

S&T and Social Inclusion ***(Ministry of Science and Technology)***

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S&T Office for Social Inclusion

Ministry of Science and Technology
www.mct.gov.br



Structure of the Ministry of Science and Technology - MCT

Cons. Nac.
C&T - CCT

Minister

Executive Secretary

SEPED SETEC SEPIN **SECIS**

Cons. Nac. Des.
Científico e
Tecnológico
CNPq

Financiadora de
Estudos e
Projetos
FINEP

Funding Agencies

Centro Gestão
e Estudos
Estratégicos
CGEE

Comissão Nac.
Energia Nuclear
CNEN

5 Institutes
INB, NUCLEP

Agência
Espacial
Brasileira
AEB

INPE

15 Research Institutions

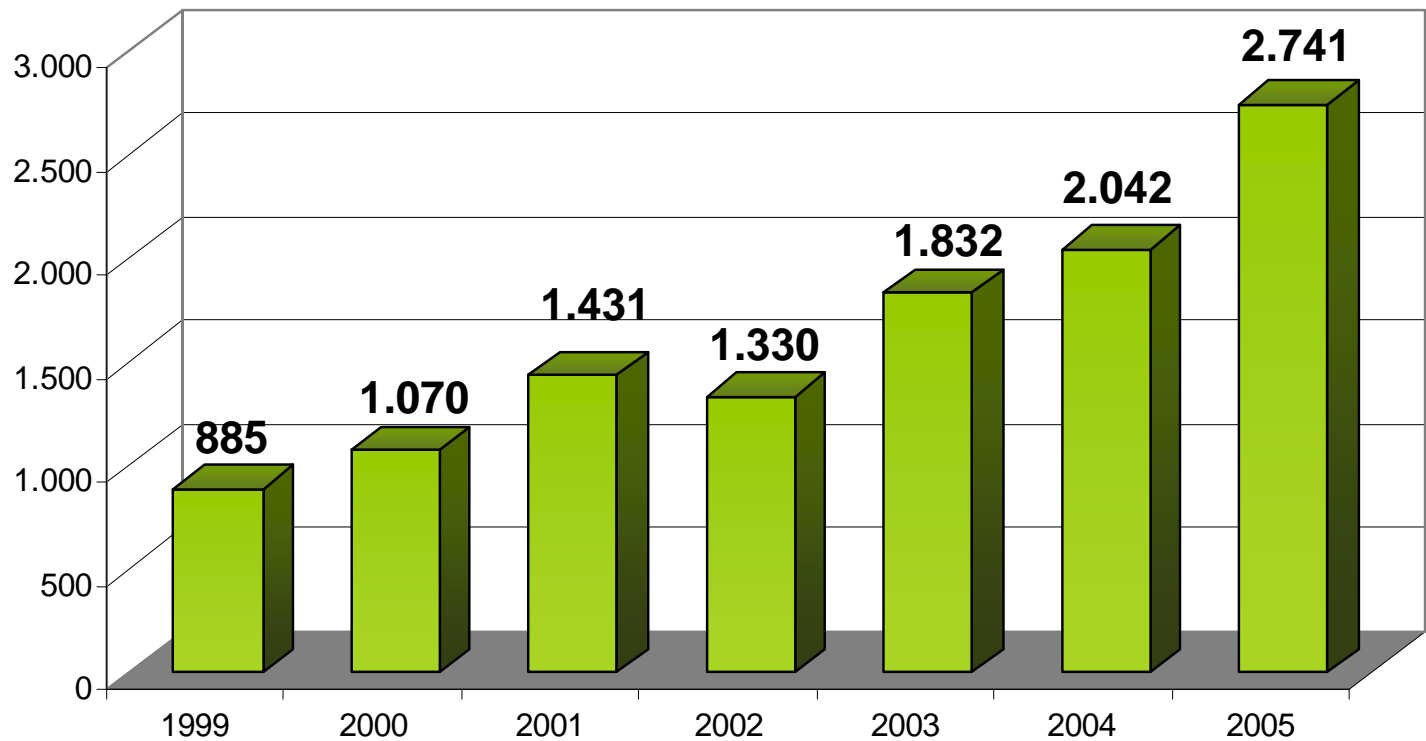
National Policy for S,T&I

Priorities of the Ministry of Science and Technology

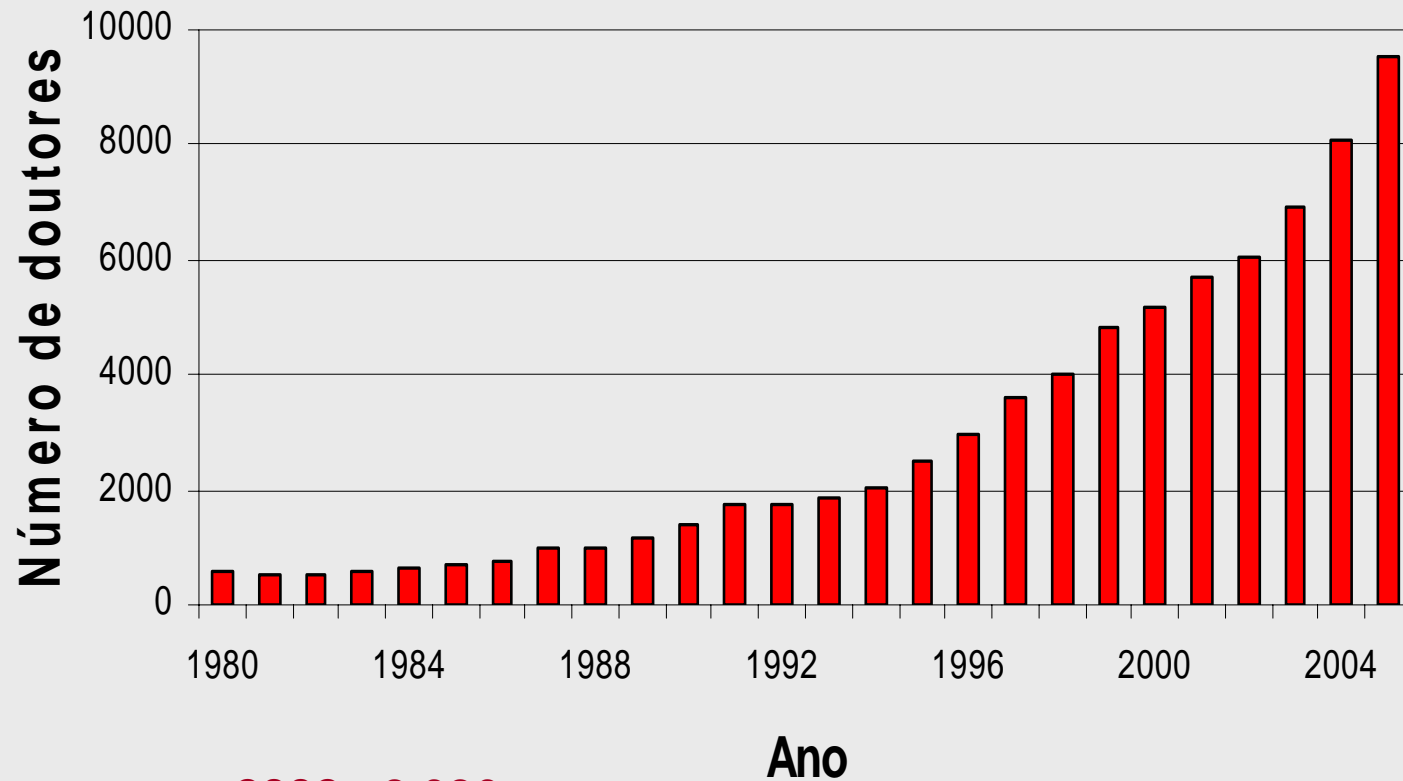
- Expansion and Consolidation of the National System of ST&I
- Establishment of the Industrial, Technological and Foreign Commerce Policy (PITCE) [Innovation Law etc]
- National strategic areas: energy (biodiesel), nuclear, Space Program,...
- **S&T for Social Inclusion**

MCT – Budged (R\$ million)

Gov. Lula



New PhD X year

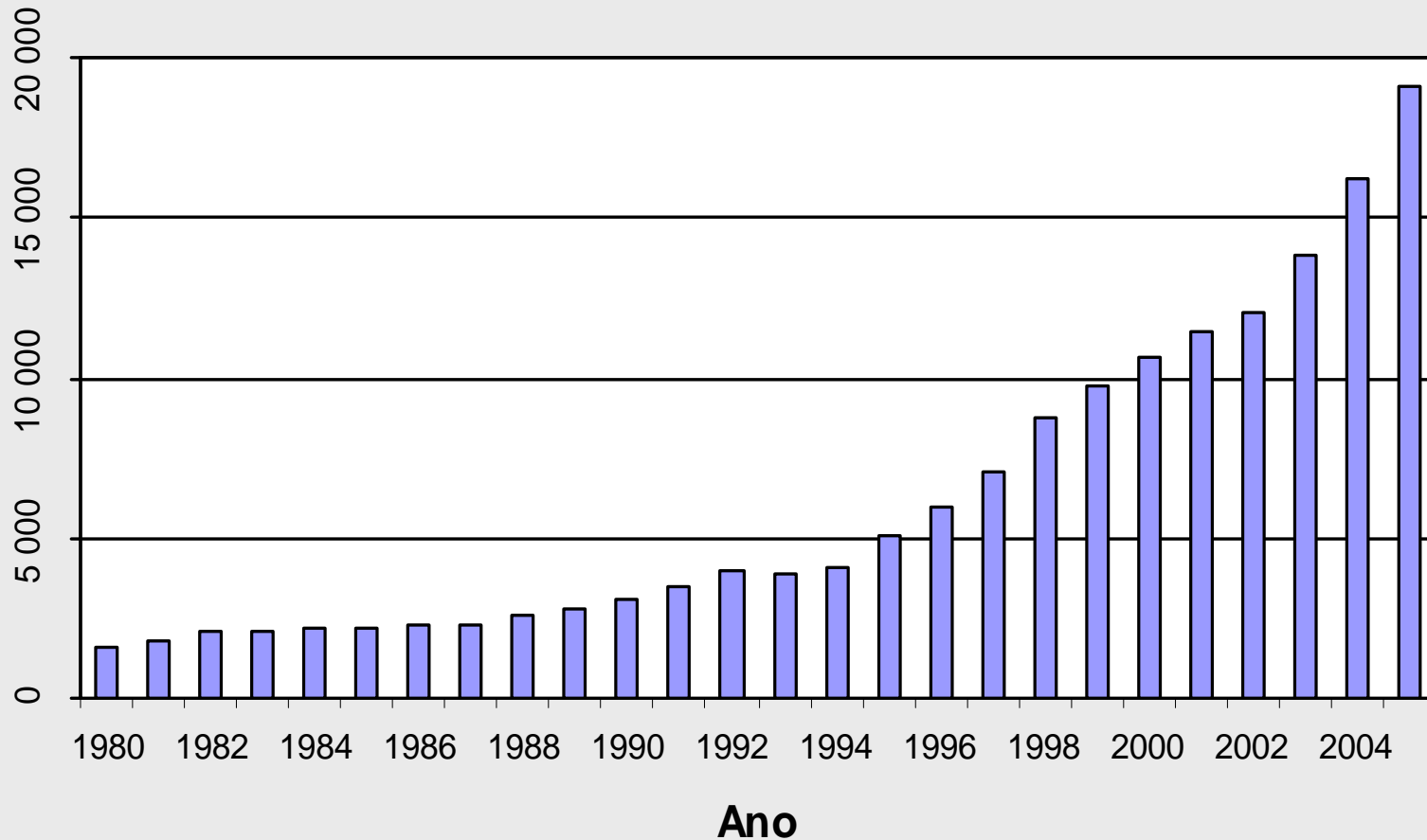


2002: 6.030

2005: 9.500

2006: 10.200 (about 1/3 in S&T areas)

Number of published papers X year



2002: 12.681

2005: 17.155 (+35%)

S&T Office for Social Inclusion

*[Secretaria de Ciência e Tecnologia
para Inclusão Social (SECIS)]*

<http://www.mct.gov.br/index.php/content/view/9639.html>



Creation in July/2003: decision of the Federal Government and suggested by scientific and technological societies and other civil entities.

1. Department of Regional Actions for Social Inclusion

Development of local productive arrangements, regional productive chains, appropriate technologies (social technologies, assistive technologies etc) and of food and nutritional security aiming to social inclusion and reduction of regional inequalities.

2. Department for the Popularization of Science and Technology

- **In partnership with scientific and technological entities, universities, non-profit organizations, local governments, educational and scientific institutions ... to promote science communication activities for the general public and programs for improving science education (collaboration with the Ministry of Education)**
- **Construction and implementation of a public policy for the popularization of S&T**

SECIS: Main lines of action

- **Support to Research and Innovation for Social Inclusion**
- **Social Technologies Network**
- **Local Productive Arrangements (APLs)**
- **Food and Nutritional Security Programs**
- **Digital Inclusion Program (MCT)**
- **Technological Vocational Centers (CVTs)**
- **Popularization of science and technology**

I) Research and Innovation for Social Inclusion

- In this action the MCT supports several projects of social technologies, aiming at to contribute socially for the insertion of poor agricultural and urban populations.
- Technological Outreach Program for connecting universities and society.
- Assistive Technologies [<http://www.assistiva.org.br>]

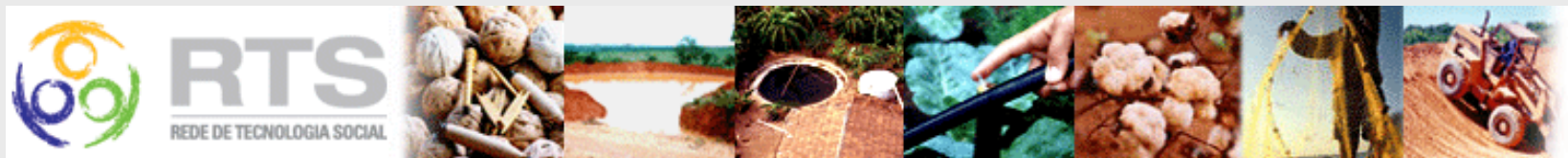
In 2004, R\$ 10 million: projects for familiar agriculture,

In 2005, R\$ 32,2 million: 278 projects of social technologies (partnership with other ministries and public institutions)

II) Social Technology Network

Social Technologies Network (RTS): initiative that involves public and private entities with the development of products, techniques or transforming methodologies, and with direct interaction with local people.

<http://www.rts.org.br/cpub/pt/site/index.php>



III) Local Productive Arrangements (APLs)

APLs are agglomerations of companies in one same territory acting around one common and main productive activity.

Priority of MCT: to finance the technological qualification of entities articulated with companies to improve production and competition capacity. The emphasis in the social inclusion of the involved communities by means of the access to ST&I.

2003: 20 APLs (R\$ 8,6 million): four in the South region, one in the Southeastern region, two in the region North, ten in Northeast and three in the Center-West.

2004: 12 APLs (R\$ 7,4 million)

2005: 62 APLs (R\$ 25,5 million)

2006: FINEP and SEBRAE - projects of technological innovation of inserted companies in APLs (R\$ 25 million).

IV) Food and Nutritional Security

- **Collaboration with the National System of Food and Nutritional Security (Sistema Nacional de Segurança Alimentar e Nutricional (Sisan))**
- **2003-2005: Support to projects (~ 200) for food security**
- **2006: Evaluation of the National School Feeding Program (34 million students) [with Ministry of Education and other ministries]**

VI. Technological Vocational Centers (CVTs)

Educational units with laboratories, classrooms, computers, workshops,... for short professional formation. They are centers of technological qualification for the diffusion of knowledge aiming at the improvement of processes in local productive arrangements and collaborating also with local schools (science education).

The construction of a CVT is made by means of partnership between MCT and state governments, municipalities or non-profit organizations. Many times they are connected with some economic vocation of the region where they are inserted.

- **31 CVTs - 2004**
- **47 CVTs - 2005**
- **68 CVTs - 2006**



Some aspects of the popularization of S&T (PCST) in Brazil

- **Expansion of actions related to the PCST in Brazil in the last years (science museums, magazines, TV programs etc), but the structure is still fragile and limited.**
- **Only 1% of the population visit some science museum each year. They are few and concentrated in the rich areas of the country.**
- **Small academic valuation of outreach activities, in particular PCST activities.**
- **Covering on S&T in mass media is in general deficient and with poor quality.**
- **Few activities of popularization of S&T for poor people.**
- **Interfaces between science and culture frequently ignored in the activities of PCST.**
- **Rarely considered: ethical questions, risks and uncertainties and the process of production of the S&T, with its limitations and controversies.**
- **One problem: the lack of perception of a parcel of the S&T community concerning the importance of the activities of science education and popularization of science.**

VII. Popularization of S&T

Priorities – 2004/2006

- 1. Support to creation and maintenance of science centers and science museums**
- 2. Partnership with newspapers and TV stations for S&T programs. Meetings on science in the radio, science and TV, scientific films and scientific journalism**
- 3. Creation (2004) of the Science&Technology National Week**
- 4. Support to important events for promoting popularization of S&T:**
 - IV World Congress of Centers of Science (2005)**
 - National and regional meetings of SBPC,**
 - World Year of the Physics (2005)**
 - Centenary of the flight of the 14bis (2006).**
- 5. Improvement of science education, with support to science olympiads, science fairs etc.**

Priorities for popularization of S&T activities – 2004/2006

- 6. Academic valuation of the area: it has been established a Committee for Science Communication [*Conselho Nacional de Pesquisas (CNPq)*]**
- 7. Support to outreach activities (grants and fellowships)**
- 8. Support to activities with relationships between science, culture and art.**
- 9. International cooperation with governments and organisms in the area of the popularization of S&T (Mercosul, UNESCO, OEA, SciDev etc.)**
- 10. Increasing federal funds for popularization of S&T (2006: US\$ 15 million)**

Science Centers Program

- Supports to activities of science centers and museums (120 projects)
- Creation of new science centers or science museums in several cities (Brasília, Londrina, São Luís, Teresina, etc)
- Local and national workshops on science museums activities.



IV World Congress
of Science Centers
Rio de Janeiro
April 2005



Ciência Móvel

Vida e Saúde para Todos

A Fundação Oswaldo Cruz/Museu da Vida e a Fundação Centro de Ciências e Educação Superior a Distância do Estado do Rio de Janeiro têm o prazer de convidar para a cerimônia de inauguração do projeto Ciência Móvel: Vida e Saúde Para Todos, a ser realizada no dia 06 de outubro, às 12h30, no auditório do Museu da Vida.

06 de outubro de 2006
12h30
Fiocruz

Av. Brasil, 4365 | Manguinhos
Auditório Museu da Vida

Mais informações: (21) 2568.1226



SECRETARIA DE ESTADO
DE CIÊNCIA, TECNOLOGIA E
INOVAÇÃO DO RIO DE JANEIRO



Ministério da Saúde
FIOCRUZ
Fundação Oswaldo Cruz



Ministério da
Ciência e Tecnologia



Science is hard work



Science is also for young people



Science is social inclusion



Science starts with the curiosity

Production of clips on aspects of scientific activities in the main TV channel (TV Globo) in Brazil



Santos Dumont and Einstein at the Carnival - Olinda/Recife

**Exploring relationships between
science, culture and art**



Science in Carnival – Rio de Janeiro

Science education in Brazil

- **Very low performance of Brazilian students in science and mathematics.**
- **In the last years an effort was made for increasing the number of students in high schools (about 1/3) but the average time in schools is very low (about 6/7 years).**
- **Curiosity, experimentation and creativity are generally not valued in teaching activities.**
- **Few students go to the universities (12%). About 1% for S&T areas.**
- **Main obstacles: lack of science teachers, precarious working conditions and low wages; serious deficiencies in laboratories, libraries, heavy bureaucracy, gap between universities and schools; etc.**
- **One huge problem is to persuade politicians that education, in particular science education, must be a national priority.**

Mathematical Olympiad for Public Schools

Ministério da
Ciência e Tecnologia



**Somando novos
talentos para o Brasil**

- To contribute for the improvement of the mathematical education;
- To stimulate and to promote the study of the mathematics between pupils of the public schools;
- To stimulate young for scientific areas.

2005: 10,5 millions

2006: 14 millions

32.500 schools (60%)

5529 cities (95%)

Partnership with Ministry of Education, Pure and Applied Mathematical Institute and Brazilian Mathematical Society

Science & Technology National Week

In 2004, the federal government established the National S&T Week, under the coordination of the Ministry of Science and Technology and with the participation of scientific and technological institutions.

- **The National S&T Week had intense participation around all the country and ample covering of the media. Activities in public squares, universities, schools, science centers, railway stations, boats etc:**
 - interactive expositions,
 - events in public squares and streets,
 - open days in scientific institutions and universities,
 - popular lectures,
 - science fairs
 - exhibitions of films and scientific videos
 - Videoconferences
 - scientific expeditions
 - activities joining science, culture and art



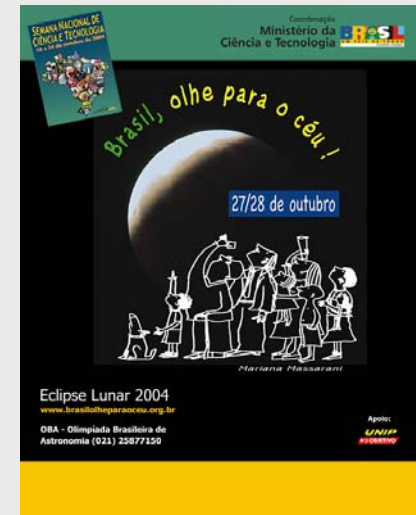
Science and Technology National Week

2004

**257 universities and research
institutions;**

1.848 activities;

252 cities and small towns



2005

**844 universities and research
institutions;**

6.701 activities;

332 cities and small towns





Science and Technology National Week - 2006

- 1014 universities and research institutions
- 8649 activities around the country
- 360 cities and small towns



Brasilia: Flight of the 14 bis replica

Semana Nacional de Ciência e Tecnologia

16 a 23 de outubro de 2006

Criatividade
& Inovação

Vídeos e filmes científicos | Festivais e feiras de ciência | Oficinas, palestras e cursos de extensão | Exposições de ciência e tecnologia | Atividades de cultura, ciência e arte | Planetários e observações astronômicas | Cientistas nas escolas e debates públicos | Trem, barco da ciência e excursões científicas | Programação especial em jornais, rádios e TV's | Portas abertas em instituições de pesquisa e universidades

www.mct.gov.br
<http://semanaci2006.mct.gov.br>
(61) 3317.7826 • (21) 2555.0736

Coordenação
Ministério da
Ciência e Tecnologia



Some difficulties for using S&T for social inclusion

- **Absence of tradition in planning public policies in this area**
- **Lack of qualified staffs in several areas**
- **Valuation of the relevance and scientific quality of the projects and reduction of the influence of narrow corporative or political interests**
- **Existence of deep regional inequalities**
- **Difficulties for joint work between the ministries and federal agencies and states and municipalities.**
- **Budget**
- **Bureaucracy**
- **Lack of perception of a parcel of the scientific and technological community of the importance of the activities of S&T for social inclusion and the involvement of public universities in scientific education.**

S,T&I : Great challenges

To increase the total budget
for S&T activities (and stable funding)

To improve science education

To connect ST&I policies
with others public policies
and with the social demands

- **The possibility of success in facing the challenge of using S&T for social inclusion and improving science education in Brazil will depend on the establishment of a collaborative process, involving governmental agencies, research institutions, universities, scientific and technological entities, scientists, communicators, researchers, professors and students.**
- **The international cooperation and the exchange of experiences on S&T and Social Inclusion will be very important for us.**

But we must not forget that science, for itself, does not solve the huge problems of social inequalities and unemployment, not to mention ethical problems. More science and technology do not mean necessarily more justice, greater equality and better conditions of life, particularly in the Third World. They are necessary conditions but they are not sufficient.



Albert Einstein
Berliner Tageblatt
April 20, 1924

- **The scientific community is a species of organ of the body of the humanity: fed by its blood, it produces an essential substance to the life that must be supplied to all the parts of the body, in the lack of which it will die. This does not mean to say that each human being must to know erudite and detailed information, as occurs frequently in our schools in which this process goes until the disgust.**
- **(...) it is necessary that each man who thinks has the possibility to participate with all lucidity of the great scientific problems of his time, even if his social status does not allow him to dedicate an important part of his time and energy to the scientific reflection. It is only when it fulfills this important mission that science acquires, of the social point of view, the right to exist.**"

1. The scientific and technological advancement will promote the reduction of social inequalities

Totally agree: 26

Partially agree: 32

Partially disagree: 16

Totally disagree: 20

NA: 6

2. Science and the technology will not help to eliminate the poverty and the hunger of the world

Totally agree: 30

Partially agree: 27

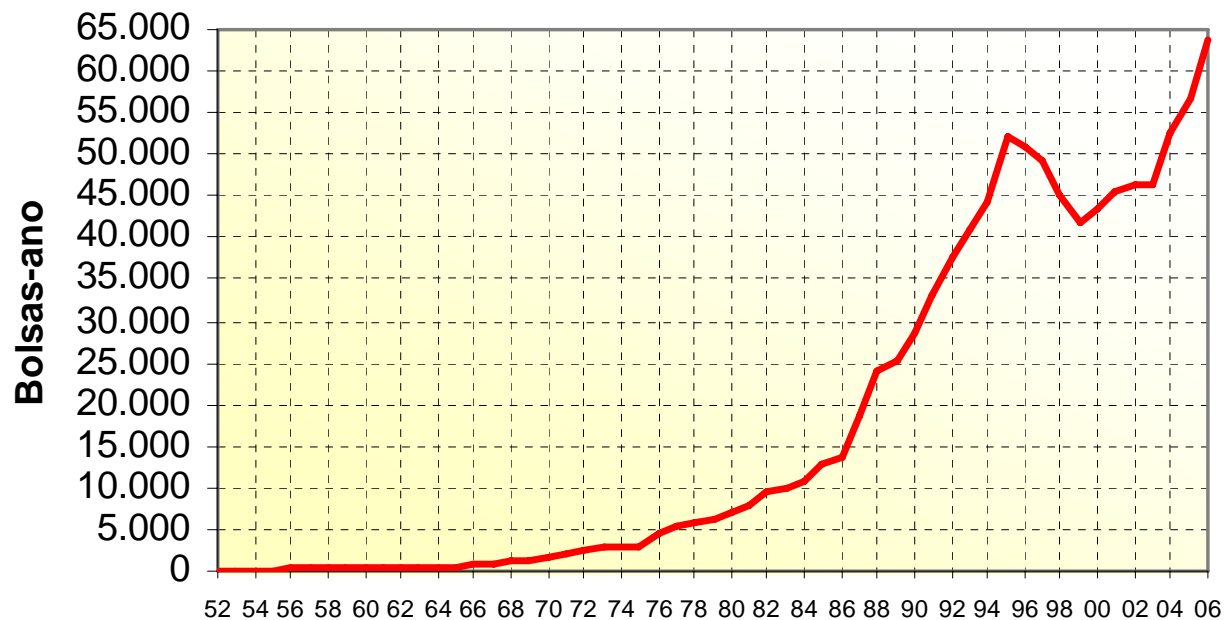
Partially disagree: 18

Totally disagree: 20

NA: 4

CNPq – Fellowships

Evolução do número de bolsas-ano no país e no exterior de 1951 a 2006 (*)

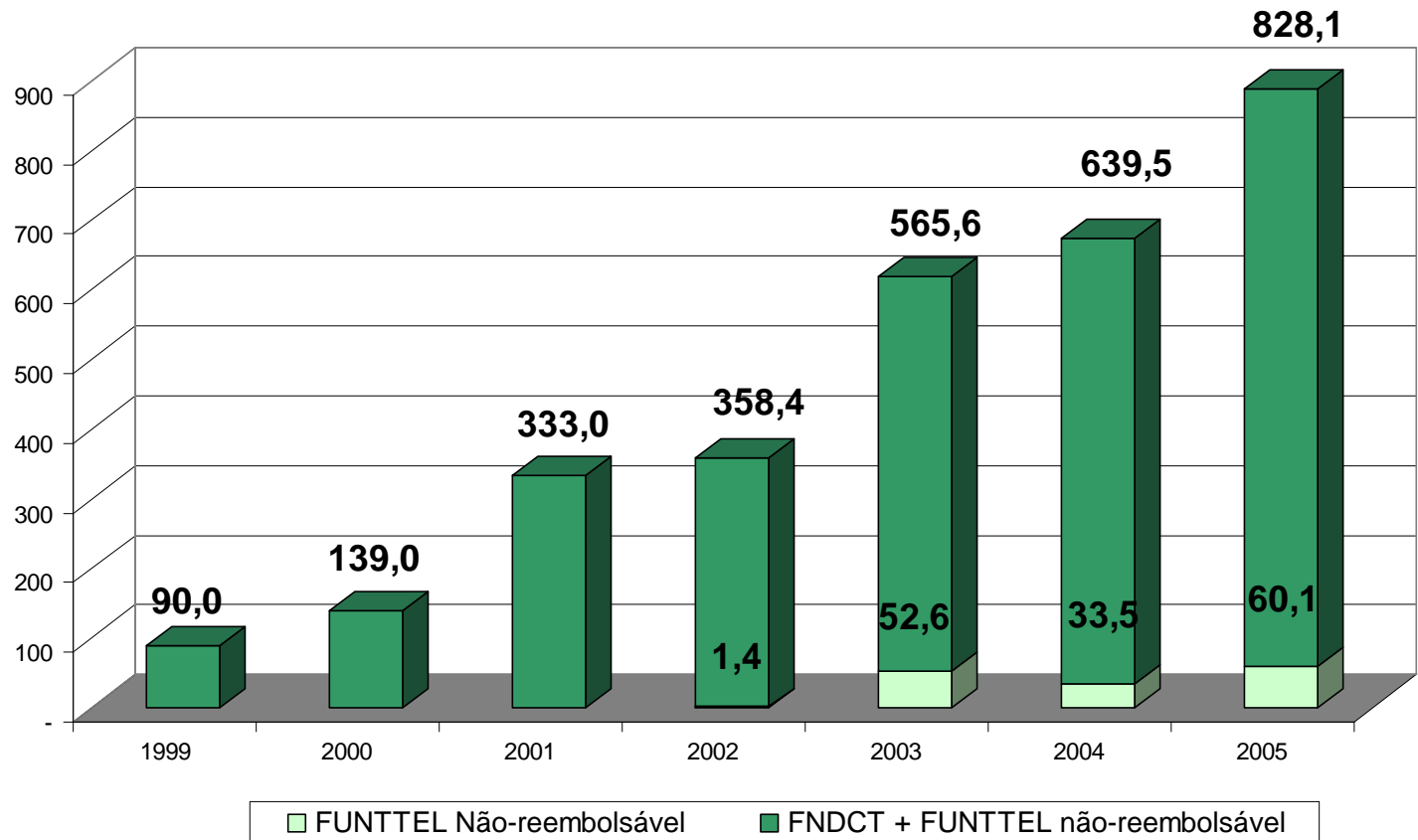


Fonte: CNPq/AEI.

(*) Previsão 2006.

FNDCT/ Sectorial Funds (R\$ milhões)

Governo Lula



1999-2002: R\$ 920,4 millions

2003-2005: R\$ 2.033,2 millions (+121% in 3 years)

Proposal of a National Program for Popularization of S&T

The lack of consistent policies and stable funding is a serious problem for improving science education and public communication of science in Brazil.

- **A preliminary proposal for the establishment of a National Program for Popularization of S&T was presented and discussed recently in the III National Conference on Science, Technology and Innovation.**
- **The Ministry of Science and Technology created a working group aiming the establishment of a National Committee for the Popularization of Science and Technology.**

It has representatives of the scientific and technological community, federal and state governments, scientific societies etc.

Its main objective will be to articulate all these sectors for formulating a national program and implementing actions toward science education and popularization of S&T in Brazil.

V) Program for Digital Inclusion

The Program of Digital Inclusion of the Ministry of Science and Technology was created in 2005 and has as objective to offer to access to the technologies of information and communication contributing for the social inclusion of the Brazilian citizens. It also aims at to promote the management of logistic resources and technologies of information and communication to support the action of the Federal Government for democratizing the access to information, improving the quality of life, propitiating the social control of the State, and contributing for the improvement of the education in public schools.

The Program for Digital Inclusion is composed of three parts:

- 1. Computer for All [low price, ~ R\$ 1.000]: 450.000 (September 2006)**
- 2. Casa Brazil (Brazil-House): 90 units (telecenter, popular library, studio multimedia, science laboratory, communitarian radio, banking unit...)**
- 3. Telecenters – 2005: 1.200; 2006: 450.**