

BACKGROUND INFORMATION FOR
BRAZIL-U.S. WORKSHOP ON SCIENCE,
TECHNOLOGY AND DEVELOPMENT

April 11-16, 1966
Itatiaia, Brazil

Under the Auspices of
The Brazilian National Research Council
and
National Academy of Sciences-National Research Council

in cooperation with
Agency for International Development

BACKGROUND INFORMATION FOR
BRAZIL—U.S. WORKSHOP ON SCIENCE, TECHNOLOGY AND DEVELOPMENT

April 11—16, 1966
Itatiaia, Brazil

Under the Auspices of
The Brazilian National Research Council
and
National Academy of Sciences—National Research Council
In Cooperation with
Agency for International Development

This report has been prepared by the Office of the Foreign Secretary, National Academy of Sciences-National Research Council, for the Bureau for Latin America, Agency for International Development, Washington, D. C., under Contract No. AID/la-125. No portion of this report may be reproduced or cited without approval of the contracting agency.

**BACKGROUND INFORMATION FOR
BRAZIL-U.S. WORKSHOP ON SCIENCE, TECHNOLOGY AND DEVELOPMENT**

I. Institutions of Higher Learning in Brazil

**II. Brazilian Scientific and Technological Research
and Planning Organizations**

III. Foreign Aid and Loans to Brazil: 1962-1965

IV. Maps and Tables on Brazil's Economy

Prepared by

**Office of the Foreign Secretary
National Academy of Sciences
Washington, D.C.**

February 1966

INSTITUTIONS OF HIGHER LEARNING IN BRAZIL

Prepared by the
Office of the Foreign Secretary
National Academy of Sciences
Washington, D. C.

February 1966

INSTITUTIONS OF HIGHER LEARNING IN BRAZIL

Table of Contents

Higher Education in Brazil	1
Public Institutions	
Universidade da Bahia	3
Universidade do Brasil	5
Universidade de Brasília	8
Universidade de Ceará	9
Universidade do Estado do Guanabara	11
Universidade de Minas Gerais	12
Universidade de Paraná	14
Universidade de Recife	16
Universidade do Rio Grande do Sul	18
Universidade do São Paulo	20
Universidade Federal do Estado do Rio de Janeiro	24
Private Institutions	
Pontifícia Universidade Católica do Rio de Janeiro	25
Pontifícia Universidade Católica do Rio Grande do Sul	26
Pontifícia Universidade Católica de São Paulo	27
Universidade Católica de Pernambuco	28
Universidade Mackenzie	29
Technical and Specialized Schools (both public and private)	
Escola de Administração de Empresas de São Paulo	30
Escola de Engenharia Mauá	31
Instituto Electrotécnico de Itajubá	32
Instituto Tecnológico de Aeronáutica (ITA)	33
Universidade Rural	34
Universidade Rural do Estado de Minas Gerais	35

HIGHER EDUCATION IN BRAZIL

The development of the Brazilian system of higher education is somewhat unique. During the colonial period, a student wishing professional training had to go out of the country. With the establishment of the Portuguese monarchy in Brazil in the 1800's, development of indigenous "faculties" was begun. The first attempt to merge the independent faculties into a form we know as a university came in Curitiba, Paraná, in 1912, when the University of Paraná was formed. The success of this experiment led to the formation of the University of Brazil in Rio de Janeiro in 1920. Now there are over 20 major universities in Brazil.

Degree courses are usually three, four or five years. The degree in medicine is given after six years of university study. More than half of the undergraduate programs of study offered are in the arts, philosophy and letters, and half of the graduate programs. In 1963, about 40% of 121,000 undergraduates were in law & philosophy, and about 5% in public and business administration, agronomy, statistics, chemical engineering, transportation and veterinary science, combined. The distribution of university faculties follows this trend.

In 1962 the number of graduates in engineering was less than 800 for the whole nation, 49 in chemical engineering, 283 in architecture, 1,342 in medicine, 1,315 in dentistry, 144 in veterinary science, 438 in pharmacy, 375 in nursing, less than 400 in agriculture compared to 1,423 in economics, more than 3,600 in law, and almost 5,800 in philosophy and letters. In agriculture, the Ministry of Agriculture reported in 1964 a shortage of about 12,000 professionals for research and extension offices.

Following is a list of the larger universities and their student and faculty population in 1961 (from Plano Orientador da Universidade de Brasília, 1962).

<u>Universities</u>	<u>Teachers</u>	<u>Students</u>
São Paulo	2372	10014
Brasil	2381	7589
Rio Grande do Sul	1968	4724
Minas Gerais	1019	4251
Recife	917	3706
Parana	624	3542
Rio de Janeiro	448	3263
Ceará	476	2386
Bahía	569	2276

In this report only the larger universities are described, plus several of the better-known small specialized schools that have been very productive. Undoubtedly there are many other fine institutions of higher learning; their exclusion from this list does not signify that they have been judged unimportant.

Unless otherwise indicated, all budget figures are in U.S. dollars. Many of the budgets were converted from cruzeiros, based on year-end free market exchange rates, and due to the rapid changes in the value of the cruzeiro, must be considered approximate. The symbol FT following number of professors stands for full-time. Reference numbers correspond to the numbered bibliography which follows the section of foreign aid.

UNIVERSIDADE DA BAHIA
Rua Augusto Viana
s/n, Sao Salvador, Bahia

Rector: Albeirico Fraga

Federal university

Founded: 1946

Faculty: 540

Students: 5,787

The University of Bahia is one of the few universities that is not planning a University City. It has two campuses: a new one for engineering and the old one where the remainder of the divisions are located. In the scientific realm certain bright spots exist, such as the current development of a geology department and the integrated combined teaching and research institutes in chemistry, physics and mathematics.

<u>Faculties</u>	<u>Head</u>	<u>1962</u>	<u>1962</u>	
		<u>Budget</u>	<u>Fac.</u>	<u>Students</u>
Architecture	Hernani Savio Sobral			
Economics (1934)	Manuel Pinto de Aguiar		31	133
Law (1891)	Dr. Orlando Gomes		31	508
Medicine (1808)	Benjamin da Rocha Salles	\$25,078	135	470
Preventive Med.				
Tropical Med. & Infectious Dis.	Dr. Aluizio Prata			
Hospital das Clinicas				
Odontology (1882)	Jose Torres Homen		12	236
Pharmacy (1832)	Adolfo Diniz Goncalves		10	103
Geology (1958)	Ramiro de P. Alegre Muniz	\$156,097(61)	21	75
Philosophy (1943)	Jorge C. Moniz Bittencourt			
Mathematics				23 (64)
Physics				18 "
Chemistry				8 "
<u>Schools</u>				
Polytechnic	Alceu Hiltner		84	529 (64)
Civil Engineering				378 "
Petroleum Engineering				53 "
Electrical Engineering				49 "
Chemical Engineering				49 "
Librarianship (1942)				
Nursing (1946)				
Administration				
Agriculture "Cruz das Almas"				
Nutrition				
Engineering				300 (64)

UNIVERSIDADE DA BAHIA (continued)

<u>Institutes</u>	<u>Head</u>	<u>1962 Budget</u>	<u>Fac.</u>
Economics & Finances of Bahia			
Mathematics & Physics			
Vocational Orientation			
Chemistry	Dr. Thales de Azevedo	\$12,540	
Petroleum Geology	Humphrey (Stanford U)		
Lab. of Geomorphology & Regional Studies	Milton Almeida dos Santos		12 FT

UNIVERSIDADE DO BRASIL
Avenida Pasteur, 250, Rio de Janeiro

Rector: Pedro Calmon Moniz de Bittencourt

The national university

Founded: 1920

Faculty: 1,402 (1962)

Students: 8,225 (1962)

Budget:

The national university has a complex structure with many faculties and schools scattered throughout the city of Rio de Janeiro and at least one (School of Mines and Metallurgy in Ouro Preto, Minas Gerais) located several hundred miles distant. A University City is being constructed on the outskirts of Rio but prospects for moving all faculties and schools to this new campus are dim.²¹ Most of the faculty members of the University are part-time, many maintaining private offices in the center of the city. The Centro Brasileiro de Pesquisas Físicas, the Inst. de Microbiologia,³⁹ and the Instituto de Biofísico are carrying out outstanding research programs.²¹ These institutions are described in the section on research institutions.

<u>Faculties</u>	<u>Head</u>	<u>Budg.</u>	<u>1962</u>	
			<u>Fac.</u>	<u>Students</u>
Medicine (1832)			162	908
Institute of Biophysics	Dr. Carlos Chagas		70 (60)	
Dept. of Biochemistry	Dr. Paulo Lacacz			
Dept. of Pharmacology	Lauro Solero			
Inst. of Microbiology	Dr. Paulo de Goes	\$51,619*	29	
Med. Microbiology				
Gen. Microbiology				
Virology				
Immunology				
Inst. of Tuberculosis & Pneumonia	Dr. Helio Fraga			
Inst. of Gynecology				
Inst. of Nutrition	Dr. Clementino Fraga, Jr.			
Inst. of Neurology	Dolinod Couto			
Inst. of Psychology	Dr. Nilton Campos			
Inst. of Pediatrics	José Martinho da Rocha			
Inst. of Psychiatry	José Leme Lopes			
Dept. of Parasitology	Dr. Gilberto de Freitas			
Clinical Departments				
Odontology (1934)	Dr. Chryso de Leão		47	60
Pharmacy (1945)			41	131

* For 1960-62, plus Rockefeller funds

UNIVERSIDADE DO BRASIL (continued)

<u>Faculties</u>	<u>Head</u>	<u>1962</u> <u>Budg.</u>	<u>1962</u> <u>Fac.</u>	<u>Students</u>
Philosophy (1939)	José de Faria G. Sobrinho		201	1056
Res. Center of Geography	Dr. Hilgard O. Sternberg			
Res. Center of Brazilian Geography	Dr. Hilgard O. Sternberg	\$9,404*	3FT	
Physics				223 ⁽⁶⁴⁾
Natural History				"
Mathematics				130
Chemistry				61
Center of Genetics Research	Dr. Antonio Lodges Cavalcanti			
Biology	T. A. Texeria Coelho, Jr.			
Center of Science Studies & Research	Dr. João C. Cardoso			
Center of Endocrinological Research	Clementino Farga, Jr.			
Immunology				
Endocrinology				
Gastroenterology				
Nutrition				
Liver Pathology				
Brazilian Center for Physics Research ('49)	General Edmunco de Macedo Soares			
Architecture (1945)	Wladimir Alves de Souza		115	666
Economics (1938)	Dr. T. Brandão Cavalcanti		122	410
Law (1892)	Hermes Lima		22	1367
<u>Schools</u>				
Engineering (1810) (65/66 catalogue)	Alfanzo H. de Brito		247	1541 ⁽⁶⁵⁾
Mechanical	Abrahão Izeckson			226 "
Metallurgical	Ferrucio Fabriani			30 "
Electrical	Ernani da Mota Rezende			226 "
Civil				248 "
Naval Construction				32 "
Common Studies				779 "
Central Office for Grad. Engr. Progs.	Alberto Coimbra (Coordinator)			
Chemical Engr. Prog.	Giulio Massarani			
Mech. Engr. Prog.	Francisco N. de Farias			
El. Engr. Prog.	Ostend A. Cardim			

*Excluding salaries

UNIVERSIDADE DO BRASIL (continued)

<u>Schools</u>	<u>Head</u>	<u>1962 Fac.</u>	<u>1963 Students</u>
Mining and Metallurgy (Ouro Preto) (1876)	Joaquim Maia	32	303
Civil, Mines & Metallurgy			181
Basic Mining Engineering			37
Common Studies			87
Chemistry (1934)	Dr. Annibal C. Bittencourt	73	399
Common Studies			250
Chemistry			115
Industrial Chemistry			34
"Ana Neri" Sch. of Nursing ('23)	D. Walesca Paixão	64	119
<u>Institutes</u>			
Chemistry	Dr. Athos da Silveira Ramos		10 (62)

UNIVERSIDADE DE BRASILIA
Brazilia, Distrito Federal

Rector: Laerte Ramos de Corvalho

Federal university

Founded: 1961

Faculty: 180*

Students: 1300* regular and 1,000 in extension courses

Budget: (1961) US \$7,195,121 million plus US \$19,830,000

The law creating the University established that it be administered by an autonomous, non-governmental foundation. This foundation is directed by a Council composed of six full members and two alternates nominated by the President of the Republic for four-year terms. The Chairman of this Council, elected by the members, becomes automatically the Rector. In setting up the foundation, provisions were made to provide adequate independent sources of income. In addition to initial grants from the Federal Government, the University of Brasilia Foundation was assured independent sources of income from shares of the National Steel Company, from land of twelve urban super-sections in Brasilia, and half the income of the National Radio. One of the guiding principles of the University is to emphasize the need of science and technology in a developing country. The intention is to have only full-time professors. There is high quality research in organic chemistry.⁴²

Faculties

Architecture & City Planning
Public Service
Diplomacy
Law
Education
Economic Sciences
Business Administration
Medical Sciences
 Medicine
 Dentistry
 Pharmacy
 Nursing

Faculties

Farm Sciences
 Agronomy
 Veterinary & Zootechnical Sciences
 Forestry Engineering
Technology
 Civil Engineering
 Mining
 Metallurgy
 Mechanics
 Electricity & Electronics
 Industrial Chemistry
 Hydraulics
Library Sciences

Institutes

Applied Mathematics
Physics
Chemistry
Earth-Sciences
Biology
Social Sciences
Arts
Letters

* October 19, 1965, after dismissal of 15 professors on charges of "subversion," 156 other faculty members resigned, forcing the university to close. (New York Times, 10/20/65)

UNIVERSITY OF CEARA

Rua Visconde de Caupe, 2853, Fortaleza, Ceara

Rector: Dr. Antonio Martins Filho

Federal university

Founded: 1955

Faculty:

Students:

Budget:

An impressive feature of this university is the "Six-Year Development Program (1960-66), which was conceived and worked out with full faculty participation. This plan opens with a valid statement of objectives (carefully determined to meet regional needs), and the manner in which these objectives are to be achieved, namely specific programs, personnel organization, and needed staffing. Estimates of staffing for instruction, research and administration have been made for the six-year period. A problem exists relative to the quality and training of the faculty but it is believed that the rector is aware of this. Staff is currently being sent abroad for training. If financial resources and quality staff can be found in adequate amount, and the projections implemented, the University of Ceara should become a strong institution.²¹

<u>Schools</u>	<u>Head</u>	<u>Budg.</u>	<u>1962</u>	
			<u>Fac.</u>	<u>Students</u>
Agronomy (1918)	Prisco Bezerra		50	266
Agriculture				
Agricultural Botany				
Rural Economics				
Rural Engineering				
Agricultural Physics				
Mathematics				
Agricultural Zoology				
Engineering (Civil) (1955)	Genesio M. de Araujo		60	206 (64)
Nursing, S. Vicente de : Paulo (1943)	Sister C. de C. Bonfim		32	29
Social Service (1950)	Giacinto Pietromacchi		24	70

Institutes

Mathematics Inst. of Ceara (1954)	F. S. Cavalcante	\$31,708 (61)
Clovis Bevilaqua Institute		
Anthropology Institute		
Meteorology Institute		
Chemistry & Technology	Manuel M. Ventura	
Rural Technology		
Marine Biology Station	Melquiades Pinto Paiva	\$987,460 (62) 4

UNIVERSITY OF CEARA (continued)

<u>Faculties</u>	<u>Head</u>	<u>Fac.</u> ¹⁹⁶²	<u>Students</u>
Economics	T. Gomes da Silva	31	294
Inst. of Econ. Res.			
Law (1903)	M.A. de A. Furtado	45	713
Pharmacy & Odontology (1916)	Ailton Gondim Lossis	24	172
Biology			
Clinical Odontology			
Pharmacy			
Physics & Chemistry			
Prosthesis			
Philosophy, Science & Letters (Fortaleza)	Pe. Francisco Batista Luz		113 (64)
Mathematics		6	39 "
Physics			32 "
Chemistry			42 "
Philosophy, D. José de Sobral (1947)		53	448
Philosophy, Sciences & Letters of Crato	Otávio Farias	22	32
Medicine (1948)	José Waldemar de Alcantra e Silva	137	421
Hospital das Clinicas			
Institute of Anatomy & Legal Medicine			
Institute of Preventive Medicine			

UNIVERSIDADE DO ESTADO DO GUANABARA
 (University of the State of Guanabara)
 Travessa Eruicles de Mayo 17, Rio de Janeiro

Rector: Haroldo Lisboa da Cunha

Public institution

Founded: 1951

Faculty: 68 (1963)

Students: 682 (1963)

<u>Faculties</u>	<u>Heads</u>	<u>1963 Fac.</u>	<u>1964 Studs.</u>
Medical Sciences		46	
Economics			
Engineering	Felippe dos Santos Reis		292
Civil			14
Electrical			24
Mechanical			57
Common Studies			197
Law		27	
Philosophy, Sciences & Letters	Attila Magno da Silva		
Center of Mathematics (1960)	Beatriz de Segadas Alcântara Gomes		87
Chemistry			39
Physics			56

UNIVERSIDADE DE MINAS GERAIS
Rua Guajajaras, 176, Belo Horizonte, Minas Gerais

Rector: Orlando Magalhães Carvalho

Federal university

Founded: 1927

Faculty: 816

Students: 3,601

Budget:

The faculties of this university are scattered throughout Belo Horizonte and form completely independent units both administratively and in terms of their unrelated curricula. In the long-term future the various campuses will doubtless disappear as the institution is rebuilt on a suburban location, called Cidade Universitaria. The School of Engineering shows a progressive attitude.²¹ The School of Medicine is one of the better medical schools in Brazil, particularly as far as teaching and research in the basic sciences are concerned.¹⁵

<u>Faculties</u>	<u>Head</u>	<u>1962</u>	
		<u>Fac.</u>	<u>Students</u>
Medicine (1911)	Dr. Oscar V. Caldeira	188	441
Infectious & Tropical Diseases	" "		
Physiological Sciences			
Pharmacology	Dr. Santiago A. Freire		
Morphology			
Biophysics & Radiobiology	Dr. Oromar Moreira		
Pathological Anatomy & Physiology	Dr. Luigi Bogliolo		
Microbiology			
Parasitology			
Philosophy (1940)	Artur V. Velloso	183	476
Institute of Biology	Dr. Giorgio Schreiber		
Mathematics		5	19 (63)
Chemistry		7	40 "
Physics		8	22 "
Economics (1942)	Francisco de Assis Castro	48	388
Law (1892)	Alberto Deodato	24	781
Odontology & Pharmacy (1907)	Henrique Luiz Lacombe	32	382

UNIVERSIDADE DE MINAS GERAIS (continued)

<u>Schools</u>	<u>Head</u>	<u>1962</u> <u>Budg.</u>	<u>1962</u> <u>Fac.</u>	<u>1963</u> <u>Students</u>
Architecture (1931)	Jose Amedee Peret		66	235
Architecture				217
Urbanism				18
Engineering (1911)	Joaquim Klein Teixeira	\$943,396	274	1394
Civil				521
Electrical-Mechanical				248
Electrical				121
Mechanical				287
Mining-Metallurgy				128
Chemical				89
Veterinary	Leonidas M. Magalhaes	\$481,132	46 (63)	130 (62)
Morphology				
Physiology &				
Pharmacology				
Microbiology &				
Parasitology				
Public Health				
Veterinary Clinics				
Animal Husbandry				
Carlos Chagas School of Nursing (1933)	Sister Emilia Clarizia		50	47 (62)

UNIVERSITY OF PARANA

Rua 15 de Novembro s/n, (Caixa Postal 441), Curitiba, Paraná

Rector: Dr. José Nicolau dos Santos
 Vice Rector: B. Pinheiro Machado

Federal university

Founded: 1912

Faculty: 637

Students: 5019

Budget: 1961

\$1,487,804 for scientific salaries
 \$1,117,073 for scientific material

The University of Parana has the foundation for a strong university. Nearly all the faculty is part-time, but in a few departments the principle of full-time has been established. The Engineering Faculty will be chiefly if not wholly full-time. The most vital research seems to be found in the institutes of biology and technological research and of agricultural etomology and agronomy. The biochemistry research is particularly outstanding. In the school of chemistry there is no basic research in progress and no equipment for it.²¹ The student body is of good quality as judged by the relatively large number who select study in the sciences. There is no study for advanced degrees.

<u>Faculties</u>	<u>Head</u>	<u>Budg.</u>	<u>1962</u> <u>Fac.</u>	<u>1962</u> <u>Students</u>
Law (1912)	Ildefonso Marques		35	586
Economics (1945)	Ulysses de Campos		37	271
Pharmacy	Carlos Stellfeld		32	140
Odontology	Levy de Brito Buquira		13	303
Medicine (1912)	Anchises Marques de Faria		31	820
Inst. of Biochemistry	Dr. Metry Bacila		24 FT	
Dept. of Pediatrics	Dr. Homero de Mello Braga			
Philosophy, Sciences & Letters			92	810
Mathematics			7	40 (63)
Physics			7	20 "
Chemistry			9	39 "
Human Genetics Laboratory	Dr. Newton Freire Maia (excellent research) ¹⁵	Cr\$ 1.4	10	

UNIVERSITY OF PARANA (continued)

<u>Schools</u>	<u>Head</u>	<u>Budg.</u>	<u>1962</u>	
			<u>Fac.</u>	<u>Students</u>
Engineering (1912)	Ralph Jorge Leitner		97	720 (63)
Civil				232 "
Mechanical				67 "
Architectural				73 "
Common Studies				348 "
Chemistry (1924)	Dr. Nilton Emilio Buhner		61	205
Agriculture & Veter- inary Science (1918)	Lycio Grein de Castro Vellozo	Cr\$41.1	52	237
Agronomy				152 (63)
Forestry	João Maria Belo Lisboa			87 "
Librarianship	Maria de Lourdes Tavares		8	8
<u>Institutes</u>				
Biology & Technical Research				
Geology (1959)	Joaquim M. M. Franco	Cr\$2.		
Mineralogy				
Paleontology				
Petrography				
Geology, General & Brazilian				
Sedimentology & Stratigraphy				
Geochemistry & Mining				

UNIVERSIDADE DE RECIFE

Rua do Hospício, 619, Recife, Pernambuco

Rector: Joao Goncalves da Costa Lima

Federal university

Founded: 1946

Faculty: 524

Students: 3862

A University City is being constructed. The Antibiotics Institute, at least the microbiology and biochemistry sections, seems to measure up to international standards. The Institutes in Oceanography, Mycology, Biological Sciences,²¹ Chemistry, and Nutrition are well-organized and carrying out some good research. The Institute of Hygiene has a very good Schistosoma mansoni laboratory.¹⁵

<u>Faculties</u>	<u>Head</u>	<u>1962</u> <u>Budg.</u>	<u>1962</u> <u>Fac.</u>	<u>Students</u>
Medicine (1940)	Antonio S. dos Santos Figueira		33	668
Inst. of Hygiene	Dr. Federico S. Barbosa			
Inst. of Chemistry ('59)	Dr. Marcionilo Lins			
Inst. of Nutrition	Dr. Nelson Chaves			
Economics (1942)			40	330
Public Administration			16	34
Law (1828)			66	779
Architecture	Jonio S. P. de Lemos		48	115
Odontology	R. Torres e Silva		70	162
Pharmacy (1903)	Ferreira dos Santos	\$32,600		
Hygiene & Pharmacology				
Chemistry				
Inst. of Exp. Pharmacology				
Philosophy (Pernambuco) (1950)	Nilo de Oliveira Pereira		150	511
Social Sciences				
Geography				
Natural History				
Mathematics				38

UNIVERSIDADE DE RECIFE (continued)

<u>Schools</u>	<u>Head</u>	<u>Budg.</u>	<u>Fac.</u>	<u>Students</u>
Chemistry	Francisco G. da Costa		59	135 (64)
Chem. Engr.	Lima			83 "
Industrial Chem.				37 "
Engineering (1895)	Newton da Silva Maia		126	444 "
Civil				136 "
Mining				31 "
Electrical				141 "
Mechanical				136 "
Librarianship (1950)			16	23
Nursing (1950)			12	36
<u>Institutes</u>				
Geology (1957)	Ivan de Albuquerque Loureiro	\$68,290	17 (64)	
Mineralogy				
Paleontology				
Petrography				
Gen. Geology & Brazilian Geology				
Geochemistry and Mining				
Antibiotics	Oswaldo Lima		20	12
Physics & Mathematics (1954)	Luis Freire	\$35,610	8	20
Cardiology	Dr. Luis Tavares			
Tropical Medicine	Rui Joao Marques			
Mycology (1954)	A. Chaves Batista	\$121,950*	65 FT	
Herbarium				
Zymology				
Mycogynecopathology				
Mycopediatriy				
Dermatology				
Systematics				
Veterinary Mycology				
Agricultural Mycology				
Industrial Mycology				
Maritime Biology & Oceanography (1952)	Francois Ottmann		10	

* Excluding salaries

UNIVERSIDADE DO RIO GRANDE DO SUL
Avenida Joao Pessoa s/n, Porto Alegre, R.G.S.

Rector: Dr. Jose Carlos Fonseca Milano
Vice-Rector: Pery Pinto Diniz da Silva

Federal university
Founded: 1936
Faculty: 1,065
Students: 5,238
Budget: \$4,779,411 (98% from Federal Government) (1960)

URGS is well administered and attempts to direct its program towards the needs of the Rio Grande do Sul area. Although most of the faculty is part-time, the value of full-time professors is realized and the more progressive units have several such professors. Each school and faculty provides instruction in the basic sciences by members of its own staff, as is the case with most Brazilian universities. Active research programs are being carried out in the Institutes of Physics, Mathematics, Hydraulic Research and Natural Sciences.²¹ The Dept. of Genetics in the Institute of Natural Sciences is one of the best genetics departments in Brazil, if not Latin America. (Genetics is one of the best developed research specialties in Brazil.)¹⁵

Faculties	Head	% of Total 1962		
		Budg.	Fac.	Students
Law (1900)	Galeno V. de Lacerda	3.07	39	521
Law, Pelotas (1912)	Dr. Bruno de Medonca Lima	2.26	29	164
Economics (1909)	Dr. Pery P. D. da Silva	6.53	74	398
Philosophy (1942)	Ary Nunes Tieböhll	7.24	132	1031
Architecture (1952)	Joao Baptista Pianca	4.02	59	268*
Architecture				245**
Urbanism				23**
Medicine, Porto Alegre (1899)		10.80	179	664
Anatomy	Dr. Jose F. Milano			
Exp. Physiology	Dr. Pery R. Correa	\$40,842*	17	
Biochemistry	Dr. Tuiskon Dick			
Microbiology	Homero so Jobim			
Bicphysics				
Clinical Therapeutics	Dr. Eduardo Faraco			
Propedeutics	Dr. Rubens Garcia Maciel			
Medicine, Sta. Maria (1965)	Jose da Rocha, Jr.	3.50		
Dontology (1952)	Dr. Othan S. de Silva	3.11	58	168
Dontology, Pelotas('12)	G. C. P. Duarte (\$201,263)*	3.01	47	141
Pharmacy (1896)	Germano Roman Ros	3.05	47	174
Pharmacy, Sta. Maria('32)	Dr. Jose da Rocha, Jr.			

* 1963

** 1964

UNIVERSIDADE DO RIO GRANDE DO SUL (continued)

<u>Schools</u>	<u>Head</u>	<u>Budg.</u>	<u>1962</u> <u>Fac.</u>	<u>1963</u> <u>Students</u>
Engineering (1897)	Dr. Luiz L. de Faria			
Common Studies				413
Civil				200
Mining				7
Electrical				141
Mechanical				364
Metallurgy				42
Chemistry				60
Agr. & Vet. Medicine	Outubrino Correa	7.61	80	387
Agr. Biology	J. P. da Costa Neto			
Chem. & Agr. Tech.				
Agr. Engineering				241
Agronomy & Horticulture				
Animal Science				
Geology	I. D. Pinto	1.35	33	87**
Librarianship	Z. G. Marquez		8	32**
Nursing (1951)	Celina M. da Cunha	2.33	52	63**
<u>Institutes</u>				
Chemistry (under Engr. Fac.)	Manuel L. Leao			23*
Physics (1948)	Ernesto de M?	\$218,536(61)	16*	
Mathematics	Ary Nunes Tietböhl		10*	44*
Economic Science		\$35,000(63)	12*	
Hydraulic Research('53)	Jose L. de Souza	\$141,050(63)	50*	150*
Natural Sciences				
Genetics	Dr. Francisco M. Salzano			
Electro-Technics (under Engr. Fac.)	Rubem P. Rodrigues			
Alimentary Technology	Oscar Maximiliano Homrich			

* 1960

** 1962

UNIVERSIDADE DE SAO PAULO
 Cidade Universitaria "Armando de Salle Oliveria"
 (Caixa Postal 8191), Sao Paulo, S.P.

Rector: Dr. Luis Antonio da Gama e Silva
 Vice-Rector: Dr. Mario Guimaraes Ferri

State university
 Founded: 1934
 Faculty: 3,064 (1964)
 Students: 13,342 (1964)
 Budget: \$14,634,146 (1961)

The University of Sao Paulo has the largest enrollment of all Brazilian universities. For the past six years, its average growth has been 400 to 600 students each year. 1308 diplomas were awarded by the University in 1962. In many divisions a larger proportion of the teaching staff and the student body is full-time than in other universities. According to some sources, the staff has shown unusual competence and the research program, great vitality. The need for combining departments such as mathematics, physics, and chemistry of the several institutes and faculties is more clearly recognized and incorporated in plans than elsewhere.²⁰

The Faculty of Medicine of Ribeirao Preto is an example of a school in which the trilogy of research, teaching & patient care, together with a great interest in the development problems of the country created an exciting school staffed by a forward-looking faculty. Dr. Zeferino Vaz, dean for the first eight years, built up both the basic science and the clinical departments. This school is certainly one of the best in Latin America, and by some is considered the best school in Brazil. One of its great advantages is the absolute adherence to the full-time principle. This was achieved with the strong support of the Rockefeller Foundation.¹⁵

The Faculty of Medicine in Sao Paulo is excellent as far as teaching and medical care are concerned.¹⁵ The Faculty of Philosophy, Sciences and Letters is unique among the universities of Brazil in the high quality of research in the sciences by members of its faculty. The Department of Chemistry of this faculty is said to be the most active department in Brazil, both in teaching and research.²⁰ The "Luiz de Queiroz" Agricultural School has the largest staff, student body, and budget of any Brazilian agricultural school.²⁸ The School of Geology is one of the most active earth science departments in Sao Paulo. The Sao Carlos Engineering School has an active research program.

UNIVERSIDADE DE SAO PAULO (continued)

<u>Faculties</u>	<u>Directors</u>	<u>Budg.</u>	<u>1962</u> <u>Fac.</u>	<u>1964</u> <u>Students</u>
Medicine, S. P. (1913)	Dr. H. V. de Carvalho		183	1454
Inst. "Oscar Freire" (legal Medicine)				
Histology & Embriology	L. C. U. Junqueira			
Physiology	Dr. Alberto C. da Silva			
Biochemistry	Jayme A. Cavalcanti			
Microbiology	Dr. Carlos da Silva Lacacz			
Pharmacology	Dr. Charles Corbett			
Surgery				
Inst. of Trop. Med. (1959)	Dr. Antonio F. do Amaral			
Parasitology				
Center for Nuclear Medicine ('59)	Dr. Tede Eston	\$80,645 (64)	20	
Ribeirao Preto Medicine	Dr. M. Rocha e Silva	\$744,390 (61)	110	671
Medical Psychology	Dr. Hernan R. D. Corte		5	
Clinical Medicine	Dr. Helio de L. de Oliveira		18	
Surgery	Dr. Ruy E. Pereiti		12	
Obs. & Gynecology	Dr. Alberto Martinez		6	
Pediatrics	Dr. J. Renato Wojski		5	
Orthopedics	Dr. Jose M. de Souza		6	
Dermatology			4	
Psychiatry				
Ophthalmology	Dr. A. P. de Azeredo		1	
Otorhinolaringology				
Neurology	Dr. Jorge A. L. Figueiredo		4	
Morphology	Dr. Lucien Lison (histochemist)		9	
Physiology	Dr. Miguel Covian (neuroelectro- physiologist)		8	
Biochemistry	Dr. Jose J. Goncalves		5	
Microbiology	Dr. Jose O. de Almeida		5	
Parasitology	Dr. Mauro Pereiro Barretto		4	
Pharmacology	Dr. Mauricio R. e Silva		5	
Pathology	Dr. Fritz Koeberle		8	
Preventive Medicine	Dr. Jose J. L. P. de Freitas		5	
Hygiene & Public Health	Alvaro Guimaraes, Jr.			
Statistics			8 (65)	
Sanitary Engr.				16 (63)
Pharmacology & Bio- chemistry ('34)	Dr. Antonio A. Correa	\$695,624 (62)	43	145
Odontology, S.P.			98	319
Odontology, S. Jose dos Campos				
Odontology & Pharmacy of Barua			4	47
Pharmacy & Odontology of Araquara ('23)	Raphael Lia Rolfsen	\$564,390 (61)		

UNIVERSIDADE DE SÃO PAULO (continued)

<u>Faculties</u>	<u>Directors</u>	<u>Budg.</u>	<u>1962 Fac.</u>	<u>1964 Students</u>
Veterinary Medicine ('35)	Dr. E. O. Martins	\$243,900 ⁽⁶¹⁾		127
Zootechnics				
Med. Zoology & Parasitology				
Therapeutics				
Pharmacology				
Physiology				
Histology & Embriology				
Philosophy, Sciences & Letters, S.P. ('34)	Dr. Mario G. Ferri	\$1,695,450 ⁽⁶²⁾	240	3228
Physics	Mario Schemberg		15	354
Chemistry	Dr. Simão Mathias			103
Mathematics				191
Gen. & Animal Physiology	Paulo Sawaya			
Marine Biology Station, S. Sebastião	Paulo Sawaya			
Biology	Dr. Crodowaldo Pavan	\$156,097	9	
Botany (1934)	Dr. Mario G. Ferri		10	158
Geology				
Philosophy, Sciences & Letters, Marília			20	124
Law (1827)			63	1702
Economics & Business Administration (1946)	Candido L. da Silva Dias		28	1082
Architecture & Town Planning (1948)	Candido L. da Silva Dias		65	333
<u>Schools</u>				
Polytechnic (1893)	Tharcisio D. de S. Santos		271	2419
Common Studies				362
Civil Engineering				344
Electrical Engineering				216
Mining Engineering				28
Mechanical Engineering				241
Metallurgy				71
Naval				80
Chemical Engineering				1491
Geology and Paleontology			10	158
Engineering of São Carlos (1952)			88	417
Agr. "Luiz de Queiroz" (1901)	Hugo de Almeida Leme		98	528
Sociology & Pol Sci. (1938)			20	96
Ribeirão Preto Nursing (1954)	Glete de Alcantara	\$73,170 ⁽⁶¹⁾	98	26
Nursing São Paulo (1943)			59	52
Obstetrics			16	69

UNIVERSIDADE DE SÃO PAULO (continued)

Affiliated Institutions: Instituto de Pesquisas Tecnológicas, Instituto de Electrotécnica (1940), Instituto Astronómico e Geofísico, Instituto "Oscar Freire," Escola de Enfermagem, Escola de Enfermagem de Ribeirão Preto, Hospital das Clínicas, Instituto de Administração, Instituto Oceanográfico, Instituto de Estudos Portugueses, Centro de Medicina Nuclear, Hospital das Clínicas de Ribeirão Preto, Instituto de Pesquisas e Aperfeiçoamento Industrial da Escola de Engenharia de São Carlos.

Complementary Institutions: Instituto Agronómico de Campinas, Serviço Florestal, Instituto Biológico, Departamento de Zoologia, Instituto Butantan, Diretoria de Assistência e Psicopatas, Museu Paulista, Instituto do Rádium "Arnaldo Vieira de Carvalho," Escola de Sociologia Política, Instituto "Adolfo Lutz," Departamento de Produção Animal, Instituto Botânica, Instituto de Energia Atômica.

UNIVERSIDADE FEDERAL DO ESTADO DO RIO DE JANEIRO
 Rua Coronel Gomes Machado, Niterói, Rio de Janeiro

Rector: Dioclécio Dantas de Araujo

Federal university

Founded: 1960

Faculty:

Students:

Budget:

<u>Faculties</u>	<u>Head</u>	<u>1964 Students</u>
Economic Sciences		
Law		
Pharmacy		
Medicine		
Odontology		
Veterinary Medicine		
Philosophy, Sciences & Letters	Durval de Almeida Baptista	
Mathematics		59
<u>Schools</u>		
Engineering	Octavio R. de Cantanhede Almeida	494
Civil		84
Electrical		48
Mechanical		46
Metallurgy		106
Common Studies		210
Nursing		
Social Service		

PONTIFICIA UNIVERSIDADE CATOLICA DO RIO DE JANEIRO
Rua Marques de Sao Vicente, 263, Rio de Janeiro

Rector: R. F. Laercio Dias de Moura, S.J.

Private university

Founded: 1940

Faculty: 433

Students: 2000

Budget: Cr\$16 million

At present this university lacks the scientific personnel necessary to make it into a creatively productive scientific center. It would serve well within its present plans, and with the necessary basic scientific equipment, as a center for instruction and student experimentation in preparing students in the basic sciences and with further development in engineering.

Faculties	Head	Budg.	1962	
			Fac.	Students
Philosophy (1941)	Paulo C. M. da Silva		98 (64)	508 (64)
Social Sciences			11	
Geography			8	
Mathematics			7	
Polytechnic School (1947)	Carlos A. del Castillo		176	964 (64)
Civil Engineering				108 "
Electrical Engineering				181 "
Industrial Engineering				207 "
Common Studies				468 "
Institute of Physics	Father F. X. Roser	\$75,000	12	300
Institute of Technology				
Law (1941)	Dr. Luiz A. de R. Monteiro		43	346
School of Social Service (1946)	Aracy Cardoso		60 (64)	58
Postgraduate School (medicine)	Dr. Geraldo Siffert		32	25
School of Nursing "Luiza de Marillac" (1939)				
Inst. of Pol. and Soc. Sciences			24	131
Inst. of Applied Psychology	R. F. Antonius Benko, SJ		18	106
Inst. of Dentistry (graduate)	Dr. O. Prado, Filho		9	318
Summer Training Program for Secondary School Science Teachers (GATEC)				60

ECNOMICA UNIVERSIDADE CATOLICA DO RIO GRANDE DO SUL
Praça D. Sebastião, Porto Alegre

Rector: Irmão José Otão Stefani

Private university

Founded: 1948

Faculty: 300

Students: 2,000

Budget: Cr\$4 million (for instruments & material)

Nearly all of the faculty is part-time, drawn mostly from neighboring University of the Rio Grande do Sul. No evidence of research was observed in the institution.²¹

<u>Faculties</u>	<u>Directors</u>	<u>Fac.</u>	1963 <u>Students</u>
Economics & Pol. Sci (1932)	Dr. Antonio César Alves	46	
Law (1947)	Dr. Baltazar Gama Barbosa	26	
Philosophy, Passo Fundo	P. Alcides Guareschi		
Philosophy, Santa Maria			
Philosophy, Ijuí			
Philosophy, M. Champagnat			
Philosophy, Porto Alegre (1940)	Ir. Faustino João	140	
Mathematics			73
Physics			3
Chemistry			38
Catholic Philosophy (Pelotas)	P. João Zatera		
Engineering (Civil)	Alvaro Leão de C. da Silva	42	177
Dentology (1953)	Daniel Juckowski	45	
<u>Schools</u>			
Social Service (1945)	Lucia Gavello Castillo	29	
Psychology Institute	Hugo Danilo		
Sociology Institute	José Canton de Oliveira		

PONTIFÍCIA UNIVERSIDADE CATÓLICA DE SÃO PAULO

Rua Monte Alegre, 984, São Paulo, S. P.

Rector: D. Antonio Maria Alves de Siqueira

Private university

Founded: 1946

Faculty:

Students:

Budget:

<u>Faculties</u>	<u>Head</u>	<u>1963 Students</u>
Economics & Accounting (1938)		
Paulista of Law (1946)		
Philosophy, Sciences & Letters, S. Bento (1936)	Pe. Enzo Campos Gusso	
Mathematics		42
Philosophy, Sciences & Letters, Sedes Sapientiae (1933)		
Mathematics		33
Medicine of Sorocaba (1951)		
Industrial Engineering, S.P. (1946)	Joaquim Ferreira Filho	555
Electrical Engineering		40
Mechanical Engineering		389
Chemical Engineering		126
Industrial Engineering, S. Bernardo	Joaquim Ferreira Filo	
Philosophy, Scis. Letters, Sta. Ursula	Mdre. Maria I. de Carvalho	

Schools

Business Administration

Social Service (1936)

Heart of Mary Nursing (1951)

Institute

Social Service (1940)

UNIVERSIDADE CATOLICA DE PERNAMBUCO
Rua do Príncipe, 526, Recife, Pernambuco

Rector: Pe. Aloisio Mosca de Carvalho

Private university

Founded: 1951

Faculty:

Studies:

Budget:

<u>Faculties</u>	<u>Head</u>	<u>Students</u>
Economic Sciences		
Law		
Philosophy, Sciences & Letters	Pe. José Torres Costa, S. J.	
Mathematics		36
Physics		1
Chemistry		5
<u>Schools</u>		
Nursing		
Politechnic	José Torres Pires	444
Common Studies		190
Civil Engineering		140
Electrical Engineering		43
Industrial Chemistry		8
Mechanical Engineering		63

UNIVERSIDADE MACKENZIE

Rua Maria Antonia, 402, São Paulo, S. P.

Rector: Antonio Valente do Couto

Private university

Corporation of the State of New York

Founded: 1952

Faculty: 175 (12 full-time)(62/63)

Students: 2,542 (mostly full-time)(62/63)

Budget: Tuition - 70%; Subsidies - 20%; Gifts - 10%.
Cr\$80 million.

The Mackenzie University is one unit of the Mackenzie Institute which covers all levels of education. Although the Institute is legally a corporation of the State of New York, its main governing body is now a board of trustees in São Paulo. About 7,000 students use the over-all Mackenzie plant on a part-time basis. There has been no appreciable development of research, since the faculty is employed part-time merely to teach.²¹

<u>Faculties</u>	<u>Head</u>	<u>Fac.</u>	<u>Students</u> 1963
Architecture (1947)	Roberto Frade Monte		341
Economics (1951)			
Law (1955)			
Philosophy, Sciences & Letters (1947)	Francisco B. Hoffman		
Mathematics			38
Physics			50
<u>School</u>			
Engineering (1896)	Jaroslav Smit	76	1138
Civil			462
Electrical, Electronics, Electrotechnics			265
Industrial			16
Mechanical			213
Metallurgy			56
Chemical			67
Chemistry & Metallurgy			59
Institute of Technology & Research			

ESCOLA DE ADMINISTRACAO DE EMPRESAS DE SAO PAULO
 Rua Martins Fontes 190 (Caixa Postal 5534), Sao Paulo, S.P.

Private - Under the Getulio Vargas Foundation

Founded: 1954 with the cooperation of ICA and the technical assistance of Michigan State University

Faculty:

Students: 30, 24 full-time (1959)

Budget:

The school's objectives are to carry out investigations and studies on problems related to business administration and to divulge the results obtained and the principles or methods established, and to lend technical assistance to companies to improve their level of efficiency. The administrative and direction of the schools is organized over a base of an Administrative Council and a Director, assisted by the Technical Administrative Council and the Assembly of the Teaching Body, made up of Brazilian professors and professors from Michigan State University. Each department of the school is directed by a Brazilian professor and assisted by a professor from MSU. A Center of Investigations works in collaboration with the departments. Postgraduate courses are offered. Courses are also given to administrators of industry. Actual cases are analyzed and solved.

Departments

Production
 Standardizing
 Personnel Administration
 Industrial Relations
 Accounting

Departments

Finances and Control
 Sociology
 Psychology
 Legislation

ESCOLA DE ENGENHARIA MAUA
Rua Frederico Alvarenga, 121, Mauá, São Paulo

Director: José Justino Castilho

Private, formed under the sponsorship of the Engineering
Society of São Paulo

Founded: 1961

Faculty:

Students: 631 (1963)

Budget:

The Institute is operated as a non-profit agency and obtained its initial endowment and operating resources from national and state government agencies, industrial and agricultural organizations, as well as individual contributions. It provides training in the fields of mechanics, electricity, metallurgy, chemistry and mining. Rigid requirements for student attendance and scholastic achievement are maintained. Courses extend over a period of five years.

Departments

Electrical Engineering

Electronics

Electrotechnics

Mechanical Engineering

Metallurgical Engineering

Chemical Engineering

INSTITUTO ELECTROTECNICO DE ITAJUBA
(Electrical-Mechanical Engineering Institute of Itajuba)
Rua Coronel Reno 7, Itajuba, Minas Gerais

Director: Pedro Mendes dos Santos

Federal university

Founded: 1913

Faculty: 26, 7 full-time (1960)

Students: 288 (63)

Budget: \$196,078 (70% from GOB and 30% from COSUPI) (1960)

The institution is limited to the training of engineers for the power industry with the objective of increasing the power production of Brazil. Hence, studies culminate in the study of hydro-electric power, steam generation and steam-electric power generation and transmission. At the end of five years, mechanical-electrical degree is awarded. The students are serious, giving full-time attention to their classes. 65% of entering students graduate.

INSTITUTO TECNOLÓGICO DE AERONÁUTICA (ITA)
Sao Jose dos Campos, Sao Paulo

Rector: Marco A. G. Cecchini

Civilian institution, operated & financed by Ministry of Aeronautics, under the Centro Tecnico de Aeronautica.

Founded: 1948

Faculty: 120, majority (or all) full-time

Students: 537

Budget: \$15,000 library, \$80,000 equip & services, \$300,000 salaries annually - paid by the Air Force

Structured on the American pattern by a series of American rectors, and aided by numerous consultants from the U.S., the institute shows many characteristics of an American institute of technology. The study body is highly selected (100 accepted out of 1665 applications in 1962) and class attendance is said to be compulsory. Twenty of the faculty have Ph.D. degrees and 12 are now (1963) on leave completing Ph.D. degrees.²¹ ITA is producing some of the finest electrical engineers of all Latin America.* The courses in mechanical engineering have been notably strengthened by virtue of massive support (US\$1,000,000) provided through an AID/U. of Michigan contract. Research in physics, electronics, aerodynamics, metallurgy, and meteorology is of high quality.³⁹

<u>Departments</u>	<u>Heads</u>	<u>1963 Students</u>
Electrical Engineering	Dr. Jose Thomaz Senise	134
Aeronautical Engineering	Padraic C. Dunne	130
Mechanical Engineering	Jeremias Chrispin	
Common Studies	Marco Guglielmo Cecchini	225
Mathematics	Francisco Lacaz Netto	
Physics and Chemistry	Mario Alves Guimaraes	
Humanities	Paulo Ernesto Tolle	
Data Processing Laboratory	Tercio Pacitti	

* State Department Airgram 5/28/64.

UNIVERSIDADE RURAL
Km 47, Estrada Rio-Sao Paulo,
Itaguaí, Rio de Janeiro

Rector: Federico Pimentel

Directed by the Ministry of Agriculture

Founded: 1944

Faculty: 210

Students: 1,200 (1965)

Budget: \$1,200,000 for teaching (1963)

The curriculum includes five years in either agronomy or veterinary medicine, two of which are basic preparation and three of a more specialized nature. Instruction generally is limited to introductory and intermediate levels. No evidence of really advanced work was found. Research by individual professors is minimal and most professors are not full-time. All departments are located on the same campus.¹⁸

<u>Schools</u>	<u>Head</u>	<u>(1962) Budg.</u>	<u>(1963) Students</u>
Agriculture (1913)* 33 depts.	Honorio da C. Monteiro, Filho		382
Veterinary Sciences (1913) 18 depts.	Dr. Jadyr Vogel	\$62,900	153
Specialized Ext. Courses	Eloy C. de Alguquerque		
Technical Education			
Forestry			
Technical Education			
Postgraduate			

*Because of interruptions and changed plans, this school did not have a graduating class until 1934.

UNIVERSIDADE RURAL DO ESTADO DE MINAS GERAIS
Avenida Peter Henry Rolfs, s/n, Vicosa, Minas Gerais

Rector: Edson Potsch Magalhaes (since Nov. 1964)

State university
Founded: 1950

In 1904, the University was reorganized, the new structure reflecting the Land Grant College concepts in the prominence given to extension and research. (The three lines of work - extension, research and teaching - are to be coordinated in each department.) In October, 1964, the State General Assembly passed a law which set up the University as an autarchy which allows freedom for the University in certain areas without the approval of any branch of the Government. The state has decided to turn over all its agricultural research functions to the University, although the manner in which it was to be done has not yet been decided. UREMG graduated 80 agronomos in 1964. The Graduate program has awarded 40 M.S. degrees in the four years of its existence.⁴⁴

<u>Faculties</u>	<u>Head</u>	<u>1962 Students</u>
Forestry School		
Agricultural School	Geraldo M. Chaves	342
UREMG Research Service	Jose R. Torres (also Dir. of Research, State Dept. of Agriculture)	
Graduate School	Clibas Vieira	
Extension School	Gilberto Pereira de Melo	130
Superior School of Home Economics	Maria dae Dores de Carvalho Ferreira	90
Superior School of Veterinary Medicine		
Institute of Rural Economy		

Distribuição da matrícula inicial, em 1966, segundo as modalidades de ensino

Modalidades do Ensino	Matrícula no Início do Ano Letivo									% em Relação à Matrícula
	Total	Do Sexo Feminino	Segundo as Séries						Parceiros	
			1º	2º	3º	4º	5º	6º		
TOTAL	142 509	41 949	48 461	32 991	24 923	19 690	8 911	1 669	5 864	100,00
Administração	2 558	421	884	423	355	296	14	—	686	1,79
Agronomia	3 878	179	1 308	1 040	805	620	105	—	—	2,72
Agrimensura	39	—	24	7	8	—	—	—	—	0,03
Arquitetura	2 488	521	594	536	403	327	348	—	280	1,75
Artes Domésticas	103	103	24	27	35	17	—	—	—	0,07
Artístico*	168	66	116	32	20	—	—	—	—	0,12
Belas Artes	1 138	919	383	308	231	148	51	17	—	0,80
Biblioteconomia	790	752	328	263	158	21	—	—	20	0,55
Ciências Econômicas	14 360	1 261	5 212	3 901	2 632	2 111	44	—	460	10,08
Desenho Industrial	52	16	30	22	—	—	—	—	—	0,01
Diplomacia	13	2	—	13	—	—	—	—	—	0,01
Direito	30 974	5 665	8 782	6 793	5 806	5 191	4 402	—	—	21,73
Educação Física	774	362	396	215	163	—	—	—	—	0,54
Enfermagem	911	881	368	240	213	90	—	—	—	0,64
Engenharia	20 293	328	7 310	4 485	3 444	2 411	2 066	37	540	14,25
Eng. Química - Quím. Ind. (fundamental)	435	47	266	169	—	—	—	—	—	0,30
Estatística	374	69	228	78	39	29	—	—	—	0,26
Geologia	457	8	200	88	92	77	—	—	—	0,32
Farmácia	2 320	921	873	668	527	252	—	—	—	1,63
Filosofia, Ciências e Letras	32 396	21 245	12 041	6 904	4 888	4 666	37	—	3 860	22,73
Jornalismo	1 265	617	664	336	215	25	—	—	25	0,89
Medicina	14 183	1 931	3 895	2 935	2 186	1 804	1 749	1 614	—	9,95
Museologia	73	59	36	23	14	—	—	—	—	0,05
Música	913	806	325	287	120	85	95	1	—	0,64
Nutrição	339	310	141	104	94	—	—	—	—	0,24
Odontologia	5 946	1 505	1 963	1 586	1 467	930	—	—	—	4,17
Química Industrial	96	13	37	32	18	9	—	—	—	0,07
Serviço Social	2 834	2 478	1 020	882	617	309	—	—	—	1,99
Sociologia e Política	823	344	332	216	118	64	—	—	93	0,58
Veterinária	1 516	119	681	372	255	208	—	—	—	1,06

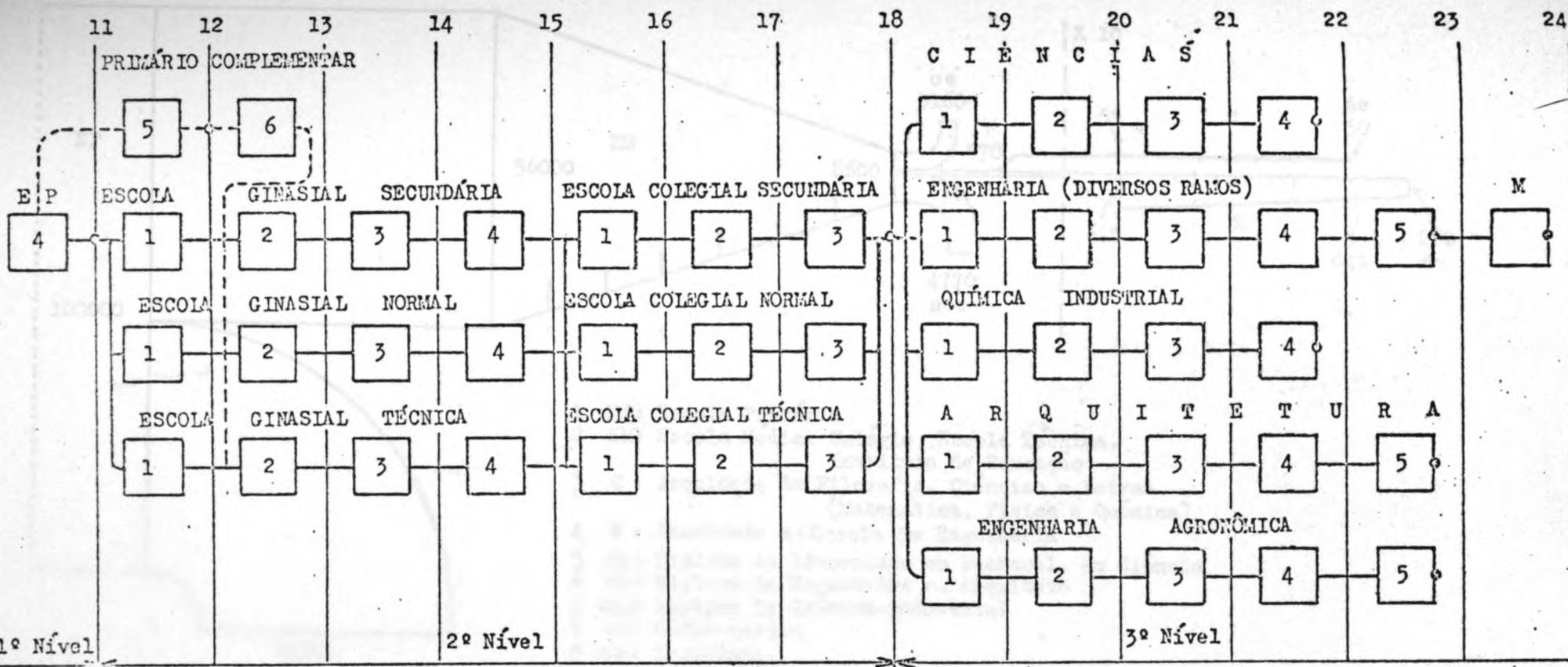
FONTE: Serviços de Estatística da Educação e Cultura — SEEC.

(*)..Arte Dramática -- Arte de representar — Cenografia — Declamação — Direção Teatral — Técnica Teatral.

Centro de Estatística e Demografia
 Ministério da Educação e Cultura

A N O S .	TOTAL.	MODALIDADES DO ENSINO												
		Agro- nomia	Arqui- tectura	Clências Econô- micas	Direito	Enfer- magem	Euge- nharla	Farna- cla	Filosofia, C. e Letras	Medicina	Odonto- logia	Química Indus- trial	Veteri- nária	Outros
TOTAL	251 835	6 122	4 308	16 931	48 968	5 044	23 247	7 801	57 213	28 576	22 650	1 423	2 436	27 036
1940	4 475	260	28	157	1 285	---	273	89	337	966	319	48	89	624
1941	4 062	141	35	179	1 061	---	303	90	540	878	263	34	58	471
1942	3 870	143	31	237	776	---	245	116	574	662	424	32	78	552
1943	4 511	198	17	340	1 023	---	356	158	644	595	500	37	79	564
1944	5 425	188	21	620	963	---	413	136	1 048	788	478	54	38	678
1945	6 637	179	30	735	992	---	585	201	1 675	769	536	57	54	824
1946	6 291	194	73	595	1 045	---	685	208	1 169	872	665	92	36	657
1947	6 117	228	65	752	1 023	---	667	237	650	1 001	647	106	57	684
1948	6 311	267	83	25	947	---	896	256	891	978	759	151	92	926
1949	7 706	229	124	418	1 260	---	968	301	1 291	1 142	746	153	55	1 019
1950	8 335	171	126	503	1 300	254	961	341	1 282	1 070	845	117	61	1 204
1951	9 062	237	150	496	1 620	271	1 036	434	1 633	1 120	864	86	63	1 053
1952	9 642	266	202	587	1 883	330	870	378	1 135	1 241	1 142	111	85	1 412
1953	11 507	233	193	623	1 859	471	1 132	463	2 520	1 274	1 242	40	114	1 343
1954	11 639	190	221	593	2 179	319	1 259	547	2 146	1 503	1 278	32	119	1 253
1955	13 618	274	285	805	2 811	361	1 176	487	3 071	1 468	1 322	28	146	1 414
1956	14 281	250	481	999	2 776	343	1 323	430	3 459	1 422	1 361	15	128	1 294
1957	14 939	236	468	857	3 065	316	1 123	403	4 135	1 586	1 382	31	162	1 225
1958	15 073	325	318	997	3 310	348	1 239	318	3 769	1 578	1 294	26	163	1 358
1959	16 266	300	289	1 104	3 562	450	1 418	392	4 359	1 491	1 167	33	140	1 531
1960	16 431	335	280	991	3 274	341	1 446	455	4 766	1 528	1 363	30	139	1 493
1961	18 263	419	210	1 270	3 493	354	1 394	442	5 127	1 737	1 422	21	176	2 207
1962	18 388	394	283	1 423	3 614	375	1 777	438	5 783	1 342	1 315	49	144	1 451
1963	18 926	474	235	1 625	3 817	511	1 802	441	5 070	1 556	1 316	40	160	1 819

Organograma do Ensino - Brasil - 1962

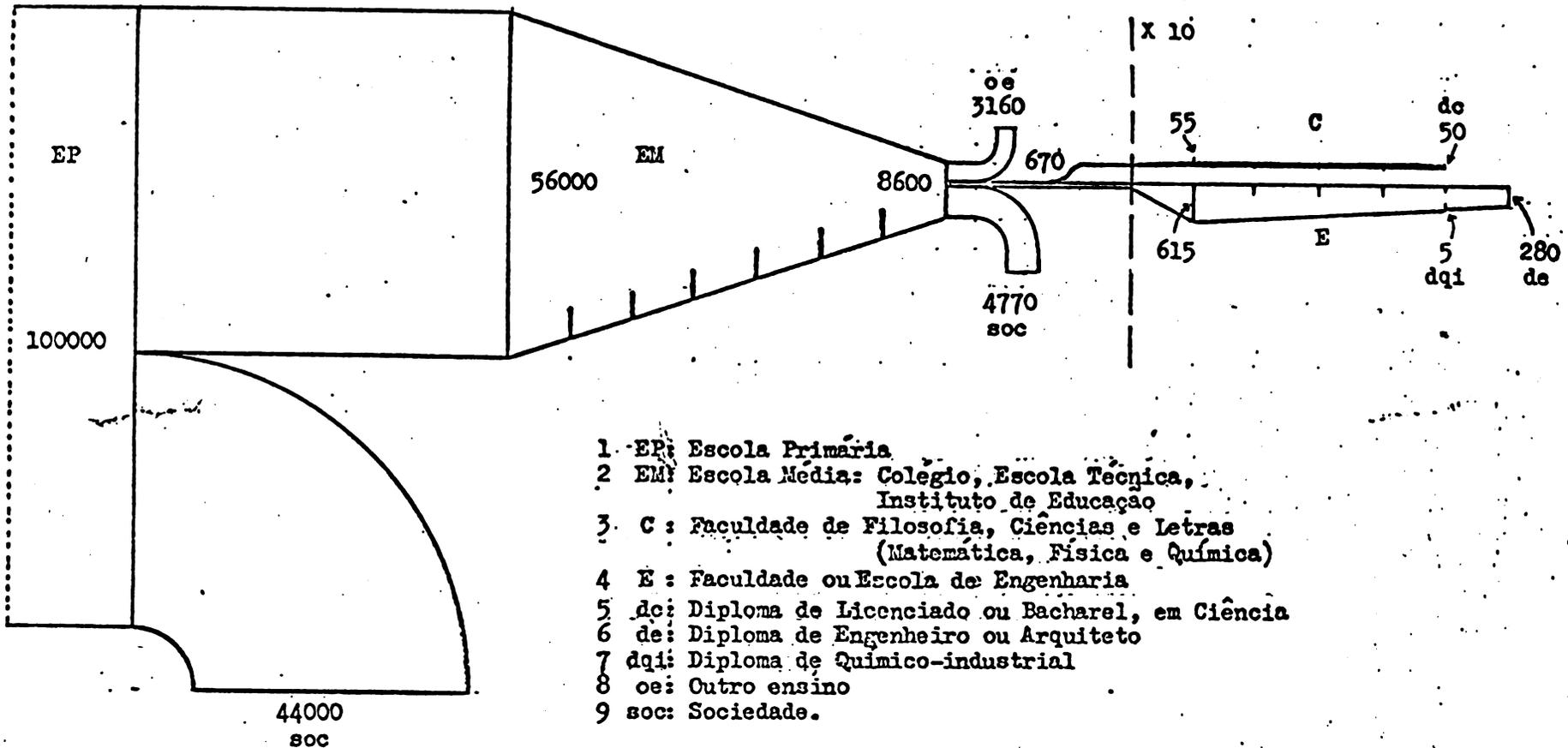


-4- exame final -o- exame de ingresso

EP : Escola Primária, de 4 anos
 Ciências: Curso Antigo; 3º ano forma Bachareis; 4º ano forma Licenciados (Professores secundários)
 Curso Recente; 4º ano forma Bachareis ou Licenciados; cursos distintos
 Engenharia: Curso Regular, de 5 anos, inclusive de Engenharia Química
 M : Mestre em Ciências; pós-graduação.

1/2/3

Diagrama dos Efetivos - Brasil - 1948



- 1 EP: Escola Primária
- 2 EM: Escola Média: Colegio, Escola Técnica, Instituto de Educação
- 3 C: Faculdade de Filosofia, Ciências e Letras (Matemática, Física e Química)
- 4 E: Faculdade ou Escola de Engenharia
- 5 de: Diploma de Licenciado ou Bacharel, em Ciência
- 6 de: Diploma de Engenheiro ou Arquiteto
- 7 dqi: Diploma de Químico-industrial
- 8 oe: Outro ensino
- 9 soc: Sociedade.

População Nacional: 75.271.000

Fator: 8,5.

**BRAZILIAN SCIENTIFIC AND TECHNOLOGICAL RESEARCH
AND PLANNING ORGANIZATIONS**

Prepared by the
Office of the Foreign Secretary
National Academy of Sciences
Washington, D. C.

February 1966

**BRAZILIAN SCIENTIFIC AND TECHNOLOGICAL RESEARCH
AND PLANNING ORGANIZATIONS**

Table of Contents

	<u>Page</u>
Introduction	1
Academia Brasileira de Ciências	2
Conselho Nacional de Pesquisas (CNPq)	3
 <u>Agriculture and Plant Sciences</u>	
CEPLAC	4
Jardim Botânico	5
Serviço Nacional de Pesquisas Agronomicas (SNPA)	5
Instituto de Oleos	7
Instituto de Química Agrícola	7
Instituto de Pesquisas e Experimentação Agropecuárias do Norte (IPEAN)	7
Instituto Agronômico do Sul (IAS)	8
Serviço Florestal da Secretaria da Agricultura do Estado de São Paulo	9
Centro de Pesquisas Florestais e Conservação da Natureza	10
Centro Pan-Americano de Febre Aftosa	10
IBEC Research Institute	11
Instituto Agronômico de Campinas	11
Instituto Agronômico de Minas Gerais	12
Instituto Biológico da Bahia	13
Instituto Biológico de São Paulo	14
Instituto de Botânica, São Paulo	14
Instituto Nacional de Pesquisas da Amazônia	15
Museu Paraense Emilio Goeldi	16
 <u>Marine Sciences and Oceanography</u>	
Instituto de Pesquisas da Marinha (IPqM)	17
Instituto Oceanográfico, Universidade do Recife	17
Instituto Oceanográfico, Universidade de São Paulo	18

Table of Contents (continued)

<u>Physical and Biological Sciences</u>	<u>Page</u>
Instituto Adolfo Lutz	19
Instituto Brasileiro de Pesquisas	20
Instituto Butantan	20
Instituto de Biofísica, Universidade do Brasil	21
Instituto de Ciências Naturais	21
Instituto Gonçalo Moniz	22
Instituto Nacional de Endemias Rurais	22
Instituto de Microbiologia, Universidade do Brasil	23
Instituto Oswaldo Cruz	23
Museu Nacional	24
Serviço Especial de Saúde Pública (SESP)	24
Instituto Evandro Chagas	25
Serviço Nacional de Cancer	25
<u>Mathematics</u>	
Instituto de Matemática, Universidade de São Paulo	26
Instituto de Matemática, Universidade do Rio Grande do Sul	26
Instituto de Matemática Pura E Aplicada	27
<u>Chemistry</u>	
Departamento de Química, Universidade de São Paulo	28
Instituto de Química, Universidade do Brasil	28
<u>Physics</u>	
Centro Brasileiro de Pesquisas Físicas (CBPF)	29
Departamento de Física, Universidade de São Paulo	29
Instituto de Energia Atômica	30
Instituto de Física, Universidade do Rio Grande do Sul	31
Instituto de Pesquisas Radioactivas, Universidade Minas Gerais	31

Table of Contents (continued)

<u>Industry</u>	
Laboratório da Produção Mineral	77
<u>Technology</u>	
Instituto de Electrotécnica, Universidade de São Paulo	77
Instituto de Pesquisas E Desenvolvimento da Aeronáuticas	77
Instituto de Pesquisas Tecnológicas de São Paulo (IPT)	77
Instituto Nacional de Tecnologia (INT)	77
Instituto Tecnológico, Estado do Rio Grande do Sul	77
Instituto de Tecnologia Industrial	77
<u>Economics and Planning</u>	
Fundação Getulio Vargas	77
Instituto Brasileiro de Administração	77
Instituto Brasileiro da Economia	77
Northeastern Economic Surveys Department (ETENE)	77
Comissão do Vale de São Francisco (CVSF)	77
Serviço do Vale do Paraíba (SVP)	77
Superintendência de Desenvolvimento Econômico do Nordeste (SUDENE)	77
Superintendência do Plano de Valorização do Fronteira Sudoeste (SPVF)	77
Superintendência do Plano de Valorização Econômica da Amazônia (SPVEA)	77
<u>Science Promotion Organizations</u>	
Fundação de Amparo A Pesquisa do Estado de São Paulo (FAPESP)	77
Fundação Para o Desenvolvimento da Ciência na Bahia	77
Sociedade Brasileira Para o Progreso da Ciência (SBPC)	77

Table of Contents (continued)

	<u>Page</u>
Comissão Supervisora do Plano dos Institutos (COSUPI)	45
Comissão do Aperfeiçoamento de Pessoal de Nível Superior (CAPES)	45
Instituto Brasileiro de Educação, Ciência y Cultura (IBCC) Seccao de São Paulo	46
Directions for Organizations	47
Alphabetical Listing of Institutions	48

INTRODUCTION

In this section we have attempted to describe the major organizations engaged in economic planning and the development of science, technology and education in Brazil. Because of the broad nature of this report, the listing is by no means complete. Undoubtedly some significant institutions have been excluded.

The organizations described here have been broadly grouped into sections according to various fields, e.g., Agriculture and Plant Sciences, Physics, Economics and Planning, and so on. These organizations with activities encompassing more than one field have been placed in the section corresponding to their major concern. Wherever possible, the data compiled for each organization includes structure, budget, officers, and a short description of the character and function of the organization.

A list of abbreviations used and an alphabetical index of the organizations described are included at the end of this section.

Reference numbers correspond to the numbered bibliography which follows the section on foreign aid.

The budget figures are in U.S. dollars, unless otherwise indicated, and are approximate. . (See last paragraph, Higher Education in Brazil -- first section of this report.)

ACADEMIA BRASILEIRA DE CIENCIAS
(Brazilian Academy of Sciences)
Caixa Postal 229, Rio de Janeiro, Guanabara

Officers: President, Carlos Chagas
Secretary-General; Walter Mors
Vice Presidents: Aristides Pacheco Leão
Paschoal Senise
Secretary: Paulo Erichsen de Oliveira
Treasurer: Hugo de Souza Lopes

Private institution
Founded: 1916
Budget:

Divisions: Mathematics
Physics
Chemistry
Geology
Biology

The Academy works for the development of science and its application. It supports, with all the means at its disposal, the scientific investigations of its members; publishes original studies in the Anais da Academia Brasileira de Ciências; and gives awards for outstanding work.

Senior members: 120. Junior members: 80.

CONSELHO NACIONAL DE PESQUISAS (CNPq)
 (National Research Council)
 Av. Marechal Camara, 350, Rio de Janeiro

Officers: President: Dr. Antonio Moreira Couceiro
 Vice President: Dr. Raimundo Augusto de Castro
 Moniz de Aragao

Independent statutory body directly responsible to the
 President of the Republic

Founded: 1951

Budget: \$3,350,000 (1965/66). In addition, some 600,000
 dollars have been made available for staffing and
 other administrative costs of the Council. Ford and
 Rockefeller Foundations give assistance, and an IDB
 loan of US\$4 million has been made for equipment.

Divisions: Technical-Scientific Division. Director: Manoel
 da Frota Moreira
 Brazilian Institute of Bibliography and Documentation
 Institute of Pure and Applied Mathematics (IIPM)
 National Institute of Amazonian Investigations (INPA)
 Institute of Highway Research (IPR)

The CNPq was created to stimulate and promote the development of
 scientific and technological research in all fields. Carries out work by
 awarding financial grants-in-aid, by fellowships and by the creation of
 research institutes in the areas needed. The Council advises on the
 formulation and execution of scientific policy. Public Law No. 4533 re-
 organized the Council and gave it much broader authority. It brought
 representatives of two more federal agencies into the Council (Ministry
 of Health and ENDE), making it consist of 27 persons. (The term of office
 is three years.) It authorized the Council to set up those committees and
 commissions for special purposes which it deems necessary without having to
 submit recommendations for Presidential action, as was the case in the past.
 It authorizes the Council to create new research institutes and scientific
 centers as needed. It provided the council with a global budget for all
 its activities.48

Breakdown of 1965-66 budget:

	<u>U.S. Dollars</u>
Agronomical research	218,750
Biological research	750,000
Physics research	687,500
Geological research	300,000

CONSEIHO NACIONAL DE PESQUISAS (CNPq) (continued)

Continuation of 1965-66 budget (continued):

	<u>U.S. Dollars</u>
Mathematics research	143,750
Chemical research	375,000
Technological research	406,250
Technical sector	86,250
Supplement to the Biennium Plan*	100,000
Specialized institutes	<u>1,083,125</u>
	4,169,375

Supplement to the "Five-Year Plan" which was prepared in 1961 and proposes support in the following areas: astronomy & astrophysics; pure & applied mathematics; physics; geophysics & geology, chemistry, microbiology, botany & zoology, particularly in the tropical areas.

AGRICULTURE AND PLANT SCIENCESCEPLAC

Bahia

Under Banco do Brasil

Budget: Funds derived from an export tax on cacao: 15% on beans and 5% on semi-processed materials (chocolate-liquor, cake and cocoa butter).

In 1962, a powerful, well-financed effort was initiated under CEPLAC, which is the Executive Commission for the Plano de Recuperacao Economico-Rural da Lavoura Cacoeira. This effort has in a short time made considerable progress in building a structure under which valuable, much-needed research, extension and credit work is being done. CEPLAC has responsibility and authority for all work with cacao in Brazil.

CEPLAC will work mainly on cacao problems, but has begun work on crop diversification and will make recommendations and give assistance in this direction also. Their intention is to become the agency for research and extension in all fields concerning the cacao grower including, eventually, home economics.

CEPLAC's central research station near Itabuna is known as CEPEC (Centro de Pesquisas do Cacau). Conditions there for field research and testing are excellent. At CEPEC are central offices, technical library, chemistry and pathology laboratories, soils laboratory, entomology laboratories, an engineering or bean processing laboratory, a large screened greenhouse and propagating facilities.

CEPLAC (continued)

A technical staff of some twenty professional people is working. Only one of them, Dr. P. T. Alvém, the Technical Coordinator, has a U.S. Ph.D. (in soil-plant physiology). He is an employee of IICA-Turrialba on assignment to CEPLAC-Itabuna. One other staff member, Dr. Maravalhaes, a chemist, has a doctorate from the south of Brazil. CEPLAC has 70 agronomists engaged either actively in extension and credit work or in training at Itabuna for extension and credit supervision work. They have 21 small offices now operating as centers for credit and extension work.⁹

JARDIM BOTANICO

Rua Jardim Botânico 1000, Rio de Janeiro

Director: Dr. Carlos Rizzini

Under the Forestry Service, Ministry of Agriculture

Founded: 1838

Budget:

The objectives of the Jardim Botânico are to study the different branches of botany and carry out investigations, and in particular to classify the indigenous plants and investigate their geographic distribution and ecology.³⁴ The research facilities include an herbarium of about 100,000 specimens and a large botanical library. Research is conducted in plant anatomy and systematic botany. It has an outstanding living collection of tropical plants of the New World.⁶ The Laboratory of Electron Microscopy, headed by Dr. Raul D. Machado, has the only functioning electron microscope in Brazil. It was installed in 1962 and is in excellent condition.

SERVICO NACIONAL DE PESQUISAS AGRICOLICAS (SINPA)

(National Agricultural Research Service)

Ministerio de Agricultura (Caixa Postal 1920), Rio de Janeiro

Director: Oswaldo Bastos de Menezes

Under the Departamento de Pesquisas e Experimentacao
Agropecuarias, Ministry of Agriculture

Founded: 1943

Budget: 1962 \$169,811 (SINPA expenses only)

SERVICO NACIONAL DE PESQUISAS AGRONOMICAS (SNPA) (continued)

Instituo de Pesquisas e Experimentacao Agropecuarias
 do Norte (IPEAN) Belem, Para
 do Nordeste (IPEANE) Recife, Pernambuco
 do Leste (IPEAL) Cruz das Almas, Bahia
 de Centro Sul (IPEACS) Campo Grande, RJ
 do Centro Oeste (IPEACO) Sete Lagoas, Minas Gerais
 do Sul (IPEAS) Pelotas, Rio Grande do Sul
 de Fermentacao (IF) Rio de Janeiro
 de Oleos (IO) Rio de Janeiro
 de Quimica Agricola (IQA) Rio de Janeiro
 Seccion de Estadistica Experimental (SEE)

	1962 US\$ Budgets	No. of Exp. Stations	No. of Exp. Sub-stations
IEEA	705,330	4	-
IF	774,300	4	7
IO	279,000	-	-
IQA	206,900	-	-
IPEAL	470,220	4	2
IPEANE	055,000	6	1
IPEACO	909,000	4	4
IPEAS	764,900	6	-
IPEAN	755,400	2	5
SNPA	169,200	-	-

SNPA is responsible for directing and coordinating the agricultural research of the country. Of the 1,205 crop research experiments in progress in 1961, 80% were concerned with the development of testing of crop varieties and with fertilizer experiments. The following are the more important: 1) research on phosphate fertilizers with a view to producing them in Brazil (SNPA, IAC, IAS, IAO, IANE, ENDE); 2) research on sugar fertilizers (SNPA, INEEA); 3) mineral fertilizer for corn in the State of Rio de Janeiro (IRFA); 4) testing best varieties of coffee in various regions of Brazil (SNPA, IEEA, IAO, IANG, IAC); 5) research on fertilizers for coffee (SNPA, IEEA, IAL, IAC, IRFA of Coias, IRFA do Parana, Secretariat of Agriculture, Bahia); 6) research on corn yields in relation to temperature and rainfall at various periods of growth (SNPA, IEEA, IAN, IANE, IAL, IAS, IANG, IAC); 7) Evaluate varieties of hard corns in distribution through the north and south of the country (SNPA, IEEA, IAN, IANE, IAL, IAO, IAS, IANG, IAC); 8) study most effective spacing and density of coffee plants (SNPA, IEEA, IAC, IAL, IAO, IRFA of Coias, IRFA of Parana, Secretariat of Agriculture, Bahia); and 9) study effect of mineral fertilizer for corn on soil fertility in Coias and Bahia (SNPA, IAO, ETAS 34 and 44 and IRFA of Coias).²⁰

INSTITUTO DE OLEOS
(Institute of Oils)
Av. Maracana, 252, Rio de Janeiro

Director: Dr. Grijalva Rodrigues Fernandes

Under the Ministry of Agriculture

Founded:

Budget: 1953 - \$249,690

Sections:

Head

Agronomical Research

Dr. Honorio da C. M. Netto

Analytic Research

Dr. Armando Millan

Industrial Research

Dr. Carlos C. de Alencastro

Documentation and

Dissemination

vacant

Instituto de Oleos has laboratories and scientific equipment to carry out its research.

INSTITUTO DE QUIMICA AGRICOLA
(Institute of Agricultural Chemistry)
Rua Jardim Botânico 1024, Rio de Janeiro

Director: Dr. Walter Mors (1961)

A department of the Ministry of Agriculture

Founded: 1910

The only center (as of 1961) doing extensive work in organic chemistry. Most of the Institute's work is concerned with the chemistry of alkaloids. The research team is active and competent although small in comparison to what is needed to cope with the problems in the chemistry of Brazilian natural products.¹⁰

INSTITUTO DE PESQUISAS E EXPERIMENTACAO
AGROPECUARIAS DO NORTE (IPEAN)
(Institute of Agropecuarian Research and Experimentation of the North)

Belem, Para

Director: Dr. Jose Maria Pinheiro Conduru

Under the Director of Research, Ministry of Agriculture

Founded: 1939 under the name Instituto Agronomico do Norte, name changed in 1962.

Budget: \$1,263,157 - half for the staff (1963).

(continued)

Divisions: Commission for Coordination of Technical Works
Biological Research Service
Engineering and Rural Technology Service
Statistics and Rural Economy Section
Documentation and Dissemination Section

Experiment

Stations: Porto Velho, (Rondonia); Pedreiras, (Maranhao);
Baixo Amazonas (Maicuru, Para); Alto Solimoes
(Tefe, Amazonas); Manaus (Amazonas); Mazagao
(Amapa); Servico de Multiplicacao de Sementes
de Juta (Alenquer, Pa.)

INPA legally has responsibility for federal agricultural research in the Amazon Valley--almost half of Brazil's total area. It has seven substations up the Amazon; some quite large. In each substation there is one man who is in daily contact with Belem. There are 30 technicians at the main station in Belem.

This Institute is noteworthy for its long-time basic research program in systematic botany of Amazonian plants, recently in cooperation with the New York Botanical Garden. Rubber, native oil and fiber producing plants are presently receiving special attention. A well-curated modern herbarium of 130,000 specimens is located at the Institute, which is an excellent base for botanical exploration in the lower Amazon.

INSTITUTO DE PESQUISAS E EXPERIMENTACAO
AGROPECUARIA DO SUL

(Institute of Agricultural Research and
Experimentation of the South)

Caixa Postal "E", Pelotas, Rio Grande do Sul

Director: Ing. Agr. Paulo Tholozan Dias da Costa

Under the Servicio Nacional de Investigaciones Agronomicas,
Ministry of Agriculture

Founded: 1943

Budget: \$1,352,302 (1962)

Divisions: Biological Research Service (Sections: Phytopathology;
Entomology and Parasitology; Horticulture; Phyto-
technics and Genetics; Agricultural Botany)
Engineering and Rural Technology (Sections: Soils;
Agricultural Climatology; Irrigation and Draining;
Rural Technology; Soil Conservation)
Auxiliary Technical Section
Documentation and Statistics Section
Experiment Stations (Pelotas, Passo Fundo, Rio Cacador,
Curitiba, Ponta Grossa)

(IAS Continued)

The Institute is charged with promoting research and conducting experimental work for agricultural development in the area under its jurisdiction. Principal research work is on: entomology - fruit, Solanaceae, cereal, corn plagues and insect diseases; phytopathology - fruit and vegetable diseases; corn, wheat, rice, etc. Forestry; forage crops, oil plants, winter fruit growing, etc.³⁴

Eleven full-time agricultural engineers are employed and 34, part time.

INSTITUTO FLORESTAL DA SECRETARIA DA AGRICULTURA DO ESTADO DE SAO PAULO
 Forestry Service of the Sec. of Agriculture of the State of Sao Paulo)
 Horto Florestal, Caixa Postal 1322, Sao Paulo

Director: Ing. Agr. Roberto de Mello Alvarenga

Under the Sao Paulo Secretariat of Agriculture
 Founded: 1895, became Forestry Service in 1911.
 Budget: \$2,381,191 (1962)

Divisions:	Forest Biology	State Forests (31)
	Forest Protection	State Parks (4)
	Introduction of Essences	Orchards (10)
	Parks, Gardens and Arbor- ization	Forest Reserves (4)
	Seed Production	Nurseries (2)
	Forestry Pathology Laboratory	
	Otavio Vecchi Forestry Museum	
	School of Charao	

This Forestry Service was created to study the Brazilian forest trees and the woods which they produce. Today it is responsible for all official forest policy, including investigation, production, development, etc. A species of economic value is studied as to ideal time to collect seeds, fruits, germination tests, ratio between seed and fruit by weight, methods of sowing, pretreatment of seed, storing and transplanting, fertilizing, etc. Research is planned on adaptability and susceptibility to disease of various species of the genus Pinus, fertilizer studies in view of the micro-nutrients in the soil, methods of preparing the soil, etc.³⁴

Five full-time agricultural engineers are employed.

CENTRO DE PESQUISAS FLORESTAIS E CONSERVACAO DA NATUREZA
 (Forest Research and Nature Conservation Center)
 Estrada da Vista Chinesa, 741, Alto da Boa Vista, Tijuca

Administered by the Forest Service, State of Guanabara

Recently developed to provide the city of Rio de Janeiro with research facilities in these fields, the Center conducts work through two new biological stations near Rio: one in the forested Tijuca Mountains and headquarters for all work; the other fronts the seacoast lagoon area of Marapendi. Both are located within the 11 square-mile area of the Marepagua Biological Reserve, which consists primarily of largely undisturbed montane forest. The Tijuca center has a small modern combined office and research facility with space for about six visiting scientists, food and lodging are contributed gratis if their work falls within the objects of the Center. Facilities include small herbarium, laboratory and library. Aims are to make a complete biotic survey of the Reserve and to receive from foreign scientists as desired in its preparation. 8

CENTRO PAN-AMERICANO DE FEBRE AFTOSA
 (Pan American Foot-and-Mouth Disease Center)
 Caixa Postal 589, Rio de Janeiro

Director: William H. Henderson

Under the Organization of American States

Founded: 1951

Budget: 1964 - \$1,152,000

The Pan American Foot-and-Mouth Disease Center is a project of the Program of Technical Cooperation of the Organization of American States and is administered by the Pan American Health Organization. The principal objective of the project is to assist in maintaining the freedom of those countries not affected with F-M-D and to assist those that are in achieving control and eradication. The program of the Center includes research, advice of virus diagnosis and identification, a training program, an advisory and consultative service, field studies and the collection and dissemination of information.

Twelve professionals and about 135 other persons are employed.

IBEC RESEARCH INSTITUTE

Non-profit organization founded by Nelson & David Rockefeller

Budget: \$400,000 (1963) - money from Rockefeller Brothers Fund, Ford and 90 local firms.

The research program employed 12 technically-trained persons in 1962. It has shown special interest in the use of fertilizers (including improvement of the campos cerrados soils), and animal nutrition.²⁸ The Institute has 40 professionals.

INSTITUTO AGRONOMICO DE CAMPINAS
(Agricultural Institute of Campinas)

Avda. Barão de Itapura 1481, Caixa Postal 28, Campinas, São Paulo

Director: Dr. José Elias de Paiva Neto

Under Secretary of Agriculture, State of São Paulo

Founded: 1887

Divisions: Agronomy (Sections: Cotton, Temperate Fruits, Tropical Fruits, Oil Plants, Coffee, Fiber Plants, Sugar Cane, Tobacco, Medicinal and Insecticide Plants, Tropical Plants, Cereals, Legumes, Roots and Tubers, Citrus Fruits, Viticulture)
Biology (Sections: Botany, Phytopathology, Cytology, Genetics, Entomology, Plant Introduction, Physiology, Virology)
Soils (Sections: Agrogeology, Agricultural Mechanics, Soil Conservation, Chemistry, Soil Fertility, Agricultural Technology, Irrigation, Fiber Technology)
Agricultural Mechanics and Technology
Other Sections: Experimental Technology, Agricultural Climatology; Office of Coordination of Technical Diffusion; Central Experiment Station of Campinas.
Experiment Stations: Capão Bonito, Monte Alegre, Santos, Ipanema, São Roque, Pindamonhangaba, Jaú, Pindorama, Tatuí, Jundáí, Piracicaba, Tieté, Limeira, R. Prudente, Ubatuba, Mococa, Ribeirão Preto, Vale do Ribeira.

The Instituto Agronomico de Campinas is said to be one of the best agricultural research centers in the country, and has worked effectively for improvement of agricultural practices in the state.²⁰ It has 19 experiment stations in the State of São Paulo and 130 research workers.⁴⁶

INSTITUTO AGRONOMICO DE MINAS GERAIS

Caixa Postal 515, Belo Horizonte, Minas Gerais

Director: José Santos Daniel

Under State Secretariat of Agriculture

Founded: 1947

Budget: 1963	\$ 273,685	- personnel
	126,315	- materials
	<u>\$ 400,000</u>	

Sections:

Horticulture	Eng. Agr. Washington A. Viglioni
Silviculture	Eng. Agr. Camilo de Assis Fonseca, Jr.
Coffee	Eng. Agr. José Santos Daniel
Entomology	Eng. Agr. Acácio Costa, Jr.
Phytopathology	
Textile Plants	Eng. Agr. José Alípio de Souza
Rice and Wheat	Eng. Agr. Jonas Guedes
Soil Conservation & Water	
Vegetable Chemistry	Quim. Felix Seiler
Agricultural Chemistry	Eng. Agr. Octavio P. de Carvalho
Botany	Tec. Agr. Alberico A. de Resende & Geraldo Mendes Magalhães
Statistics	
Horticultura	Tec. Agr. Dobrivoje Techarevic
Vegetables and Forage Crops	Engs. Agrs. Cicero Ferreira & Marcos Eustáquio de Andrade
Milho	
Ornamental Plants	

Experiment Stations:

Prudente de Moraes (604 ha) (Central Experiment Station)	Engs. Agrs. Bernardo Carvalho e Paulo Calheiros de Barros
Nova Baden - Zona Sul (323 ha)	Eng. Agr. Lupercio F. Barbosa
Carmo de Mata, Zona Oeste (85 ha)	Tec. Agr. Grancisco de M. Neto
Ouro Preto - Metallurgic Zone	Tec. Agr. Gabriel E. Barbosa
Patos de Minas, High Zone of Paranaíba (62 ha)	Tec. Agr. Luiz A. da Silva
Leopoldina, Mata Zone (341 ha)	Eng. Agr. João D. Portugal
Ponta Nova, Mata Zone (374 ha)	Eng. Agr. Marcio V. Martins

INSTITUTO AGRONOMICO DE MINAS GERAIS (continued)

Dedicated to study and research in the field of agriculture and related sciences: genetics, biology, agricultural and vegetable chemistry, botany, silviculture, fruit culture phytopathology, entomology and rural engineering. The main experiment station is at Presidente de Morais. The substations are divided into the fields of cultures, forages, natural and artificial forests, orchards, etc.

INSTITUTO BIOLOGICO DA BAHIA
(Biological Institute of Bahia)
Caixa Postal 553, Salvador, Bahia

Director: Dr. Fúlvio José Alice

Under Secretariat of Agriculture, Industry and Commerce
of the State of Bahia

Founded: 1947

Budget: \$ 343,414 (1961)

Divisions: Sanitary Protection and Animal Biology
Animal Sanitary Defense (Animal Sanitary Defense;
Epizoöty and Enozoöty; Preparation & Analysis
of Veterinary Products)
Animal Biology Service (Zoology & Parasitology;
Bacteriological Immunity & Virus; Pathology &
Physiology)
Sanitary Defense and Vegetable Biology
Vegetable Sanitary Defense Service (Vegetable
Sanitary Protection; Epiphytics; Chemical Phyto-
sanitation)
Vegetable Biology (Phytopathology, Botany and
Vegetable Physiology; Entomology and Agricultural
Zoology; Mycology; Bacteriology and Virus)

The Institute carries out research on animal pathology, vegetable pathology, and animal and vegetable sanitary protection.

Thirteen scientists are employed in the main Institute and 19 in the interior of the State of Bahia.³⁴

INSTITUTO BIOLOGICO DE SÃO PAULO
(Biological Institute of São Paulo)

Director: Dr. Rocha Lima

Operated as an independent unit administratively, responsible directly to the Rector of the University of São Paulo.

Divisions:	Plant Biology	Plant Protection
	Animal Biology	Animal Protection
	Science	Experimental Agriculture

This is a well-established institution with a record of achievements in research on animal and plant diseases, the purpose for which it was originally designed some 25 or more years ago. It is housed in a main 6-7 story building, surrounded by a variety of smaller, more temporary structures and facilities, animal quarters, greenhouses, field plots, including a small coffee plantation within the city of São Paulo. Additional facilities for field work are located at Campinas.

The Institute is perhaps best known for its pharmacological research, formerly under the direction of M. Rocha e Silva, and the production of vaccines. It is still an important center of biological research, especially in plant and animal pathology. It apparently has been a significant instrument in the development of plant and animal husbandry throughout the state and country, and it maintains quarantine services.²⁰

There are about 70 scientists on the staff.

INSTITUTO DE BOTANICA

Caixa Postal 4005, São Paulo, São Paulo

Administered by the Agriculture Department of the State of São Paulo

Founded: 1938

Budget: \$ 695,924 (1962)

Divisions:	Phytology	Botanical Garden of São Paulo
	Cryptogams	Plant Introduction
	Flowers	State Orchids
	Morphology and Anatomy	Biology and Research Station
	Geobotany	Botanical Museum

INSTITUTO DE BOTANICA (continued)

The principal functions of the Institute are to survey the vegetable resources of the country, & to study the morphology, anatomy, ecology, geography of the flora with a view to their economic value, and also other aspects such as toxic plants.

The Institute is interested in becoming the main center for research and advanced research training in tropical botany in South America, and welcomes foreign scientists or students to utilize its facilities. It has a vigorous young U.S.-trained staff and an active building program, and offers a good herbarium especially rich in both cryptogams and phanerogams; a large associated library; a fine botanical garden with an excellent orchid collection; a small phytotron for controlled physiological studies; a mobile laboratory for field research in physiology and ecology; and a substantial acreage of natural forest adjacent to the Institute buildings.

Sixteen full-time and fifteen part-time scientists are employed.

INSTITUTO NACIONAL DE PESQUISAS DA AMAZONIA

(National Research Institute of Amazonia)

Rua Guilherme Moreira, 116, Caixa Postal 478, Manaus

Director: Dr. Djalma da Cunha Batista

Division of the Conselho Nacional de Pesquisas

Founded: 1952, placed under the CNPq in 1954

Budget: INPA: \$172,058 and Museu Goeldi: \$89,215 (1960)

Divisions: Natural Resources Research (Sections: Limnology, Inorganic Chemistry, Organic Chemistry, Spectrochemistry, Cellulose, Geology)

Biological Research (Sections: Medical-Clinical, Biochemistry and Nutrition, Medical Zoology, Hematology, Bacteriology and Mycology, Pathological Anatomy)

Center of Forestry Research (Sections: General Botany, Phytopathology, Wood Anatomy, Silviculture)

Museu Paraense Emilio Goeldi (Belém)

The Institute is in two coordinated parts: the Institute proper in Manaus and the Museu Goeldi in Belém. All of the research deals with the Amazon basin, with the objective of developing the area and improving the economy, health and culture of the inhabitants.

INSTITUTO NACIONAL DE PESQUISAS DA AMAZONIA (continued)

Research is under way in the chemistry of plant extractives, especially on an unstable material poisonous to rodents which is found in the large tubers of a native potato. Dr. Cerqueira, the entomologist, has a very active program on identification and biology of biting flies, especially the Culicidae and the Simuliidae. Dr. Mario A. P. de Moraes, of biological research, is studying indigenous parasitic diseases, especially several mycoses. Dr. Rodriguez has an active program in several botanical fields and is interested in the qualities of the Amazon woods. The herbarium is adequate, but appears to be used as a working, reference collection rather than as a research collection. In 1963 there were about 30 employees (only three full-time). (Report - H. Mills, NSF Rio 5/63)

MUSEU PARAENSE EMILIO GOELDI

Caixa Postal 399, Av. Independencia 364, Belém, Pará

Director: Dr. Darcy de Oliveira Albuquerque

Under the Instituto Nacional de Pesquisas da Amazonia

Founded: 1867

Budget: \$ 75,235 (1962)

Divisions:	Anthropology	Botany
	Geology	Botanical Garden
	Zoology	Zoological Park

The Museum signed a 20-year agreement in 1954 which placed it under the administrative and technical responsibility of the Instituto Nacional de Pesquisas da Amazonia (which is under the CNPq). The Museum combines a research atmosphere, museum collections and a zoological garden which permits work with living animals. Work goes on currently in the fields of anthropology, botany, entomology, ichthyology and limnology, and systematic collections are maintained in very fine condition in these fields.⁸ There is an excellent fish laboratory; geology is being reorganized with its first full-time geologist in many years; a primate laboratory is under construction; a good photographic laboratory is being mounted.¹⁵ Library facilities are unusually good. (H. Mills)

The Director is dynamic and appears to thrive on his present job of reorganizing the museum. It is a fine center with possibilities for collaborative research in tropical medicine and biology. There are 15 full-time scientists and many assistants.

MARINE SCIENCES AND OCEANOGRAPHY

INSTITUTO DE PESQUISAS DA MARINA (IPQM)
 Institute of Marine Investigations)
 1er. Distrito Naval, Rio de Janeiro

Director: Captain of the Sea and War, Naval Engineer
 José Claudio Beltrão Frederico

Under the Ministry of the Navy
 Founded: 1959
 Budget: \$ 548,589 (1962)

Departments: Electronics
 General Sciences
 Methodology

The objectives of the Institute are to promote, carry out and intensify scientific and technological investigation of interest to the Navy and to promote the development of researchers and technicians.

The initial program is the installation and activation of two laboratories: a Laboratory of the Chemistry of the Sea and a Laboratory of Marine Biology. The chemistry laboratory will a) examine the methods of analysis of the chemical and organic constituents of the sea; b) study chemical putrefaction of the water of the sea; c) study radiochemistry of sea water, radioactive pollution, applicable radiochemical methods of studying the movement of the water and biological assimilation. The biology laboratory will a) investigate the biological indicators of masses of water; b) study action of organisms on maritime structures; c) study the physiology and biological cycle of important organisms.³⁴

INSTITUTO OCEANOGRÁFICO. UNIVERSIDADE DO RECIFE
 (Oceanographic Institute, University of Recife)
 Praia da Piedade, Caixa Postal 1076, Recife, Pernambuco

Director: Dr. Ramon Nóbrega

Under the University of Recife
 Founded: 1958, under the name Institute of Marine Biology;
 name changed in 1962.
 Budget: \$ 31,578 excluding salaries which are paid by the
 Government. \$ 14,736 is for scientific materials. (63)

The stated objectives of the Institute are to carry out oceanographic research and to give postgraduate courses in oceanography. The areas of research represented are: chemistry, geology, physical and biological oceanography,

INSTITUTO OCEANOGRÁFICO, UNIVERSIDAD DO RECIFE (continued)

algae, diatoms, crustacea, molluscs, ecology, marine fungi, plancton. The zoology group is making a qualitative ecological survey of the littorally surrounding area. They work from small boats by diving. The studies concerned with identifying organisms of the region are being carried out.

The Institute is housed in a modern two-story building of about a dozen laboratories, all in good order. The library is very small. No biologist of the Institute teaches, nor do students have instruction at the laboratory. There is a scientific staff of 12, all holding the doctorate.

INSTITUTO OCEANOGRÁFICO, UNIVERSIDADE DE SÃO PAULO

Oceanographic Institute, University of São Paulo
Av. Eduardo Prado, 698, Caixa Postal 9074, São Paulo, S.P.

Director: Dr. Ingvar Emilsson

Affiliate of the University of São Paulo

Founded: 1946, incorporated into the University in 1951,
reorganized in 1960.

Budget: \$ 373,040 (1962). Support comes from the
University and the Brazilian Navy.

Divisions: Physical Oceanography (Sections: Physics, Chemistry,
Sedimentology, Marine Meteorology)
Biological Oceanography. Head: Dra. Marta Vannucci.
(Sections: Plancton, Necton, Bentos, Fish Biology)
Bases and Instruments (Radio Communication, Fleets,
Transportation)
Stations: São Paulo, Cananeia, Ubatuba and Santos

The Oceanographic Institute at São Paulo has the key role in fundamental oceanographic studies in Brazil. Its work is primarily concerned with marine biology, with almost exclusive emphasis upon description, identification, and classification. Physical and chemical oceanography seems limited to collection and analysis of sea water, samples collected by Wansen bottles, together with temperature data from reversing thermometers. In meteorology, the principle effort is presently directed toward sea productivity measurements, relative to solar radiation. Surface meteorological data is also collected mainly at the shore stations.

The Santos laboratory is a joint operation with the State Department of Animal Production and is concerned with landing statistics and linear weight measurements on samples of commercial catches of fish. The Cananeia laboratory is carrying out studies on the systematics of sharks

INSTITUTO OCEANOGRAFICO, UNIVERSIDADE DE SAO PAULO (continued)

which are used commercially as food and on fish migration. Meteorological and sediment measurements are being made simultaneously with biological studies in the small laboratory at Ubatuba. The group at São Paulo is largest and is concerned with basic studies of the tropical ocean between Brazil and Africa. The Brazilian program is under the direction of its Navy, but the Oceanographic Institute is deeply involved in the organization and execution of the studies. There are 150 persons working in São Paulo, Santos and Cannaneia, and one in Ubatuba.²⁰

Plans for the construction of new laboratories at University City are being developed. This will ultimately bring the Institute into close proximity with the basic science departments as well as with engineering and provide adequate research facilities.⁴⁵

MEDICAL AND BIOLOGICAL SCIENCESINSTITUTO ADOLFO LUTZ

São Paulo

Under the Secretary of Public Health and Welfare of the State of São Paulo.

Divisions: Technical and Auxiliary Service (Culture media, clinical analysis, animal production, photography, statistics, etc)
 Pathology Service
 Food Analysis and Chemistry
 Microbiology and Laboratory Diagnosis. Head: Dr. L. de S. Gomez
 (Sections: Bacteriology, Parasitology, Mycology,
 Virology - Head Dr. Luis do Valle, Serology)

This Institute serves as the laboratory branch of the São Paulo Secretariat of Public Health and Welfare and is internationally known for the caliber of its research.⁴⁹ The Microbiology Section is doing work on influenza, isolation of adenoviruses, arthropod-borne viruses in São Paulo.

INSTITUTO BRASILEIRO DE PESQUISAS
(Allian Research Institute)
Salvador, Bahia

Director: Dr. Jose Silveira

Private institution

Budget: Entirely from private sources

This Institute's chief interest is in basic and clinical research in tuberculosis control and other infectious diseases. It is extremely well-equipped and maintains good international relationships mostly with European countries. This Institute is somewhat isolated from the scientific community, both in Bahia and Brazil in general, but offers excellent opportunities for studies in infectious diseases.¹⁵

INSTITUTO BUTANTAN

Avenida Dr. Vital Brasil s/n (fim), Caixa Postal 65, Bairro Butantan, Sao Paulo

Director: Dr. Aristides Vallejo-Freire

Under the Secretary of Public Health and Welfare, State of Sao Paulo

Founded: 1901

Budget: \$911,578, plus funds from the CNPq and other sources. (1963)

	Heads
Divisions: Bacteriology	Dr. Jandyra Planet do Amaral
Virology	Dr. Aristides Vallejo-Freire
Physiopathology	Dr. Gastao Rosenfeld
Genetics Laboratory	Dr. Willy Becak
Arthropods	Dr. Wolfgang Buecherl

This Institute, known throughout the world for its research several years ago on the physiology, pharmacy and biochemistry of snake venoms as well as for other studies on pharmacology of other natural products, has suffered considerably during the past years due to political unrest, change of administration, etc.¹⁵

The Institute also does work on the finer parts of the nervous system and a good deal of general physiology and biochemistry.⁸ It gives courses for doctors and technicians in the techniques of serum preparation handling and application, and these courses are open to specialists from all countries of the world.¹⁶ 47 scientists are employed, 23 full-time. There are some very able scientists on the staff.¹⁵

INSTITUTO DE BIOFISICO, UNIVERSIDADE DO BRASIL
 (Biophysics Institute, University of Brazil)
 Av. Pasteur, 458, Rio de Janeiro

Director: Dr. Carlos Chagas

Under the administrative control of the Rector, but otherwise operates as an independent unit.

The Institute continues to be one of the world's outstanding centers for many research activities. Its programs are usually original and varied. Its activities are coordinated with other leading research institutes and it sponsors a substantial amount of interchange of scientific personnel. Its research activities encompass a broad but coordinated program in "functional aspects" of biology, but pertinent areas such as histology, protein biochemistry and enzyme action are covered as well. It is best known for its contributions in cell physiology (electrophysiology and related subjects).²¹

Dr. Chagas has insisted upon the procurement of modern equipment and of personnel of international reputation. Every member of the staff speaks English fluently. In addition to the Institute's research activities, it acts as a training center for many Medical School courses, having one of the best equipped laboratories in Brazil for the study of biophysics. Of a total staff of 78 persons, 52 are physicians and scientists.¹⁶

INSTITUTO DE CIENCIAS NATURAIS
 (Institute of Natural Sciences)

Caixa Postal 531, Porto Alegre, Rio Grande do Sul

Director: Dr. Alarich R. Schultz

Under the University of Rio Grande do Sul

Founded: 1954

Budget: \$ 46,000 (63)

Sections:	Biology	Botany
	Genetics	Geology and Paleontology
	Zoology	Center of Oceanographic Investigations

The Institute offers to the faculties of the University complementary education in natural sciences and carries out basic and applied research in the natural sciences.³⁴

14 scientists are employed, 10 full-time.

INSTITUTO GONCALO MONIZ
Salvador, Bahia

Director: Dr. Aluizio Prata (Professor of Tropical & Infectious Diseases at the University of Bahia)

State Organization

Budget: About \$40,000 per year from state tax revenues.

The Institute was founded for the production of vaccines and biological preparations. It also carries out many specialized laboratory tests. It is about the only institution working on medical mycology. The laboratories appear to be active and the chiefs quite well trained.¹⁵ The Institute supports scientists with grants and fellowships.

Dr. Prata has 16 professionals working under him, representing the fields of parasitology, protozoology, virology, immunology, hematology, bacteriology, mycology, biochemistry, electrophoresis, tissue culture, serology, vaccine production, and urine analysis. Of this group, 11 are engaged in research. The buildings housing the research activities, "As Brotas" are excellently built and can be easily and cheaply renovated and made into fine laboratories and animal quarters. Dr. Prata hopes this can become a center for studies of tropical diseases at which national and foreign investigators can work.¹⁵

INSTITUTO NACIONAL DE ENDEMIAS RURAIS (INER)

(National Institute of Rural Endemics)

Belo Horizonte, Minas Gerais

Technical Director: Dr. José Rodrigues da Silva
(Professor of Tropical Medicine in Rio)

Under the federal Ministry of Health

The laboratories in Belo Horizonte have a very excellent physical setup and are probably the best of this national service. Probably the best laboratory work in parasitic diseases in Brazil is taking place in these labs, particularly in the service of Dr. V. Lobato Parzense, who is the Chief of the Division of Malacology of INER. It has a well-equipped laboratory for activity of extracts and chemical substances against malaria, Chagas diseases, and schistosomiasis.

In 1963, the Institute set up the Schistosomiasis Snail Identification Center for the Americas through an agreement between the Brazilian Health Minister and the Director of PAHO. It is the hemisphere's first international center set up to collect and classify information on medically important snails.

INSTITUTO DE MICROBIOLOGIA, UNIVERSIDADE DO BRASIL
 (Institute of Microbiology, University of Brazil)
 Av. Pasteur, 250, Rio de Janeiro

Director: Dr. Paulo de Goes

Under the Faculty of Medicine, University of Brazil

Founded: 1955

Budget: \$51,619, plus Rockefeller Funds (1960-62)

Divisions: General Microbiology Dr. Amadeu Cury
 Virology Dr. Manuel Bruno Lobo
 Immunology Dr. Moysés A. Fuks
 Medical Microbiology

This Institute is carrying out an active research program in its excellently-equipped laboratories, and maintains an active training center for Brazilian and other Latin American microbiologists. Research is being done on virology and microbiology, mycology, virus epidemics, heterologous antibodies, etc. ^{15,25}

INSTITUTO OSWALDO CRUZ

Avenida Brasil, Manguinhos, Rio de Janeiro

Director: Dr. Francisco de Paula da Rocha Lagoa

Supported by the federal Ministries of Health and Education

Divisions: Medical Zoology Dr. Herman Lent (entomologist)
 Microbiology
 Virology
 Chemistry Dr. Gilberto Villela
 Endocrinology Dr. Fernando Ubatuba
 Physiology Dr. Moussatache
 Pathology Dr. Walter Oswaldo-Cruz

The Institute has two main functions: preparation of biological products such as sera and vaccines and biomedical research. The former is done under the auspices and authority of the Ministry of Health, and the latter under the Ministry of Education. Research is neglected at present due to the emphasis on public health (vaccine production). However there are well-equipped laboratories and an excellent library for chemistry and biology.

The most active group is the section of pathology. Dr. Oswaldo-Cruz has a large staff of full-time medical researchers, gives very good postgraduate training to them, and maintains relations with laboratories throughout the world. The work in this laboratory is almost entirely concerned with the mechanism of hemostasis. ¹⁵

MUSEU NACIONAL
 (National Museum)
 Quinta da Boa Vista, Rio de Janeiro

Director: Dr. Newton Dias dos Santos

Founded: 1818

Divisions:	Geology	Mineralogy
	Botany	Zoology
	Anthropology	Ethnography
	Education	

Brazil's largest display and research museum, the Museum has large research collections in most fields of natural sciences including botany, zoology, herpetology, ichthyology, mammalogy, ornithology, paleontology, etc. The herbarium of over 300,000 specimens is the largest in Brazil. Visiting scientists are welcome and research space is available.⁸

The divisions of anthropology and ethnography are actively working not only with the current diversified population, but also with indigenous tribes. The divisions of zoology and botany have, for many years, had active collaboration with U.S. institutions and hope that this can be extended since previous expeditions from the U.S. to Brazil have not been complete in covering all scientific disciplines. The staff of the Museum would also welcome joint programs of investigations in the fields of zoology and medical science with institutions in the U.S.³⁹

SERVICO ESPECIAL DE SAUDE PUBLICA (SESP)
 (Special Public Health Service)

Director:

A semi-autonomous organization, formerly under the Minister of Health, State of Para.

Budget: Funds secured directly from Congress.

SESP takes care of the health and sanitation needs in a large part of Brazil outside of the cities. It is especially active in the North and Northeast of Brazil. Originally developed as a cooperative program with the U.S. (Office of Inter-American Affairs) during World War II, it has gradually decreased the number of U.S. personnel involved until at present it is completely manned by Brazilians.

It administers the Instituto "Evandro Chagas" which originally had responsibility for all of the laboratory work involved in bacterial and parasitic diseases of the northern part of Brazil.¹⁵

INSTITUTO EVANDRO CHAGAS

Avenida Almirante Barros 230, Caixa Postal 621, Belém, Pará

Acting Director: Dr. Miguel Azevedo

Under the Special Public Health Service, State of Pará

Founded: 1936

Budget: \$97,000

Sections: Public Health
Investigations

The Institute was created to investigate rural medical problems in the Amazon region. It is charged with planning and executing examinations, investigations, advising, and patronizing technical and other scientific work. Functioning as part of the Institute are the Malaria Laboratory (founded: 1945), the Belem Virus Laboratory (1955) and the Tissue Culture Laboratory (1961). The Malaria and Virus Laboratories were developed by Dr. Otis Causy, a Rockefeller scientist. There are six professionals and laboratory technicians on the staff of the Virus Laboratory, which is headed by Dr. J. P. Woodall. The Tissue Culture Laboratories, headed by Dr. Francisco Paulo Pinheiro and his wife Dra. Maria Siqueira Pinheiro, are outstanding. Principal research being carried out in the laboratories: studies on arborvirus in the Amazon region, intestinal parasites, ectoparasites, and tentative isolation of Pasteurella. The Institute employs 15 scientists full-time.

The Institute will serve as staff of the Medical School of the University of Pará and the students will have the advantage of close association with the routine and research activities of the Institute. 15

Together with IPEAN, the Institute is planning an ecological research area, comprising 66 acres on the property of IPEAN, in the tropical rain forest in the outskirts of Belém.

SERVICIO NACIONAL DE CANCER

(National Cancer Service)

Avenida Rio Branco, 124, 17º andar, Rio de Janeiro

Director: Prof. Antonio Prudente

Under the federal Ministry of Health

Founded: 1954

Budget: \$2,155,800: \$1,171,160 to private entities to fight cancer,
\$984,640 for its own expenses (1962)

Divisions: General Administration
National Institute of Cancer Dr. Sergio de Azevedo, Chief
Organization and Control

The National Cancer Service is responsible for organizing the fight against cancer, orienting, coordinating and funding public and private institutions, and offering technical and material assistance. Research is

INSTITUTO NACIONAL DE CANCER (continued)

Work is done in biochemistry, enzymes, synthesis of chemical therapeutics, radioactive isotopes, and is being planned in investigation of cancer cells in circulation and identification of the malignant cells by means of isotopes. Research scientists and resident fellows are full-time.

MATHEMATICS

INSTITUTO DE MATEMATICA, UNIVERSIDADE DE SAO PAULO
(Institute of Mathematics, University of São Paulo)
Rua Maria Antonia, 294, Caixa Postal 8105, São Paulo

Director: Dr. Benedito Castrucci

Under the Faculty of Philosophy, Sciences & Letters, U. of São Paulo

Founded:

Budget:

	Head
Chairs: Infinitesimal Calculus	Prof. Elza Gomide
Analytic, Projective and Descriptive Geometry	Prof. Benedito Castrucci
Differential Equations	Prof. Chaim Honig
Higher Geometry	Prof. Candido da Silva Dias
Superior Analysis	Prof. Edison Farah
Examination of Principles	Prof. Fernando de Almeida

There are 14 assistants and instructors. Research is carried out in 14 divisions in the various fields of mathematics.²⁵

INSTITUTO DE MATEMATICA, UNIVERSIDADE DO RIO GRANDE DO SUL
(Institute of Mathematics, University of Rio Grande do Sul)
Rua Venancio Aires, 127, Porto Alegre

Director: Prof. Manoel Silva Neto

Under the University of Rio Grande do Sul

Founded:

Budget: \$ 46,526 (1963)

Divisions: Pure Mathematics
Applied Mathematics
Education and Dissemination

INSTITUTO DE MATEMATICA, U. DO RIO GRANDE DO SUL (continued)

The activities of the Institute are: a) collaboration in the teaching in the Faculty of Philosophy and the School of Engineering of the University; b) extension and advanced courses and seminars for faculty and students; c) formation of specialized personnel for education and research in courses of advanced study in institutes and universities at home and abroad. Seven scientists and engineers are employed.²⁵

INSTITUTO DE MATEMATICA PURA E APLICADA
(Institute of Pure and Applied Mathematics)
Rua São Clemente, 265, Rio de Janeiro

Director: Dr. Lelio I. Gama

Under the Conselho Nacional de Pesquisas

Founded: 1952

Budget: \$50,156 (1962)

Divisions: Pure Mathematics
Applied Mathematics
Teaching and Exchange

The Institute is recognized as being of excellence by all the South American countries, and students from most of them study here. Its current areas of research are in the fields of algebraic topology, differential geometry, calculus of variations, functional analysis, partial differential equations, and linear programming.

A number of the staff have studied in the United States and Europe. There are four chiefs of research and six research assistants.

PHYSICS

INSTITUTO BRASILEIRO DE PESQUISAS FISICAS (CBPF)
 (Brazilian Center for Physical Research)
 Av. Wenceslau Braz, 71 -- ZC-82, Rio de Janeiro

President: Prof. Darcy Ribeiro
 Scientific Director: H. G. Carvalho

Private, non-profit organization
 Founded: 1949

Budget: Most of its funds come from the Federal Government, partly
 direct appropriations and partly grants from CNPq.
 62/63 subvention: \$316,614, plus loans.

Divisions: Molecular & Solid State Physics	Jacque Danon
Nuclear Emulsions Laboratory	
Cockroft-Walton Generator Lab	
Solid State Physics Laboratory	
Nuclear Physics	G. Schwachem
Theoretical Physics	Jayne Tiomno
Radioactivity	Hervasio de Carvalho
Teaching Department	Horacio C. M. Macedo

The CBPF is the principal center in Brazil for research in physics. On the experimental side, they are determining scattering properties of high energy particles, recording cosmic rays, and observing solar radio noise. Much of their interest has been in high energy particles and cosmic rays. The Center has the largest group of theoretical physicists in Latin America. The Teaching Department organizes courses and teaches general and experimental physics with the help of the scientific personnel. The Center has conducted graduate and postgraduate courses for the University of Brazil since 1950.

The scientific personnel of the Center consists of more than ten professors with Ph.D. degrees from renowned institutions such as Princeton, M.I.T., Birmingham (England), Columbia and Berkeley.⁴⁷ The professors are full-time employees, and teaching and research are coordinated functions. The faculty is highly productive.³⁹

DEPARTAMENTO DE FISICA, UNIVERSIDADE DE SAO PAULO
 (Department of Physics, University of São Paulo)
 Rua Maria Antonia, 294, Caixa Postal 8105, São Paulo

Director: Dr. Mario Schenberg

Under the Faculty of Philosophy, Sciences & Letters, U. of São Paulo

Founded:

Budget: \$457,052 (1963) from the University, the Ministry
 of Education and Culture, COSUPI, ONEN, CNPq and FAPESP.

DEPARTAMENTO DE FISICA, UNIVERSIDADE DE SAO PAULO (continued)

Research Sections:

Betatron Laboratory	Prof. José Goldemberg
Electrostatic Accelerator Lab	Prof. Oscar Sala
Nuclear Emulsions Laboratory	Prof. Cesar Lattes
Solid State & Low Temps Lab	Prof. Mario Schenberg
Molecular Spectroscopy Lab	Prof. Hans Stammreich
Electronics Laboratory	Prof. Luiz de Queiroz Orsini
Theoretic Physics	Profs. Newton Bernardes and Mario Schenberg

The Department is directed by a Council of Professors which annually elects the Director. There were 400 students enrolled in 1963, 30 post-graduate. 60 scientists are employed for research and teaching and 20 technicians assist in the research work. There are usually eight to ten foreign scientists working in the Department.²⁵

INSTITUTO DE ENERGIA ATOMICA

(Institute of Atomic Energy)

Cidade Universitaria de São Paulo, Caixa Postal 11049, São Paulo

Director: Prof. Luiz Cintra do Prado

Under the National Commission of Nuclear Energy and the University of São Paulo. Until 1962, it was dependent upon the CNPq.

Founded: 1956

Budget: \$1,263,157 (1963)

Divisions:	Nuclear Physics	Nuclear Engineering
	Reactor Physics	Nuclear Metallurgy
	Radiochemistry	Chemical Engineering
	Radiobiology	

This is the Nuclear Institute of the Brazilian Atomic Energy Commission and is the principal center for nuclear research in Brazil. It possesses a five Megawatt swimming pool reactor and a Cockroft-Walton generator.³⁹ The functions of the Institute are: a) carry out research on the peaceful uses of nuclear energy; b) produce radioisotopes and tagged substances; c) contribute to the development of trained technicians and scientists specialized in nuclear energy; and d) establish bases, constructive data, and prototypes of reactors destined for industrial utilization of nuclear energy.³⁴

The Institute employs 52 scientists, 47 full-time.

INSTITUTO DE FISICA, UNIVERSIDADE DO RIO GRANDE DO SUL
(Institute of Physics, University of Rio Grande do Sul)
Rua Luiz Englert, Porto Alegre

Director: Prof. David Mesquita da Cunha

Under the Rectorate of the University of Rio Grande do Sul
Founded: 1959
Budget: \$84,210 (1963)

Divisions: Theoretical Physics - 11 scientists
Experimental Physics - 9 scientists
Radiochemistry - 2 scientists
Electronics - 7 scientists
Education - 6 scientists

The objective of the Institute is to promote education, study and research in the field of physics. It is directed by a Director, the Administrative Council, and the Scientific-Technical Council. The Deliberative Council is made up of representatives of the Faculties of Philosophy, Architecture, and Medicine, Schools of Engineering, Agronomy and Veterinary Medicine, and Geology, and the Institute of Mathematics. The Scientific-Technical Council is made up of the Director and Division Chiefs. The Institute conducts courses and seminars and grants scholarships as well as an active research program.²⁵

INSTITUTO DE PESQUISAS RADIOATIVAS, UNIVERSIDADE MINAS GERAIS
(Institute of Radioactive Research, University of Minas Gerais)
Rua Espírito Santo, 35, Belo Horizonte, Minas Gerais

Director: Prof. Cássio Mendonça Pinto
Vice Director: Prof. Milton Campos

Divisions:	Electronics	Prof. Haroldo Rocha Vianna
	Nuclear Physics & Radioactivity	Prof. Omar Campos Ferreira
	Geology	Eng. Luis de Oliveira Castro
	Radioactive Research	Prof. Harry Gomes
	Analytic Chemistry	Prof. Milton Campos

The Institutes activities are: a) research on locating minerals of interest for nuclear energy; b) scientific and technological research on these minerals and production of materials of nuclear usefulness; c) study of effects of radiation on solids; d) production of radioisotopes for medicine and research; e) technical and scientific studies in the field of physics, chemistry and metallurgy of importance to nuclear energy; f) formation of nuclear energy technicians. 49 engineers and researchers and 16 medium-level technicians are employed.²⁵

GEOLOGY

LABORATORIO DA PRODUCAO MINERAL
 (Laboratory of Mineral Production)
 Av. Pasteur 404, Rio de Janeiro

Director: Dr. Oswaldo Erichsen de Oliveira

Under the Ministry of Mines and Energy; forms part of the National
 Department of Mineral Production.

Founded: 1933

Budget: About \$300,000 for technical-scientific personnel yearly.

Divisions:	Analytic (primarily minerals)	Jorge da Cunha
	Hydrochemistry	Nicolau Braille
	Extraction & Improvement of Minerals	Mario R. Antonelli
	Physics-Chemistry	Luiz Miranda
	Crenologia	Mauro Vilanova Machado
	Sections for analysis of silicates, combustibles and precious metals.	

The Laboratory was created to expand the studies of chemistry and mineral technology of the country. The Laboratory carries out minerals analysis, analyzes and classifies minerals found in the sea, studies methods for extracting and improving minerals, studies the application of physical-chemical methods, and the medicinal action of sea minerals. Approximately 70 chemist-technologists and ten engineers are employed part-time. Few are involved in technical work, most carry out legal work. 34

TECHNOLOGY

INSTITUTO DE ELETROTECNICA, UNIVERSIDADE DE SAO PAULO
 (Electrotechnic Institute, University of São Paulo)
 Caixa Postal 6233, São Paulo

Substitute Director: José Luiz da Cruz Passos

Within the Polytechnic School, University of São Paulo

Founded: 1940

Budget: About \$152,000 (1963)

INSTITUTO DE ELETROTECNICA (continued)

Divisions:	High Tension	Eng. José Luiz dos Santos Pereira Jr.
	Electronics	Eng. João William Merge
	Photometry	Eng. Decio Geraldo Silveira
	Machines	Eng. Shigueharo Deyama
	Materials	Eng. Antonio Zanella Jr.
	Measurements	Eng. Euclides Paschoal Casella
	Library	Alice Camargo Guarnieri

The functions of the Institute are practical teaching and laboratory and investigation work. Its activities are: a) proportioning means for the perfection of graduates; b) serving as State Laboratory of Materials and Electrical Apparatus Testing, working in collaboration with the Brazilian Association of Technical Norms; c) collaboration in the formulation of technical norms for products of the electrical industry; d) material testing work for private and public organizations.³⁴

INSTITUTO DE PESQUISAS E DESENVOLVIMENTO DA AERONAUTICA

(Institute of Research and Development of Aeronautics)

São José dos Campos, São Paulo

Director: Ten. Cel. Av. Eng. George Soares de Moraes

Part of the Technical Aeronautics Center, under Ministry of Aeronautics

Founded:

Budget: \$526,315 plus funds for specific research projects (1963)

Sections:	Aircraft	Maj. Av. Eng. Hugo de Oliveira Piva
	Electronics	Maj. Av. Eng. Jorge Ribeiro de Lima
	Materials	Ten. Cel. Av. Eng. George Soares de Moraes
	Motors	Eng. Paul Johan Köhler

This Institute is located adjacent to the Instituto Tecnológico de Aeronautica (ITA) which is also financed by the Ministry of Aeronautics and contributes to the stature of ITA through staff contracts, and through student awareness of research and development areas.¹⁶

The Institute is an organization of research, development, cooperation, promotion and execution of scientific and technological activities to aid the development of aeronautics in Brazil. Research projects are being carried out in aircraft development, propulsion, electronics, and materials. The staff in 1963 consisted of: 35 researchers; 10 engineers; 31 medium-grade technicians; and 52 specialists - a total of 128.²⁵

INSTITUTO DE PESQUISAS TECNOLOGICAS DE SAO PAULO (IPT)

(Institute of Technological Research of São Paulo)

Caixa Postal 7141, São Paulo

Superintendent: Prof. Francisco João Maffei (Dean, Polytechnic School)
 Asst. Superintendent: Eng. Antonio Dias Ferraz N. Neto

Autonomous institution with the U. of São Paulo's Polytechnic School

Founded: 1899, began research work in 1934

Budget: \$322,580 (estimated 1964)

Divisions: Concrete and Coal Brick
 Structures
 Woods (aeronautics, Testing & Industrialization,
 Identification and Preservation Sections)
 Metallurgy (1961 budget: US\$114,000)
 Metrology
 Chemistry
 Soils, etc.

The Institute is dedicated to applied research and technical assistance to engineering and industry. It does work on contract for business and government and in addition supports research and development programs from University funds. Its activities include: a) materials control and testing; b) research activities: attempt to solve determined problems in the technological field and related sciences; c) making available to interested persons and institutions the experience and knowledge of its technicians, by means of publications, conferences, classes, etc. IPT makes available scholarships for students, especially those from the Polytechnic School and has carried out extension courses for soil technicians, metrologists, aviation institutions, etc.; d) production on a semi-industrial scale of certain indispensable products such as special alloys, casted pieces, etc.

Lately IPT has developed an intense program of research in the field of nuclear energy in collaboration with the Conselho Nacional de Pesquisas. The Metallurgy Division, under the direction of Dr. Ing. Luiz Corrêa da Silva, is carrying on an excellent practical program of research. It includes research on casting, alloys, metallography, microscopy, and large-scale testing of steel and concrete. The laboratory was organized in 1927.³

All the Institute's personnel are full-time. There were 83 engineers, chemists & physicists on the staff in 1963.

INSTITUTO NACIONAL DE TECNOLOGIA (INT)

(National Institute of Technology)

Av. Venezuela 82, Rio de Janeiro

Director: Dr. Sylvio Frões Abreu

Vice Director: Dr. Jayme Santa Rosa

Under the Ministry of Industry and Commerce, GOB

Founded: 1921, under the name Combustible & Minerals Experiment Station; present structure dates from 1938.

Budget: \$471,580 (1963)

	Heads
Divisions: Inorganic Industrial Chemistry	Nilza Hasselman de Figueiredo
Organic Industrial Chemistry	Moacyr Silva
Metallurgy	Arnaldo da Silveira Feijó
Construction	Paulo Guimarães Pereira
Sugar and Fermentation	Nancy de Queiroz Araújo
Industrial Physics	Aimone Camardella
Combustives, Lubricants and Thermal Motors	Heroldo de Souza Mattos
Electricity	Elde Pires Braga
Plastics	Aluizio Alves de Araújo
Textiles, Cellulose & Paper	Walmir T. de Carvalho
Ceramics, Refractives & Glass	Fleming Zeeman
Education and Documentation	Fernando Barbosa Carneiro
Applied Mechanics	

The objectives of INT are to study raw materials and national products, promote the obtainment and use, under the most favorable conditions, of these materials and products, and to assist, in any way possible, the national technology and industry. It serves as a consulting organism for the Federal Government. INT executes its program through two types of activities: a) investigation studies to procure new products, new techniques, and new manufacturing processes, and b) routine work to determine characteristics of products through applications of known processes.

It has interests in nearly all the fields of interest related to the development of the country, especially petroleum, anhydric alcohol, bagasse, construction materials, iron working, coke, cosmic rays, industrial chemicals, fermentation, and so on. It has a program of solar energy including studies of solar refrigeration and the solar drying of Brazilian shale. Some of the work is in the field of testing, specifications and standards. In 1952, the Centro de Mecânica Aplicada was created.

Courses are given for students in the schools of Engineering and Chemistry. The orientation of the instruction is essentially practical and experimental. About 200 students enroll each year.

INT employs 100 technicians (engineers, chemists, technologists) and 150 administrative and auxiliary personnel.

INSTITUTO TECNOLOGICO, ESTADO DO RIO GRANDE DO SUL

(Technological Institute, State of Rio Grande do Sul)

Av. Osvaldo Aranha, 271, Porto Alegre, Rio Grande do Sul

Director: Dr. João Baptista Perlott**Autonomous institution****Founded:****Budget:** \$352,421 (1963)

Divisions:	Agglomerants and Concrete	Eng. Alfieri Gobetti
	Botanical Technology	Eng. Alarich Schultz
	Structures	Eng. Danilo Coelho Smith
	Woods	Eng. Manoel L. da Silva Neto
	Metals and Metallography	Eng. Werner Grundig
	Metrology	Eng. Milton Guterres
	Inorganic Chemistry	Quim. Franklin Jorge Gross
	Organic Chemistry	Quim. Nelson Carlos Guthell
	Soils and Foundations	Eng. Casemiro Jose Munarski

A total of 127 persons are employed in the various divisions, including technicians, laboratory assistants, technologists, etc.

INSTITUTO DE TECNOLOGIA INDUSTRIAL

(Institute of Industrial Technology)

Rua da Bahia 52, Belo Horizonte, Minas Gerais

Director: Dr. Abel de Oliveira Machado**Under the Secretariat of Agriculture of the State of Minas Gerais****Founded:** 1944**Budget:**

Sections: Chemical Analysis Laboratory
Spectrography Laboratory
Fibers and Fabrics Laboratory
Combustibles Laboratory
Oils and Dyes Laboratory
Wood and Metrology Laboratory
Metallurgy and Physics Service
Mechanical Technology

The Institute concerns itself with geology, mineralogy, metallurgy, chemistry and physical chemistry. 61 technicians are employed full-time.

ECONOMICS AND PLANNINGFUNDACAO GETULIO VARGAS

(Getulio Vargas Foundation)

Praia de Botafogo, 186, Rio de Janeiro

President: Dr. Luis Simões Lopes
 Executive Director: Dr. Alim Pedro

Private institution
 Founded: 1944
 Budget:

Divisions: Brazilian Economic Institute
 Brazilian Institute of Administration

Department of Education

The Foundation has a technical-educational character with the objectives of promoting studies and investigations in the public and private domain, promoting the formation, the specialization, and the perfecting of personnel for private and public functions, and serving as a documentation center for systematizing and divulging technical activities. The directive organisms are the General Assembly, the Advisory Council, the President, the Directive Council, and the Executive Director.³⁴

It is supported by funds from the Federal Government, state governments, foundations, and payment for services rendered. Its activities are carried out through the various organizations listed above under Divisions.

INSTITUTO BRASILEIRO DE ADMINISTRACAO

(Brazilian Institute of Administration)

Praia de Botafogo, 186, Rio de Janeiro

Director:

Part of the Getulio Vargas Foundation
 Founded:
 Budget:

This Institute carries out one of the fundamental objectives of the Foundation: training and technical assistance for public administration and companies. Its activities are realized through the Brazilian School of Public Administration of Rio de Janeiro and the School of Administration of Enterprises of São Paulo. The Brazilian School of Public Administration was created in 1952 under the auspices of the United Nations. It trains personnel for the responsibilities of public service in state, federal and municipal government. It has a Center of Investigations.

INSTITUTO BRASILEIRO DA ECONOMIA

(Brazilian Institute of Economy)

Praia de Botafogo, 186, Rio de Janeiro.

Part of the Getulio Vargas Foundation

Divisions: Fiscal Studies
 Industrial Relations Studies
 Center of Analysis of Economic Opportunity.

This Institute is one of the most important organizations of research and analysis of the Brazilian economy. Its most distinguished activities are the studies on the evolution of the national income, recognized as the only official studies in the country. It also prepares indices of prices and the cost of living, and provides technical advice for the National Congress and the Ministry of Finances. It carries out training programs for economists.

It is in contact with the Rockefeller Foundation, the aid program of the U.S. Government, the Department of Economic and Social Affairs of the O.A.S., the Ford Foundation, etc. to carry out various research projects in different fields of the Brazilian economy.

NORTHEASTERN ECONOMIC SURVEYS DEPARTMENT (ETENE)

Fortaleza, Ceará

A department of the Banco do Nordeste do Brasil, S.A. which was created in 1952, installed in 1954.

ETENE is responsible for economic research and surveys upon which the drafting of the Bank's operational policies are based. Its first work was a preliminary diagnosis of the regional economy, followed by several other surveys, including: (a) agricultural surveys on sisal, canioc, foraging palma (Puntia speciosa) and moco cotton; (b) studies on cattle raising economy; (c) general aspects of agriculture; (d) handry industrial surveys; (e) economic aspects of northeastern handicrafts. ETENE has contributed to the organization of State planning agencies and to the creation of the Working Group for the Development of the Northeast (GIDN), the cell which was expanded into SUDENE.³³

COMISSAO DO VALE DE SAO FRANCISCO (CVSF)
 (San Francisco Valley Commission)
 Rio de Janeiro

Director:

Federal organization

Founded: 1948

Budget: \$10,000,000 (1960), receives 1% of Federal revenues

CVSF was created to promote economic development in the San Francisco River area. The river rises in Minas Gerais, in the region of Belo Horizonte, flows north through Bahia, then east to the Atlantic. The total area administered by the CVSF is 620,000 square kilometers.

Its program includes regulation of streamflow, flood control, development of hydro-electric power potentialities, large-scale irrigation, improvement of transport and communications by both river and road, and improvement of production and social services. Expenditures for 1956-60 were distributed as follows: Canals - 34.7%; Improved electricity supply - 16.8%; Transportation - 16.3%; Improved production methods - 13%, Health - 11.7%, Irrigation, drainage - 4%, Study and research - 1.8%, Education - 1.7%.

The technical staff of CVSF includes 45 agronomists, 23 veterinarians, and 14 agricultural technicians. Objectives have included improvement and increased production of rice, onions, grapes, figs, cotton & oil crops.²⁸

SERVICO DO VALE DO PARAIBA (SVP)
 (Paraíba Valley Service)

Administered by the Department of Water & Electric Energy of São Paulo

Although the Paraíba Valley extends from São Paulo into Rio de Janeiro and Minas Gerais, the SVP has so far been concerned only with the State of São Paulo. Most of the studies made so far have been of natural resources. An effort is being made to raise the standard of living by educational and sanitary improvements and instruction in agricultural practices.²⁸

A plan was prepared in 1962 by the SVP and the National Development Council's Working Group for the Paraíba River Basin. It contains a 15-year program for the period from 1962 to 1977, and calls for a budget of about \$246,250,000 for the entire basin, allocated as follows:²⁸

<u>State</u>	<u>Thousands of Dollars</u>
Minas Gerais	60,000
Rio de Janeiro	85,000
Guanabara	1,250
São Paulo	100,000

SUPERINTENDENCIA DE DESENVOLVIMENTO ECONOMICO DO NORDESTE (SUDENE)
 (Superintendency of Economic Development of the Northeast)

Recife, Pernambuco

Directly subordinated to the President of the Republic

Founded: 1959

Budget: Never less than 2% of the revenues of the Union, plus 50% of the value of agios collected in conformity with the legislation in force, through the auction of currencies derived from the exportation of goods produced in the Northeast, after deduction of bonuses paid to the region's exporters. Resources of other federal agencies may also be granted to SUDENE.

Departments: Office of the Superintendent
 Research on Mineral Resources
 Divisions: Agrology, Hydrology, and Geology
 Basic Economic Activities
 Divisions: Power, Industrial, and Transportation
 Special Studies.
 Manpower and Colonization Division
 Control and Emergency Action
 Technical Assistance and Personnel Training
 Internal Activities
 Cartography Division
 Capital of the Republic Office
 Regional Offices

SUDENE was created for the purpose of preparing surveys and programs deemed necessary to the understanding of the Northeast economy, as well as to a more efficient federal action for the development of the region. On the basis of surveys and studies made, SUDENE prepared a Guiding Plan for the Development of the Northeast, to be executed during the five-year period 1961-1965. SUDENE's activities are largely planning and coordination.

The region administered by SUDENE has an area of 1.6 million square kilometers. The activities incumbent upon SUDENE require the participation of all federal agencies that act in the Northeast as well as that of the state governments, even in the planning stage. The highest authority in SUDENE is vested in a Deliberative Council composed of: (a) the Governors of the States of the Northeast (9); (b) representatives of the following Ministries: Agriculture, Education and Culture, Finance, Health, Labor, Industry and Commerce, Transportation and Public Works (6); (c) representatives of the National Bank for Economic Development (BNDE), Bank of Brazil, and the Bank of the Northeast of Brazil (BNB) (3); (d) Superintendent of SUDENE, General Director of the National Department for Works against Droughts (DNOCS), Superintendent of the São Francisco Valley Commission (CVSF). A total of 22 members. ³³

SUDENE (continued)

SUDENE's plans incorporate four principal objectives: (1) to intensify industrial investment, aiming at the creation of centers of manufacturing; (2) to transform the agrarian structure of the humid coastal area by stimulating a more intensive utilization of land for sugar cane, thus making land available for food production; (3) to institute a progressive change in the economy of semi-arid zones; and (4) to give room for the population increase by developing the humid regions of Maranhão and southern Bahia.

The U.S. Government committed \$131 million against a contribution of \$145 million by the Government of Brazil to a two-year development program in April 1962.²⁸ (both figures in U.S. dollars)

SUPERINTENDENCIA DO PLANO DE VALORIZACAO DO FRONTEIRA SUDOESTE (SPVF)
 (Superintendency for Economic Improvement of the Southwest Frontier)
 Porto Alegre, Rio Grande do Sul

Federal Organization

Founded: 1956, general directives drawn up in 1961.

Budget: \$26,700,000 (proposed 1964)

The zone administered by SPVF includes 155 municipalities, some of them in Mato Grosso and Paraná, but the majority in Santa Catarina and Rio Grande do Sul. SPVF has outlined priorities for projects in Mato Grosso, Santa Catarina, Paraná and Rio Grande do Sul. The following fields of priority are ranked for each state according to its needs: (a) electrification, (b) transportation and communication, (c) health, and (d) agriculture.²⁸

The 1964 budget was to be allocated as follows:

<u>Project</u>	<u>% of Budget</u>	<u>State</u>	<u>% of Budget</u>
Land Improvement	45	Mato Grosso	24
Social Improvement	33	Paraná	20
Adminis. Improvement	16	Santa Catarina	16
Reserve	6	Rio Grande do Sul	40

SUPERINTENDENCIA DO PLANO DE VALORIZAÇÃO ECONOMICA DA AMAZONIA (SPVEA)

(Superintendency for Economic Development of the Amazon Region)

Belém, Pará

Federal Organization

Founded: 1953 (began work in 1955)

It is set up for a 20-year period: 1953-1973.

Budget: SPVEA is allotted 3% of revenues from federal taxes (it usually receives less than 2%), 3% of the revenue of states, territories and municipalities within its sphere, plus the income it generates for itself from its own operations and extension of credit. During 1953-60, SPVEA received cr\$15 billion from tax sources.

Technical Sections: Natural Resources
 Agricultural Production
 Credit and Commerce
 Transport and Communications
 Health
 Cultural Development

Development projects of SPVEA are studied by a planning commission of fifteen members.. Nine represent the states and territories of the Amazon region, and six are the chairmen of SPVEA's technical sections.

The region under SPVEA's administration is called "Amazonia Legal." It comprises all the Northern region, the part of Mato Grosso north of the latitude 16° South, the part of Goiás north of 13° South, and the part of Maranhão west of 44° West longitude.

The duties of SPVEA are to stimulate production of agricultural and extraction products, to encourage cattle breeding, industrial development, and mining, and to improve market conditions.²⁸ Its activities are largely planning and coordination.

Since 1953 there has been a mission from FAO to advise SPVEA on problems pertaining to forestry and agricultural production. Programs have included training Brazilian personnel in a model sawmill and in logging and silviculture, a survey of about 20 million hectares of Amazon forests, a study of forest policy, and outlines for a forest research center. Other projects have been soils surveys; a study of animal diseases, studies of crop production and the rural economy, and examination of fisheries.²⁸

Geologists from UNESCO provided SPVEA with technical assistance for several years. The Escritorio Técnico de Agricultura (ETA), a joint Brazilian and U.S. technical agency, supervises training and extension work in rubber cultivation and distribution of improved Hevea plants.²⁸

SCIENCE PROMOTION ORGANIZATIONSFUNDACAO DE AMPARO A PESQUISA DO ESTADO DE SAO PAULO (FAPESP)

(Foundation for the Support of Research in the State of São Paulo)

Av. Paulista, 352- 14º, São Paulo

Director and Chairman of Technical-Administrative Council:

Jayme A. de Cavalcanti (Biochemistry Professor, U. of São Paulo)

Scientific Director: Dr. William Saad Hossne

Administrative Director: Mr. Celso A. Bandeira de Mello

State Organization

Founded: 1960 (began operations in 1962)

Budget: \$600,000 (1964) By law FAPESP receives 1/2 of one percent of the total state tax revenues.

The name of this organization indicates its objectives. Of the approximately \$925,000 available in 1962, 95% went for research grants and the remainder for fellowships. In addition, FAPESP supports scientific symposia.

The Scientific Director is responsible for evaluation of the scientific merits of all requests for research grants. A group of 13 experts, each from a different scientific field, advises him. In 1962 support was provided for research and study in the following fields: agronomy, biology, engineering and technology, medicine, chemistry, social sciences and humanities, geology, geography, history and the exact sciences (mathematics, physics and astronomy).

FUNDACAO PARA O DESENVOLVIMENTO DA CIENCIA NA BAHIA

(Foundation for the Development of Science in Bahia)

Praça da Sé, Edifício Themis, Salvador, Bahia

Directive Council: Seven members named by the Governor of Bahia

Autonomous institution under the State Secretariat of Education

Founded: 1950

Budget: \$75,600 (1961). Receives 0.25% of state taxes.

The Foundation coordinates, stimulates and assists all areas of scientific work and research. At present the Foundation is subsidizing research in medicine, biochemistry, physics, mathematics, geography, sociology, anthropology, and microbiology. Various state institutions, including the University of Bahia, participate in these research programs.

SOCIEDADE BRASILEIRA PARA O PROGRESSO DA CIENCIA (SBPC)

(Brazilian Society for the Progress of Science)

Caixa Postal 11.230, São Paulo, S.P.

President: José Baeta Vianna

Vice President: Haiti Moussataché

Secretary General: Gastão Rosenfeld

Private Organization

Founded: 1948

The SBPC is an organization of scientists, institutions, students and persons interested in the development of science. Its members are spread throughout almost all the states of Brazil, and in some states there exist nuclei of members. It is directed by the Directive Office (five members), the Council (57 members) and the Regional Secretariats (17).

Its objectives are to stimulate scientific work, facilitate cooperation between scientists, augment public understanding of science and work for greater prestige for the scientist, and focus the attention of science on the problems of national development, industry, agriculture, medicine, economics, etc. This is to be achieved through conferences, science exhibits, support of scientific work, publication of scientific works and journals, etc.³⁴

EDUCATIONCOMISSAO SUPERVISORA DO PLANO DOS INSTITUTOS (COSUPI)
(Supervisory Commission for Plans of Institutes)

Under the Ministry of Education and Culture, GOB
Founded: 1958

COSUPI no longer exists. In 1964 it was incorporated into CAPES since there are no more plans to form institutes and its activities are similar to those of CAPES and CNPq.

COSUPI was created to develop an intensive program for high-level technical instruction and to develop applied research in collaboration with universities and industry. During its six-year existence it created 14 institutes: mathematics and physics in Porto Alegre, electronics and mechanics in Belo Horizonte, mechanics and agricultural mechanics in Curitiba, chemistry in Salvador and Rio, geology in Recife, mineralogy and metallurgy in Ouro Preto, economics and rural economics in Rio, genetics in Piracicaba, and rural technology in Fortaleza. In 1959 it raised to Cr\$ 590 million the amount for the reform of the structure of technical education at the superior level. For several years COSUPI was under the direct influence of Dr. Paulo de Goes.

COORDINACAO DO APERFEICOAMENTO DE PESSOAL DE NIVEL SUPERIOR (CAPES)
(Council for Advanced Training of University-Level Personnel)
Av. Marechal Camara, 210, Caixa Postal 5185, Rio de Janeiro

Director: Profa. Suzana Gonçalves

Under the Ministry of Education, GOB

Founded: 1951

Budget: \$1,500,000 (1964), \$2,723,000 (estimated 1965)

In 1964, the functions of COSUPI, Programa de Expansão de Ensino Tecnológico (PROTEC), and Campanha Nacional de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) were combined into one organization, the present CAPES. The objectives of the new CAPES are: 1) improvement in qualifications of personnel engaged in teaching at university and college levels under a priority system based on the requirements of the country's economic and social development; 2) collaboration with the universities and colleges throughout the country; 3) support to centers of advanced research and training; 4) coordination of national plans for expansion of enrollments in areas of greater demand, without infringing upon the autonomy of the universities; 5) surveys, studies and research on problems within the scope of the agency; 6) administration of grants offered by the Brazilian Government to foreign students in graduate and postgraduate courses in Brazil.

CAPES disperses loans from the IDB and Ford Foundation. See page 68, Section III, for distribution of IDB loan.

CAPES (continued)

The administration of the scholarship programs of CAPES cooperates with governmental and private institutions for the selection of candidates. The section of documentation and statistics maintains records of advanced training and qualified professional personnel in Brazil.

Since its inception CAPES has done a very creditable job of promoting scientific and technical postgraduate education in Brazil. It has sent a good number of qualified young Brazilian scientists to other Latin American countries, Europe and the U.S. for specialized training in a variety of scientific and technical fields, and even though the primary responsibility of CAPES is the training of teachers, many persons training for scientific careers have received assistance from CAPES.

INSTITUTO BRASILEIRO DE EDUCACAO, CIENCIA Y CULTURA (IBECC) SECCAO DE S.PAULO
 (Brazilian Institute of Education, Science and Culture, São Paulo Section
 Av. Arnaldo, Faculdade de Medicina da U. de São Paulo, Caixa Postal 2921,
 São Paulo, S. P.

General Secretary & Scientific Director: Dr. Isaias Raw

Originated as the Brazilian affiliate of UNESCO, now an independent Brazilian foundation.

Founded: 1950

Budget: \$636,000, mainly from federal and state governments.
 (1963)

IBECC is recognized as the major center for the improvement of secondary science education in Brazil and perhaps all of Latin America. It has worked closely with the National Science Foundation. Its activities include: teacher training programs, program of translating or adapting books for science and mathematics, preparing films or translating them, summer institutes in physics, biology and chemistry.¹⁵

Dr. Raw has developed an extensive and successful program. His efforts have been designed primarily to create a greater interest in science among young students through publication of simple experiments in various sciences, accompanied by inexpensive kits, science fairs, talent searches and educational TV programs. The recent establishment of six regional centers for the improvement of science teaching by the Directorate for Secondary Education in the Ministry of Education and Culture was due to the success of Dr. Raw's efforts.

The Ministry of Education has given IBECC Cr\$ 80 million for the development of a science teaching center at the University of Recife.

EDUCATIONTECHNOLOGICAL & SCIENTIFIC DEVELOPMENT FUND, BANCO NACIONAL DE
DESENVOLVIMENTO ECONOMICO

Under the Banco Nacional de Desenvolvimento Economico
Created: 1964

The Fund's capital is expected to reach five billion cruzeiros (about US \$2,272,728) by 1967. The initial capital of 250 million cruzeiros (US \$113,182) is supplemented by a one percent levy on the annual investment resources of the BNDE.

Forty percent of the fund will be assigned to finance post-graduate studies in physics, chemistry and chemical engineering, metallurgical and mechanical engineering, and electrical engineering; and 60 percent will be earmarked for industrial research. Although BNDE will administer the Fund, specific operations are conducted by institutions of higher learning and agencies such as CAPES. (Social Progress Trust Fund: Fifth Annual Report, 1965)

ABBREVIATIONS FOR ORGANIZATIONS

BNDE	Banco Nacional de Desenvolvimento Económico
CAPES	Coordinação do Aperfeiçoamento de Pessoal de Nível Superior
CBPF	Centro Brasileiro de Pesquisas Físicas
CNPq	Conselho Nacional de Pesquisas
COSUPI	Comissão Supervisora do Plano dos Institutos
CVSF	Comissão do Vale de São Francisco
FAPESP	Fundação de Amparo a Pesquisas do Estado de São Paulo
IAC	Instituto Agronômico de Campinas
IAL	Instituto Agronômico do Leste
IANe	Instituto Agronômico do Nordeste
IAO	Instituto Agronômico do Oeste
IAS	Instituto Agronômico do Sul
IBECC	Instituto Brasileiro de Educação, Ciência y Cultura
IMPA	Instituto de Matemática Pura e Aplicada
INPA	Instituto Nacional de Pesquisas da Amazônia
INT	Instituto Nacional de Tecnologia
IPD	Instituto de Pesquisas e Desenvolvimento de Aeronáutica
IPEAN	Instituto de Pesquisas e Experimentação Agropecuárias do Norte
IPqM	Instituto de Pesquisas da Marinha
IPT	Instituto de Pesquisas Tecnológicas de São Paulo
SBFC	Sociedade Brasileira para o Progreso da Ciência
SESP	Serviço Especial de Saúde Pública
SNPA	Serviço Nacional de Pesquisas Agronômicas
SPVEA	Superintendência do Plano de Valorização Econômica da Amazônia
SPVF	Superintendência do Plano de Valorização do Fronteira Sudoeste
SUDENE	Superintendência de Desenvolvimento Económico do Nordeste
SVP	Serviço do Vale do Paraíba

ALPHABETICAL LISTING OF INSTITUTIONS

	<u>Page</u>
Academia Brasileira de Ciências	2
Centro Brasileiro de Pesquisas Físicas	29
Centro de Pesquisas Florestais e Conservação da Natureza	10
CEPLAC	4
Centro Pan-Americano de Febre Aftosa	10
Comissão de Vale de São Francisco (CVSF)	39
Comissão Supervisora do Plano dos Institutos (COSUPI)	45
Conselho Nacional de Pesquisas (CNPq)	3
Coordenação do Aperfeiçoamento de Pessoal de Nível Superior (CAPES)	45
Departamento de Física, Universidade de São Paulo	29
Departamento de Química, Universidade do São Paulo	28
ETENE (Northeastern Economic Surveys Department)	38
Fundação de Amparo a Pesquisa do Estado de São Paulo (FAPESP)	43
Fundação Getulio Vargas	38
Fundação para o Desenvolvimento da Ciência na Bahia	43
IBEC Research Institute	11
Instituto Adolfo Lutz	19
Instituto Agrônômico de Campinas	11
Instituto Agrônômico de Minas Gerais	12
Instituto Agrônômico do Sul (IAS)	8
Instituto Biológico da Bahia	13
Instituto Biológico de São Paulo	14
Instituto Brasileiro da Economia	38
Instituto Brasileiro de Administração	37
Instituto Brasileiro de Educação, Ciência y Cultura (IBECC)	45
Instituto Brasileiro de Pesquisas	20
Instituto Butantan	20
Instituto de Biofísica de la Universidade do Brasil	21
Instituto de Botânica, São Paulo	14
Instituto de Ciências Naturais, Universidade do Rio Grande do Sul	21
Instituto de Electrotécnica, Universidade de São Paulo	32
Instituto de Energia Atômica	30
Instituto de Física, Universidade do Rio Grande do Sul	31
Instituto de Matemática, Universidade de São Paulo	26
Instituto de Matemática, Universidade do Rio Grande do Sul	26
Instituto de Matemática Pura e Aplicada	27
Instituto de Microbiologia, Universidade do Brasil	23
Instituto de Oleos	7
Instituto de Pesquisas da Marinha (IPqM)	17
Instituto de Pesquisas e Desenvolvimento de Aeronáutica	33
Instituto de Pesquisas e Experimentação Agropecuárias do Norte (IPEAN)	7
Instituto de Pesquisas Radioactivas	31
Instituto de Pesquisas Tecnológicas de São Paulo (IPT)	34
Instituto de Química, Universidade do Brasil	28
Instituto de Química Agrícola	7
Instituto de Tecnologia Industrial	36
Instituto Evandro Chagas	25

ALPHABETICAL LISTING OF INSTITUTIONS (continued)

	<u>Page</u>
Instituto Gonçalo Moniz	22
Instituto Nacional de Endemias Rurais	22
Instituto Nacional de Pesquisas da Amazônia	15
Instituto Nacional de Tecnologia (INT)	35
Instituto Oceanográfico, Universidade do Recife	17
Instituto Oceanográfico, Universidade de São Paulo	18
Instituto Oswaldo Cruz	23
Instituto Tecnológico Estado do Rio Grande do Sul	36
Jardim Botânico	5
Laboratório da Produção Mineral	32
Museu Nacional	24
Museu Paraense Emilio Goeldi	16
Serviço do Vale do Paraíba (SVP)	39
Serviço Especial de Saúde Pública (SESP)	24
Serviço Florestal da Secretaria da Agricultura, Edo. de São Paulo	9
Serviço Nacional de Câncer	25
Serviço Nacional de Pesquisas Agronomicas (SNPA)	5
Sociedade Brasileira para o Progreso da Ciencia (SBPC)	44
Superintendência de Desenvolvimento Econômico do Nordeste (SUDENE)	40
Superintendência do Plano de Valorização do Fronteira Sudoeste (SPVF)	41
Superintendência do Plano de Valorização Econômica da Amazônia (SPVEA)	42

**FOREIGN AID AND LOANS TO BRAZIL
1962-1965**

Prepared by the
Office of the Foreign Secretary
National Academy of Sciences
Washington, D. C.

February 1966

FOREIGN AID AND LOANS TO BRAZIL

INTRODUCTION	1
ABBREVIATIONS USED IN TABLES	2
BREAKDOWN OF FUNDS BY FIELD — ALL AGENCIES	3
AGRICULTURE AND PLANT SCIENCES	12
Inter-American Development Bank	12
Organization of American States	12
Food and Agriculture Organization	13
Pan American and World Health Organizations	14
International Atomic Energy Agency	15
U. N. Special Fund	15
Agency for International Development	15
U. S. Department of Agriculture	17
Fulbright Scholars	19
National Science Foundation	19
Ford Foundation	20
Rockefeller Foundation	20
MARINE BIOLOGY AND OCEANOGRAPHY	22
Food and Agriculture Organization	22
UNESCO	22
U. N. Special Fund	22
Agency for International Development	22
Office of Naval Research	23
Ford Foundation	23
Rockefeller Foundation	23
MEDICAL AND BIOLOGICAL SCIENCES	24
Pan American and World Health Organizations	24
International Atomic Energy Agency	27
Fulbright Scholars	28
National Institutes of Health	28
U. S. Public Health Service Postdoctoral Research Fellows	31
National Science Foundation	32
U. S. Army Research Grants	32
Atomic Energy Commission	33
Latin American Office of Aerospace Research	33
Kellogg Foundation	34
Rockefeller Foundation	36
DENTAL SCIENCES	40
Pan American and World Health Organizations	40
Kellogg Foundation	40
MATHEMATICS	42
Fulbright Scholar	42
National Science Foundation	42
Latin American Office of Aerospace Research	42
Rockefeller Foundation	42
CHEMISTRY	43
Fulbright Scholars	43
National Science Foundation	43
Office of Naval Research	43
Ford Foundation	43
Rockefeller Foundation	44
International Atomic Energy Agency	44

ENGINEERING	45
Pan American and World Health Organizations	45
U. N. Special Fund	45
Agency for International Development	45
Fulbright Scholar	46
National Science Foundation	46
Ford Foundation	46
PHYSICS	47
International Atomic Energy Agency	47
Agency for International Development	47
Atomic Energy Commission	47
Fulbright Scholars	47
National Science Foundation	47
U. S. Army Research Grants	48
Latin American Office of Aerospace Research	48
Ford Foundation	48
Rockefeller Foundation	48
METEOROLOGY	49
World Meteorological Organization	49
Agency for International Development	49
GEOPHYSICS	49
Latin American Office of Aerospace Research	49
NATIONAL RESOURCES (GEOLOGY, HYDROLOGY, SOILS, ETC.)	50
UNESCO	50
U. N. Special Fund	50
Agency for International Development	50
Fulbright Scholar	52
National Science Foundation	52
INDUSTRY AND MANPOWER	53
Inter-American Development Bank	53
International Atomic Energy Agency	53
International Labor Organization	53
U. N. Technical Assistance Program	54
Agency for International Development	54
POWER	55
Inter-American Development Bank	55
World Bank	56
U. N. Technical Assistance Program	56
U. N. Special Fund	56
Agency for International Development	56
TRANSPORTATION	58
U. N. Technical Assistance Program	58
Agency for International Development	58
ECONOMICS AND PLANNING	59
Inter-American Development Bank	59
Organization of American States	59
U. N. Technical Assistance Program	59
Agency for International Development	59
Ford Foundation	60
Rockefeller Foundation	60

INTRODUCTION

This section contains a compilation of projects having components of science, technology and/or education supported by U.S. (private and governmental) and international organizations from 1962 through 1965 in Brazil. Only projects of the three major foundations, Kellogg, Ford & Rockefeller are included. The projects are listed according to field, e.g., Marine Biology and Oceanography, Chemistry, Meteorology, Geophysics, etc. Sociology projects are only touched upon.

It was not always possible to determine the exact amounts of money spent during this period on the projects: in some cases the amount indicated includes the years previous to 1962, in others the funding extends several years into the future. However, since this situation was encountered in most of the fields, the resulting figures indicate fairly accurately where the emphasis lies in foreign aid.

Fellowship figures are not included for Fulbright, Rockefeller Foundation, some U.N. agencies and the Organization of American States. The latter organization spent \$176,000 in fellowships during 1963-64.

The tables on the following pages show distribution of each organization's funds by field, and a further breakdown for each field.

ABBREVIATIONS USED IN TABLESGranting and Lending Organizations

AEC	Atomic Energy Commission
AID	Agency for International Development
FORD	Ford Foundation
KEL	Kellog Foundation
IDB	Inter-American Development Bank
MIL	Army, Air Force, Navy Grants
NIH	National Institutes of Health
NSF	National Science Foundation
OAS	Organization of American States
ROCK	Rockefeller Foundation
UN	Agencies of the United Nations
USDA	U.S. Department of Agriculture
WB	World Bank

Fields

AGR	Agriculture and Plant Sciences
CHEM	Chemistry
DENT	Dental Sciences
E&P	Economics and Planning
EDUC	Education and General Science Development
ENG	Engineering
GEOP	Geophysics
I&M	Industry and Manpower
MATH	Mathematics
MED	Medical and Biological Sciences
METO	Meteorology
NR	Natural Resources (Geology, Hydrology, Soils, etc.)
P&BA	Public and Business Administration
PHYS	Physics
POW	Power
OGY	Oceanography
SOC	Sociology
TRAN	Transportation

	IDB	WB	UN	OAS	AID	AEC	NIH	NSF	MIL	USDA	FORD	KEL	ROCK	TOTAL	
AGR	13,750		3,323	191	11,808			411		726	1,405		337	31,977	AGR
OGY			835		90						2		548	1,475	OGY
MED			1,089			142	1,111	19	208			509	685	3,762	MED
DENT			11									128		139	DENT
MATH								91	20					111	MATH
CHEM			4						48		490		24	566	CHEM
ENG			721		1,760						160			2,641	ENG
PHYS			22		16	122		101	213		100		1	575	PHYS
METO			170		38									208	METO
GEOP									20					20	GEOP
NR			716		76,622			155						77,494	NR
I&M	2,650		163		244									3,057	I&M
PCW	41,900	79,500	2,571		31,575									155,536	PCW
TRAN			34		12,044									12,078	TRAN
E&P	340		314	237	1,188						1,172		14	3,264	E&P
P&BA			5		5,852						905			6,762	P&BA
EDUC	4,000		1,519	4	3,761						4,562			13,843	EDUC
SOC			17	4	445									466	SOC
TOTAL	62,640	79,500	11,514	436	145,443	264	1,111	777	509	726	8,796	637	1,609	313,974	TOTAL

*See Introduction.

**Due to rounding, rows and columns may not equal total.

AGRICULTURE AND PLANT SCIENCES*

	IDB	OAS	UN	AID	USDA	NSF	FORD	ROCK	TOTAL
Land Reform & Colonization	2,000	6	227	194					2,427
Machinery and Equipment	9,000								9,000
Development Programs, Productivity	2,750		63	1,910					4,723
Extension, Education and Curriculum Planning and Related Institutional Development		186	2,844	9,210			700	41	12,981
Agricultural Economics			147	494			705		1,346
Research, Including Research Materials & Equipment			42		726	411		297	1,476
TOTAL	13,750	191	3,323	11,808	726	411	1,405	337	31,977

Figures in this and succeeding tables are in thousands of U.S. dollars and include both loans and grants.

MARINE BIOLOGY AND OCEANOGRAPHY

	UN	AID	FORD	ROCK	TOTAL
Development of Research & Training and Related Institutional Development	17		2	548	567
Development of the Fishing Industry	818	90			904
TOTAL	835	90	2	548	1,475

MEDICAL AND BIOLOGICAL SCIENCES

	UN	NIH	NSF	MIL	AEC	KEL	ROCK	TOTAL
Education and Curriculum Planning and Related Institutional Development	342		19			509	445	1,335
Public Health Services and Planning	575							575
Research, including Research Equipment	172	1,111		208	142		240	1,873
TOTAL	1,089	1,111	19	208	142	509	685	3,762

DENTAL SCIENCES

	UN	KEL	TOTAL
Faculty Training	4	16	20
Curriculum Development	7	33	39
Teaching Equipment		80	80
TOTAL	11	128	139

MATHEMATICS

	NSF	MIL	TOTAL
Research	91	20	111

CHEMISTRY

	UN	MIL	FORD	ROCK	TOTAL
Research	4	48			52
Research Equipment			490	24	514
TOTAL	4	48	490	24	566

ENGINEERING

	UN	AID	FORD	TOTAL
Institutional Development	721	1,760		2,481
Laboratory Equipment			160	160
TOTAL	721	1,760	160	2,641

PHYSICS

	UN	AID	AEC	NSF	MIL	FORD	ROCK	TOTAL
Research	22	16	122	101	213			474
Institutional Development						100	1	101
TOTAL	22	16	122	101	213	100	1	575

METEOROLOGY

	UN	AID	TOTAL
Infrastructure	170		170
Institutional Development		38	38
TOTAL	170	38	208

GEOPHYSICS

	MIL	TOTAL
Research	20	20
TOTAL	20	20

NATURAL RESOURCES

	UN	NSF	AID	TOTAL
Geological Education			1,658	1,658
Surveys	715		74,964	75,679
Research	2	155		157
TOTAL	716	155	76,622	77,494

INDUSTRY AND MANPOWER

	IDB	UN	AID	TOTAL
Industrial Development	2,650	27	244	2,921
Manpower Development		137		137
TOTAL	2,650	163	244	3,057

POWER

	IDB	WB	UN	AID	TOTAL
Increasing Generating Capacity	41,900	79,500		31,575	152,975
Surveys of Power Resources & Development			2,558		2,558
Unspecified			3		3
TOTAL	41,900	79,500	2,571	31,575	155,536

TRANSPORTATION

	UN	AID	TOTAL
Transportation Studies	34	1,044	1,078
Highway Construction		11,000	11,000
TOTAL	34	12,044	12,078

ECONOMICS AND PLANNING

	IDB	OAS	UN	AID	FORD	ROCK	TOTAL
Economic Surveys and Planning	340	213	314	552			1,419
Research on Development Problems		22			600		622
Economic Education		3		636	572	14	1,225
TOTAL	340	237	314	1,188	1,172	14	3,264

PUBLIC AND BUSINESS ADMINISTRATION

	UN	AID	FORD	TOTAL
Institutional Development	5	5,852	500	6,357
Teaching and Research Materials			405	405
TOTAL	5	5,852	905	6,762

EDUCATION AND GENERAL SCIENCE DEVELOPMENT

	IDB	OAS	UN	AID	FORD	TOTAL
Faculty Training			13		1,149	1,162
General Education Planning and Institutional Development		4	269	3,761	1,217	5,251
Development of Science Teaching and Research			1,234		2,196	3,430
Equipment and Library Materials	4,000					4,000
TOTAL	4,000	4	1,519	3,761	4,562	13,809

SOCIOLOGY

	UN	OAS	AID	TOTAL
Institutional Development	14	4	445	459
Demography	3			3
TOTAL	17	4	445	456

AGRICULTURE AND PLANT SCIENCES

Inter-American Development Bank

State of São Paulo - Agrarian Reform Plan To help finance an agricultural mechanization project forming part of the Agrarian Reform Plan.	\$4,500,000
Companhia Agrícola, Imobiliária e Colonizadora de São Paulo (62) For agricultural mechanization. Bank's funds are financing 43% of the cost of purchasing 196 heavy-duty tractors for 40 mechanization stations.	4,500,000
Banco de Crédito Agrícola do Espírito Santo S.A. (63) To help finance a project to shift 100,000 acres from coffee production to other crops. The loan supplements the resources of a Fund for Agricultural Credit, established in 1961 under the administration of the Bank. This fund is used to make short and medium term credits to farmers and cooperatives for the purchase of machinery & equipment, fertilizers, insecticides, seeds, and livestock & for the development of pastures, the construction of storage buildings and the improvement of marketing systems. The project will directly benefit about 10% of the farmers of the State of Espírito Santo & help to diversify the state's agricultural economy which at present depends almost exclusively on coffee.	2,000,000
Inter-American Committee for Agricultural Development (63) Technical assistance to help finance a mission of the Committee which is participating in the preparation of an agricultural development program for the Brazilian Northeast.	50,000
Superintendencia do Desenvolvimento do Nordeste (64) To help finance a supervised credit program for low-income farmers & agricultural cooperatives. The project, which will benefit an estimated 50,000 farmers, seeks to bring about increased production of vegetables, corn, beans, rice, potatoes, manioc, meat, milk, fruit, cotton and sisal. It is anticipated that 70% of the increased production will be consumed in the Northeast & the remainder in other areas of Brazil and abroad. \$75,000 of the loan is for technical assistance.	2,700,000
Banco Regional de Desenvolvimento de Extremo Sul, São Paulo Technical aid for the formulation of agricultural development policies & priorities. Bank's zone of operations overlaps into Paraná and Santa Catarina.	----
T O T A L	\$13,750,000

Organization of American States

Government of Brazil (62-64) Assist in the compilation of basic data necessary for the development of a general plan of agricultural development in the NE.	\$185,488
Government of the State of Rio Grande do Norte (62/3; 3 mos) Assist in the preparation of a preliminary project for agrarian reform in the state. One expert.	\$5,853
O T A L	\$191,341

AGRICULTURE AND PLANT SCIENCES

Food and Agriculture Organization

- Land and Water Development (62,63,64,65) \$227,167**
 This project consists of two different aspects: 1) to assist the GOB. on the possibilities of land utilization and settlement in the Northeast thru selection of suitable land thru soil surveys; and 2) to study the possibility of mechanizing some agricultural methods in the Northeast with special consideration to the physical and social conditions of the region.
- Animal Production and Health (63,64,65) 62,934**
 To cooperate with the Ministry of Agriculture and SUDENE in elaborating concrete plans for the improvement of animal production in Brazil, with special reference to the Northeast. This project will develop as part of a large program for which Brazil is requesting the assistance of various international agencies (FAO, ICAD, AID).
- Forestry Development (Amazon) (62,63,64,65) 263,540**
 A continuing project on development of forest industries for training qualified workers thru the National Forestry School at Viçosa; also research being undertaken at Santarem Center. An inventory of forest resources in the Amazon region. FAO will provide free experts under both projects.
- Plant Production and Protection (62,63,64,65) 310,552**
 A continuing project, begun in 1961. The expert will carry out the program consisting of: assistance to SUDENE and the Ministry of Agriculture in forage production adapted to the Northeast; investigate the way of coordinating staff; collection of data for mapping a) grassland and b) livestock production in the Northeast.
- Rural Institute and Services (62,63,64,65) 121,202**
 The Bank of the Northeast wants to increase the activities of its Rural Credit Department. A program of research and training, already initiated under the assistance of an FAO expert will be completed. Another expert will continue assisting the team of Brazilian officials to prepare recommendations for the reorganization of the Federal Agricultural Research services. A third expert will provide assistance to the National Working Group in charge of planning and programming the agricultural and livestock development with the cooperation of the team of experts requested from the Inter-American Committee for Agricultural Development (ICAD) by the GOB. Special attention will be given to the Northeast region.

AGRICULTURE AND PLANT SCIENCES

Land and Agriculture Organization

- Land and Water Development (62,63,64,65) \$227,167
 This project consists of two different aspects: (1) to assist the GOB on the possibilities of land utilization & settlement in the Northeast thru selection of suitable land thru soil surveys, and (2) to study the possibility of mechanizing some agricultural methods in the Northeast with special consideration to the physical and social conditions of the region.
- Animal Production and Health (63,64,65) 62,934
 To cooperate with the Ministry of Agriculture & SUDENE in elaborating concrete plans for improvement of animal production, with special reference to the NE. This project will develop as part of a large program for which Brazil is requesting the assistance of various international agencies (FAO, ICAD, AID).
- Forestry Development (Amazon) (62,63,64,65) 263,540
 A continuing project on development of forest industries for training qualified workers thru the National Forestry School at Viçosa; also research being undertaken at Santarem Center. An inventory of forest resources in the Amazon region. FAO will provide free experts under both projects.
- Plant Production and Protection (62,63,64,65) 310,552
 A continuing project, begun in 1961. The expert will carry out the program consisting of: assistance to SUDENE & the Ministry of Agriculture in forage production adapted to the NE; investigate the way of coordinating staff; collection of data for mapping grassland & livestock production in the Northeast.
- Rural Institute and Services (62,63,64,65) 121,202
 The Bank of the Northeast wants to increase the activities of its Rural Credit Department. A program of research & training, initiated under the assistance of an FAO expert will be completed. Another expert will continue assisting the Brazilian officials to prepare recommendations for the reorganization of the Federal Agricultural Research services. A third expert provides assistance to the National Working Group in charge of planning & programming the agricultural & livestock development with the cooperation of the team of experts requested from the Inter-American Committee for Agricultural Development (ICAD) by the GOB. Special attention given to the Northeast region.
- Nutrition (64,65) 54,246
 Programs directed toward increasing production and consumption of certain protective foods, coupled with nutrition education in the communities, have been in operation in the State of Rio Grande do Norte since 1960 and preliminary work has been done for extension of similar programs to the State of Paraiba.
 Estimated duration: 60-67.

AGRICULTURE AND PLANT SCIENCES

International Atomic Energy Agency

University of Brasilia, Department of Genetics	
Plant genetics and breeding. (2 yrs.)	\$12,700
Animal genetics. (2 yrs.)	
University of São Paulo, Department of Agriculture	
Soil water research. (6 mos.)	10,500
Radiogenetics. (6 mos.)	7,500
Agricultural application of radioisotopes. (62, 6 mos, 64)	<u>11,000</u>
	29,000
TOTAL	<u>\$41,700</u>

U. N. Special Fund

National Forestry School and Forestry Research Center, Viçosa.	
FAO. (5/61; 5-1/2 yrs) Government counterpart contribution: \$976,000.	\$1,265,100
Tropical Center of Food Research & Technology, Campinas, FAO.	
(6/63; 5 yrs) Government counterpart contribution: \$1,632,000.	<u>\$772,200</u>
TOTAL	\$2,037,300

Agency for International Development

Agricultural Education (57-70) Spent thru 6/64: \$9,210,000

To assist Brazil in developing institutions capable of providing advanced agricultural training for double the presently enrolled number of students in this field, and to increase the role of these institutions in planning and bringing about agricultural development, including research, and the practical application of specialized agricultural knowledge. Estimated total cost: \$22,618,000.

Purdue-Rural Univ. of Minas Gerais (7/58-6/65) \$5,500,000.

Curriculum established in agricultural economics & engineering, integrating teaching, research & extension; first home economics college in Latin America created. Private contributions expected to surpass \$350,000.

University of Arizona-U. of Ceará (10/63-4/66) \$800,000.

To develop land-grant type institutions; revise curriculae, introduce new teaching methods. Arizona has sent specialists in water resources, field crops, horticulture, agricultural engineering, agricultural economics, extension, education, animal nutrition, and an experiment station director.

AGRICULTURE AND PLANT SCIENCES

Agency for International Development (continued)

Ohio State U.-Agricultural College, U. of São Paulo
(3/64-3/66) \$965,000.

Establish unit in home economics, develop program of graduate education in agricultural and rural development, assist in training of staff in research & education throughout the state, assist in economic growth and development of agriculture throughout the state; teaching and extension.

U. of Wisconsin-U. of Rio Grande do Sul (12/63-12/65) \$903,000.

To integrate teaching, research & extension; develop graduate programs in agricultural and rural development; strengthen existing programs; increase student enrollment; provide training for Brazilians in U.S; assist in the development of agronomy & extension; economic research.

Agricultural Marketing (63-70) Spent thru 6/64: \$494,000

To assist Brazil in meeting the growing needs of farmers for improved marketing, storage and credit facilities, and the improved production of feed, seed and fertilizers. PL 480 funds will be loaned to help create a permanent agricultural credit corporation, and for the construction of storage and processing facilities. To date improved seed testing, multiplication and certification procedures have been installed, and a seed cleaning and processing plant has been organized. A recently signed contract with AGRI Research, Inc. will assist the development of fertilizer production. A feasibility study on the requirements for storage of grain and tuberous crops has been completed and its recommendations are being carried out. Estimated total cost: \$7,500,000.

AGRI Research, Inc. (-8/64) \$137,437.

Agricultural Survey.

Mississippi State U.-Brazilian Ministry of Agriculture
(3/64-3/68) \$631,500.

Seed improvement program. Assist State and Federal seed grading. Objective to see that seeds are distributed and used.

Livestock Production (63-70) Spent thru 6/64: 1,910,000

To increase the production of livestock by approximately 90%, which, with the savings in marketing losses, will increase the supply to consumers & for export by 100% by 1970-72. In 65 the GOB budgeted US\$12 million for livestock development work. In order to introduce improved livestock feeding and management practices there have been established more than 300 local extension offices and 350 4-S clubs. A contract has

AGRICULTURE AND PLANT SCIENCES

Agency for International Development (continued)

been signed recently with IBEC Research Institute for the purpose of improving through applied research, the production of food and forage crops, and for the development of systems of feeding & management of beef and dairy cattle and other livestock. Estimated total cost: \$11,583,000.

IBEC Research Inst. (- 11/65) \$2,033,000.
Agricultural Research

Frontier Development (63-70) Spent thru 6/64: \$194,000

To assist settlement of the frontier areas of Brazil to a total of 2,000,000 farm families during the next decade. Comprehensive investigations will be required to determine the characteristics of farm migrants, and the location of large tracts of land suitable for settlement, land tenure & transfer studies will also be required, with emphasis on legal & equitable methods of obtaining for the program the necessary unused or under-used land. These investigations will be funded in part with PL-480 grants. Land tenure studies are presently in progress. USAID technicians are working with SUDEME & other federal, state & private settlement agencies in the development of plans for settlement. Estimated total cost: \$1,323,000.

T O T A L

\$11,808,000

USDA - Foreign Agricultural Research Agreements (PL-480)

"Luiz de Queiroz" School of Agriculture, U. of Sao Paulo Evaluation of corn & beans native to Central & South America as sources of germ plasm for use in breeding programs in the U.S. (11/61; 5 yrs.)	\$47,195
The relation of the concentration of macro-nutrients (N, P, K, Ca, Mg, S) in the substrate & in the foliage to cell wall thickness & cellulose concentration in the xylem of slash pine (<u>Pinus elliottii</u>). (3/62; 5 yrs.)	24,357
Investigations in mechanization of sugarcane production. (3/62; 5 yrs.)	23,660
Relationship between respiration & chemical changes taking place in the composition of tobacco leaves during curing and fermentation. (62; 3 yrs.)	<u>49,630</u>
	<u>\$144,542</u>
IBEC Research Institute, São Paulo	
Structural & physiological characteristics associated with adaptability of cattle in tropical & subtropical areas. (11/61; 5 yrs.)	\$68,067
Collection & evaluation of tropical & subtropical legumes of indigenous & world origin. (65; 1 yr.)	<u>18,922</u>
	\$86,989

AGRICULTURE AND PLANT SCIENCES

ESDA (continued)

Instituto Agronomico, Campinas, São Paulo	
Studies on interference between strains of the tristeza virus on citrus. (10/61; 5 yrs)	\$47,132
Instituto Biologico, São Paulo	
Studies on foot-and-mouth disease virus. (10/61; 5 yrs)	\$42,347
Study of plants in São Paulo poisonous to domestic animals. (10/61; 5 yrs)	30,123
Basic research on the biochemistry of crown gall formation affecting rosaceous plants. (11/61; 5 yrs)	16,488
Substrate moisture levels for germination testing of agricultural seeds. (11/61; 5 yrs)	17,751
	<u>\$106,709</u>
Instituto Nacional de Tecnologia, Rio de Janeiro	
The relation of biological activity of proteins to their structure as determined by investigations of proteolytic enzymes to obtain fundamental information for use as a basis for developing improved rich foods such as dairy and meat products. Lab. for Protein Chemistry. (9/61; 5 yrs)	\$63,070
Preparation of cationic cereal starch derivatives for use in paper & textiles by the introduction of quaternary phosphonium & tertiary sulfonium groups into cross linked & non-crosslinked starches. (3/62; 5 yrs)	46,178
	<u>\$109,248</u>
Instituto de Zootécnica, Pirassununga, São Paulo	
Structural & physiological characteristics associated with adaptability of cattle in tropical & subtropical areas. (10/61; 5 yrs)	\$27,385
Ministry of Agriculture, Entomology Laboratory, Rio de Janeiro	
Catalog of insects living on plants in Brazil & of the parasites & predators of the insects. (10/61; 3 yrs)	\$29,504
Secretariat of Agriculture, Porto Alegre, Rio Grande do Sul	
Ecological & cytological studies & genetic improvement of native species of grasses & legumes of forage interest in the State of Rio Grande do Sul. (1/62; 5 yrs)	\$60,500
State Forest Service, São Paulo	
Disease & insect susceptibility & species of some North American pine species planted in São Paulo. (10/61; 5 yrs)	<u>\$60,667</u>
T O T A L	\$725,535

AGRICULTURAL AND PLANT SCIENCES

Fellowship Scholars

Aureliano Barsan Forest Biologist	Structural characteristics in cell tissues of wood of tropical dicotyledon plants	State U. College of Forestry, Syracuse	62-63 64-65
Prof. Hans Brune U. Minas Gerais	Plant biochemistry	U.C.L.A.	63-64
Manuel H. da Silva Head, Mycology Lab, C. Moniz Foundation Bahia	Agronomy; medical mycology	Communicable Disease Center, Atlanta	63-65

National Science Foundation

University of Cincinnati

M. Fulford: Leafy Hepaticae of tropical America	(6/59; 4 yrs)	\$15,000
	(9/63; 3 yrs)	24,200
S. Glassman: Taxonomic revision of the palm genus <u>Syagrus mart</u> and its allies.	(5/65; 2 yrs)	14,400

New York Botanical Garden

B. Maguire: Plant survey of the Guiana region	(6/59; 7 yrs)	145,400
T. Koyama: Phylogenetic studies in the <u>Cyperaceae</u>	(8/65; 2 yrs)	29,000
H. Irwin: Plant survey of the Planalto do Brasil	(64; 2 yrs)	54,400

Rutgers University

M. Johnson: Precipitin reaction as an indicator of relationships in the family <u>Gramineae</u> .	(8/60; 3 yrs)	22,000
Structure of the shoot apex in tropical angiosperms	(52; 3 yrs)	15,000
Phytogerological investigation with species of selected families.	(7/63; 2 yrs)	30,000

University of Illinois, S. Glassman

Taxonomic revision of the palm genus <u>Syagrus mart</u>	(5/65; 2 yrs)	14,400
--	---------------	--------

Smithsonian Institution, L. B. Smith

Botanical exploration in southern Brazil.	(1/61; 1 yr)	7,400
Morphological characteristics, geog. distrib, relationships & uses.		

Harvard University, Gray Herbarium, R. Tryon

Revision of American <u>Cyatheaceae</u> .	(9/65; 3 yrs)	39,000
---	---------------	--------

TOTAL

\$411,100

AGRICULTURE AND PLANT SCIENCES

Ford Foundation

American International Association for Economic and Social
Development.

Animal nutrition center of the State of São Paulo (5/61-5/63)	\$350,000
(9/62-1/66)	350,000*
	<u>\$700,000</u>

Rural University of the State of Minas Gerais

Graduate teaching and research in the Institute of Agricultural Economics. (4/62-4/67)	\$120,000
--	-----------

Partial support of new research facilities & research funds for senior professors at the Institute of Rural Economics. (6/63-6/66)	75,000
	<u>\$195,000</u>

Agricultural Secretariat, Government of the State of Minas Gerais
Training and consulting assistance for agricultural economics and statistics department. (/63-9/68)

\$510,000

T O T A L

\$1,405,000

Rockefeller Foundation

Faculty of Philosophy, Sciences and Letters of Rio Claro
Research in zoology and genetics. (64)

\$320

Rural University of the State of Minas Gerais
School of Veterinary Medicine. (64)

\$240

University of Paraná

Preparation of a catalog of neotropical bees, Department of Zoology. (63; 3 yrs)

\$25,000

Department of Zoology. (64)

406

\$25,406

University of Rio Grande do Sul, Porto Alegre

Support of the Laboratory of Animal Genetics, Institute of Natural Sciences. (64)

\$3,268

transferred to International Research Institute as grantee, 6/64
one and one-half years.

AGRICULTURE AND PLANT SCIENCES

Rockefeller Foundation (continued)

University of São Paulo

Laboratory of Animal Genetics: Salary supplements for temporary personnel, equipment & operating & field expenses. (63,64)

\$21,907

School of Agriculture, Piracicaba. (64)

16,332

\$38,239

São Paulo State Secretariat of Agriculture

Institute of Agronomy, Campinas: Research equipment and materials, greenhouses, & publications for the library. (62-64)

\$140,000

Animal Nutrition Center, Department of Animal Production, Nova Odessa: Field & lab equipment & materials. (62-64)

97,000

Expenses of Ninth International Grasslands Congress. (64-66)

25,000

Department of Zoology: Research equipment. (63,64)

4,875

\$266,875

Ministry of Agriculture, Rio de Janeiro

Lincoln Monteiro Rodrigues, agricultural engineer, to undertake advanced training at the U. of Wisconsin. (62)

\$2,850

Division of Agriculture & Food Technology. (64)

352

Institute of Agricultural Chemistry: To plan a joint research program with Stanford University and to participate in the Gordon Research Conference on the chemistry of natural products. (7/63-6/64)

1,150

\$4,352

T O T A L

\$337,000

Fellowships:

Agricultural University, Viçosa

Agr. Eng. José Gomide Plant Science-Agronomy USA 62

U. of Minas Gerais

Warton Monteiro Genetics & Breeding USA 62

Hugo P. Godinho, DVM Veterinary Science USA 64

U. of São Paulo

Almiro Blumenschein Genetics & Breeding USA 62

Otto Crocomo Soils USA 64

Francisco F. de Toledo Seed Technology USA 64

Elza Flcres Ruegg Plant Science USA 62

Secretariat of Agriculture, São Paulo

Claus F. T. de Freitas Agricultural Economics USA 62

Fuad Naufel Animal Husbandry USA 63

Carlos A. S. Rosa, DVM Veterinary Science USA 63

Mario I. Montagnini Plant Science USA 64

Eduardo Zink, Agr. Eng. Seed Technology USA 64

AGRICULTURE AND PLANT SCIENCES

TOTAL GRANTS TO AGRICULTURE	\$18,227,315
TOTAL LOANS TO AGRICULTURE	<u>13,750,000</u>
 TOTAL FOR AGRICULTURE	 \$31,977,315

MARINE BIOLOGY AND OCEANOGRAPHY

Food and Agriculture Organization

Fisheries Development (63,64,65)	\$151,874
Development of the fishing industry through advisory and consultant service and training of personnel. Experts supplied under this project: marine fisheries biologist, shrimp biologist, master fisherman, fisheries economist.	

UNESCO

Oceanography. (63,64)	\$ 16,857
Assistance to the Oceanography Institute, University of Sao Paulo, in the reorganization of the curriculum in biological oceanography and on a research program.	

U.H. Special Fund

Fishery Development Project. FAO. (6/65; 2 yrs) Government counterpart contribution: \$275,000.	\$391,200
---	-----------

Agency for International Development

Fisheries (62-67)	Spent thru 6/63: \$ 90,000
-------------------	----------------------------

To modernize and expand the extremely primitive fishing industry in Northeast Brazil as a means for providing protein for prevalent dietary deficiencies. This project will supplement current Brazilian efforts, especially in the areas of research and training by providing qualified U.S. fisheries personnel to assist in the fishing industry's modernization.

Estimated total cost: \$685,000.

Office of Naval Research

Dr. Marta Vannucci, Director, Oceanographic Institute,
U. Sao Paulo

To bring Dr. Vannucci and one of her staff members to Washington to separate and study the medusae collected from the Indian Ocean as to their vertical migration, geographic distribution, ecological variations, sexual maturity under different conditions, and differential distribution of young and adults. \$ 4,671

Ford Foundation

University of Sao Paulo, Oceanographic Institute \$547,500
Expanded program of marine & fisheries research and training.
(7/63-7/68)

Rockefeller Foundation

University of Sao Paulo, Faculty of Philosophy, Sciences & Letters \$ 2,440

Dr. Jorge Petersen, Dept. of General & Animal Physiology, to observe research & the organization of marine biological laboratories while in Europe. (62)

TOTAL GRANTS FOR MARINE BIOLOGY & OCEANOGRAPHY \$1,204,731

MEDICAL AND BIOLOGICAL SCIENCES

American Health Organization and World Health Organization
(figures are actual 1962, 63, 64 and estimated 1965 expenditures)

University of Ceará (63, 64, 65) \$28,119
To reorganize the curricula and modernize teaching at the
Institute of Preventive Medicine of the Medical School.
Estimated duration of program: 63-66.

University of Recife

Nursing Education. To develop in the School of Nursing a
center for postgraduate nursing education for the use of
the North and Northeast regions of Brazil. Orientation
given to faculty committees, especially those dealing
with recruitment and teaching materials. (63, 64, 65) 73,471
Estimated duration of program: 63-67.

Pediatric Education. To improve pediatric teaching in the
Medical School both at the undergraduate level, and
also for medical and auxiliary personnel who will be
working in the health services of Northeast Brazil thru
coordination of the pediatric services at present
rendered in different sections of the hospital, establish-
ing facilities for training in pediatrics of different
categories of health workers, and promoting research on
problems related to the subject. (63, 64, 65) 16,719
Estimated duration of program: 63-68.

Institute of Nutrition. To assist the Institute in organi-
zing and developing its public health nutrition section,
which collaborates with State Health Services in planning
and evaluation of nutrition problems; strengthening its
research effort for study of local food and nutrition
problems; and reorganizing its training programs for
different categories of health personnel. (64) 2,500
Estimated duration of program:

Institute of Physiology and Nutrition. To carry out experi-
ments on local vegetable foods rich in protein and study
nutritional conditions in children. Biological trials
were carried out in animals to test local sources of
vegetable protein -- including macassar bean, caschew nut
& cotton seed. (62,63) Duration: 62-64. 9,408
\$102,098

University of São Paulo

Rehabilitation. To reorganize the Department of Occupational
Therapy of the Institute of Rehabilitation; and to organize
training courses and rehabilitation centers throughout the
country. (63,64,65) Project duration: 58-61, 63-65. \$20,309

School of Public Health.

To strengthen the School with emphasis on its use as an
international center for the training of health workers.
(62,63,64,65) Estimated project duration: 58-68) 79,391

MEDICAL AID BIOLOGICAL SCIENCES

Pan American and World Health Organizations (continued)

To prepare, in cooperation with the School, nutrition personnel for the development of integrated health services. (64)
Grant for contractual services, teaching equipment and supplies, cooperation in the development of courses in the Malaria Eradication Center in the School. (65)	\$7,345 \$107,045
National Virus Laboratory Services (62,63,64,65) To improve the diagnostic, research, and vaccine production facilities. Estimated duration: 59-67.	\$ 69,524
National School of Public Health, Rio de Janeiro (65) To develop modern training methods and improve practice areas; to cooperate in the organization of laboratory and library services; and to obtain full-time teaching staff for the School. Estimated duration: 57-67.	\$ 12,300
National Food and Drug Service (65) To assist the Ministry of Health to establish food and drug laboratories and a regulatory field program for the control of food and drugs. Estimated duration: 55-65.	\$ 1,700
Nutrition Courses (63,64,65) The main aim of the project is to develop interest of physicians in general problems of nutrition and to prepare them adequately to carry out nutrition activities integrated into general medical and health practices. The immediate objective is to establish necessary facilities for conducting short intensive courses in nutrition at the Universities of Para, Recife, Rio Grande do Sul, Sao Paulo, and Minas Gerais. Estimated duration: 63-67.	\$ 40,540
Health Services in the Northeast (62,63,64,65) To establish a general program embracing all the states in the Northeast which will integrate the programs of health and basic sanitation and training of personnel and development of biomedical research while permitting the operation of specific programs in individual states and institutions. UNICEF and AID will cooperate in this project. Estimated duration: 58-60.	\$270,186

MEDICAL AND BIOLOGICAL SCIENCES

Pan American and World Health Organizations (continued)

Health Services, Mato Grosso (62,63,64,65)	\$133,391
To improve the public health services of the State by strengthening the central organization, regionalizing the services, providing adequate technical supervision, and training personee. Estimated duration: 59-69.	
Health Services, São Paulo (64)	\$5,368
To study the functioning of the São Paulo State Department of public Health, with a view to establishing the most practical organizational structure. Extimated duration: 64-66.	
Planning (65)	\$11,933
The purpose of this project is to assist in developing health planning at the Federal and State levels. A special two-month course in planning for senior health officials of nine states in the Northeast was held in July-August 1965.	
Research Training (65)	\$19,500
In cooperation with the Rockefeller Foundation, a program is being developed to take advantage of the training resources of the Institute of Microbiology of the University of Brazil as a regional training center for faculty and research workers in the field of microbiology.	
Medical Education (65)	\$39,400
Cooperation with the various schools and the Pan American Federation of Associations of Medical Schools in the strengthening of medical education.	
Nursing (64)	\$19,110
To develop the basic aspects of research, planning of activities, organization of services, & education of professional and auxiliary nursing and mid-wifery personnel. Estimated duration: 53-?	
Training of Nursing Auxiliaries (64,65)	\$32,252
Assistance to schools for nursing auxiliaries to improve the training and increase the number of nursing auxiliaries; and to prepare a smaller number of graduate nurses as teachers for training programs & supervisors of nursing services in the states where integrated health service projects are being developed. During 1963 and 1964 assistance was concentrated in the North and Northeast and in 1965 and 1966, assistance will be extended to seven other schools in the States of Bahia, Goias, Minas Gerais and Mato Grosso. Estimated duration: 63-67.	

MEDICAL AND BIOLOGICAL SCIENCES

Pan American and World Health Organizations (continued)

Health Statistics (64)	\$27,416
To improve the vital and health statistics services, especially those related to the notification of communicable diseases; and to train personnel in vital and health statistics and in the registry of medical records and statistics. Estimated duration: 63-66.	
Tuberculosis Control (65)	\$1,700
To develop a pilot area for study and assessment of practical tuberculosis control methods and for training technical personnel; to collect epidemiological information to plan a regional tuberculosis control project. Duration: 61-65.	
Schistosomiasis (65)	\$2,700
The Organization has cooperated with the Government in the control of this disease and in 1963, sponsored, jointly with the Ministry of Health, the establishment of an international snail identification center for the study of the snail vector of schistosomiasis.	
Rabies Control (62,64,65)	\$14,317
To develop the national and state health services needed for producing vaccine and carrying out rabies control programs. Collaboration with the Oswaldo Cruz Institute and the Butantan Institute in carrying out demonstrations and training of personnel, as well as in the preparation of a new rabies vaccine. Estimated duration: 59-66.	
Leprosy Control (65)	\$4,413
To intensify and expand the leprosy control program by applying modern methods & techniques; to gradually incorporate leprosy control activities into the general health services; and to train the professional and auxiliary personnel needed for the program. Estimated duration: 62-67.	
Fellowships for Health Services (62,63,64,65)	\$107,764
Provision is made for fellowships in order to collaborate with the Government in training staff for the improvement and expansion of its health services.	

T O T A L	\$1,105,022
------------------	--------------------

International Atomic Energy Agency

Institute of Atomic Energy	
Medical application of radionuclides. (63)	\$7,655
National Cancer Institute	
Radiobiochemistry. (64; 1 yr)	\$30,762
T O T A L	\$38,417

MEDICAL AND BIOLOGICAL SCIENCES

Fulbright Scholars

Butantan Institute Alphonse Hoge, Head Ophiological Section	Ophiology	Duke	63-64
Paulist School of Medicine Eline Sant'Anna Prado Asst. Prof., Biochem	Pharmacologically active enzymes & peptides	NIH	62-63
José Leal Prado, Prof. Biochemistry	Ditto	NIH	62-64
University of Minas Gerais Maria das de Moraes	Gynecology	Johns Hopkins	62-64
University of São Paulo Ivan da M.e Albuquerque	Immunology	Johns Hopkins Argonne Natl Lab	62-64
Miss Tomoko Higuchi	Bacteriology	Yeshiva U., A. Einstein College of Medicine	64-65
Ricardo F. Ribeiro	Orthopedics	Northwestern	64-65
University of Brazil Antonio Cavalcanti Head, Gen. Res. Center	Medical genetics	U. Michigan	63-64
University of Ceará Antonio V. A. Ponte	Psychiatry	Columbia	
School of Medicine & Surgery, Rio Arthur de Avial Kos	Med. Sciences	Harvard	64-65
National Institute for Amazonian Research, Manaus Mario Pinto-Moraes	Tropical diseases	Tulane	

National Institutes of Health

Catholic University, Guanabara

Dr. Domingos de Paula: Pathology of Group C arborviruses

(9/64-8/65) Estimated total cost: \$52,400; duration:

\$17,450

64-67.

MEDICAL AND BIOLOGICAL SCIENCES

National Institutes of Health (continued)**Federal University of São Paulo**

Eugenio Zerlotti, Fac. of Pharmacy & Odontology of Araçatuba
 Histochemical studies on pulp healing. (6/64-5/65) \$5,150
 Estimated duration: 64-67; and cost: \$9,650.

Paulista School of Medicine

Antonio C. M. Paiva: Myotropic activity of Angiotensin. \$5,000
 (1/64-12/65) Total commitment: \$7,500; duration 64-66.

J.L. Prado: Proteolytic specificity of kallikreins. (6/63-5/65) 50,000
 \$55,000

University of Bahia

Zilton Andrade, Faculty of Medicine: Pathology of Manson's
 Schistosomiasis. (10/64-9/65) Total commitment: \$15,000;
 duration: 64-67. \$5,000

Roberto Figueira Santos, Hcspital das Clinicas: Determination
 of vasopressin in the blood of cirrhotics. (2/63-1/66) 19,400
 \$24,400

University of Brazil**Biophysics Institute**

Antonio Paes de Carvalho & Walmor de Mello: Study of the
 excitatory process in cardiac muscle. (6/64-5/66) Total
 commitment: \$50,200; duration: 64-67. \$39,400

Luiz Galvão Lobo: Studies on endemic cretinism in Brazil.
 (9/64-5/65) Total commitment: \$68,225; duration: 64-67. 37,355

Carlos Chagas: Studies on the mechanism of curarization.
 (10/62-9/65) (Previous funding: \$125,000) 36,600

A.A.P. Lãao: Electric & chemical aspects of spreading
 depression. (9/62-8/65) (Previous funding: \$17,250) 21,000

Maurly Miranda: Studies on carnitine metabolism & function.
 (11/62-12/65) 33,000

Carlos Rocha-Miranda: A comparative analysis of striatal
 function. (6/63-5/66) 32,235

Faculty of Medicine

J. Rodrigues da Silva: Liver & intestinal parasitic diseases.
 (2/63-8/65) Total commitment: \$74,243; duration: 63-66. 54,383
 \$253,973

University of Minas Gerais

Dr. Fernando Alzamora, Faculty of Medicine: Substances
 affecting the kidney's concentrating ability. (1/63-8/65)
 Total commitment: \$7,500; duration: 63-66. \$ 5,000

Dr. Marcos dos Mares-Guia, Fac. of Medicine: Studies on the
 hydrophobic binding site of active center of trypsin.
 (2/65-1/66) Total commitment: \$7,500; duration: 65-67. 4,900

José Pellegrino, Institute of Biology: Experimental chemotherapy
 of Schistosomiasis. (6/64-5/66) Total commitment: \$27,440 19,960
 \$29,800

30
MEDICAL AND BIOLOGICAL SCIENCES

National Institutes of Health (continued)

University of Recife, Faculty of Medicine

Dr. F. S. Barbosa, Institute of Hygiene

The role of animals in maintenance of the life-cycle of
Schistosoma mansoni. (9/62-2/66) (Previous funding:
\$17,480)

\$35,700

Susceptibility of the intermediate hosts of Schistosomiasis.
(9/64-8/65) Total commitment: \$21,900; duration: 64-67.

9,300
\$45,000

University of Rio Grande do Sul

Flavio de Freitas, M.D., Fac. of Medicine: Action of bradykinin
on human pulmonary circulation. (1/64-12/65) Total
commitment: \$7,500; duration: 64-66.

\$5,000

F. M. Salzano, Institute of Natural Sciences: Genetics of
human Brazilian populations. (9/62-8/65) Total commitment:
\$40,156; duration: ? - 67.

19,304

Casemiro Tondb, Institute of Natural Sciences: Biophysics
study of human abnormal hemoglobins. (4/63-3/66)

18,898
\$43,202

University of São Paulo

Faculty of Medicine, São Paulo

Luiz Junqueira, Lab. for Cell Physiology: Comparative
studies on salivary glands (9/63-8/65) Total commitment
\$18,900; duration: 63-66

\$14,250

José Ferreira Fernandes, Lab. for Cell Physiology: Pure and
pyrimidine metabolism in Trypanosoma cruzi & chemotherapy
of Chagas disease. (3/63-2/65)

28,545

F. Eichbaum, Dept. of Pharmacology: Neural mechanism of
circulatory failure in diphtheria. (8/62-8/65)

67,214

Faculty of Medicine, Ribeirão Preto

S.S. Cardoso, Dept. of Pharmacology: The mechanism of action
of steroids on cells. (5/62-4/65)

23,500

M. Rocha e Silva, Dept. of Pharmacology: Pharmacology of
bradykinin & its physiological significance. (6/65-5/65)

62,500

J.E. Dutra de Oliveira: Vegetable protein for infant feeding.
(9/64-8/65) Total commitment: \$296,797; duration: 64-66

183,351

F. Küberle, Dept. of Pathology: Ganglion cells lesions in
Chagas disease. (6/65-5/66)

4,500

M.P. Barretto, Dept. of Parasitology: Studies on wild
reservoirs and vectors of Trypanosoma cruzi. (2/63-1/65)

14,240

D. de S. Amorim, Cardiac Catheterization Lab: Cardiac output
control in Chagas disease. (6/63-5/66)

21,306

Faculty of Philosophy, Sciences & Letters, São Paulo

C. Pavan, Dept. of General Biology: DNA, RNA and protein
synthesis in polytene chromosomes. (1/64-12/65) Total
commitment: \$26,500; duration: 64-66.

22,100

P. Sawaya, Dept. of Gen. & Animal Physiology: Neurosecretion,
Neurophophysis & Urohypophysis & Osmolarity. (1/64-12/65)
Total commitment: \$28,900; duration: 64-66.

17,500
\$459,006

MEDICAL AND BIOLOGICAL SCIENCES

National Institutes of Health (continued)

University of Parana, Institute of Biochemistry

Metry Bacila

Respiratory chain of bacteria & Candida yeasts. (9/64-8/65)

Total commitment: \$20,850; duration: 64-67. \$19,050

Biochemistry of the snail Australorbis glabratus (6/64-5/66)

Total commitment: \$28,913; duration: 64-67. 27,113

M. Bacila & D. Amaral: Hydrolytic enzymes for carbohydrates in "Wood Destroying Molds." (5/63-4/66) 7,440

L. Silva Veiga: Carbohydrate metabolism in bacteria & molds.

(6/64-5/66) Total commitment: \$50,200; duration: 64-67. 39,400

\$93,003

CAPES

Walter Oswaldo Cruz, Head, Instituto Oswaldo Cruz: Studies on the mechanism of hemostasis. (6/63-5/65)

\$50,000

Hospital N. S. das Vitorias, Department of Cardiology

A. de Carvalho Azevedo (Catholic U. of Rio): The tricuspid valve. Early signs of abnormal function. (1/63-12/65)

Total commitment: \$42,260; duration: 63-66. \$34,840

TOTAL

\$1,110,824

U. S. Public Health Service Postdoctoral Research Fellows

Instituto Oswaldo Cruz, Division of Pathology

Leopoldo de Meis Biochemistry NIH 5/63-6/64

Carl Von Dietrich Biochemistry U. Wisconsin 11/64-11/65

Paulista School of Medicine

Antonia Paiva Biochemistry Cornell 7/62-6/63

University of Brazil, Biophysics Institute

Roberto S. DeMoura Pharmacology Cleve. Clinic 6/64-6/65

University of Brasilia

Luiz Ribeiro Biochemistry NIH 8/63-8/65

University of Minas Gerais

Marcos Mares-Guia Enzymology, biochemistry Tulane 9/62-1/64

University of Parana

Annibal Campello Biochemical pharmacology NIH 7/63-1/65

University of São Paulo, Faculty of Medicine

Antonio Sesso Histology, zoology U. Cal, Berkeley 11/62-6/64

MEDICAL AND BIOLOGICAL SCIENCES

U. S. Public Health Service Postdoctoral Research Fellows (continued)

University of São Paulo, Ribeirão Preto Faculty of Medicine

Itamar Vugman	Neuropharmacology	Yale	9/63-3/65
Aldo Focesi Jr.	Biochemistry	N.Y.U.	11/63-11/64
Iris Ferrari	Cytogenetics	U. Wisconsin	9/63-3/65

Faculty of Medicine, Belo Horizonte

Wilmar Dias Silva	Histophysiology, allergy	Western Reserve	8/64-8/65
-------------------	-----------------------------	-----------------	-----------

Porto Alegre

Manuel Pereira	Microbiology,	U. Pittsburgh	10/63-10/64
----------------	---------------	---------------	-------------

National Science Foundation

IBECC, São Paulo, Myriam Krasilchik

Summer Institute for Biology Teachers (65; 6 mos)			\$18,500
---	--	--	----------

Participants in NSF Summer Institutes

Ita K. Abramoff Minas Gerais	BSCS Biology	Colorado State	1962
---------------------------------	--------------	----------------	------

Angelo M. Susin Porto Alegre	Biology	Earlham College	1962
---------------------------------	---------	-----------------	------

U. S. Army Research Grants

University of Brazil, Biophysics Institute

Carlos Chagas: Publication of proceedings of two symposia: Symposium on Mammalian Tissue Culture and Cystology and Specific Topics in Radiobiology. (6/63)			\$2,500
--	--	--	---------

University of Minas Gerais, Institute of Biology

Dr. J. Pellegrino: Basic biologic & tropistic behavior of <u>Schistosoma mansoni cercariae</u> relating to carcarial agents and repellents. (6/64-6/65)			\$13,000
(6/65-6/66)			10,000
			<u>\$23,000</u>

University of São Paulo

A. M. Rothschild, Ribeirão Preto: Investigations on the mechanism of the release of pharmacologically active biogenic amines. (9/63-11/65)			\$19,775
--	--	--	----------

R.H. Migliorini, Ribeirão Preto: Substrates, cofactors and enzymes of glucose metabolism in the liver of rats with acute insular deficiency. (6/65-5/66)			13,550
--	--	--	--------

MEDICAL AND BIOLOGICAL SCIENCES

U.S. Army Research Grants (continued)

F.J.S. Lara, Biochemistry Lab, Fac. of Philosophy, Sciences & Letters: The control of ribonucleic acid synthesis in giant chromosomes. (5/64-5/65)	\$14,000
(6/65-9/66)	13,000
Thales de Brito: Pathology of leptospirosis. (10/64-10/65)	4,760
	<u>\$65,085</u>

Hospital Edgar Santos, Salvador, Bahia	
A. G. Baptista, Dept. of Internal Medicine: Cerebral localization of languages & related functions. (4/65-3/66)	\$8,300

National Institute of Technology	
J.C. Perrone: The effect of ionizing radiation on the primary structure of enzymes. (5/64-5/65)	\$13,000
(6/65-5/66)	11,000
	<u>\$24,000</u>

T O T A L	<u>\$122,635</u>
------------------	------------------

Atomic Energy Commission

University of Sao Paulo: General effects of radiation	\$56,500
Pavan: A comparative study between natural lethals & lethals induced by radiation in populations of <u>Drosophila willistoni</u> (62-3/66)	

T O T A L	<u>\$56,500</u>
------------------	-----------------

Latin American Office of Aerospace Research

University of Brazil, Biophysics Institute	
Carlos Chagas	
Research on the electrophysiology of excitable tissues. (1/62, 1 yr; 7/63, 1 yr) (\$33,000 between 7/60 & 6/62)	\$12,500
Function of electric organs in fish. (7/63; 1 yr)	3,000
	<u>\$20,500</u>

University of Sao Paulo, Ribeirao Preto Medical Faculty	
Miguel Covian: Roles of various brain structures on physiological function. (5/64, 2 yrs; 1/62, 1 yr) (\$29,969 between 5/60 and 4/62)	\$39,739
L. Lison: RNA & protein metabolism in the central nervous system. (4/64; 2 yrs)	25,000
	<u>\$64,739</u>

T O T A L	<u>\$85,239</u>
------------------	-----------------

MEDICAL AND BIOLOGICAL SCIENCES

Kellogg Foundation

General Hospital, Holy House of Mercy, Rio de Janeiro
 To improve medical education thru projects of demonstration
 and counsel, and by supplementing salaries to permit full-
 time instruction. (62, 63, 64) \$7,200

University of Bahia

To provide equipment & teaching aids to augment the teaching
 and research programs. (62,63,64) \$33,039
 To improve medical education thru projects of demonstration &
 counsel, & by supplementing salaries to permit full-time
 instruction. (62,63,64) 59,217
 To provide opportunities for selected faculty members to obtain
 specialized preparation in U.S. as part of cooperative
 programs to improve medical education. (62,63,64) 23,047
 To assist in the development of the School of Nursing Library.
 (62) 146
 \$115,449

University of Brazil

To provide opportunities for selected faculty members to obtain
 specialized preparation in the U.S. in medical education. (63,64) \$8,391
 nursing education. (63,64) 6,151
 \$14,542

University of Ceará

Specialized preparation in U.S. for medical faculty members.
 (63,64) \$6,597

University of Minas Gerais

Specialized preparation in U.S. for med. fac. members. (63,64) \$8,134

University of Paraná

Specialized preparation in U.S. for med. fac. members. (62,63,64) \$11,149
 Equipment & teaching aids to augment the teaching & research
 programs. (63,64) 24,310
 \$35,459

University of Recife

Equipment & teaching aids to augment the teaching & research
 programs. (62,63,64) \$39,833
 Projects of demonstration & counsel, & supplementation of
 salaries to permit full-time instruction. (62,63,64) 59,154
 Specialized preparation in U.S. for medical faculty members.
 (62,63,64) 23,413
 \$122,400

MEDICAL AND BIOLOGICAL SCIENCES

Kellogg Foundation (continued)

University of Rio Grande do Sul

Projects of demonstration & counsel, supplementation of salaries to permit full-time instruction. (63,64)	\$32,315
Equipment & teaching aids to augment the teaching & research programs. (63,64)	18,245
Specialized preparation in U.S. for medical faculty members. (62,63,64)	38,358
for nursing faculty members. (62,63)	<u>7,211</u>
	\$96,129

University of São Paulo

To improve the quality of hospital administration thru the development of educational programs. (62,63)	\$ 8,000
Columbia University: to aid the improvement of a program in hospital administration by providing consultative services & educational exchanges between U.S.P. & Columbia. (62,63,64)	6,737
Equipment & teaching aids to augment the teaching & research programs. (62)	7,297
Specialized preparation in U.S. for nursing faculty members. (62,63,64)	15,244
To assist the development of a postgraduate education in nursing service administration. (62,63,64)	11,203
To improve nursing education & service by establishing courses in public health nursing & obstetrical nursing. (64)	28,310
To strengthen the teaching program by providing additional staff & equipment for the Dept. of Nutrition. (62,63)	<u>25,848</u>
	\$102,639

Fellowships:

University of Bahia

José Duarte Araújo, M.D.	62,63
Alvaro Rabelo Alves Jr., M.D.	62
Roberto Figueira Santos, M.D.	62

University of Brazil

Vilma de Carvalho, R.N.	62
Maria da Conceição, R.N.	64
Gilberto José Nagle, M.D.	63,64

University of Ceará

Célio Brasil Girão, M.D.	63,64
--------------------------	-------

University of Minas Gerais

José de Oliveira Campos, M.D.	63,64
-------------------------------	-------

University of Paraná

Adyr Soares Mulinari, M.D.	62,63
Valdir de Paula Furtado, M.D.	64

MEDICAL AND BIOLOGICAL SCIENCES

Kellogg Foundation (continued)

University of Recife

Cyro de Andrade Lima, M.D.	62
Ageu de Godoy Magalhaes Filho, M.D.	62
Rostand Carneiro Leão Paraiso, M.D.	62
Jaimé Scherb, M.D.	62
Amaury Domingues Coutinho, M.D.	64
Igeval de Cerqueira Paes, M.D.	64

University of Rio Grande do Sul

Theresinha da Costa Avila, R.N.	62
Maria Luiza Baptisti, R.N.	62,63
João Carlos Prolla, M.D.	62,63,64
Flavio Artur Sassen, M.D.	62,63
Loreno Brentano, M.D.	64
Cesár Amaury Ribeiro da Costa, M.D.	64
Luiz Arisqilí Fagundes, M.D.	64

University of São Paulo

Jorge Alberto Fonseca Caldeira, M.D.	62
Antonietta Chiarello, R.N.	62
Aracy Luiza Viazzolli Santos, R.N.	62,63
Anayde Correa de Carvalho, R.N.	64
Zuleika Mendonça Kannebley, R.N.	64

T O T A L

\$508,549

Rockefeller Foundation

Paulista School of Medicine

Development of a curriculum emphasizing laboratory experience in the basic sciences, clerkships during the clinical years, and obligatory internships. (62)	\$63,283
Dr. Walter Pereira Leser, Professor of preventive medicine and Director, Institute of Preventive Medicine: to observe the teaching of preventive medicine at medical institutions in the U.S. (62)	2,250
General development. (64)	<u>20,710</u>
	\$86,243

Faculty of Medical & Biological Sciences of Botucatu, S.P., S.P.

Support of the Medical Genetics Research Center. (64)	\$3,822
---	---------

University of Bahia, Faculty of Medicine

Laboratory of Human Genetics: salaries, field operating expenses & equipment. (63,64)	\$7,800
---	---------

MEDICAL AND BIOLOGICAL SCIENCES

Rockefeller Foundation (continued)

University of Brazil, Faculty of Medicine Research equipment for Dr. D. Sobral. (64)	\$7,500
University of Minas Gerais Development of a premedical curriculum, the library and the Departments of Physiological Sciences & Pathology, Faculty of Medicine. (62)	\$97,000
Expenses of research & field operations & the purchase of equipment for the Institute of General Biology, Faculty of Philosophy. (63,64)	15,000
Development of the Faculty of Medicine. (64)	<u>138,000</u>
	\$250,000
University of Paraná Study of variables in human genetic inheritance. (2/65-3/66)	\$2,500
Laboratory of Human Genetics, Faculty of Philosophy: salaries & salary supplements, field operating expenses & library materials. (63,64)	21,664
Laboratory of Genetics. (64)	366
Dr. Metry Bacila, Institute of Biochemistry: to visit labs in the U.S. (64)	<u>2,800</u>
	\$27,330
University of Rio Grande do Sul Dr. Rubens Garcia Maciel, Prof. of propaedeutic medicine, Faculty of Medicine: to study teaching methods at centers of internal medicine in U.S. (62)	\$2,775
Faculty of Medicine: purchase & shipment of films for School of Nursing. (63,64)	2,311
Department of General Biology, Curitiba. (64)	3,439
Equipment for Department of Pathology. (64)	13,000
Dr. Casemiro Tondo, Head, Biophysics Section, Institute of Natural Sciences, Faculty of Philosophy: to observe current teaching & research at biophysics labs in U.S. (62)	2,575
Laboratory of Molecular Genetics, Faculty of Philosophy: salary supplements, operating expenses, & equipment. (63,64)	10,616
Laboratory of Human Genetics, Faculty of Philosophy: equipment and supplies. (63,64)	9,787
Laboratory of Human Genetics: study of variables in human inheritance. (64-66)	2,250
Department of Genetics, Faculty of Philosophy: salary supplements, operating expenses & supplies. (63)	1,758
Research & teaching in the Faculty of Medicine and research in genetics in the Institute of Natural Sciences. (64)	<u>11,903</u>
	\$60,414

MEDICAL AND BIOLOGICAL SCIENCES

Rockefeller Foundation (continued)

University of São Paulo

Dr. K. Klotzel, Asst. Prof. Dept. of Tropical & Infectious Disease, Ribeirão Preto: to study research techniques in neurophysiology in cooperation with Prof. Alexander Geiger, College of Medicine, U. Illinois. (62)	\$2,675
Dr. E. Moacyr Krieger, Asst Prof of physiology, Ribeirão Preto: to study instrumentation in cardiovascular research at medical institutions in U.S. (62)	2,975
Faculty of Medicine, Ribeirão Preto. (64)	11,070
Support of Laboratory of Medical Genetics, Medical Faculty. (63,64)	12,860
Dept. of Physiological Chemistry, Medical Faculty: to invite Dr. Maynard Pullman, Public Health Research Institute, N.Y.C. to serve as visiting professor. (63)	8,000
Dept. of Physiology, Medical Faculty: equipment & supplies (63,64)	2,550
Laboratory of Human Genetics, Faculty of Philosophy, Sciences & Letters: salary supplements, equipment & operating expenses. (63; 18 mos)	5,850
Research on the biochemistry of chromosomes in the Dept. of Biology, Faculty of Philosophy, Sciences & Letters. (62,63,64)	50,000
To enable Dr. A. Brito da Cunha to visit genetics laboratories in Europe & U.S., & to enable Dr. L. de Magalhães to visit the genetics laboratory of Dr. Ove Frydenberg in Copenhagen, Denmark. (63)	3,600
Travel in Europe by Prof. C. Pavan, Dept. of General Biology, & purchase of a photomicroscope. (64)	2,800
To enable Dr. Walter S. Plaut, Dept. of Zoology, U. of Wisconsin, to visit the Department of General Biology. (64)	800
Department of Biology. (64)	11,897
Laboratory for Cell Physiology. (64)	1,244
Laboratory of Electron Microscopy. (64)	797
	<hr/>
	\$117,118

Adolfo Lutz Institute, São Paulo

Equipment for arbovirus research in the Laboratory of Public Health. (62)	\$8,000
---	---------

Belem Virus Laboratory

Cooperative program. (64)	\$33,251
Amelia de Andrade & Amazonia Toda: to visit the Trinidad Regional Virus Laboratory. (64)	900
	<hr/>
	\$34,151

Pan American Federation of Medical Schools, Rio de Janeiro

To further development of medical education and health care throughout the Western Hemisphere. (7/63-6/68)	\$75,000
--	----------

MEDICAL AND BIOLOGICAL SCIENCES

Rockefeller Foundation (continued)

Brazilian Society of Genetics			
Promotion of interlaboratory cooperation in Brazil. (63)			\$3,000
To enable members of the Society's Commissions on Vegetable, Animal & Human Genetics to meet in São Paulo to discuss current research & teaching programs. (63)			1,000
Expenses of 1964 meeting.			1,800
Genetics research. (64)			<u>1,740</u>
			\$7,540

T O T A L \$684,918

Fellowships:

Paulista School of Medicine

Horacio Ajzen	Internal Medicine	USA	1962
Rhodes Amin Aur	Pediatrics	USA	1962
Mayer Snitcovsky	Psychiatry	Colombia	1963

University of Bahia

Flora C. Farias	Nursing Education	USA	1964
-----------------	-------------------	-----	------

University of Brazil

Rudolph Hausmann	Physiology & Biochem. of Deoxyribonucleic Acid	USA	1964
------------------	--	-----	------

University of Minas Gerais

Armando de A. Neves	Biochemistry	USA	1962
Paulo P. de Araujo	Preventive Medicine	USA	1962
Isaltina de Azevedo	Pub. Health Nursing	USA	1962
José Dangelo	Anatomy	USA	1962
Alberto Raick	Electron Microscopy	USA	1962
Lineu Freire Maia	Physiology	USA	1963

University of Recife

Edson de Albuquerque	Neuropharmacology	USA	1962
Maria de Andrade	Public Health Nursing	Chile	1964

University of Rio Grande do Sul

Hannelore Wortmann	Nursing Education	USA	1962
Mario Tannhauser	Pharmacology	USA	1963
Nilo Pereira Luz	Obstetrical Physiology	Uruguay	1964
Olga Vizzotto	Nursing Education	USA	1964

University of São Paulo

Antonio Abilio	Pharmacology	USA	1962
Marcello Machado	Basic Med. Sciences	USA	1962
Claudio de Carvalho	Anatomy	Germany	1963
José Antunes-Rodrigues	Neurophysiology	USA	1964
Ivan F. de Carvalho	Immunopathology	USA	1964

TOTAL GRANTS FOR MEDICAL AND BIOLOGICAL SCIENCES \$3,761,847

DENTAL SCIENCES

Pan American and World Health Organizations

Dental Health Education, University of São Paulo (65)	\$4,300
To provide for dentists who attend the regular public health courses at the School of Hygiene and Public Health of the University, training in specific fields of dentistry; and to assist the School to build up a faculty with training in teaching and research in public health dentistry. Estimated duration of program: 58-66.	
Teaching of Preventive Dentistry (64,65)	\$6,598
To develop the teaching program of preventive and social dentistry in the dental schools of Brazil. Estimated duration of program: 63-66.	
TOTAL	\$10,898

Kellogg Foundation

Brazilian Dental Education Association	
To help strengthen dental education in Brazil by providing assistance for postgraduate courses to be given by Brazilian and American professors for faculty members of the Brazilian dental schools, (62,63,64)	
	\$18,072
University of Brazil	
Teaching equipment for the Department of Pedodontics. (64)	\$4,069
Recent books & journals on dentistry for the library. (64)	1,222
	<u>\$5,291</u>
University of Minas Gerais	
Specialized preparation in US for members of dental faculty. (64)	\$805
University of Recife	
Equipment for use in instruction of dental students. (63)	\$3,755
University of Rio Grande do Sul	
Specialized preparation in the U.S. for members of dental faculty. (62)	\$ 37
Equipment for Department of Dental Materials. (62)	10,098
Teaching equipment, textbooks and journals for the Department of Prosthodontics. (62,63,64)	10,467
Audio-visual materials & equipment for teaching departments of the Dental School. (63,64)	5,336
	<u>\$25,938</u>

DENTAL SCIENCES

Waller Foundation (continued)

University of São Paulo	
Specialized preparation in U.S. for members of dental faculty. (62,63,64)	\$15,086
Assistance toward the development of a program for the training of dentists in public health & preventive dentistry. (62,63,64)	14,663
Strengthening teaching program by providing equipment for the Department of Dental Materials. (62,63)	27,364
Recent books and current journals for the library. (63,64)	7,284
High-speed units for demonstration to students. (63,64)	6,977
Printing fourth volume of the Manuel of Public Health Dentistry and for a special project in field training. (64)	3,000
	<u>\$74,374</u>

Fellowships:

Brazilian Association of Dental Education
Paulino Guirarães, DDS 63

University of São Paulo
José Nicolau, DDS 62,63,64
Joaquim Policiano Leite, DDS 62

TOTAL

\$128,235

TOTAL GRANTS FOR DENTAL SCIENCES

\$139,133

MATHEMATICS

Fulbright Scholar

Elon Lages Lima	Algebraic topology;	Inst. for Advanced	62-64
Inst. of Pure and	Morse theory	Study, Princeton,	
Applied Mathematics		Columbia	

National Science Foundation

University of Rochester (University of Brazil)
 Leopoldo Nachbin: Applied functional analysis.
 (8/63; 1 yr)

\$91,000

Participants in NSF Summer InstitutesSão Paulo

Lafayette de Moraes	Mathematics	Fordham	1963
Rachel Gevertz	Math, Biology, Physics	Harvard AYI	1963
Mrs. Rosa Feldman	Mathematics	U. California	1964

Latin American Office of Aerospace Research

Institute of Pure and Applied Mathematics, Rio de Janeiro
 Dr. M.M. Peixoto: A study of structural stability and
 differential topology. (8/62-3/64)
 (\$19,810 went to this project between 5/60 and 4/62)

\$20,150

Rockefeller FoundationFellowship:

University of Brasilia			
Hans G. Scheuenstuhl	Mathematical Statistics	USA	1964

TOTAL GRANTS FOR MATHEMATICS

\$111,150

CHEMISTRY

Halbright Scholars

University of São Paulo			
Oswaldo Froto Pessoa, Head	Biochemistry	U. Wisconsin	64-65
Lab. of Human Genetics			
Giuseppe Cilento	Biochemistry	La. State U.	64-65
José Moura Gonçalves	Biochemistry	Oak Ridge	64-65
University of Recife			
Ricardo de C. Ferreira	Quantum mechanical studies of atoms and molecules	Indiana U.	63-65
Marcionila de Barros Lins	Biochemistry	VI Int'l. Conf. of Biochemistry, visits to centers & universities	64-65
Director, Institute of Chemistry			

National Science Foundation

Participants in NSF Summer Institutes

Alaçar Ferreira, S.P.	CBA Chemistry	Brown U.	1962
Ronald Becker, Paraná	CBA Chemistry	Brown U.	1963
Hilbert Henriques, Recife	Chemistry	San Jose State	1964

Office of Naval Research

University of São Paulo, São Mascarenhas

Dielectrics: Research on (a) alkali halides (conductivity & color centers), (b) magnetic salts, utilizing X-ray diffraction, & (c) charge separation in dielectrics during change of phase.
(1/62-9/65)

\$48,000

Ford Foundation

University of São Paulo

Chemistry laboratory equipment. (12/61-12/65)

\$490,000

CHEMISTRY

Rockefeller Foundation

Institute of Atomic Energy

Equipment essential to its operation & its research program
in radio chemistry. (63)

\$24,000

International Atomic Energy Agency

Institute of Biophysics, Rio de Janeiro

Radiochemistry of labelled compounds. (63)

\$4,248

TOTAL GRANTS FOR CHEMISTRY

\$566,248

ENGINEERING

Pan American and World Health Organizations**Sanitary Engineering (64) \$30,969**

To improve the organization of the environmental sanitation services of the Ministry of Health; and to cooperate with universities and other pertinent institutions in preparing and training professional and auxiliary engineering personnel. The Superintendency of Urbanization and Sanitation of Guanabara State continued to work on the project to establish an Institute of Sanitary Engineering for which the United Nations Special Fund participation was approved. Collaboration with SUDENE on the organization of a short course on the design of water supplies for urban and rural areas held at the University of Recife. Work on the installation of a laboratory for the control of air pollution in São Paulo and activities related to the city's water supply.

Duration of program: 5 -

Institute of Sanitary Engineering (64,65) \$206,610

To combine the sanitary engineering laboratory facilities of the Institute of Sanitary Engineering of SURSAN with those of the College of Engineering of the University of Guanabara; and to develop the combined laboratory facilities as a center for education, research and service for all educational institutions in the Rio de Janeiro area. The project provides for increasing the full-time staff of the Institute from 106 to 150. Estimated duration of program: 64-69.

T O T A L

\$237,579

U. N. Special Fund**Institute of Sanitary Engineering. WHO. (6/64; 4 yrs) \$483,300**

To cover the cost of consultants, fellowships and laboratory equipment. Government counterpart contribution: \$1,158,000.

Agency for International Development**Engineering (60-70) Spent thru 6/64: \$1,760,000**

To assist Brazil in training engineers in specialized engineering fields to provide the technical and human resources required for continuing industrial development. Current enrollment of engineering students is only a little over 13,000. More than 38,000 additional engineers will be required by 1970 in order to meet the requirements of Brazilian industry. This gap can most readily be

PHYSICS

International Atomic Energy Agency

Atomic Energy Institute	
Neutron physics. (64; 1 yr)	\$12,000
Scientific documentation, equipment only.	9,500
	<u>\$21,500</u>

Fellowships:

Awarded in the following fields (average duration: 11 mos):

Reactor Physics (3); Reactor Instrumentation (3); Reactor Technology and Operation (1); Solid State Physics (4); Power Reactors (1); Electronics & Instrumentation (2); Neutron Physics (1); Nuclear Physics (6); Application of radioisotopes in Industry (2); Total fellowships 23.

Agency for International Development

Peaceful Uses of Atomic Energy. (62)	\$16,250
--------------------------------------	----------

Atomic Energy Commission

Aeronautical Institute of Technology	
Three polonium beryllium sources. (62)	\$ 1,125

Pontific Catholic University of Rio de Janeiro	
A study of artificial and natural radioactive contamination in Brazil. (11/62-10/65) (Previous funding: \$7,850)	\$75,100

University of Brazil	
Co 60 Irradiator. (62) E. Penma Franca	\$ 6,000
Biophysics Institute: Radiochemical & radioecological studies on Brazilian areas of high natural background. *8/64-7/65)	\$40,040
	<u>\$122,265</u>

Fulbright Scholars

Center for Physical Research		
Fernando de Souza Barros	Nuclear and solid state physics	Carnegie Inst. 62-65 of Technology

University of Sao Paulo		
Laercio Gondim de Freitas	Solid state physics	Purdue 63-65
Guilherme F. L. Ferreira	Solid state physics	U. Rochester 63-64
Giorgio Moscati	High energy physics	U. Illinois 63-64
Roberto L.L. e Silva Jr.	Physics	Purdue 64-65
Sergio C. Costa Ribeiro	Physics	Columbia 64-65

National Science Foundation

University of Illinois (at University of Ceara):	
R. Maurer: Electrical properties of ionic crystals. (61; 2 yrs)	\$11,000

University of Wisconsin (cooperative project with U. Sao Paulo)	
R. Herb: Experimental nuclear physics. (62; 3 yrs)	90,000
	<u>\$101,000</u>

National Science Foundation (continued)

Participants in NSF Summer Institutes:

Helio Pinto Guedes, Rio	Physics PSSC	U. N. Carolina	1962
Germano Braga Rego, Goiania	Physics	U. Colorado	1964
A. Teixeira Jr, São Paulo	Physics	St. Louis U.	1964
Rodolpho Caniato, S. Paulo	Physics	Reed College	1965
Nicolao Jannuzi, Rio Claro	Physics	Michigan State	1965

U. S. Army Research Grants

University of Rio Grande do Sul, Physics Institute

D. Dillenburg: Application of gamma gamma angular correlation to solid state physics. (1/63-1/64)	\$11,450
F. Zawislak: Application of gamma gamma angular correlation between nuclei and the environments in which they are embedded. (1/64-12/66)	16,400
(5/66-4/66)	<u>15,000</u>
	\$42,850

MacKenzie University

P. Kaufmann: Solar microwave radio emission. (2/65-2/70)	\$38,840
Propagation of very long waves in the ionosphere-solar-terrestrial relation resulting from very low frequency. (2/65-2/70)	<u>15,321</u>
	\$54,161

T O T A L \$97,011

Latin American Office of Aerospace Research

University of São Paulo

O. Sala: Deuteron & proton reactions at 3.5 Mev. (6/62-3/67)	\$116,000
--	-----------

Ford Foundation

Brazilian Center of Research in Physics.

Science Library. (11/59-11/64)	\$100,000
--------------------------------	-----------

Rockefeller Foundation

University of Rio Grande do Sul

Institute of Physics. (64)	\$572
----------------------------	-------

TOTAL GRANTS FOR PHYSICS \$574,598

METEOROLOGY

U. N. World Meteorological Organization

Telecommunications Project

To form a link between the southern hemisphere exchange center of Brasilia and the northern hemisphere exchange center in New York for the transmission of meteorological data. (65,66)

\$170,000

Fellowships:

Aeronautical meteorology 63-64
Radiosonde and radar 61

Agency for International Development

Meteorological Training Centers. (62)

\$38,250

TOTAL GRANTS FOR METEOROLOGY

\$208,250

GEOFYSICS

Latin American Office of Aerospace Research

Observatorio Nacional

L. Gama: Equatorial magnetic fields. (5/63, 8 mos; 5/64, 2 yrs)

\$8,000

Comissão Nacional de Atividades Espaciais

F. Mendonça: Measurements of the earth's total magnetic field & its variations at a site close to the Brazilian anomaly. (5/64; 2 yrs)

\$7,000

Second International Symposium on Equatorial Aeronomy.

(6/65; 1 yr)

5,000
\$12,000

TOTAL GRANTS FOR GEOFYSICS

\$20,000

NATURAL RESOURCES
(Geology, Hydrology, Soils, etc.)

UNESCO

Arid Zone Research (SUDENE) (62,63,64,65)	\$119,819
Geological, hydrological, hydrogeological studies, surveys, and courses.	
Applied Engineering Geology (62)	1,488
T O T A L	\$121,307

U. N. Special Fund

Survey of Rock-Salt Deposits (62; 2-1/2 yrs). Government counterpart contribution: \$350,000.	\$595,100
--	-----------

Agency for International Development

Geological Education (57-65)	Spent thru 6/64: \$1,658,000
------------------------------	------------------------------

To assist Brazil in increasing the number & quality of geology graduates and, in so doing, increase the geologic knowledge in Brazil. Emphasis is now placed on the training of junior faculty members of geology institutions. No new funds from U.S. sources are presently programmed for this activity after FY65 due to higher priorities in other educational fields. Under this project, the U.S. has assisted the National Geological School, and the Geological Schools of the Universities of Recife, Rio Grande do Sul and São Paulo. Assistance has been primarily of two types: technical and commodity. The technical assistance has been provided through the U. S. Geological Survey, which has provided professors in specialities in which the Brazilian faculties had not yet developed. Equipment and materials are being provided for laboratories as training aids to assist in teaching, and to furnish libraries with scientific literature presently unavailable in Brazil. Laboratory research in sedimentation, petrography, and mineralogy has been conducted on special problems; four quadrangles in Rio Grande do Sul have been mapped; iron, manganese, bauxite, and zinc deposits in central Brazil have been studied; and textbooks have been written and translated into Portuguese. Estimated total cost: \$1,050,000.

NATURAL RESOURCES

Agency for International Development (continued)

Natural Resources Survey (63-68) Spent thru 6/64: \$1,614,000

To assist Brazil to identify natural resources, particularly in the Northeast, and thereby to obtain information for the successful continuation of cooperative programs undertaken in industrial and agricultural development. A secondary purpose is the training of Brazilian technicians in geological research, with the consequent upgrading of the capabilities of the National Department of Mineral Production. Assistance is provided to strengthen Brazilian institutions in: (1) broad surveys of land and water resources of the Northeast river basins; (2) obtaining hydrology data on stream flow, precipitation, and evaporation; (3) investigation of groundwater reserves in the largely arid Northeast area; (4) nationwide aerial mapping for resource identification; and (5) nationwide identification of mineral deposits. In FY 1963, work was begun to photograph and map 1,800,000 square kilometers in the Northeast. Engineers have been supplied from the USGS, Inter-American Geodetic Survey, the U.S. Bureau of Reclamation, and the USDA. Total budgeted expenditures in 1965 by Brazilian agencies in support of the above activities are in excess of \$10 million. Estimated total cost of AID program: \$5,592,000.

Natural Resource Development (LOAN - 1965) \$11,000,000

Toward a series of project studies and natural resource surveys to be administered by the Fundo de Financiamento de Estudos de Projetos e Programas (FINEP). \$6 million will finance the dollar and cruzeiro cost of a three-year natural resources survey program. U.S. federal agencies and private consulting firms will perform the work. The surveys are aimed at creating "pre-conditions" for productive investment in Brazil's vast water resources, mineral deposits, hydroelectric power potential and forest reserves. Their exploitation depends on systematic mapping, surveying and classification. The \$5 million balance forms part of the FINEP Fund to finance sub-loans to borrowers who will carry out selected project and program studies.

Northeast Regional Development (LOAN - 1962) \$62,350,000

To assist the long-term economic & social development of the poverty-ridden region of Northeast Brazil with an extensive program of carefully selected loan and grant projects. The program will stress irrigation improvement, electric power development, better methods of agricultural production and marketing, and studies of the resource potentials of the region as well as continuation of the projects under the short-term (two-year) impact program.

TOTAL GRANTS	\$ 3,272,000
TOTAL LOANS	<u>73,350,000</u>
TOTAL	\$76,622,000

NATURAL RESOURCES

Fulbright Scholar

Josue Camargo Mendes Prof. of Paleontology U. of São Paulo	Geology	Cornell	64-65
--	---------	---------	-------

National Science Foundation

Principia College, Illinois

F. Robertson: Petrographical & chemical investigation of Brazilian lateritic products. (62; 3 yrs)	\$9,950
---	---------

U. S. Geological Survey

G. Leo: Petrology of metapilitic rocks, Brazil. (63; 1 yr)	\$5,700
--	---------

University of California (in cooperation with U. of São Paulo)

J. Reynolds: Geochronology of South America. (64; 2 yrs)	\$104,435
(10/66; 1 yr)	<u>1,000</u>
	\$105,435

Louisiana State University (in coop. with U. of Rio Grande do Sul)

P. Delaney: Geomorphology & quaternary coastal geology of Uruguay. (12/63; 2 yrs)	\$34,000
--	----------

T O T A L

	<u>\$155,085</u>
--	------------------

TOTAL GRANTS TO NATURAL RESOURCES DEVELOPMENT

\$ 4,143,492

TOTAL LOANS TO NATURAL RESOURCES DEVELOPMENT

73,350,000

TOTAL

\$77,493,492

INDUSTRY AND MANPOWER

Inter-American Development Bank

Ferro e Aço de Vitória S.A. (64)	\$1,300,000
For technical assistance for the preparation of a final feasibility study on a project to increase the company's steel production. The loan will finance the completion of studies related to an expansion of its rolling mill at Cariacica, from 130,000 to 380,000 metric tons a year, and to the installation at Tubarão of a plant with a proposed production of 420,000 metric tons of steel ingots per year. The loan will finance the services of a consulting firm which will draw up the final data on financing, location, markets, and production methods and requirements.	
Banco Nacional de Desenvolvimento Economico (64)	\$1,350,000
From a \$27 million loan to the Bank for the development of small- and medium-scale industry: to finance technical assistance related to project implementation and the preparation of preinvestment studies.	
T O T A L	\$2,650,000

International Atomic Energy Agency

Fellowships:

Two 12-month fellowships in Application of Radioisotopes in Industry in 1965.

International Labor Organization

Manpower Organization, including Vocational Training (62,63,64,65) \$82,660
From 1957 thru 1960 a study was carried out in the Northeast to determine the labor supply-demand relationship, occupational distribution of the labor force and analysis of the occupational requirements of industry and agriculture, as well as vocational training needs. Experts, instructors, fellowships and some equipment provided to the National Service for Industrial Apprenticeship (SENAI). Advice has been concentrated on the training of administrators, school directors, and instructors, the recasting of training curriculae and the preparation of teaching material for various trades.

INDUSTRY AND MANPOWER

International Labor Organization (continued)

Productivity and Management Development. (62,63,65) \$54,002

In 1962 and 1963, work on the improvement of productivity and management development in the textile industry. Promotion of industrial productivity in São Paulo. Expert assistance to the operation of Confederação Nacional da Industria has been requested.

T O T A L

\$136,662

U. N. Technical Assistance Program

Industrial Development and Productivity (62,63) \$26,643

Assistance in improving manufacturing methods and in establishing technical standards adapted to local conditions and production.

Agency for International Development

Industry and Commerce (64-70) Spent thru 6/64: \$244,000

To provide technical & capital assistance for the purpose of stimulating private industry. The states are helped in their efforts to identify industrial investment opportunities and technical assistance is provided for the establishment of small, locally owned industries in rural areas. Estimated total cost of program: \$3,789,000.

Los Angeles State College Foundation-University of Paraíba (6/64-5/66) \$303,000. Industrial design.

Colorado State-University of Bahia (6/64-5/66) \$303,000. Industrial design.

Polytechnic Institute of Brooklyn-University of Recife. (6/65-6/67) \$300,000. Industrial development.

Utah State University-University of Rio Grande do Norte (6/65-6/67) \$300,000. Industrial development.

Frederick Burk Foundation for Education. (6/64-5/66) \$303,000 Industrial Design.

T O T A L

\$3,057,305

Inter-American Development Bank

- Centrais Elétricas de Minas S.A. (CEMIG) (61)** \$5,000,000
 To finance 14% of a project to expand CEMIG's generating capacity from 260,000 to 760,000 kilowatts; also calls for an additional 1,200 miles of main & auxiliary lines for the construction of 43 substations. Project scheduled for completion in 1965.
- Companhia Hidro-Elétrica do São Francisco (62)** \$15,000,000
 To finance 36% of a 3-year project to increase the company's generating capacity from 480,000 to more than 800,000 kws. The company serves an area within a radius of 280 miles from its central power plant at Paulo Afonso in the Northeast. The project includes the construction of 2 new transmission lines from the plant to the cities of Salvador & Recife, the extension of secondary lines, & the installation of several substations & auxiliary equipment to handle a volume sufficient to meet the area's power demands until 1970.
- Centrais Elétricas de Urubupunga S.A. (63)** \$13,250,000
 To help finance the construction of a hydroelectric plant, which will be the largest in Brazil & one of the largest in the world. The plant, known as the Jupiá plant, is located near the Urubupungá waterfalls on the Paraná River. The loan is financing part of the cost of imported machinery needed for the electrical & mechanical installations of the plant & part of the construction costs. The project includes the installation of 12 generators of 100,000 kws each and auxiliary works, as well as the construction of a transmission system that will consist of a double-circuit line of 355 miles between the plant & Mimoso in Mato Grosso, & two substations, one in Baurú & one in São Paulo. The project is expected to cost some \$200 million.
- Companhia de Eletricidade do Estado da Bahia (COELBA) (63)** \$3,200,000
 To finance 45% of a program to increase COELBA's generating capacity by 10,700 kws. Includes construction of 14 substations & the installation of 427 miles of transmission & distribution lines. The number of communities served should rise from 29 to 50 as a result of the new facilities.
- Central Elétrica Capivari-Cachoeira S.A. (63)** \$5,450,000
 To help finance a 120,000kw hydroelectric project in Paraná which will nearly double the installed capacity in Brazil's principal coffee-growing state. The plant will be located at the falls of the Cachoeira River, north of the port of Paranagua. Total cost of project: \$29.4 million.

T O T A L

\$41,900,000

POWER

World Bank

Loans for projects that will add nearly a million kilowatts to the generating capacity in the south-central region, the industrial heart of Brazil. Industry uses over 75% of the power supplied in the region.

Central-Elétrica de Furnas S:A. (FURNAS) (65) \$57,000,000

For the construction of the 800,000 kw Estreito hydroelectric plant on the Rio Grande. The project is scheduled for completion in 1971 at a total cost estimated at the equivalent of \$90 million. The remaining costs will be financed by FURNAS and ELETROBRAS.

Usinas Elétricas do Paranapanema (USELPA) (65) \$22,500,000

For the completion of the 400,000 kw Xavantes hydroelectric power plant already under construction on the Paranapanema River. The total cost of the project is estimated at the equivalent of \$69.5 million. The State of São Paulo will provide whatever funds are required for completion of the project. Completion scheduled for 1969.

T O T A L \$79,500,000

U. N. Technical Assistance Program

Natural Resources Development and Power. (62) \$2,524

United Nations Special Fund

Survey of Hydro-Electric Resources in Minas Gerais. - IBRD.
(1/62; 3 yrs) Government counterpart contribution: \$560,000. \$735,000

Survey of Power Development for South Central Brazil. IBRD.
(1/63; 3 yrs) Gov. counterpart contribution: \$1,804,400. \$1,823,300

T O T A L \$2,558,300

Agency for International Development

Power (Grant) (62-68) Spent thru 6/64: \$350,000

To assist Brazil in overcoming its serious power deficit by means of technical & capital assistance. Technical assistance is provided for the integration of existing power facilities & for rural preparation of loan data & supervision of

POWER

Agency for International Development (continued)

installations. Construction is proceeding in the electrification of 72 Northeast rural communities, the first of 432 such communities in this area scheduled to receive such benefits thru the Alliance for Progress. Plans are being completed for the electrification of the other communities. Total Brazilian local currency devoted to power development over the period from 1963 to 1965 is estimated to be the equivalent of \$165 million. Estimated total cost of AID program: \$922,000.

Santa Cruz Thermal Plant (CHEVAP) (LOAN - 1963) \$15,500,000

This loan will provide the foreign exchange necessary for the construction of a 150,000 kw thermal electric power plant, with associated facilities, at Santa Cruz, State of Guanabara. This plant will supply electricity to the power-short area of Rio de Janeiro. Rio's estimated power deficit by 1966 would be 300,000 kw without this plant. Feasibility studies, soil investigations & other technical work were performed by CHEVAP's own technical staff assisted by U.S. and Brazilian consulting engineering firms. Total cost of the project is \$32.3 million.

CEMIG Power Expansion Program (LOAN - 1963) \$5,300,000

To assist in financing selected portions of the CEMIG power expansion program for 1963-66. Loan funds will provide foreign exchange for equipment, materials, and services to increase the transmission, generation, and distribution capabilities of the existing CEMIG system, whose load is 80% industrial. Total cost of project: \$19.6 million.

Fortaleza Emergency Power (LOAN - 1963) \$2,400,000

To finance the foreign exchange costs of the equipment and services required to provide diesel units to generate 18,000 kw emergency electric power for Northeast Brazil. This capacity will be initially installed in Fortaleza. After additional power reaches Fortaleza in 1965, these moveable units may be used by SUDENE for other emergency needs in the Northeast.

Rural Electrification (LOAN - 1962) \$8,025,000

To provide electric power to small communities in the interior.

TOTAL LOANS \$31,225,000

TOTAL GRANTS 350,000

TOTAL \$31,575,000

TOTAL LOANS FOR POWER DEVELOPMENT \$152,625,000

TOTAL GRANTS FOR POWER DEVELOPMENT 2,910,824

TOTAL \$155,535,824

TRANSPORTATION

U. N. Technical Assistance Program

Transport and Communications (62,63)

\$22,000,000

Assistance in the preparation and implementation of transport development policy for the Northeast of Brazil within the general development plan of SUDENE.

Agency for International Development

Transportation (63-70)

Spent thru 6/64:

\$1,044,000

To assist in the development of a transportation means within Brazil. The program includes a comprehensive survey of Brazil's transportation requirements including rail, air and highway systems. Loans for Northeast highway construction and maintenance equipment, based on prior engineering studies totalled \$24 million through February 1964. Estimated total cost of AID program: \$5,389,000.

SUDENE, Combined Highway Project (LOAN - 1963)

\$11,000,000

To provide all costs of constructing, surfacing and/or paving of six state highways, totalling 188 miles, in five states of Northeast Brazil. Improvement of States' highways systems has been assigned high priority by U. S. and Brazilian authorities engaged in Northeast development. States involved: Maranhão, Paraíba, Rio Grande do Norte, Alagoas, and Ceará.

TOTAL LOANS FOR TRANSPORTATION DEVELOPMENT
TOTAL GRANTS FOR TRANSPORTATION DEVELOPMENT
TOTAL

\$11,000,000
1,077,880
\$12,077,880

ECONOMICS AND PLANNING

Projects in agricultural economics are listed under the Section on Agriculture.)

Inter-American Development Bank:

Fundacao Comissao de Planejamento Economico da Bahia (62)

Technical assistance loan of \$265,000 from the Fund for Special Operations plus grant assistance amounting to \$75,000 is helping the Foundation in the preparation of studies on industrial projects, infrastructure & social development, called for in the State's development plan.

Loan:	\$265,000
Grant:	75,000
	<u>\$340,000</u>

Organization of American States

Brazilian Coffee Institute (61-64; 26 mos)

\$22,193

Promote and assist in technical investigation and training of personnel specialized in coffee economy. Four experts.

SUDENE (64; 2 mos)

\$ 1,854

Revise the administrative structure of SUDENE. One expert.

Government of Brazil (62/63; 3 mos)

\$ 3,000

Give a course in rural economy in the University of Rio Grande do Sul. One expert.

Government of Brazil (65;)

\$209,673

Strengthen SUDENE and increase its effectiveness as the coordinating organization for development planning in the Northeast. Carry out an integrated program of assistance utilizing all available technical assistance and cooperation resources of the OAS. The mission is composed of 7 experts.

\$236,720II. Technical Assistance Program

Economic Surveys (62, 63, 64, 65)

\$34,529

This project is related to the Government of Brazil's efforts to develop the Northeast region of the country.

Economic Programming and Projections (62, 63, 64, 65)

\$279,316

T O T A L

\$313,845Agency for International Development

Economics Education (60-66)

Spent thru 6/64:

\$635,000

To improve the quality of economics training and research in Brazil, and to increase the number of higher level Brazilian economists required for Brazil's development. Working with the Rockefeller and Ford Foundations, the principal activities of the USAID in this project are directed towards improving the training offered by the Getulio Vargas Foundation's Institute of

Economics and the University of Ceara so as to qualify graduates for advanced training in the U.S. and to provide such training for selected students. Estimated total cost of AID program: \$1,720,000.

Economic Development Planning (62-70) Spent thru 5/64: \$552,000

To assist Brazilian national, regional, and state planning organizations to achieve administrative reform as well as a more rational allocation of public and private resources necessary for development. Technical assistance will be provided in development research and planning, collection and interpretation of national and regional economic data, and tax administration. Contract consultants will be brought to Brazil, and Brazilian officials will be trained in the U.S. Estimated total cost: \$1,870,000.

University of California Regents-Minister of Planning and Economic Coordination. (6/65-5/70) \$552,707.

University of California Regents-Government of Brazil. (6/65-6/70) \$23,537.

Economic Development.

T O T A L \$1,125,000

Ford Foundation

Brazilian Academy of Sciences
Research symposia & expanded publication program on national development problems. (7/63-7/68) \$100,000

Getulio Vargas Foundation
Program of applied economic research related to development problems.. (9/60-8/65) \$500,000

University of Rio Grande do Sul
Improvement of undergraduate economics program. (5/61-5/65) \$130,000

University of Sao Paulo
Development of graduate economics program. (10/64-10/69) \$433,000
Seminar on law & its relation to economics in December 1962. 9,000
\$442,000

T O T A L \$1,172,000

Rockefeller Foundation

Getulio Vargas Foundation
Advanced training for Brazilian economists. (64) \$9,495

University of Rio Grande do Sul
Faculty of Economics Sciences. (64) \$4,001

Fellowship: Angelo de Souza Economics USA 1962.
G. Vargas Fdn.

T O T A L \$13,496

PUBLIC AND BUSINESS ADMINISTRATION

Agency for International Development (continued)

Michigan State-Getulio Vargas School of Business Administration
(6/53-8/64) \$1,522,000.

Expansion of the above program.

Management and Development (60-70) Spent thru 6/64: \$738,000

To assist in the improvement of managerial skills and attitudes as a means of furthering Brazil's industrial development. To improve managerial practices and to introduce managerial concepts, 16 state productivity centers have been established with USAID assistance. The GOB has budgeted an amount equivalent to \$215,000 for the support of these centers in 1965. The Centers provide management training, placing emphasis on modern industrial practices, labor and community relations, and the establishment of new product lines. The Centers are beginning to work with newly established development banks in promoting and analyzing loan applications for small and medium sized industry. A complementary part of this program is the training provided for selected Brazilian managers and technicians in the U.S. By 1963, a total of 3,000 managers had received training in Brazil, and 43 top-level industrialists & industrial planners had received instruction in Mexico, Puerto Rico and the U.S. Estimated total cost of program: \$1,012,000.

T O T A L

\$5,852,000

Fulbright Scholars

School of Business Administration

Ruy Pontual de Petrolina Business Admin. Stanford 62-63

Jornal do Brasil

Luiz Alberto F. Bahia Economics and Harvard 64-65
Chief Editorialist Business Admin.

Ford Foundation

Getulio Vargas Foundation

Preparation of textbooks & teaching materials in business administration. (3/62-3/65) \$105,000

Preparation of teaching & research material in the field of public administration. (3/64-3/69) 168,000

Expanded program of the School of Business Administration. (10/64-10/69) 500,000

\$773,000

PUBLIC AID, BUSINESS ADMINISTRATION

Ford Foundation (continued)

University of Bahia
 Research & teaching materials on the administrative
 problems of state and local government for the School
 of Administration. (10/53-10/67) \$137,000

T O T A L

\$905,000

TOTAL GRANTS FOR PUBLIC AID BUSINESS ADMINISTRATION \$6,761,900

SOCIOLOGY

Organization of American States

Government of Brazil (62/63; 3 mos)
 Give a course in rural sociology in the Rural U. of Rio de
 Janeiro. One expert. -\$3,600

UNESCO

Latin American Social Sciences Research Center (65) \$14,400

U. N. Technical Assistance Program

Population (64) \$2,500

Agency for International Development

California-Getulio Vargas Foundation (2/62-1/65) \$445,000
 Creation of postgraduate Institute of Rural Studies; four-
 man staff working with School of Sociology & Political Science
 designing curriculae & developing course materials; developing
 & demonstrating teaching methods, planning & conducting
 seminars in rural development.

Albright Scholars

Francisco Escobar D. Rural Sociology: Michigan State 63-64
 Rural U. of Brazil land tenure

Maria Pessoa Moura Applied anthropol. Baldwin-Wallace, 63-64
 Brazilian School of public admin. U. of Redlands,
 Public Administration U. of S. Cal.

TOTAL GRANTS TO SOCIOLOGY \$415,500

EDUCATION AND GENERAL SCIENCE DEVELOPMENT

Most of the assistance to education has been in specific fields of science, coordinated with research, and is listed under the corresponding heading (Engineering, Economics, etc.). The projects listed here are education in the general sciences and elementary and secondary education.

Inter-American Development Bank

Banco Nacional do Desenvolvimento Economico (64) \$4,000,000

To help equip several national centers which provide training in the basic sciences & technology for university professors.

The loan funds will finance the purchase of equipment and library materials for laboratories at several colleges, universities & institutes throughout Brazil. The project, part of a broadly-conceived Brazilian program to increase both the number and the quality of university professors of mathematics, physics, chemistry, biology, agronomy, medicine, veterinary medicine and technology, will enable the centers to carry on training & advanced research. The program, under the direction of CAPES*, will cost an estimated \$7,630,000. The Trust Fund loan will finance 52% of this sum; the Brazilian Government will provide 33%, and the Ford Foundation 15%. The latter two contributions will be used mainly to finance fellowships to enable professors to pursue advanced course work at the various centers. *See page 68 for distribution of loan.

Organization of American States

Government of Brazil (61/2; 3 mos)

Advise the Faculty of Philosophy, Sciences and Letters of the University of Sao Paulo. One expert.

\$4,378

UNESCO

National Center for Education Research (62,63,64,65) \$265,264

Experts to assist in the establishment of an Educational Planning Center and in the formulation of educational development plans, including the training of staff.

Literary Planning (65) \$1,000

Teacher Training (Joint UNESCO/UNICEF Project) (65) \$12,000

Science Teaching (64) \$21,273

Education for the Blind (64) \$3,900

University of Brasilia (64) \$7,432

Teaching of technology.

T O T A L \$310,769

EDUCATION AND GENERAL SCIENCE DEVELOPMENT

E. N. Special Fund

University of Brasilia

Teaching of technology. UNESCO. (1/64; 4 yrs)

Government counterpart contribution: \$9,853,000.

\$1,205,600

Agency for International Development

Elementary Education (56-70)

Spent thru 6/64:

\$3,676,000

To assist the Brazilian federal and state government in their plans for providing educational facilities for all children of 7 thru 14 by 1970. Included are programs for classroom construction, training for educators and the development of improved instruction materials, assistance in developing centers for education instruction, and architectural and engineering supervisory services. This program now concentrates primarily on the Brazilian Northeast where less than 50% of the school-age children attend school to lack of facilities. Estimated total cost: \$7,919,000.

Indiana-National Elementary Center (Belo Horizonte)

(9/60-1/64) \$161,000.

Pilot demonstration center has trained 776 principals, supervisors, demonstration school teachers & kindergarten directors in short courses & 443 normal school supervisors in semester length courses; 130 participants have been trained in Indiana & now occupy key posts in elementary education:

Michigan State U.-Nat'l. Institute of Pedagogical Studies

(8/60-7/64) \$505,000.

To develop teacher-trainers in mass & group communications for schools of 16 Brazilian states; audio-visual center has been developed; six staff members trained at Michigan State and 400 teachers, supervisors, industrial trainees, etc., in Brazil.

Basic Education (63-67)

Spent thru 6/63:

\$85,000

To provide basic education to 70% of the illiterates in the age group of 14-30 years in the Northeast. Brazil in March 1961 established the Movimento de Educação Base (MEB) to promote fundamental education thru radio broadcasting. The MEB works in concert with other Brazilian agencies. The U.S. program in FY63 provided support to the MEB, principally in the form of equipment, including radios, classroom equipment, supplies for training centers & monitors to operate new teaching units. In FY64, it was planned to continue material support for the MEB and to begin participant training for radio and TV school staffs, and to contract 3 U.S. technicians for one year. Estimated total cost of program: \$480,000.

T O T A L

\$3,761,000

EDUCATION AND GENERAL SCIENCE DEVELOPMENT

Ford Foundation

National Technical School

Development of a national center for vocational technical education. (7/65-7/69) \$800,000

Pontifical Catholic University of Rio de Janeiro

Strengthening teaching & research in the basic sciences. (5/61-5/65) \$190,000

Rural University of the State of Minas Gerais

University expansion, development of research & extension training. (10/64-10/69) \$995,000

University of Brazil

University reform; Committee for Graduate Studies (8/61-8/62) \$15,000
 Development of postgraduate teaching & research in the basic sciences. (6/62-6/65) 650,000
 \$665,000

University of Recife

Science teaching center of the Northeast. (9/64-9/68) \$150,000

University of São Paulo

Institutional grant related to fellowships. (64) \$ 2,000
 Establishment of a closed-circuit television system at the university. (9/64-9/69) 177,000
 \$179,000

CAPES

Support of research. (64) \$ 22,576
 Fellowships & specialized training programs for graduate students & science professors. (9/63-9/67) 1,130,000
 \$1,152,576

Foundation for the Support of Research, State of São Paulo

Dr. Warwick Kerr, Science Director: to observe administrative procedures at scientific research foundations in the U.S., Canada and Europe. (62) \$2,400

IBECC

Improvement of secondary science teaching. (9/62-9/63) \$ 45,000
 (1/61-1/64) 125,000
 Science development program. (64) 4,263
 \$174,263

Institute of International Education, Inc.

Visiting teachers from Rio to study U.S. "gray areas." (1/63; 2 weeks) \$15,000

EDUCATION AND GENERAL SCIENCE DEVELOPMENT

Ford Foundation (continued)

State of Guanabara

Pilot project to improve primary education in the under-privileged districts of Rio de Janeiro. (4/62-4/66) \$225,000

Foundation Administered Project

Provide services of Dr. Ernani Braga & 5 other scientists to review graduate science teaching projects in Brazil. (12/62; 3 mos) \$14,000

T O T A L \$4,562,239

TOTAL LOANS TO EDUCATION AND GENERAL SCIENCE DEVELOPMENT	\$ 4,000,000
TOTAL GRANTS TO EDUCATION AND GENERAL SCIENCE DEVELOPMENT	\$ 9,843,986
TOTAL	\$13,843,986

INSTITUCIONES DE ENSEÑANZA SUPERIOR DEL BRASIL BENEFICIADAS POR EL PRESTAMO CAPES

(32 Instituciones que comprenden 73 centros científicos)

A) UNIVERSIDADES (13), Centros (52)

I. PONTIFICIA UNIVERSIDADE CATOLICA DO RIO DE JANEIRO:

1. Instituto de Física
2. Centro de Processamento de Dados
3. Instituto de Tecnologia.

II. UNIVERSIDADE DA BAHIA:

1. Escola de Geologia
2. Instituto de Matemática e Física

III. UNIVERSIDADE DO BRASIL:

1. Instituto de Biofísica.
2. Escola Nacional de Química, Cadeira de Física-Química e Departamento de Bioquímica).
3. Instituto de Química (Divisão de Química Organica e Divisão de Engenharia Química).
4. Instituto de Microbiologia.
5. Escola Nacional de Geologia.
6. Departamento de Zoologia, Faculdade de Filosofia, Ciências e Letras.
7. Instituto de Física.
8. Instituto de Matemática.

IV. UNIVERSIDADE DE BRASÍLIA:

1. Instituto de Física.
2. Instituto de Química.
3. Instituto de Biología.
4. Instituto de Matemática.

V. UNIVERSIDADE DO CEARÁ:

1. Instituto de Química e Tecnologia.
2. Estação de Biología Marinha.
3. Instituto de Matemática.

VI. UNIVERSIDADE DE MINAS GERAIS:

1. Departamento de Física da Faculdade de Filosofia, Ciências e Letras.
2. Instituto de Química Básica.
3. Departamento de Bioquímica da Faculdade de Medicina.
4. Faculdade de Veterinária.

VII. UNIVERSIDADE DO PARANÁ:

1. Departamento de Zoologia da Faculdade de Filosofia, Ciências e Letras.
2. Instituto de Bioquímica.
3. Instituto de Mecânica.
4. Centro de Pesquisas Hidráulicas e Hidrológicas.
5. Escola de Agronomia e Veterinária

VIII. UNIVERSIDADE DO RECIFE:

1. Instituto de Química
2. Instituto de Antibióticos
3. Instituto Oceanográfico
4. Instituto de Matemática
5. Escola de Geologia.

IX. UNIVERSIDADE DO RIO GRANDE DO SUL

1. Instituto de Física
2. Escola de Argonomia e Veterinária
3. Escola de Geologia.
4. Instituto de Tecnologia Alimentar.

X. UNIVERSIDADE DE SÃO PAULO:

1. Departamento de Física da Faculdade de Filosofia, Ciências e Letras, (Cadeira de Física Nuclear e Biblioteca Departamental).
2. Departamento de Física da Escola de Engenharia de São Carlos.
3. Departamento de Química da Faculdade de Filosofia, Ciências e Letras.
4. Departamento de Botânica da Faculdade de Filosofia, Ciências e Letras.
5. Instituto Oceanográfico.
6. Instituto de Bioquímica da Faculdade de Medicina de Ribeirão Preto.
7. Departamento de Histologia e Embriologia da Faculdade de Medicina.
8. Escola Superior de Agronomia "Luiz de Queiroz" (Centro de Estudos de Solos e Instituto de Genética).
9. Instituto de Matemática.
10. Departamento de Mineralogia e Petrologia e de Geologia e Paleontologia da Faculdade de Filosofia, Ciências e Letras.
11. Instituto de Pesquisas Tecnológicas.

XI. UNIVERSIDADE RURAL DO ESTADO DE MINAS GERAIS:

1. Escola Superior de Agricultura de Viçosa.

XII. UNIVERSIDADE RURAL DO RIO DE JANEIRO:

1. Escola de Veterinária (Patologia Animal).

XIII. UNIVERSIDADE RURAL DO SUL:

1. Escola de Agronomia "Eliseu Maciel".

B) ESCUELAS (5)

1. ESCOLA DE ENGENHARIA INDUSTRIAL DO RIO GRANDE
2. ESCOLA NACIONAL DE MINAS E METALURGIA DE OURO PRETO
3. ESCOLA PAULISTA DE MEDICINA:
 - a) Departamento de Bioquímica e Farmacologia e de Microbiologia
4. ESCOLA QUÍMICA DO SERGIPE
5. ESCOLA NACIONAL DE FLORESTAS (Paraná).

C) INSTITUTOS (10)

1. Instituto Electrotécnico de Itajubá, Minas Gerais
2. Instituto Agrônomo de Campinas, Secretaria de Agricultura do Estado de São Paulo
3. Instituto de Botânica, Secretaria de Agricultura do Estado de São Paulo
4. Instituto Tecnológico de Aeronáutica São José dos Campos (S. Paulo)
5. Instituto Biológico, Secretaria de Agricultura do Estado de S. Paulo
6. Instituto de Tecnologia do Estado do Rio Grande do Sul
7. Instituto Nacional de Tecnologia (Rio de Janeiro)
8. Instituto Biológico da Bahia, Secretaria de Agricultura da Bahia
9. Instituto de Pesquisas Agrônomicas do Estado de Pernambuco
10. Instituto de Tecnologia e Pesquisas (Sergipe).

D) OTRAS ORGANIZACIONES (4), Centros (6)

I. CENTRO BRASILEIRO DE PESQUISAS FÍSICAS (Rio de Janeiro)

1. Centro Brasileiro de Pesquisas Físicas (en general)
2. Departamento de Química Nuclear

II. DIVISÃO BOTÂNICA, JARDIM BOTÂNICO DO RIO DE JANEIRO (Ministerio de Agricultura)

III. CONSELHO NACIONAL DE PESQUISAS (Rio de Janeiro)

1. Instituto de Matemática Pura e Aplicada
2. Registro Bibliográfico Central, Instituto Brasileiro de Bibliografia e Documentação

IV. CENTRO TROPICAL DE PESQUISAS E TECNOLOGIA DE ALIMENTOS (Campinas,
Secretaria de Agricultura do Estado de São Paulo)

From the Inter-American Development Bank

B R A Z I L
AGENCIES CONTRIBUTING TO PROGRAMS AND ACTIVITIES RELATING TO HIGHER EDUCATION

1963 - 1964

AGENCIES	NATURAL SCIENCES		SOCIAL SCIENCES	AGRICULTURAL SCIENCES	MEDICAL SCIENCES and PUBLIC HEALTH	INSTITUTIONAL DEVELOPMENT	EDUCATION & Teacher Training	HUMANITIES and ARTS	AGGREGATE INVESTMENT
	Basic Sciences	Applied Sciences							
FORD FOUNDATION	1,420,000	762,140	1,563,400	585,000		1,836,792			6,167,332
AGENCY FOR INTERNATIONAL DEVELOPMENT		771,000	3,894,000	3,142,000			46,250		7,853,250
INTER-AMERICAN DEVELOPMENT BANK	2,733,500	542,000		595,500		129,000			4,000,000
ROCKEFELLER FOUNDATION	321,903		42,550	151,950	430,056			14,570	961,029
ORGANIZATION OF AMERICAN STATES	92,000	80,500	95,000	106,000	30,000	8,000	112,600	50,000	574,100
STATE DEPARTMENT	145,600	56,947	245,512	25,490	41,428	6,488	265,039	112,472	898,976
NATIONAL INSTITUTES OF HEALTH					738,369				738,369
PAN-AMERICAN HEALTH ORGANIZATION					262,319				262,319
KELLOGG FOUNDATION					445,908				445,908
UNITED STATES ATOMIC ENERGY COMMISSION	134,910								134,910
THE NATIONAL SCIENCE FOUNDATION	104,435								104,435
UNITED STATES AIR FORCE	69,050				29,000				98,050
UNITED STATES DEPARTMENT OF THE ARMY	16,400				61,535				77,935
GUGGENHEIM FOUNDATION	59,500								59,500
TOTALS BY DISCIPLINE:	5,097,298	2,212,587	5,840,462	4,605,940	2,038,615	1,980,280	423,889	177,042	22,376,113
GRAND TOTAL BY DISCIPLINES AND AGENCIES:									US\$ 22,376,113

Prepared by the Inter-American Development Bank

RESS**ALLIANCE FOR PROGRESS**

Agency for International Development

release to a.m. papers of
Friday, November 12, 1965

A-65-84
Dudley S-8441
Glassman

LOAN TO HELP BRAZIL STUDY RESOURCES, INVESTMENT

A nationwide program of Alliance for Progress studies and surveys of Brazil's natural resources and of proposed capital investments will be carried out with assistance from the Agency for International Development.

To accelerate economic growth, AID will lend Brazil \$11 million toward a series of project studies and natural resource surveys to be administered by the Fundo de Financiamento de Estudos de Projetos e Programas (FINEP), an autonomous agency of the Brazilian Government.

Six million dollars of AID loan funds will finance the dollar and de facto cost of a three-year natural resources survey program. U.S. Federal agencies and qualified private consulting firms will perform the work.

The surveys are aimed at creating "pre-conditions" for productive investment in Brazil's vast water resources, mineral deposits, hydroelectric power potential and forest reserves. Their exploitation depends upon systematic mapping, surveying, and classification.

The \$5 million balance of the AID loan forms part of the FINEP Fund to finance sub-loans to borrowers who will carry out selected project and program studies. Project studies include feasibility studies to determine the soundness of proposed capital investments. Program studies include general surveys and pre-investment analyses bearing on economic development.

The Inter-American Development Bank has authorized an additional \$10 million loan to the Fund. Brazil's contribution will be the equivalent of an estimated \$7.2 million. In addition, AID has authorized a grant of \$1,000,000 in local currency, derived from the sale in Brazil of Food for Peace commodities.

(over)

FINEP will sub-lend its funds both to public and private borrowers. Local contributions will be provided for each sub-loan. It is expected that participating Brazilian agencies and firms will assume an increasing share of the costs over the next two years.

Brazil will repay the AID loan in dollars within 40 years, including a 5-year grace period. Interest during the grace period will be at the annual rate of one percent; and two and one half percent thereafter.

#

ALLIANCE FOR PROGRESS

RESS

Agency for International Development

For release after 9:00 a. m. E. S. T.
Thursday, February 10, 1966
(12 Noon Brasilia Time)

A-66-10
DUDLEY 3-7544
Glassman/Kane

AID LENDS BRAZIL \$150 MILLION

A loan of \$150 million to further Brazil's development under the Alliance for Progress was announced today by the Agency for International Development.

The loan agreement was signed today in a ceremony in Brasilia, presided over by Brazilian President Humberto Castello Branco. U. S. Ambassador Lincoln Gordon signed for the United States.

Today's loan is expected to be augmented by approximately \$300 million in additional U. S. assistance throughout 1966. This will include project loans from AID and the Export-Import Bank; sales and donations of agricultural commodities under U. S. Food for Peace legislation; AID housing and investment guaranties; technical assistance, and U. S. contributions to the Inter-American Development Bank.

Proceeds of the current AID loan will be used by the Brazilian government to help private importers and public agencies finance essential imports from the U. S. Of the \$150 million, about \$30 million will be available on medium-term credit to investors buying capital goods from the U. S.

These additional resources for 1966 will bring to nearly one billion dollars the total U. S. assistance authorized for Brazil since the administration of President Castello Branco assumed power in 1964.

In June, 1964, AID extended Brazil a \$50 million credit to finance U. S. imports at a critical time for Brazilian commerce. This was followed in December, 1964, by a \$150 million credit to finance 1965 development imports and generate local currency for economic growth projects. The dollars obligated under both loans were spent in the United States among a large number of U. S. firms.

In 1965 Brazil expanded her economy by about six percent, following two years of virtual stagnation, and made progress toward bringing inflation under control. From virtual international bankruptcy the nation has restored her credit standing, liquidated a backlog of commercial arrears, resumed the flow of financial remittances and rebuilt foreign exchange reserves.

(over)

Department of State
WASHINGTON, D. C. 20523

The Brazilian government has also offered foreign and domestic private investors new incentives. AID's recent investment guaranty agreement with Brazil has attracted applications for guaranties from private U. S. investors which represent a potential of more than \$200 million.

For 1966 and beyond, Brazil's development plan calls for policies and actions to accelerate economic growth, further dampen inflation and press a program of further reforms. Further budgetary deficit reductions are planned to help achieve economic stability and increase public and private investment. The plan also calls for strengthening agriculture and expanding educational opportunities.

Local currency generated by AID-financed imports will be used to finance industrial and agricultural credit, housing, health and other social programs. The nation is also carrying out major Alliance for Progress reforms in land tenure, banking, agricultural credit and public administration. A National Housing Bank has taken new measures to attract private savings for an expanded home loan program.

The U. S. assistance will help support major goals of Brazil's self-help program as outlined by the Brazilian government to the Inter-American Committee of the Alliance for Progress (CIAP), a planning and advisory body. In Brasilia today, Ambassador Gordon congratulated CIAP on its successful reviews of country programs, progress and needs and said that the signing ceremony reflected the new and challenging process being conducted in the Western Hemisphere by CIAP.

The AID loan is repayable in dollars within 40 years, including a year grace period. Annual interest during the grace period is one percent. Thereafter it is two and one-half percent.

#

BIBLIOGRAPHY

1. Angelescu, V. Marine Resources Research in the S.W. Atlantic, Argentina, Brazil and Uruguay. FAO Advisory Committee on Marine Resources Research. 1964
2. Arid Zone Programme. Directory of Institutions Engaged in Arid Zone Research. 1953.
3. Daniels, Farrington. Report on Brazil Visit. National Academy of Sciences, 1960.
4. Department of State. AID Financed University Contracts as of September 30, 1965. Contract Services Division. 1965
5. ----- Inventory of Grants for Science and Technology by U.S. Government Agencies, UNTA, Special Fund, Ford, Kellogg and Rockefeller to Latin American Countries during 1960-62. Office of International Scientific Affairs. 1962.
6. ----- Research Centers and Projects: Latin America. Prepared for the Foreign Area Research Coordination Group. 1964.
7. Ford Foundation Annual Reports, 1962, 1963, 1964.
8. Hodge, W. H. and Keck, D. D. "Biological Research Centers in Tropical America." National Science Foundation, 1962.
9. Imle, Ernest P. "Report on CEPLAC Activities in Bahia in Research Extension and Training." December 1964.
10. Indiana University. Campanha Nacional de Aperfeiçoamento do Pessoal de Nivel Superior and Indiana University. 1961.
11. IPEAN. Instituto de Pesquisas e Experimentação Agropecuárias do Norte: 25 Anos de Pesquisas na Amazonia, Historico, Organização, Pesquisas. Belém, 1964.
12. Instituto Tecnológico de Aeronáutica. Catálogo dos Cursos de Engenharia: 1964. Centro Técnico de Aeronáutica, S. José dos Campos, São Paulo, 1964.
3. Inter-American Development Bank. Inter-American Development Bank: Activities 1961-1964. 1965.
4. Kellogg Foundation Annual Reports. 1962, 1963, 1964.

15. Koch-Weser, Dieter. A Summary of Biomedical Research Activities in Brazil. Office of International Research, National Institutes of Health, September 1964.
16. Mattraw, Harold C. Capabilities for Scientific Research and Engineering in Selected Latin American Countries: Draft. Technical Military Planning Operation, 1960.
17. National Academy of Sciences. Report of the Mission to Selected Institutions of Higher Education in Brazil. 1960.
18. ----- Report of the Survey Committee on Scientific and Technological Education in Selected Institutions of Higher Education in Brazil. 1960.
19. ----- Visiting Fulbright-Hays Scholars in the U.S., 1962-63, 1963-64, 1964-65. Committee on International Exchange of Persons.
20. Orman, Leonard M. Brazil Information Reports: Research Grants. U.S. Regional Science Office for Latin America. 1964.
21. ----- University of São Paulo Information Reports: Research Grants. U.S. Regional Science Office for Latin America. 1964.
22. Pan American Health Organization. Financial Report of the Director and Report of the External Auditor: 1 January - 31 December 1962, 1963, 1964.
23. ----- Proposed Program and Budget Estimates: 1965, 1966. July 1964.
24. Pan American Union. Carreras Universitarias, Volume IV: Brasil. 1965.
25. ----- Enseñanza de las Ciencias y de la Ingeniería en Brazil: Draft. 1965.
26. ----- Instituciones Latinoamericanas de Enseñanza Superior. 1961
27. ----- Instituciones Latinoamericanas Vinculadas a Problemas de Tecnología y Productividad. 1960.
28. ----- Inventory of Information Basic to the Planning of Agricultural Development in Latin America: Brazil. 1964.
29. ----- Primera Conferencia Interamericana sobre la Enseñanza DE LA Física, Rio de Janeiro, Brazil. 24-29 Junio, 1963. 1963.

30. Pontificia Universidade Católica do Rio de Janeiro. Pontificia Universidade Católica do Rio de Janeiro.
31. Rockefeller Foundation Annual Reports. 1962, 1963, 1964.
32. Science Information Exchange. Grants to Latin American Countries: Fiscal Years 1964 and 1965. Smithsonian Institution, August 1965.
33. SUDENE. The Brazilian Northeast and Its Institutions for Economic Development. 1961.
34. UNESCO, Scientific Institutions and Scientists in Latin America: Brazil (Instituciones) Fascículos I and II. Centro de Cooperación Científica para América Latina in collaboration with the OAS. Montevideo, 1963.
35. United Nations Expanded Programme of Technical Assistance. EPTA Programme Summary Tabulations. 1962, 1963, 1964, 1965.
36. ----- Project Handbook: Volume III, Latin America. July 1, 1958.
37. ----- The Programme for 1963-64: A Descriptive Summary of the Category I Short-Term Projects Contained in Document E/TAC/L.281. 1964.
38. U.S. Department of Agriculture. Foreign Agricultural Research Agreements Executed under Public Law 480 Section 104(a) and 104(k). Agricultural Research Service, March 31, 1965.
39. U.S. Government Agencies. Report of the U.S. Science Mission to Brazil, Uruguay and Argentina. 1959.
40. University of Arizona Agriculture Education Survey Team. Report Brazil (NE). Agency for International Development, 1962.
41. University of Brazil. University of Brazil: Graduate Engineering Programs, 1965/66 Catalog. 1965
42. Universidade de Brasilia. Plano Orientador da Universidade de Brasilia. 1962.
43. University of Houston. Focus on the University of Houston in International Affairs, No. 1. June 1965.
44. University of Purdue. 1964 Annual Report: Purdue-Brazil Technical Assistance Project at the Universidade Rural do Estado de Minas Gerais, Viçosa, Minas Gerais, Brazil. January 1965.

45. Wilbur, Karl M. Report of Visits to South American Laboratories of Marine Biology and Oceanography, October-December, 1962. Duke University, 1963.
46. The World of Learning: 1964-65. Fifteenth Edition. London: Europa Publications, 1964.
47. Centro Brasileiro de Pesquisas Fisicas. Relatorio de Setor Técnico-Científico. 1964.
48. Conselho Nacional de Pesquisas. Plano de Ação de CNPq para o Bienio 1965/66. Instituto Brasileiro de Bibliografia e Documentação, Rio de Janeiro, 1964.
49. Morse, Erskine V. Report of Administrative Consultative (USAID/ARD) Visit to Brazil (Official), Argentina and Chile (Unofficial), January 10 - February 13, 1965. 1965.
50. Inter-American Development Bank. Social Progress Trust Fund: Fourth Annual Report. 1964.
51. SPTF. Plus news releases, airgrams, miscellaneous reports from AID, State Department, National Science Foundation, National Academy of Sciences, etc., letters and personal communications.

BRAZIL





ALLIANCE FOR PROGRESS

WEEKLY NEWSLETTER

Vol. IV, No. 10

March 7, 1966

Brazil managed to make good progress in curbing inflation, while recording an appreciable rise in its gross national product, in 1965.

Initial estimates of the rise in GNP center around 6.8%, compared with 3.3% in 1964 and 2.5% in 1963, according to APEC, an authoritative Rio de Janeiro economic newsletter. Meanwhile, the government succeeded in curtailing the rise in the cost of living to 45.4%, compared with about 85% in 1964. Thus, APEC notes, "the extremely dangerous spiral has been broken..."

The figures in the APEC report confirm an earlier analysis by the Inter-American Committee on the Alliance for Progress - CIAP - which reported that the Brazilian economy experienced a significant recovery in 1965 after two years of near stagnation (Vol. IV, No. 4).

A considerable portion of the GNP rise was the result of a 90% jump in the coffee crop, which contributed heavily to an estimated 17.6% rise in total agricultural output.

The strong showing of the agricultural sector helped compensate for a less satisfactory showing in industry, which slumped in the first half of the year. A stronger second half enabled the industrial sector to show an estimated rise of 1.6% in output for the year as a whole.

A strongly improved exchange position was one of the outstanding accomplishments of the government's fiscal policies in 1965. Foreign currency reserves of \$450 million have been built up, APEC reported.

Contributing to this rise was a favorable balance of trade of \$475 million, up from a surplus of \$166 million in 1964. This gain was recorded in the face of declining earnings from coffee exports. Despite a bumper crop, exports fell from 15 million bags (\$755 million) in 1964 to 13.5 million bags (\$722 million) in 1965.

Another sign of the nation's improving fiscal position was the fact that the treasury deficit was well within the budget, and was, "for the first time, financed by non-inflationary funds," APEC reported. "This was mainly because of profound changes in the financial structure of the nation and because of the organizing of a Central Bank."

Reflecting the growing confidence in the government's fiscal policies, the inflow of private foreign capital rose to an estimated \$256.7 million in 1965, APEC reported. Despite more liberal regulations concerning the transfer of profits, the outflow of capital from the private sector totaled no more than \$47 million, leaving a net inflow of about \$209 million.

* * * *

GOVERNMENT OF BRAZIL

Expenditures - 1964, Requests for Budget Authorization - 1965, 1966
(in billions of cruzeiros)

<u>Ministry</u>	<u>1964¹</u>	<u>1965²</u>	<u>1966³</u>
Presidential, Legislative & Judiciary	214.7	195.1	216.3
Finance	806.2	721.6	957.3
Army	145.8	410.0	500.2
Navy	86.5	219.8	294.7
Air	124.6	239.5	269.8
Labor and Social Security	79.8	86.5	63.0
Justice and Interior	23.3	127.8	102.0
Education and Culture	160.8	418.0	422.0
Health	65.7	113.1	147.0
Agriculture	78.8	147.9	175.6
Foreign Affairs	8.5	18.1	94.2
Industry and Commerce	.8	8.5	10.1
Mines and Energy	37.8	112.7	312.0
Communications and Public Works	659.3	880.0	867.8
Unclassified	124.5	76.4	306.4
Sub-Total	2,617.1	3,775.0	4,678.0
Adjustment	-----	249.0	636.0
TOTAL CASH	2,617.1	4,024.0	5,314.9

¹Figures from Central Bank. Include cuts but not extra authorizations.

²Figures from Ministry of Planning. Adjustments to reconcile budget estimates with present cash estimates for 1965 and 1966.

³Figures from Ministry of Planning, adjustments from Ministry of Finance.

NOTE: Actual expenditures by the Ministries may vary by as much as 40% from the cited figures due to extra budgetary authorizations, cuts, and so on. These figures include only central government expenditures.

BRAZIL: EXPORTS OF PRINCIPAL COMMODITIES, 1963-64

Commodity	1963		1964		1963	1964
	Met. Tons	US\$1,000	Met. Tons	US\$1,000	% of Total \$	
Coffee	1,170,784	748,284	896,774	759,703	53.2	53.1
Cotton, raw	221,804	114,241	217,028	108,259	8.1	7.6
Latex	8,207,094	70,417	9,729,630	80,638	5.0	5.6
Softwood lumber, sawed, planed & simply worked	461,919	34,769	614,115	46,363	2.5	3.2
Soybean beans	68,685	35,030	74,710	34,816	2.5	2.4
Palmetto or Century Plant	115,064	33,592	117,064	33,897	2.4	2.4
Sugar	524,097	72,428	253,004	33,138	5.2	2.3
Tobacco	43,914	24,118	59,794	28,291	1.7	2.0
Soybean oil and beans	77,351	17,787	111,014	24,435	1.3	1.7
Iron	3,304	2,885	18,492	23,513	0.2	1.6
Japanese	840,709	24,625	832,918	20,615	1.8	1.4
Wool, frozen	9,950	4,297	18,103	10,992	0.3	0.8
Butter	14,041	15,721	10,330	10,846	1.1	0.8
Walnuts	25,194	8,882	24,185	10,421	0.6	0.7
Carnauba wax	11,273	10,158	11,088	10,243	0.7	0.7
Essential oils and herbs	48,428	7,664	48,415	7,776	0.5	0.5
Gas	205,901	2,924	225,541	5,818	0.2	0.4
Gold	1,353	7,905	1,012	5,670	0.6	0.4
Wool, canned & preserved	5,791	3,970	7,400	5,388	0.3	0.4
Iron	46,994	1,973	148,953	5,185	0.1	0.4
Alcohol	26,618	3,036	44,311	5,015	0.2	0.4
Soybean oil	6,317	2,846	12,488	4,269	0.2	0.3

BRAZIL EXPORTS (continued)

Commodity	1963		1964		'63	'64
	Met. Tons	US\$1,000	Met. Tons	US\$1,000		
Oranges	143,623	6,169	96,964	3,714	0.4	0.3
Sisal burlap	14,934	2,851	18,068	3,583	0.2	0.3
Pepper	2,437	1,801	4,046	3,039	0.1	0.2
Other commodities	<u>1,841,854</u>	<u>148,107</u>	<u>990,951</u>	<u>144,163</u>	—	—
TOTALS	14,139,433	1,406,480	14,586,835	1,429,790	100	100

Source: Mensário Estatístico No. 165. Serviço de Estatística Econômica e Financeira. (Rio de Janeiro: Ministério da Fazenda, March 1965)

BRAZIL: IMPORTS OF PRINCIPAL COMMODITY GROUPS AND COMMODITIES, 1963-64

Commodity Group & Commodities	1963		1964		1963	1964
	Metric Tons	US\$1,000	Metric Tons	US\$1,000	% of Total	\$
el, Lubricants, Mineral Oils and Similar Products	12,633,217	262,362	13,395,848	258,110	17.6	20.4
Petroleum, Crude	10,374,470	176,362	10,803,348	170,366	11.9	13.5
Coal, Anthracite & Bituminous	865,487	13,606	1,348,429	24,376	0.9	1.9
Lubricating Oils	228,134	18,599	272,286	21,708	1.3	1.7
Liquified Petroleum Gases	261,980	16,070	233,035	13,593	1.1	1.1
Gasoline	522,616	21,256	292,966	10,994	1.4	0.9
achinery, Parts and Accessories Machine tools & Other Metal- working machines, excluding Pneumatic	123,404	316,767	88,456	241,283	21.3	19.1
Ball and Roller Bearings	21,255	38,721	16,453	32,384	2.6	2.6
	5,655	18,259	4,861	15,826	1.2	1.3
at	2,175,627	164,004	2,609,016	209,560	11.0	16.6
ical & Pharmaceutical & ilar Products	953,712	179,465	707,494	148,127	12.1	11.7
ertilizers, Manufactured	462,086	23,865	361,755	19,189	1.6	1.5
lastic Soda	158,644	13,145	116,602	12,566	0.9	1.0
ils and Their Manufactures Iron & Steel Sheets & Plates, including Tinplate	635,585	196,185	390,307	130,794	13.2	10.4
opper, Refined, Unmanufactured	263,258	52,088	120,797	27,069	3.5	2.1
arbed Wire	48,117	32,954	27,810	20,756	2.2	1.6
nc, Unmanufactured	71,862	13,783	67,839	13,454	0.9	1.1
uminum, Unmanufactured	38,902	9,875	30,707	10,366	0.7	0.8
	25,8	12,706	18,549	9,274	0.9	0.7
cles, Parts, & Accessories actors, except Steam omotives	36,563	119,694	26,844	67,448	8.1	5.3
	11,377	18,626	10,899	17,838	1.3	1.4
	6,007	14,088	5,408	13,717	1.0	1.1
rint	118,681	23,898	73,797	14,574	1.6	1.2
sh	29,798	16,732	20,646	13,520	1.1	1.1
, Pears, and Grapes	75,581	15,274	49,035	11,466	1.0	0.9
Commodities	884,022	193,467	812,838	168,569	13.0	13.3
	17,666,190		18,174,281			
		1,486,848		1,263,451	100	100