ANNUAL ACTIVITY REPORT, 2009

EXECUTIVE SUMMARY
Fiscal Year 2009

Governor of the State of São Paulo
José Serra

Higher Education Secretary of the State of São Paulo
Carlos Vogt

São Paulo Research Foundation (FAPESP)
Celso Lafer
President

José Arana Varela
Vice-President

Board of Trustees
Celso Lafer
Eduardo Moacyr Krieger
Herman Jacobus Cornelis Voorwald
Horacio Lafer Piva
José Arana Varela
José de Souza Martins
José Tadeu Jorge
Luiz Gonzaga de Mello Belluzzo
Sedi Hirano
Suely Vilela
Vahan Agopyan
Yoshiaki Nakano

Executive Board
Ricardo Renzo Brentani
Chief Executive

Carlos Henrique de Brito Cruz
Scientific Director

Joaquim José de Camargo Engler
Administrative Director

COFFEE, 1935
Painting-oil/canvas
130 × 195 cm
Museu Nacional de Belas Artes, Rio de Janeiro, RJ
Image from the Portinari Project collection
WAR, 1952-1956
Painting-oil/plywood
1400 x 1058 cm (approximately) (irregular)
United Nations, New York, NY, USA
Image from the Portinari Project collection
INTRODUCTION

I
As the present report is made public, FAPESP emphasizes its ongoing commitment to the constitutional principles guiding Public Administration practices. Three of those principles should be highlighted here: transparency, impartiality, efficiency.

The principle of transparency demands FAPESP to report its activities’ results to the taxpayers who support them. Such reporting has two major functions: to allow the activities of public entities to be monitored; and, in a purely educational as well as a cultural sense, to bring to light the significant advancements in scientific and technological knowledge that can be obtained through solid research funding policies. In addition, transparency – not only as a constitutional principle but also as a means of disseminating ideas on a broader, global, scale – has become increasingly more important for the advancement of science itself.

In this report, FAPESP adheres to the principle of impartiality by offering an objective recounting of a successful state-sponsored activity involving large figures. In 2009, over 18,000 scholarship and grant requests were evaluated, and 11,470 of those proposals were approved. The evaluation is strictly based on scientific merit and includes impartial peer review. In 2009, 8,959 individuals – members of the academic communities in the state of São Paulo, in Brazil at large, and abroad – participated in this process.

In keeping with the requirements of the principle of efficiency, all of the results regarding FAPESP end-points – the excellence of which can be verified in this report – were obtained with a minimum of expenditures in terms of administrative costs. It should be borne in mind that FAPESP is legally required to limit administrative expenditures to a maximum of 5% of its budget, a rule that can be considered a guarantee of success in the fulfillment of its goals.
Every activity undertaken by FAPESP is strongly imbued with a sense of finality. It is generally accepted that science and technology play an increasingly relevant role in sustainable development and in guaranteeing the quality of life of the people – at the regional and global levels.

In recent decades, São Paulo has made significant contributions toward the development of Brazil, and FAPESP has been a major player in those efforts. Some illustrative data can be found in the FAPESP report entitled *Indicators of Science, Technology, and Innovation in the State of São Paulo, 2010*.

According to recent reports (for 2008), the state of São Paulo invests 1.52% of its gross domestic product in research and development (R&D), which puts it ahead of countries such as Portugal, Spain, Italy, Chile, Argentina, and Mexico. In absolute values, the total amount of this investment was approximately $ PPP (purchasing power parity) 16.86 billion in the 2005-2008 period. Out of the public sector funds invested, the state of São Paulo supplied 24%, nearly double the federal contribution. As a consequence, in terms of the number of studies published in internationally indexed journals, for example, the participation of the scientific community of São Paulo, slightly more than half of the national production, has been disproportionate to its population, not to mention the fact that São Paulo accounts for 45% of the doctoral degrees awarded in Brazil. Throughout its history – and 2009 was no exception – FAPESP has made major contributions to the realization of this achievement.

I call special attention to the substantial resources that FAPESP effectively allocated for fellowships and research awards in 2009, totaling over $ PPP 451 million, as can be seen in detail on the following pages.
III
Active in a wide range of areas, FAPESP recognizes the scientific relevance of all fields of knowledge and gives equal attention to each field.

A few special programs and programs of research for technological innovation stand out for their relevance in expanding knowledge and addressing serious problems at the global level.

The Research Program on Global Climate Change is aimed at understanding the causes of climate change and the trends in the ongoing changes in South America, especially in Brazil, as well as at proposing adaptive measures and measures to reduce the socioeconomic and environmental impact.

The Program for Research on Bioenergy (BIOEN) attempts to develop basic and applied academic research, notably in the area of ethanol production, encouraging links between research developed at public universities or institutions and that performed in commercial laboratories.

The Biota-FAPESP Program involves a wide range of laboratories focusing on research devoted to the characterization, conservation, and sustainable use of biodiversity in the state of São Paulo. The Biota-FAPESP Program has generated striking practical results, being directly involved in the development of important regulatory measures enacted by the government.

The program Information Technology and the Development of an Advanced Internet is also a standout. It aims to encourage research into new Internet technologies, providing the fiber optic network infrastructure required for hardware and software development, as well as for the creation of academic digital content intended primarily for use in distance learning.

The Interinstitutional Cooperation for Brain Research (CInAPCe) involves collaboration among research groups. The CInAPCe functions as a virtual institute dedicated to the study of the nervous system, thus promoting new developments in neuroscience.
THE FIRST MASS IN BRAZIL, 1948
Painel-tempera/canvas
266 x 598 cm
Private collection, Rio de Janeiro, RJ
Image from the Portinari Project collection
In every field in which it operates, FAPESP has attempted to maximize the potential for scientific production, which is attained through networking. At the national level, FAPESP works in concert with research foundations in other Brazilian states, which clearly increases the potential for encouraging scientific production nationwide. This is also true at the international level, owing to agreements between FAPESP and corresponding institutions in other countries.

IV
In keeping with its involvement in the humanities and following a practice adopted in 2005, FAPESP uses its annual report as an opportunity to honor important artists from the state of São Paulo: Francisco Rebolo in 2005; Aldo Bonadei in 2006; Lasar Segall in 2007; and Tarsila do Amaral in 2008. In its 2009 Annual Activity Report, FAPESP honors Candido Portinari, one of the greatest names in Brazilian modernist painting.

As the prolific author of approximately five thousand works of art, Portinari depicted Brazilian scenes and customs, as well as social themes, portraying anonymous, ordinary people as the protagonists in his art. At the international level, Portinari was one of the most lauded and prestigious Brazilian artists. Two of his works, the companion panels War and Peace, are on display at the United Nations Headquarters in New York.

For this tribute, we would like to thank João Candido Portinari, the son of the artist, who, through the Portinari Project, which he founded and manages, locates, classifies and scans the vast body of work created by his father. This preservation project is unparalleled in the world of Brazilian art.

We are grateful to Annateresa Fabris, a prominent researcher of Portinari’s work, who cooperated in the selection of the pieces presented herein and provided the biographical sketch of the artist.
V
Finally, by combining the fulfillment of its institutional role (encouraging the scientific and technological development of São Paulo and Brazil) with respect for the constitutional principles that guarantee the transparency of its actions – which is, in fact, the *raison d’être* of the present report – FAPESP has shown that it is committed to the promotion of democracy. Transparency and science are two notions that are effectively in harmony with democracy. Recalling the words of Norberto Bobbio, we may to say that there is no true democracy without the possibility of monitoring the activities of its leaders, which must therefore be made transparent. Democracy and science are also necessarily interrelated, because both arise from a common urge for liberation – either from the dogmas imposed and accepted without criticism or from the power that wants to be passively obeyed.

CELSO LAFER
President of FAPESP
THE INSTITUTION

The São Paulo Research Foundation (FAPESP) is one of the principal funding sources for the development of scientific research in Brazil. In 2009, FAPESP had a budget of $ PPP 488.28 million, 87% of which was generated from taxes (FAPESP receives 1% of the total state tax revenues). With that budget, FAPESP provided funding for research in all fields of knowledge and international researcher exchange programs, as well as for the dissemination of science and technology.

FAPESP was created by Law no. 5.918, signed into effect on October 18, 1960, by Governor Carlos Alberto de Carvalho Pinto and is regulated by Decree no. 40.132, issued on May 23, 1962. Following the constitutional determination, these documents fixed the transfer rate at 0.5% of the taxes generated in the state of São Paulo. In 1983, Constitutional Amendment no. 39 established that the transfers should be made on a monthly basis, and, in 1989, the new state constitution raised the amount to 1% of the total tax revenues. According to the law that created FAPESP, its administrative costs cannot exceed 5% of its total budget.

The funding provided by FAPESP has three clear objectives: the development of human resources, the support of academic research, and the support of application-driven research. Academic research increases not only knowledge but also the potential for its application. Therefore, FAPESP provides fellowships and awards for research projects developed by researchers in the state of São Paulo who are affiliated to institutions of higher education or research, either public or private.

Fellowships and research awards are both awarded within the scope of programs distributed among three funding mechanisms: Regular Programs, Special Programs, and Research for Technological Innovation Programs. Regular Programs guarantee the ongoing development of research projects focused on furthering the acquisition of knowledge and the continuing education of researchers. Special Programs promote the expansion of new areas of investigation and allow researchers to overcome specific difficulties presented by the science and technology system in the state of São Paulo.
Research for Technological Innovation Programs are aimed at increasing knowledge and promoting its application, whether by companies or by public institutions or agencies.

The evaluation of research proposals is exclusively based on scientific and technological merit. It is always performed through peer review by *ad hoc* consultants – Brazilian or foreign scientists, technologists, or experts in the relevant field of knowledge.

Throughout its 47 years of existence, FAPESP has awarded approximately 90,000 research awards and 100,000 fellowships, thus decisively contributing to the training of scientists, as well as to the scientific and technological development of São Paulo and Brazil.
ADMINISTRATION

FAPESP is affiliated to the Higher Education Secretary of the State of São Paulo. It is managed by a Board of Trustees and an Executive Board. Its autonomy is guaranteed by the state constitution. The President and Vice-President of the Foundation are appointed by the state governor, who chooses from a triple list of nominees drawn up by the Board of Trustees.

The Board of Trustees formulates the general guidelines for the Foundation, as well as takes the major decisions concerning policies related to science, administration, and asset management. There are twelve board members, each of whom serves a six-year term. Six counselors are appointed by the governor directly, and the rest are also appointed by the governor but are selected from triple list of nominees, all of whom have been nominated by institutions of higher learning and research institutes, either public or private, in the state of São Paulo.

BOARD OF TRUSTEES

The president of FAPESP is also the head of the Board of Trustees and is the legal representative of the Foundation.

Members of the Board of Trustees in 2009
Celso Lafer (President)
José Arana Varela (Vice-President)
Eduardo Moacyr Krieger
Herman Jacobus Cornelis Voorwald
Horacio Lafer Piva
José de Souza Martins
José Tadeu Jorge
Luiz Gonzaga Belluzzo
Sedi Hirano
Suely Vilela
Vahan Agopyan
Yoshiaki Nakano
EXECUTIVE BOARD

The FAPESP Executive Board is composed of the Chief Executive, the Scientific Director, and the Administrative Director, each of whom serves a three-year term. These executives are appointed by the governor from triple lists drawn up by the Board of Trustees.

Executive Board in 2009

Ricardo Renzo Brentani (Chief Executive)
Carlos Henrique de Brito Cruz (Scientific Director)
Joaquim José de Camargo Engler (Administrative Director)
In 2009, FAPESP’s revenues amounted to $ PPP 488.28 million, received from the treasury and other sources (in-house resources and federal resources stemming from agreements). The total income was 4.5% lower than in 2008, despite a 3% increase in transfers from the treasury. The decrease in total income was due to a reduction in federal resources derived from the abovementioned agreements.

Expenditures were $ PPP 451.70 million (6.5% higher than in 2008). Year after year, the Foundation has increased its investments in research, thus ensuring the expansion
and the quality of the research carried out in the state of São Paulo.

All fields of knowledge are supported by FAPESP. The Foundation was one of the first funding agencies to support research in humanities and social sciences, including the arts.

Because medicine is one of the most traditional fields of research in the state of São Paulo, which has a great number of researchers and research groups, this area receives a larger portion of the resources than does any other. In 2009, medical research accounted for 28% of FAPESP's total expenditures. Significant portions of FAPESP's funding are also directed to the fields of biology (16%), engineering (14%), the humanities/social sciences (9%), and agronomy/veterinary medicine (9%), as well as to various other fields.

As a microcosm of the state as a whole, the University of São Paulo (USP) has the greatest concentration of researchers and research groups and therefore receives a relatively greater proportion of FAPESP's total expenditures, at 46%. The two others state universities in São Paulo follow: the State University at Campinas (Unicamp), at 14%; and São Paulo State University (Unesp), at 13%. It is of note that FAPESP has contributed to the research carried out in federal institutions located in the state of São Paulo, those institutions having received 12% of the Foundation's total expenditures during the year.
MUSICIANS IN SHANTYTOWN, 1957
Painting-oil/ canvas
130 x 80 cm
Private collection,
Belo Horizonte, MG
Image from the Portinari Project collection
SLUM, 1933
Painting-oil/canvas
114 x 146 cm
Museum of Modern Art,
New York,
NY, USA
Image from the Portinari Project collection
EXPENDITURES, ACCORDING TO FUNDING OBJECTIVES

Considering the funding objectives, 36% of FAPESP’s expenditures in 2009 were allocated to the development of human resources for research, 56% to support academic research, and 8% to support application-driven research. The boundaries between academic research and application-driven research are not always clearly defined. Because academic research advances knowledge, it also increases the potential for commercial applications and for the formulation of public policies.

DISTRIBUTION OF FAPESP INVESTMENT IN 2009

THE EVOLUTION OF FAPESP EXPENDITURES IN THE DEVELOPMENT OF HUMAN RESOURCES FOR RESEARCH (IN MILLIONS OF $ PPP)

COFFEE FARM WORKER, 1934
Painting-oil/canvas
100 × 81 cm
Museu de Arte de São Paulo
Assis Chateaubriand,
São Paulo, SP
Image from the Portinari Project collection
THE EVOLUTION OF FAPESP EXPENDITURES IN ACADEMIC RESEARCH
(IN MILLIONS OF $ PPP)

THE EVOLUTION OF FAPESP EXPENDITURES IN APPLICATION-DRIVEN RESEARCH
(IN MILLIONS OF $ PPP)

DOM QUIXOTE, 1956
Drawing-lead pencil and colored pencil/paper
41 × 16,5 cm
Private collection, Milan, IT
Image from the Portinari Project collection
FAPESP organizes its support for research projects into three funding lines: Regular Programs, which meet the spontaneous demand from researchers and are the traditional as well as the permanent means of funding provided by the Foundation, comprising Fellowships and Regular Research Awards, including Thematic Projects; Special Programs, devised to develop research in fundamental areas and overcome deficiencies in the science and technology system of the state of São Paulo, including the need to modernize the research infrastructure; and Research for Technological Innovation Programs, which support research with potential for the development of new technologies or which contribute to the formulation of public policies.

In 2009, the expenditures, according to funding lines, were as follows:

- Fellowships: $ PPP 161.26 million (36%)
- Regular Research Awards: $ PPP 188.99 million (42%)
- Special Programs: $ PPP 50.44 million (11%)
- Research for Technological Innovation Programs: $ PPP 50.98 million (11%)

PERCENTAGE EXPENDITURES FOR EACH FUNDING LINES
The following programs, listed according to funding lines, were ongoing in 2009:

**REGULAR PROGRAMS**

**Fellowships**
Brazil
- *Scientific Initiation*
- *Master*
- *Doctorate*
- *Honors Doctorate*
- *Postdoctorate*

Abroad
- *Research*
- *New Frontiers*

**Research Awards**
- Regular Research Awards

Thematic Projects
- *Regular Thematic Projects*

  *Thematic Projects INCT sponsored in partnership with the Ministry of Science and Technology (MCT) in the Program National Institute of Science and Technology (INCT)*

**Visiting Researcher**

**Organization of a Scientific or Technological Meeting**
- *São Paulo School of Advanced Science*

**Participation in a Scientific or Technological Meeting**

**Publications**

**Repair of Equipment**
SPECIAL PROGRAMS

Young Investigators Awards
Interinstitutional Cooperation for Brain Research (CInAPCe)
Improvement in Public Education
Human Resources Training for Research Support (Technical Training)
Scientific Journalism
Research Infrastructure Programs

- Academic Network of São Paulo (ANSP)
- FAP-Books Program
- Multi-user Equipment Program
- Overhead for Institutional Research Infrastructure
- Overhead for ANSP Academic Network Connectivity
- Overhead for Program Coordination
- Scientific Electronic Library Online (SciELO)

Agreements FAPESP-MCT/CNPq

- Junior Scientific Initiation
- First Projects Program
- Thematic Project for Centers of Excellence Program
SOCCER, 1935
Painting-oil/canvas
97 x 130 cm
Private collection, Rio de Janeiro, RJ
Image from the Portinari Project collection
RESEARCH FOR TECHNOLOGICAL INNOVATION PROGRAMS

Biota-FAPESP Program: Virtual Biodiversity Institute
Program for Research on Bioenergy (BIOEN)
Research Program on Global Climate Change
Information Technology and the Development of Advanced Internet (Tidia)
Research, Innovation and Dissemination Centers (RIDC)
Programs for Research in Public Policies

Public Policy Research

Research in Public Policies for the National Health Care System (PP-SUS)
Integrated System for Hydrometeorology in the State of São Paulo (Sibesp)
Science Centers under an agreement with the Vitae Foundation

Programs for Research in Small Businesses

Innovative Research in Small Business (PIPE)
Program to Support Research in Small Businesses (PIPE III: PAPPE/Finep)

Programs for Cooperative University-Industry Research

Research Partnership for Technological Innovation (PITE)
Research Partnership for Technological Innovation-SUS (PITE-SUS)
Sectorial Consortia for Technological Innovation (ConSITec)

Program for the Support of Intellectual Property Rights/Technology Patents and Licensing Center (PAPI/Nuplitech)

NEWLY AWARDED PROJECTS

In 2009, FAPESP approved 11,470 new projects.

• Fellowships: 5,995 (52%)
• Regular Research Awards: 3,953 (35%)
• Special Programs: 1,299 (11%)
• Research for Technological Innovation Programs: 223 (2%)

In 2009, FAPESP supported 10,705 fellowships in various modalities. That is the average number of fellowships that remained valid during the calendar year, including Regular Programs fellowships (Scientific Initiation, Master, Doctorate, Honors Doctorate, and Postdoctorate) as well as fellowships awarded within the scope of the Young Investigators Awards, Scientific Journalism, Technical Training, and Innovative Research in Small Business (PIPE) programs, all in Brazil.

**EVOLUTION OF THE NUMBER OF RESEARCH PROJECTS AWARDED BY FAPESP, 2002–2009**

![Bar chart showing the evolution of research projects awarded by FAPESP from 2002 to 2009. The number of projects increased from 8,012 in 2002 to 11,470 in 2009.]


![Bar chart showing the evolution of valid fellowships from 2005 to 2009. The number of valid fellowships increased from 7,822 in 2005 to 10,705 in 2009.]

*Mean annual number of fellowships paid monthly
FAPESP HIGHLIGHTS

SUMMARY OF 2009

Revenues: $ PPP 488.28 million

Expenditures: $ PPP 451.70 million

Expenditures, according to Funding Objectives
- Development of Human Resources for Research: $ PPP 161.28 million (36%)
- Support for Academic Research: $ PPP 254.03 million (56%)
- Support for Application-driven research: $ PPP 36.39 million (8%)

Expenditures, according to Funding Lines
- Fellowships: US$ 161.26 million (36%)
- Regular Research Awards: $ PPP 188.99 million (42%)
- Special Programs: $ PPP 50.44 million (11%)
- Research for Technological Innovation Programs: $ PPP 50.98 million (11%)

The expenditures for 2009 refer to the costs related to maintaining all valid projects and individual grants, including those awarded in previous years. Newly awarded projects refer to the projects awarded in the fiscal year 2009.

Number of New Research Proposals Awarded: 11,470
- Fellowships: 5,995 (52%)
- Regular Research Awards: 3,953 (35%)
- Special Programs: 1,299 (11%)
- Research for Technological Innovation Programs: 223 (2%).

The volume of resources that FAPESP invested in research in 2009 was 6.5% greater than in 2008. In 2009, the distribution of resources was as follows: 36% to the development of human resources; 56% to academic research; and 8% to application-driven research. The volume of resources allocated for Fellowships and Regular Research Awards – the pillars upon which the two first objectives stand – increased by 8.32% and 14.57%, respectively. FAPESP allocated $ PPP 65.52 million for doctoral fellowships, $ PPP 52.94 million for
postdoctoral fellowships, $ PPP 29.77 million for master fellowships, and $ PPP 11.16 million for Scientific Initiation.

It is noteworthy that, among the Regular Research Awards, the number of new Thematic Projects grew to 109, which translates into a 57.97% increase over the number awarded in 2008. The expenditure for Thematic Projects, including the newly awarded projects, was $ PPP 53.39 million. That represents a 28.32% increase in relation to 2008. Of the newly awarded Thematic Projects, 42 were INCT/MCT-sponsored projects. A total of $ PPP 11.54 million was allocated to those 42 projects.

The concern over academic research support includes the need to modernize the research infrastructure at the institutions involved. In 2009, $ PPP 25.71 million were allocated to Research Infrastructure Programs. During the fiscal year, call for proposals was made in the FAP-Books Program, devoted to the purchase of printed and electronic books in order to upgrade libraries at universities and research institutions in the state of São Paulo.

In 2009, FAPESP continued to pursue its policy of promoting international cooperation in funding. New agreements were signed for the cooperation with international entities, especially the Research Councils UK (RCUK). Others agreements: King’s College London, and the International Science and Technology Partnerships Canada (ISTPCanada). New calls for proposals were made within the scope of existing cooperative agreements with the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) and the French Centre National de la Recherche Scientifique (CNRS, National Center for Scientific Research). The Dr. Ruth Cardoso Program for Scholarships in Anthropology and Sociology was launched with the support of FAPESP, the Fulbright Commission for Educational Exchange between the United States and Brazil, the Office for the Advancement of Higher Education (CAPES), and Columbia University (New York).

At the national level, FAPESP signed a cooperative agreement with the state research foundations in the states of Maranhão (FAPEMA) and Pernambuco (FACEPE) in order to develop joint research projects on global climate change. The latter included a request for proposals that can be linked with
proposals from French scientists, subject to a mandate issued by the Agence Nationale de Recherche. The Foundation promoted international seminars on biodiversity, bioenergy, and global climate change. In total, FAPESP organized and participated in 46 events, which collectively attracted approximately 10,000 attendees.

The institution and its research funding activities were featured in 6,342 news reports in 1,182 different media sources, and 46 pieces of FAPESP-related news were published in 35 international media outlets. The daily electronic bulletin FAPESP News (the Foundation’s Press Agency) reached 80,369 subscribers in 2009. The number of logins to the FAPESP website (www.fapesp.br) reached 2.6 million, and logins to the FAPESP News website (www.agencia.fapesp.br) reached 1.5 million.

In 2009, Pesquisa FAPESP, one of the premiere science magazines in Brazil, was distributed to 24,500 researchers, as well as to other subscribers and purchasers (newsstand sales). The magazine’s website (www.revistapesquisa.fapesp.br) had 831,509 logins. During the first half of 2009, a new collection of the best Pesquisa FAPESP articles was released for international distribution in English, French, and Spanish.
GOLD MINE, 1938
Mural painting-fresco
280 × 298 cm
Palácio Gustavo Capanema,
Rio de Janeiro, RJ
Image from the Portinari Project collection
GROUPS OF GIRLS, 1940
Painting-oil/canvas
100 x 80 cm
Museus Castro Maya, Rio de Janeiro, RJ
Image from the Portinari Project collection