

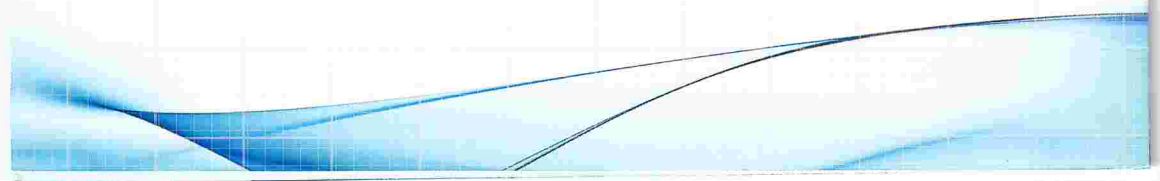
# **PACTI**

## **2007 - 2010**

**Plan of Action for Science,  
Technology and Innovation for  
National Development**

**Main Results**





# Presentation

In recent years, Brazilian science has achieved important advances and has become an increasingly important component for the country's development. One of the main instruments in this process is the Action Plan for Science, Technology and Innovation for National Development (PACTI 2007-2010), the result of a strong partnership among the Federal Government, states and municipalities, the scientific community, businesses and various organizations of society.

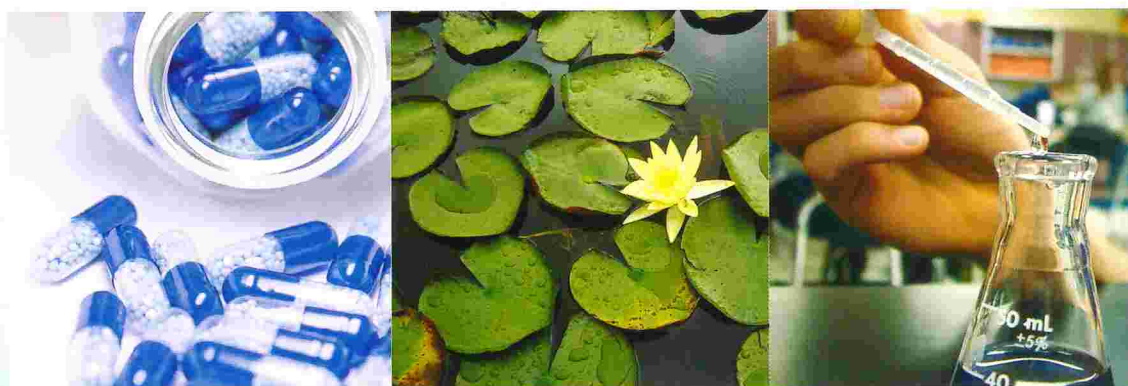
With the PACTI, the National Science and Technology System gained a stronger institutional basis and a new legal framework, especially with the strengthening of the National Council for Science and Technology, the regulation of the National Fund for Scientific and Technological Development (FNDCT), and state laws for innovation. These were fundamental steps for the sector to count on more financial resources necessary for innumerable new initiatives. As a consequence, it is already possible to verify a substantial improvement in various S, T & I indicators. Among these are more rapid human resource training, amplification of research and scientific production infrastructure, the intensification of technological innovation in businesses, and research in strategic areas and in social technologies that, in addition to providing access to knowledge, generate more opportunities for employment and income.

Science, technology and innovation policies are increasingly understood as motors for social and economic progress, and thereby should be capable of stimulating the transformation of knowledge into wealth. Progress in strengthening scientific and technological underpinnings is essential on this trajectory in which Brazil begins to assume a prominent role in the international scene.

Sergio Machado Rezende  
Minister of Science and Technology

# Knowledge for a more just and developed Brazil.

In recent years, Brazilian science has achieved important advances and has become an increasingly important component for the country's sustainable development. One of the main instruments in this process is the Action Plan for Science, Technology and Innovation for National Development (PACTI 2007-2010). The result of a strong partnership among the Federal Government, states and municipalities, the scientific community, businesses and various organizations of society, the PAC of Science, as



it is known, is articulated with other public policies within the Growth Acceleration Program (PAC), specially the Productive Development Policy (PDP).

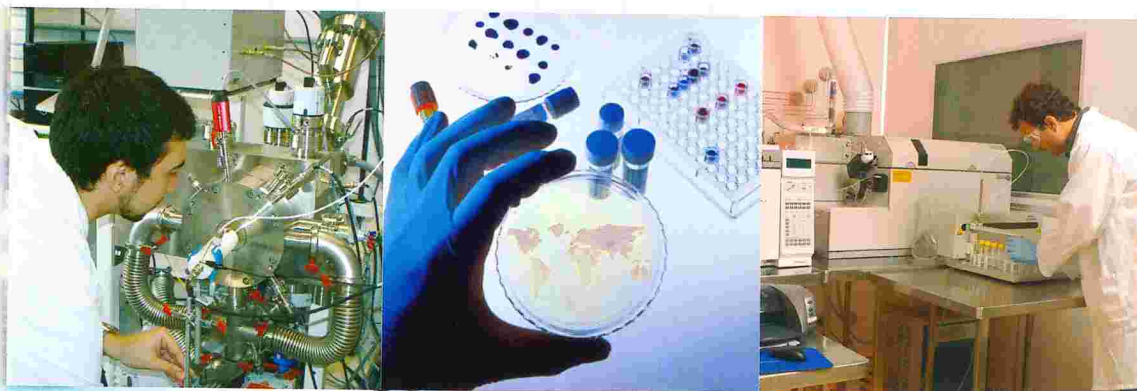
As can be seen, Brazil today has public STI policies that enable the transformation of knowledge into well-being, improve people's lives and help the country grow and develop with sustainability. PACTI has four strategic priorities that go along such directions:

**I - Expansion and Consolidation of the National Science, Technology and Innovation System;**

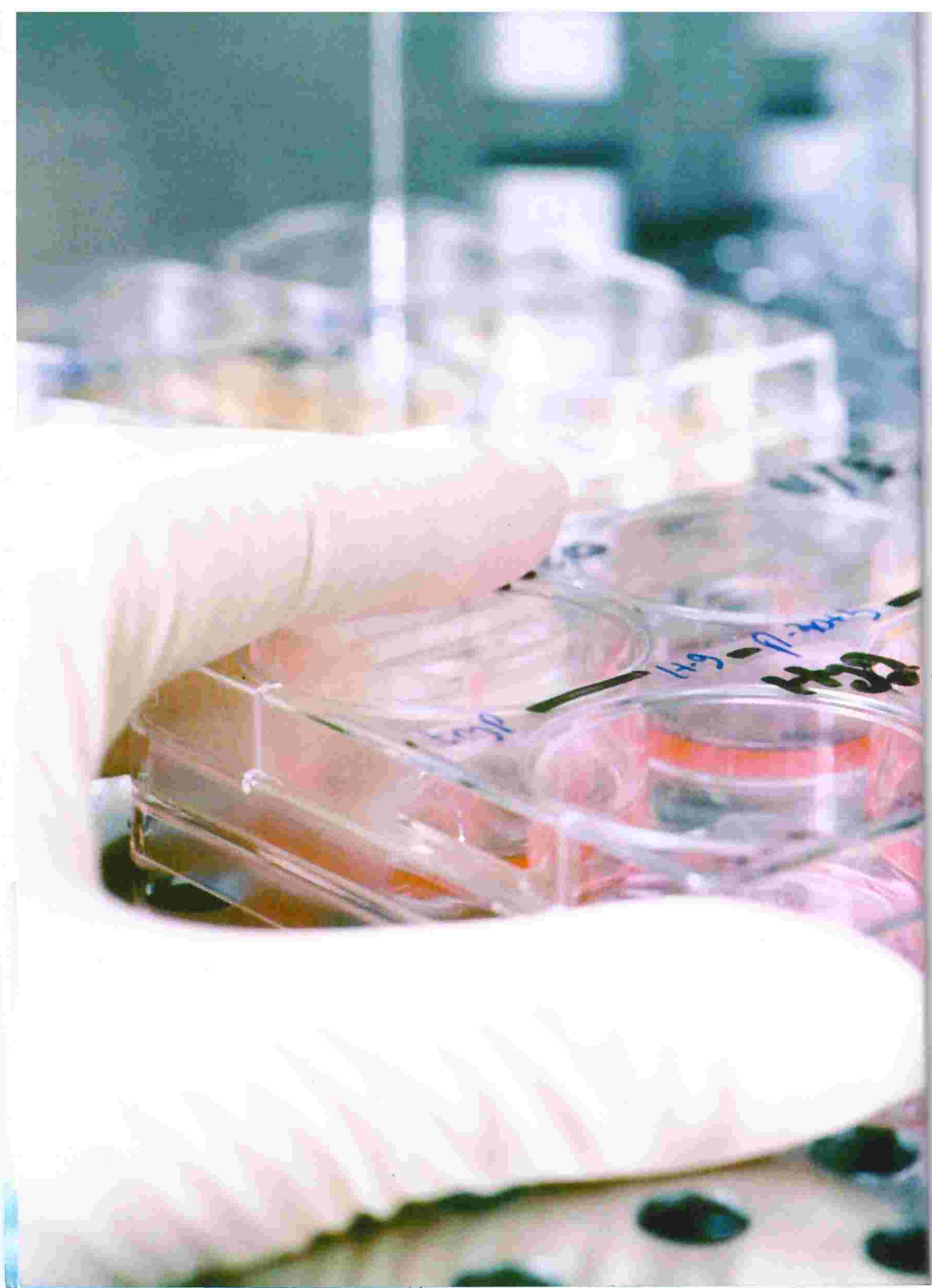
**II - Promotion of Technological Innovation in Business;**

**III - Research and Development in Strategic Areas; and**

**IV - Science, Technology and Innovation for Social Inclusion.**





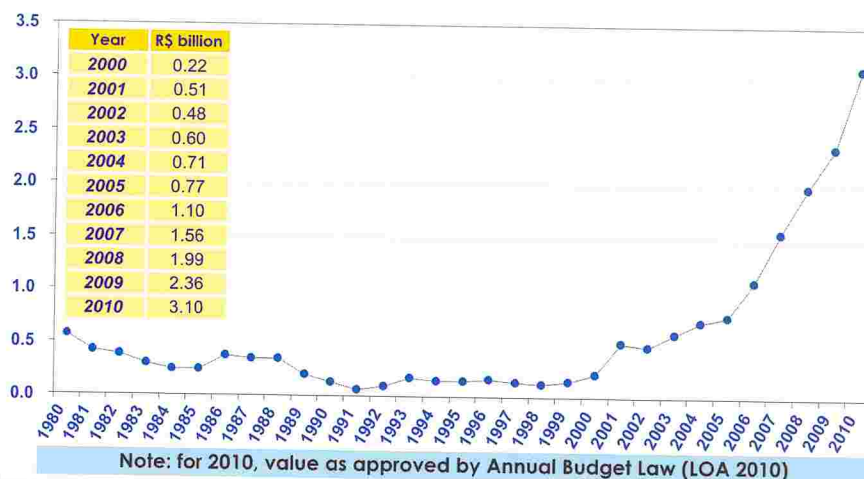


# I – Expansion and Consolidation of the National Science, Technology and Innovation System.

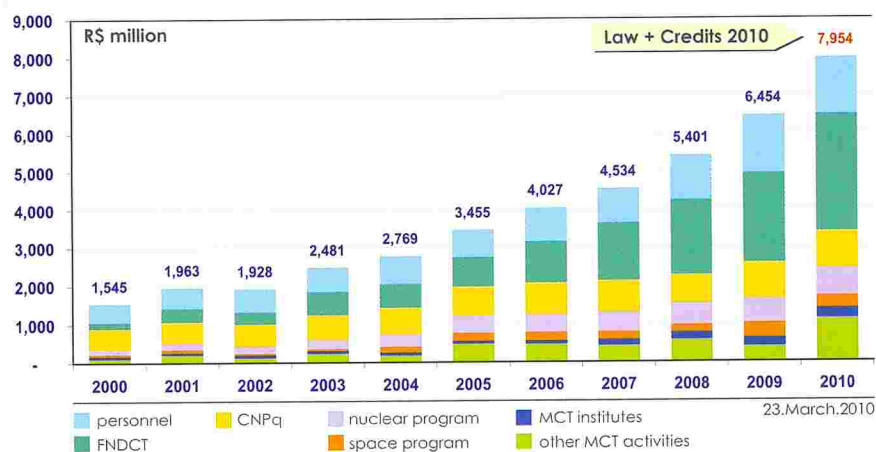
With PACTI, the National Science and Technology System gained a stronger institutional basis and a new legal framework, especially with the strengthening of the National Council for Scientific and Technological Development, the regulation of the National Fund for Scientific and Technological Development (FNDCT), and state laws for innovation.

PACTI consists of a set of well-defined programs and activities and has a budget of R\$ 41.2 billion. Funds for the sector show how much it has become a priority. The budget of the Ministry of Science and Technology has increased substantially, from R\$ 4.0 billion in 2006 to R\$ 7.9 billion in 2010. The FNDCT budget has grown every year, from R\$ 1.1 billion in 2006 to R\$ 3.1 billion this year and is the main source of public financing for this sector.

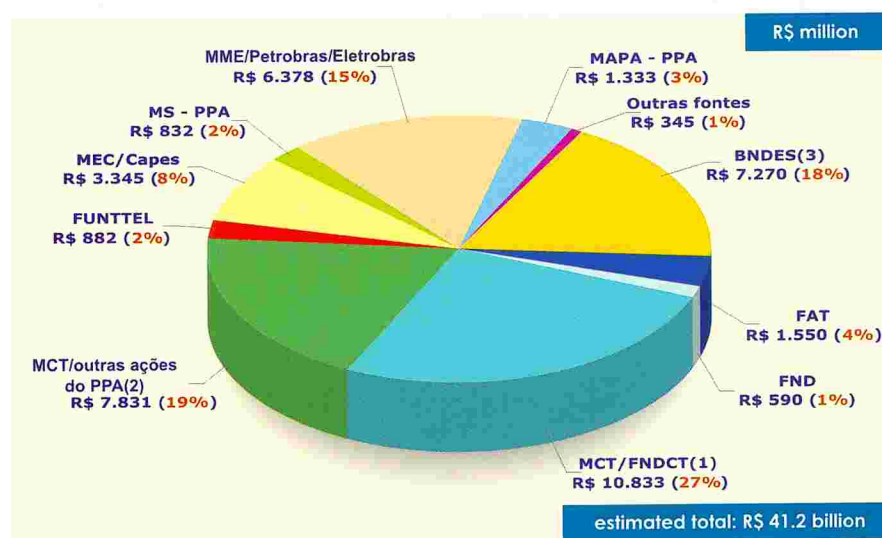
**Figure 1. National Fund for Scientific and Technological Development (FNDCT) Budget, 1980 to 2010**



**Figure 2. Ministry of Science and Technology Budget, 2000 to 2010 (R\$ million)**



**Figure 3. Funds from MCT and other federal sources for investment in PACTI, 2007 to 2010, as planned in 2007 (R\$ million)**

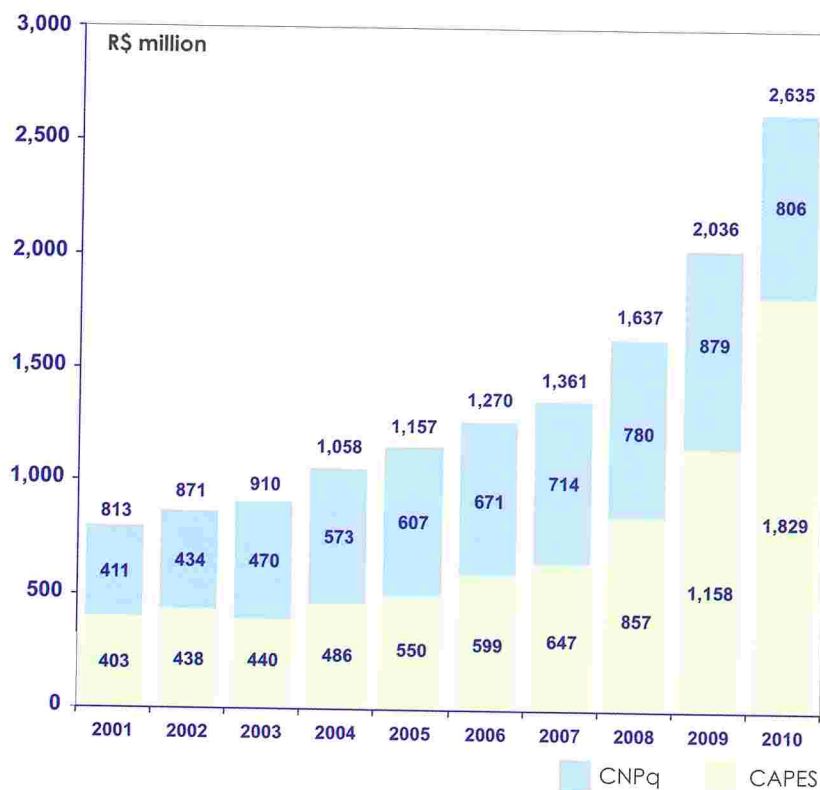




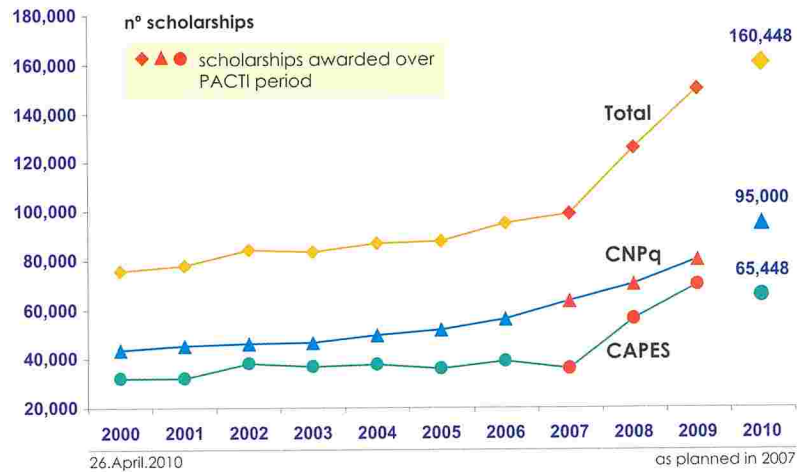
## Increasing CAPES' and CNPq's financial resources and scholarships

Between 2000 and 2009, the country doubled the number of scholarships offered by the National Council for Scientific and Technological Development (CNPq) and by the Coordination Body for Advanced Training of High-level Personnel (CAPES) at all levels – from scientific initiation to post-graduate degrees. The number of scholarships is expected to reach 160 thousand this year. The funds dedicated to these scholarships grew from R\$ 1.36 billion in 2007 to R\$ 2.6 billion in 2010.

**Figure 4. Funds invested on scholarships by CNPq and CAPES (R\$ million)**



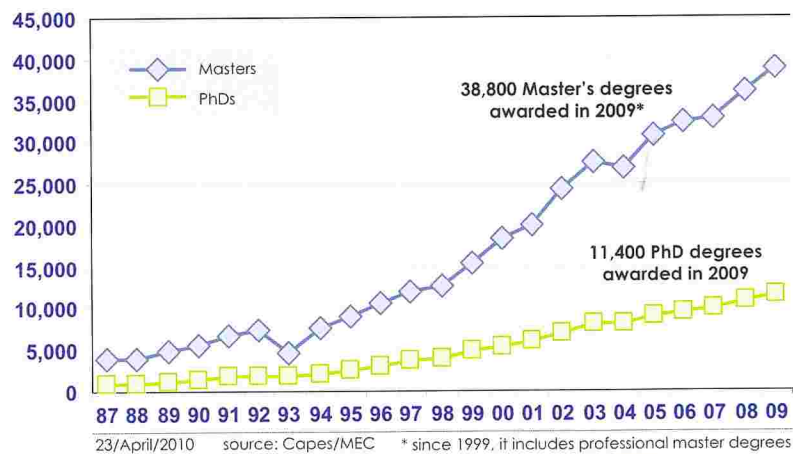
**Figure 5. Number of 12-month-equivalent scholarships awarded by CNPq and CAPES**



## Brazil increases the number of masters and doctors

The number of people with post-graduate degrees grows year by year. In 2000, 23.8 thousand master and doctor degrees were awarded in Brazil. The number of graduates also keeps growing – they were 50 thousand in 2009.

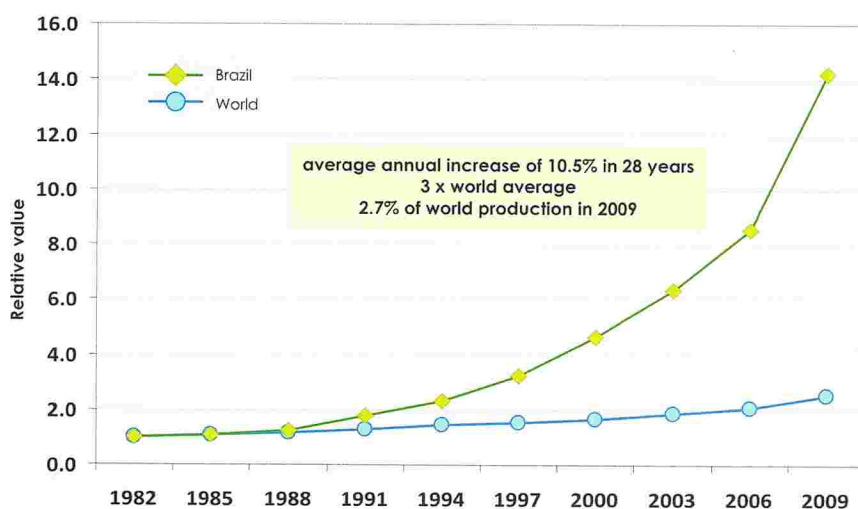
**Figure 6. Master's and Doctor's degrees awarded per year**



## Brazil rises in the ranking of scientific production

Brazil's scientific production reflects the progress in the sector. In 2009, 32.1 thousand scientific articles were published in journals indexed in the ISI (Institute for Scientific Information). The country accounts for 2.7% of the world scientific production, and now occupies the 13th place in the international ranking.

**Figura 7. Brazilian and world relative growth of scientific production, as a ratio to those of 1982**

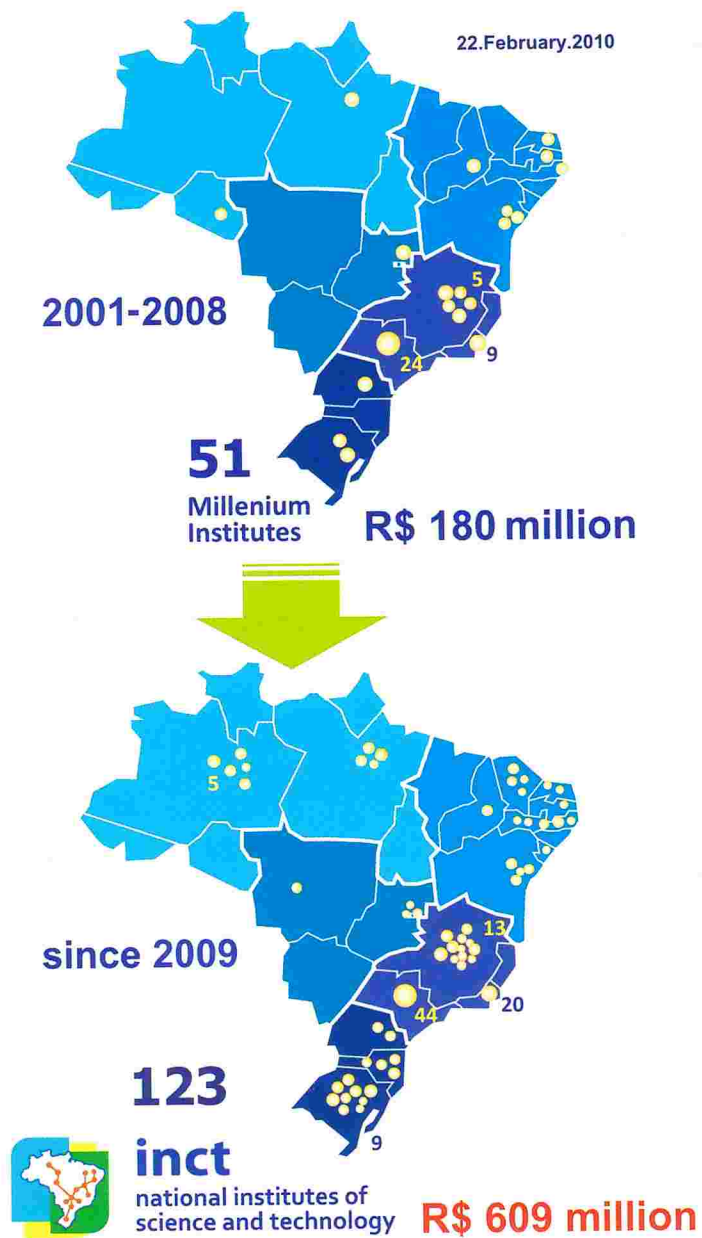


## National Science and Technology Institutes

The creation of 122 National Science and Technology Institutes has given a new impulse to basic and applied research, decentralizing scientific and technological production in strategic fields for sustainable development. The Program was awarded R\$ 609 million, in partnership with the Ministries of Education and Health, Petrobras, the National Bank for Economical and Social Development (BNDES) and State Foundations for Research Support.

More Information: [www.cnpq.br/programas](http://www.cnpq.br/programas)

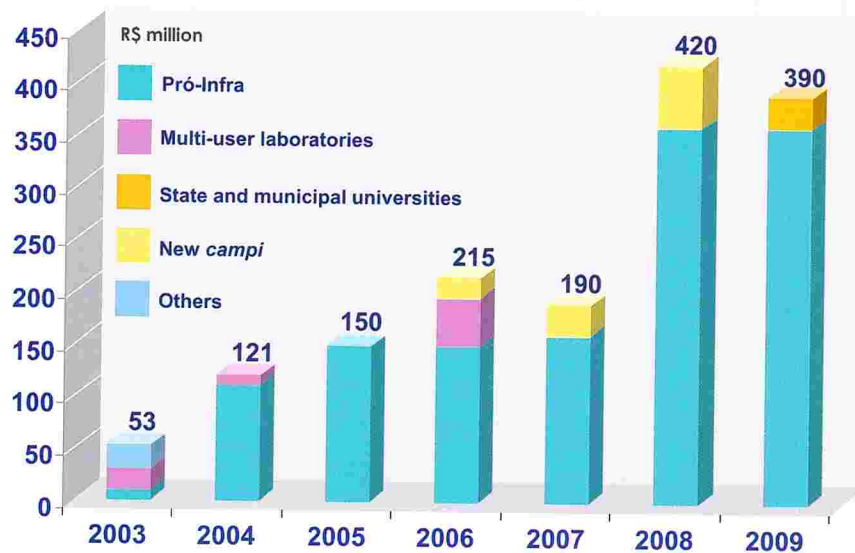
Figure 8. Evolution from the Millenium Institutes to the National Institutes of Science and Technology, distribution by state



## More resources for research infrastructure

The Program for Research Infrastructure Implementation (ProInfra) has enabled the modernization and renovation of laboratories at higher education institutions, with financing through the Projects Financing Agency (FINEP), the innovation agency under MCT, Funds have increased from R\$ 180 million a year (between 2005 and 2007) to R\$ 390 million a year in 2008 and 2009, with a growth of 430% between 2003 and 2009.

Figure 9. Investment in research infrastructure of public institutions





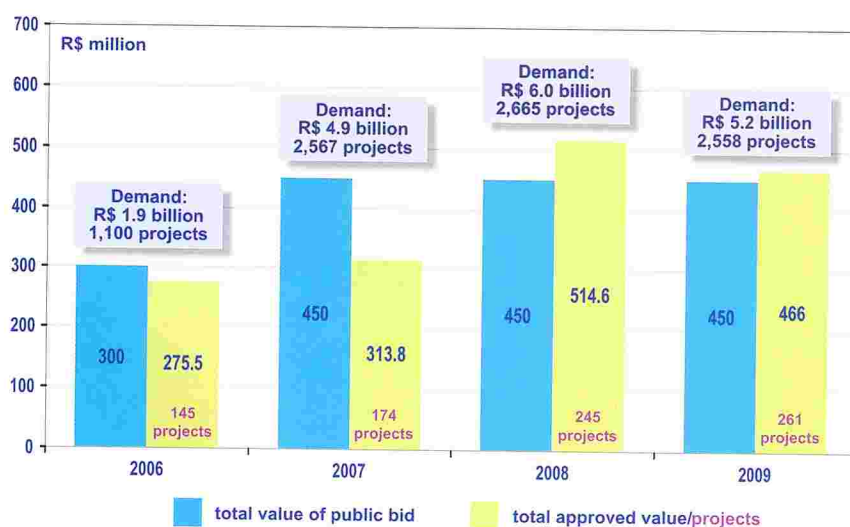


## II – Promotion of Technological Innovation in Enterprises

### Programs push innovation in enterprises

Since 2006, the Economic Incentive Program of FINEP/MCT released more than R\$ 1.7 billion of non-refundable funds to support innovation in Brazilian companies in strategic areas for the Productive Development Policy. In total, more than 2,600 companies were benefited through the National Investment Call for Proposals, the PAPPE Investments in partnership with the States, and through the PRIME Program (First Innovative Enterprise).

**Figure 10. MCT/FINEP Public Bid for Enterprise Awards (2006-2009): total value of bid, demand and result**

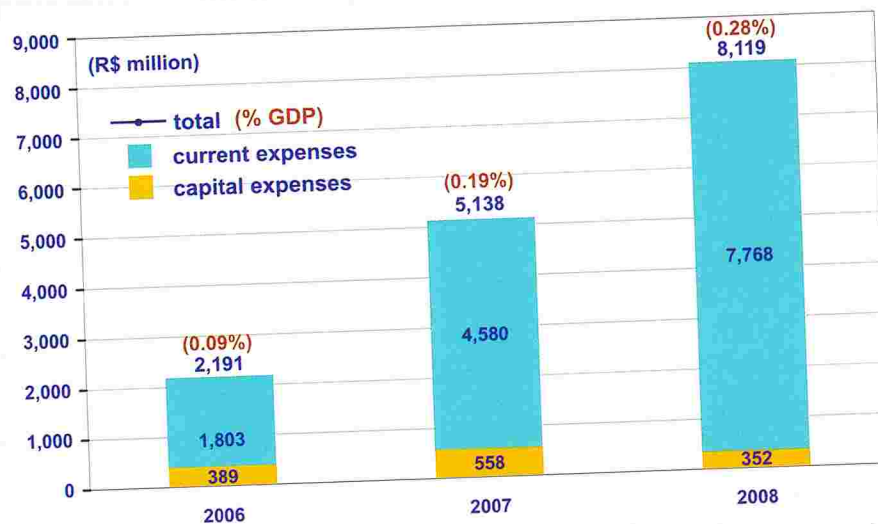


More information: [www.finep.gov.br](http://www.finep.gov.br)

## Tax incentives: companies invest more in R&D

Between 2006 and 2008, the benefits of the 'Lei do Bem' (chapter III, Law no. 11196, for enterprises) totaled R\$ 2.7 billion in tax incentives. About 870 enterprises invested R\$ 8.1 billion in research and development. In 2009 the resources for these incentives destined to R&D in companies, represented 0.28% of the Gross Domestic Product. In 2007 this number represented only 0.09% of the GDP.

Figure 11. Fiscal incentives: investment in R&D by enterprises, 2006 to 2008



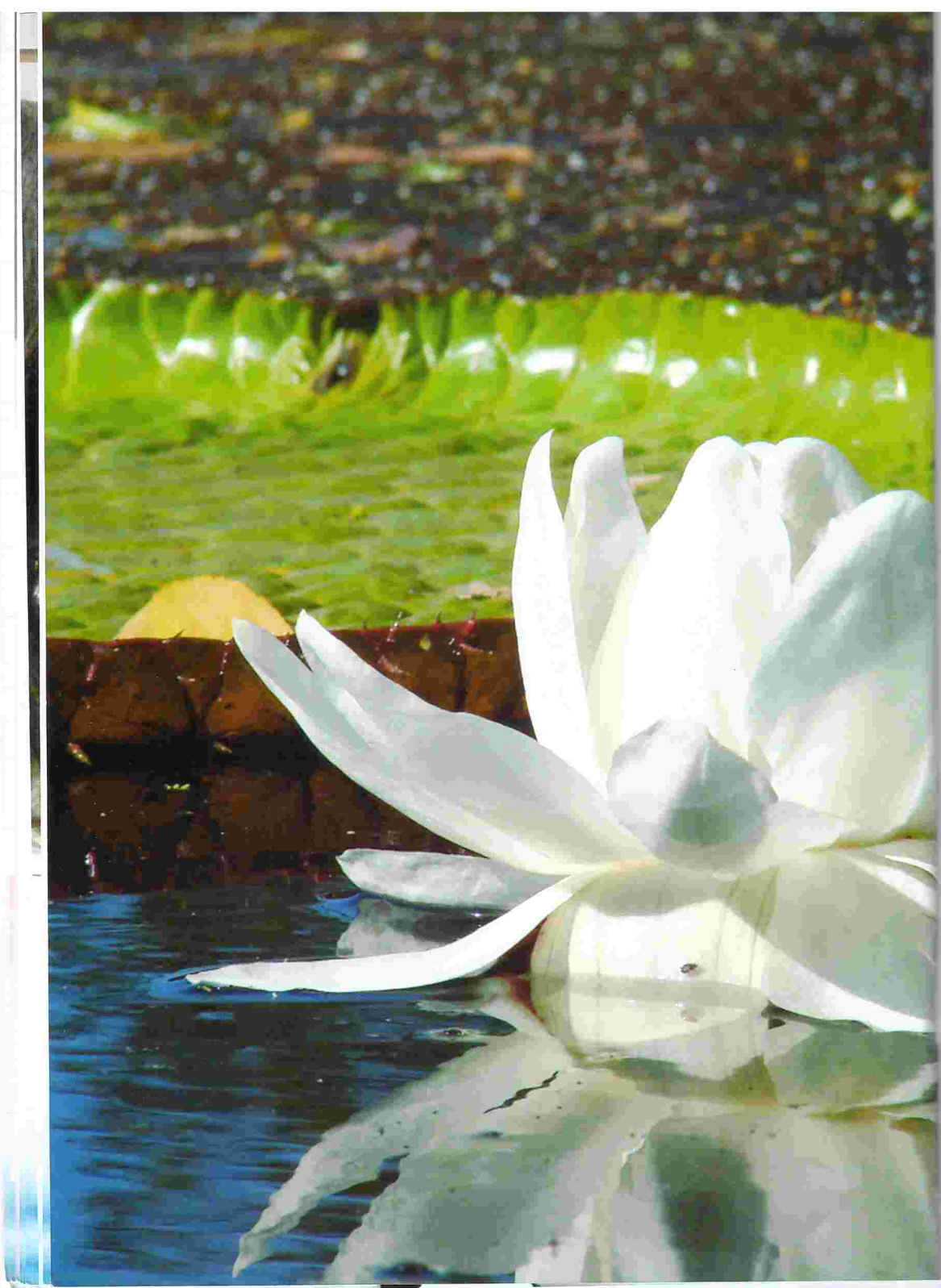
## SIBRATEC articulates the 'university – enterprise' relationship

The National Technology System brings universities and companies together. Between 2007 and 2009, Sibratec provided R\$ 244 million for the technological development and innovation in enterprises in all regions of Brazil. Of this total, R\$ 70 million were destined to 22 State networks of Technological Extension, R\$ 93.6 million to 13 Innovation Center networks, and R\$ 80 million to 19 thematic Technological Services networks.

Figure 12. SIBRATEC: innovation centers



More Information: [www.mct.gov.br/sibratec](http://www.mct.gov.br/sibratec)





### III-Research and Development Strategic Areas

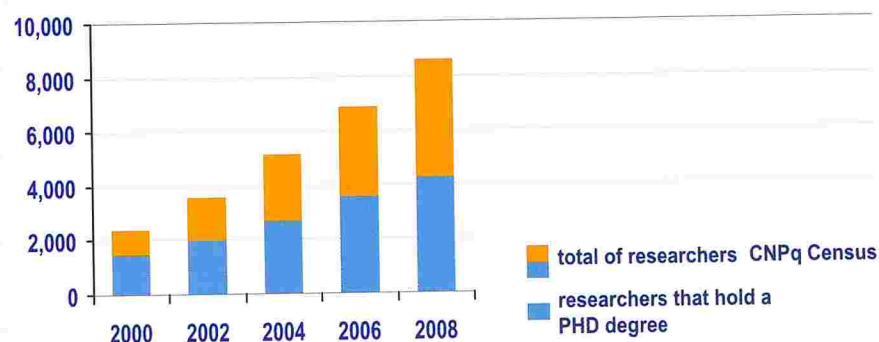
From 2007 to 2010 Brazil has invested R\$ 3.8 billion in strategic areas through the PACTI. A set of programs in which mastering knowledge and technology makes all the difference in a globalized world have been grouped under thirteen lines of action as follows:

- Future bearing areas: Biotechnology and Nanotechnology
- Information and Communication Technologies
- Health Supplies
- Biofuels
- Electrical Power, Hydrogen and Renewable Energy Sources
- Oil, Gas and Coal
- Agribusiness
- Biodiversity and Natural Resources
- The Amazon and the Semi-arid Regions
- Weather and Climate Change
- Space Program
- Nuclear Program
- National Defense and Public Safety

#### Increased research in Amazon

Between 2000 and 2009, investments in ST & I in the states of the Legal Amazon Area reached R\$ 2.2 billion, representing a growth of 193%. The number of researchers in the region grew by 257%, the number of researchers with doctoral degrees went up 366% and the number of research groups increased by 210%, raising the level of knowledge about biodiversity Brazil.

Figure 13. Researchers in the Legal Amazon Area – 2008



## Science monitors climate impacts

The Brazilian Network for Research on Global Climate Change (CLIMA Network) was created in 2007 to prepare the country for studies and the impacts resulting from global climate change. The Network brings together 400 researchers, students and technicians, members of 76 Brazilian research groups and 16 foreign groups.

## Information and communication technology

Between 2004 and 2010, more than R\$ 450 million were invested by Federal Government to implement the National Center for Advanced Electronic Technology (Ceitec), the first company specialized in developing and producing computer chips in Latin America. The investment seeks to leverage the semiconductor industry in Brazil.

## IV-Science, Technology and Innovation Social Inclusion

### OBMEP: the world's largest

The Brazilian Public School Mathematics Olympics (OBMEP) – is the greatest science olympics in the world. In the 2009 OBMEP, more than 19 million students, 43,000 schools and 120,000 volunteer teachers participated, reaching 99% of Brazilian municipalities. The OBMEP is promoted by MCT, the Ministry of Education, the Institute for Pure and Applied Mathematics (IMPA), and the Brazilian Mathematical Society (SBM).

**Figure 14. Schools, municipalities and students enrolment in OBMEP, 2005 to 2009**

| Annual enrolment in OBMEP |         |                |            |
|---------------------------|---------|----------------|------------|
| Year                      | Schools | Municipalities | Students   |
| 2005                      | 31,030  | 93.5 %         | 10,520,830 |
| 2006                      | 32,655  | 94.5 %         | 14,181,705 |
| 2007                      | 38,450  | 98.1 %         | 17,341,732 |
| 2008                      | 40,397  | 98.7 %         | 18,326,029 |
| 2009                      | 43,854  | 99.1 %         | 19,198,710 |

### National S&T Week

The National Science and Technology Week, held annually since 2004, had the participation of 472 municipalities and 25,000 activities in 2009. It is now the largest event that popularizes and stimulates science and its teaching in Brazil.

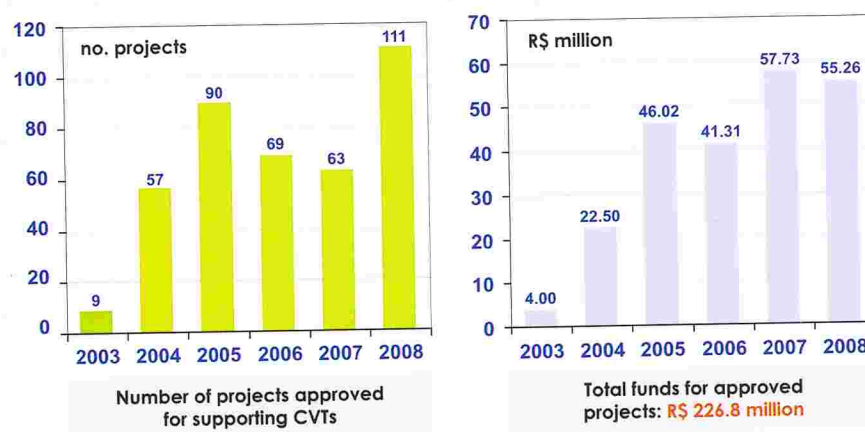
**Figure 15. National Science and Technology Week – SNCT (2004 to 2009)**

| Year | Towns involved | Number of Activities |
|------|----------------|----------------------|
| 2004 | 252            | 1,842                |
| 2005 | 332            | 6,701                |
| 2006 | 370            | 8,654                |
| 2007 | 357            | 9,048                |
| 2008 | 445            | 10,859               |
| 2009 | 472            | 24,972               |

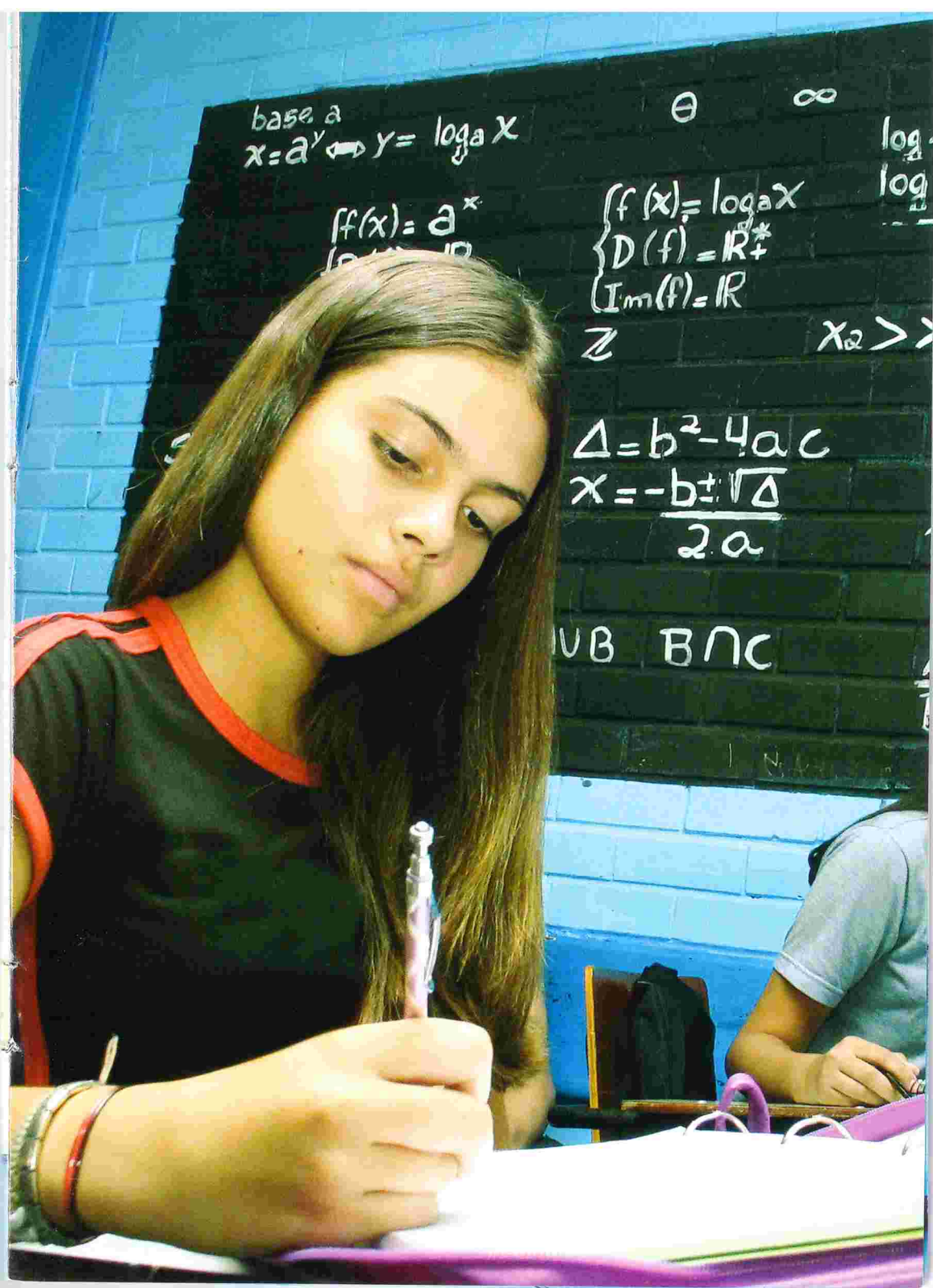
### Technological Vocational Centers: employment generation and income

Between 2003 and 2008, MCT supported 399 projects for the implementation and modernization of Technological Vocational Centers across the country. Aimed at facilitating access to scientific and technological knowledge and at technology transfer, CVTs are tools for generating employment and income.

**Figure 16. Approved projects for CVTs and total funds, 2003 to 2008**











For more information :  
[www.mct.gov.br](http://www.mct.gov.br)

Ministry of  
Science and Technology

