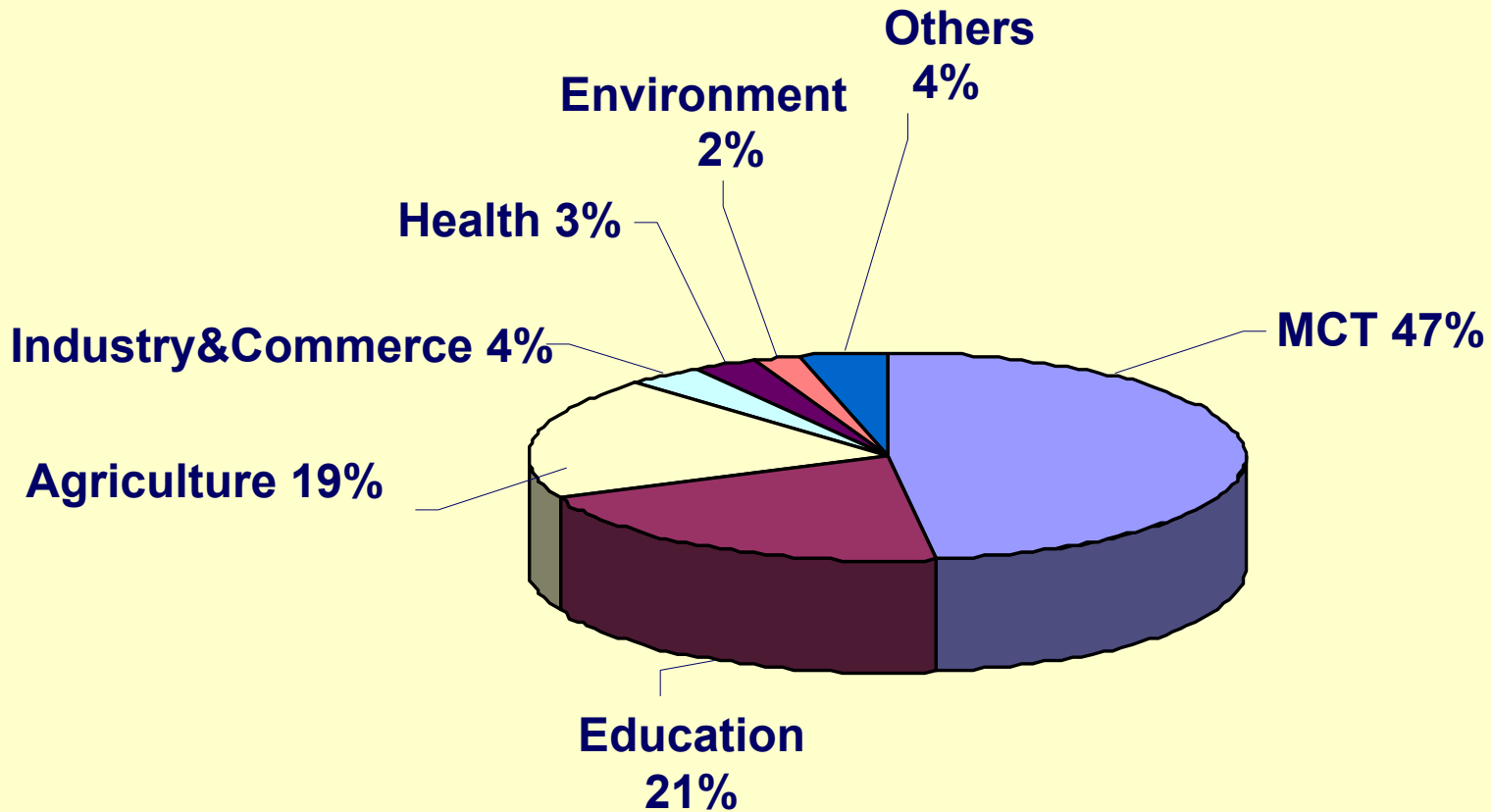
# DISTRIBUTION OF RESEARCH GROUPS BY AREA



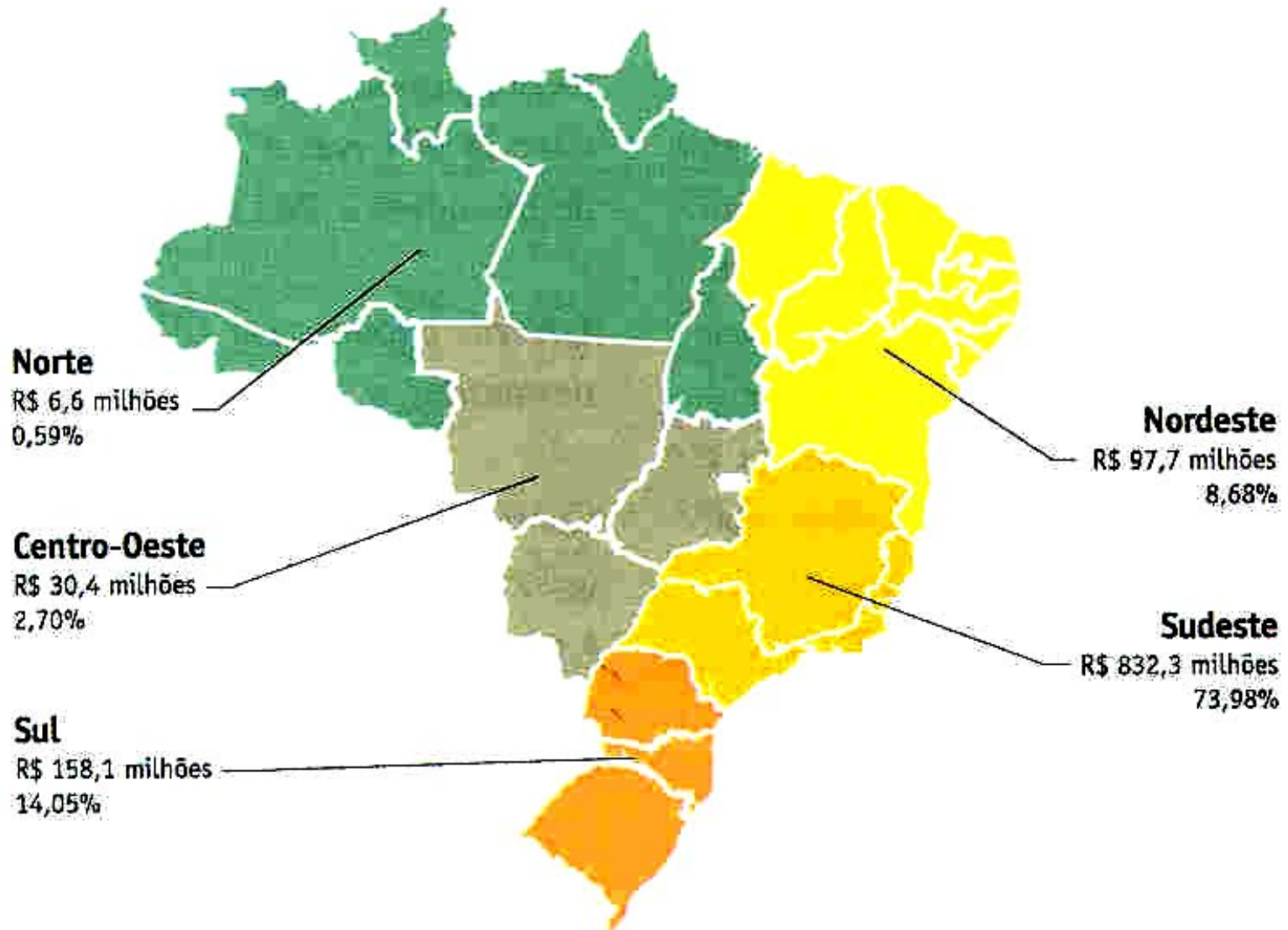
# Expenditures on R&D - 1999

Source	Relative participation %	% of GNP
<b>Federal Government</b>	<b>40</b>	<b>0.35</b>
<b>State Governments</b>	<b>23</b>	<b>0.20</b>
<hr/>		
<b>Total Government</b>	<b>63</b>	<b>0.55</b>
<hr/>		
<b>Private Companies</b>	<b>37</b>	<b>0.33</b>
<b>TOTAL</b>	<b>100</b>	<b>0.88</b>

# Expenditures of federal funds for R&D - 1999



# Expenditures of State Governments on S&T Activities - 1999



# Current challenge of S&T System

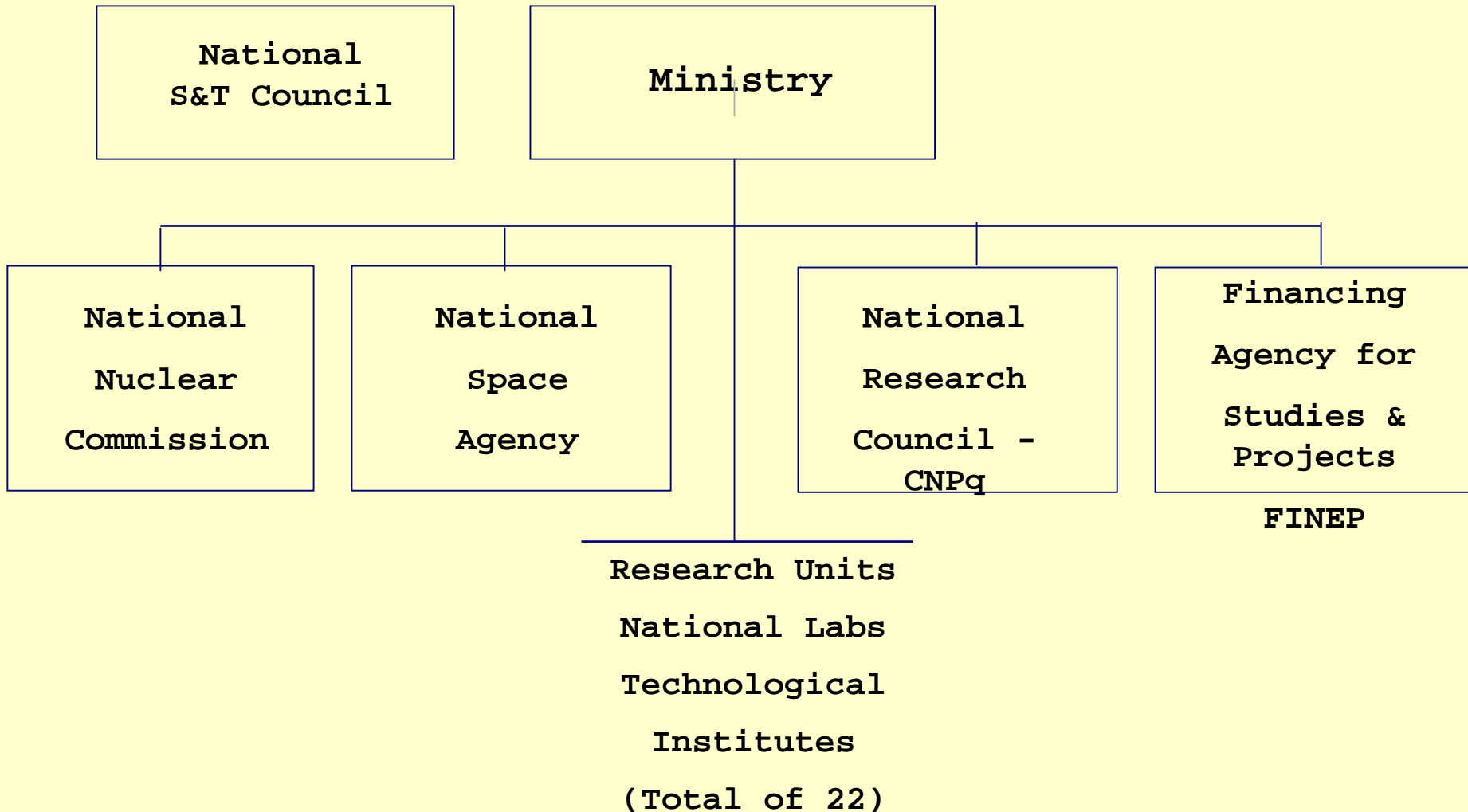
Brazil has the largest and best S&T system in Latin

America

However, few private companies do R&D

To incorporate R&D activities in the productive sector and to make society benefit from the products of science and

# Ministry of Science and Technology



## Objectives of new management of MCT

1. Promote R&D in science and technology, formation of human resources and international cooperation for the development of the Country and the affirmation of its sovereignty.

CNPq: Fellowships and individual grants

FINEP: Research grants to institutions

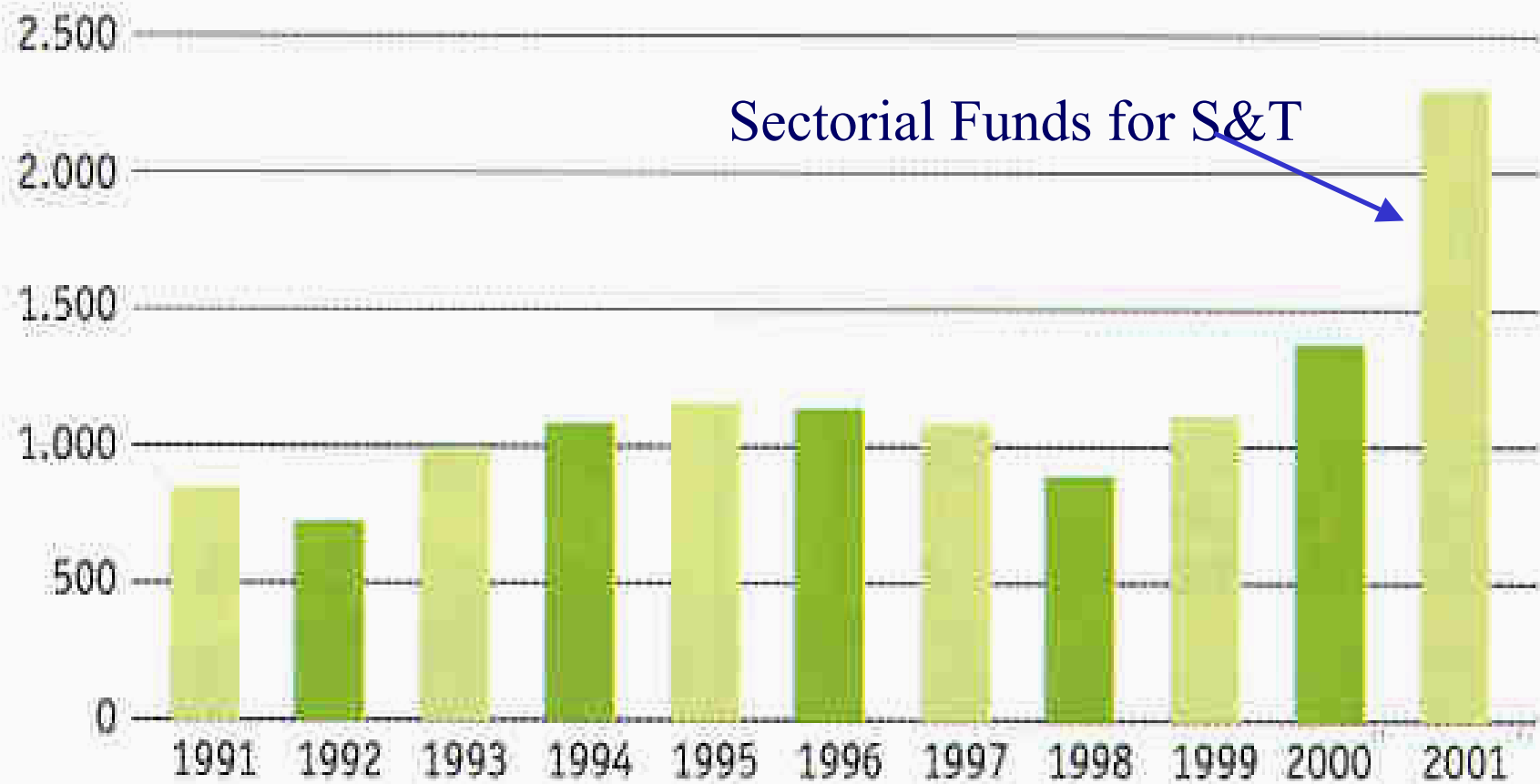
2. Estimulate R&D and innovation in industry with emphasis on sectors that promote substitution of imported goods and the value added to national products.

FINEP: Financing of technological centers and

3. Stimulate local development, basic and applied research, aiming at improving the geographical distribution of the S&T system.
  
4. Establish programs for technological diffusion to support the development of small business and for the use of knowledge in actions with social impact.
  
5. Promote projects and actions for the popularization of scientific knowledge and the improvement of science teaching in high school.



# Expenditures on S&T by MCT (R\$ 1 million)



# Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq

- Individual research grants
- Nuclei of Excellence
- Millenium Institutes
- Research fellowships
- Graduate student fellowships
- Undergraduate fellowships
- Thematic networks (biotechnology,  
nanoscience)

# Financiadora de Estudos e Projetos - FINEP

## Double Role of FINEP

- ❑ Financing Agency for S,T&I: FNDCT  
Research grants to non-profit institutions
- ❑ Bank: loans at low interest rates

## Other initiatives of FINEP

❑ Grants to researchers in small firms

❑ Venture capital to selected small firms

❑ Support to venture capital funds

❑ Venture forums

❑ Science parks

❑ Incubators of high tech firms

Thanks for your attention