AIRGRAM

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DEPARTMENT OF STATE

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FROM - RIO DE JANEIRO

SUBJECT - NONCAPITAL PROJECT PAPER (PROP)
Developmental Science and Technical Research - NAS/CNPq

REFERENCE -

COUNTRY: BRAZIL PROJECT Nº: 512-11-690-263.8 300.8

SUBMISSION DATE: December 19, 1969 ORIGINAL: X

PROJECT TITLE: Developmental Science and Technical Research NAS/CNPq

U.S. OBLIGATION SPAN: FY 68 through FY 71

PHYSICAL IMPLEMENTATION SPAN: FY 68 through FY 72

GROSS LIFE OF PROJECT FINANCIAL REQUIREMENTS:

U.S. Dollars	$588,000
Local Currency (Trust Fund in US$)	79,000
TOTAL	$667,000

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A. SUMMARY

Necessity and Justification. Brazil needs trained personnel capable of conducting scientific research significant to the development of the nation. Scientific researchers are needed by universities, industrial organizations, commercial enterprises, government ministries and development agencies. The government of Brazil has recognized the need and has vested authority in the National Research Council (CNPq) to conduct research studies and train personnel. Opportunities for graduate university students to obtain postgraduate scientific degrees within Brazil are very limited; and, consequently, the research capability of most Brazilian universities is meager. Students who have completed postgraduate training outside Brazil have for the most part accepted non-University employment.

Brazil faces many problems in its development of science and technology. The Ministry of Planning reports that Brazil has 0.3 scientists per 10,000 inhabitants, compared with 25.4 in the United States, 11 in England and 7.5 in West Germany. The Organization of American States (OAS) recently estimated that Brazilian investment in scientific and technological activities is about .18 per cent of gross national product, compared with .35 per cent for Argentina and a goal of one per cent set by that organization.

Goals and Targets. The objective of this project is to assist the Government of Brazil, through the CNPq, to identify those areas of research most vital to the scientific and economic development of Brazil, to analyze the types of research required and to recommend ways to train the necessary personnel. Meetings of joint U.S.-Brazilian study groups result in written recommendations regarding science policy. U.S. scientists provide technical assistance in the strengthening of the CNPq and conduct and report research, in conjunction with Brazilian scientists, useful to Brazil's development effort. The implementation of the recommendations of the study groups is the ultimate objective of the project.

General Approach and Plan of Action. This project is an extension of an earlier project supported by AID/Washington, which promoted cooperation between American scientists associated with the National Academy of Sciences (NAS) and Brazilian scientists associated with the CNPq. At a joint workshop held in April 1966 priority for Brazilian research was placed in a) agricultural economics, b) agricultural research, c) standards, its weights and measures and e) mineral resources, all key areas identified in the 4th five-year development plan of the Ministry of Planning. Under the present project joint study groups in these areas have been organized and have met periodically, alternating between countries on a shared cost basis, to formulate recommendations regarding science policy for Brazil. In addition to the proposed reorganization of several new study groups, the project provides for consultant assistance to the CNPq by the NAS in science policy administration and for participant training in the United States for selected CNPq staff.

Since January 1968 USAID/Brazil has obligated US$190,000 for the project. Through a contract with the NAS, these funds provide technical assistance and administrative support to the NAS-CNPq collaboration, including the recruitment and organization of U.S. study groups, the coordination of those study groups meeting in the United States, the recruitment and administrative support of consultants who are made available to the CNPq for periods of from three to eight weeks and the development of short-term training programs in the United States for a limited number of Brazilian scientists in science policy administration and other subjects. The CNPq has assumed the responsibility for planning and coordinating

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and conducting the ~~xx~~ seminars in Brazil, as well as for all expenses of the Brazilian scientists participating in the project and the expenses in Brazil of the U.S. scientists.

Supported by the recommendations of the study groups, the Brazilian Government has increased the CNPq budget from approximately NCr$2.5 million in 1966 to NCr$50 million in ~~IN~~ 1969. In addition to the administration of the Council, these funds provide for 1200 full-time research fellowships and for 400 undergraduate fellowships which permit the recipient to work on research projects in conjunction with senior scientists.

B. SETTING

Developing countries can be categorized into roughly three overlapping stages of scientific development. In stage one the society is entirely dependent upon outside sources for scientific and technical knowledge. A society in stage two is partly dependent upon foreign institutions for technical advice and training but has some capacity for indigenous scientific activity. In stage three the society has ~~xxx~~ an independent scientific tradition and its own capacity to support such activities. Brazil today is an example of a society in stage two. In a number of fields, e.g., medicine, it has entered stage three although it lags behind in stage one in a number of other areas.

While ~~x~~ the original Punta del Este charter is virtually silent on the matter of science and technology, the heads of state, at the 1967 American republics summit meeting, called for a national science policy in each country to establish a regional scientific and technological development program, including exchanges of personnel and information, the strengthening of existing institutions for advanced training and research, and the creation, on a multinational basis, of new training and research facilities at the post-graduate level. At the summit meeting President Costa e Silva of Brazil called for a crash program of scientific and technological development for his and other Latin American states as an essential means of speeding the total development process. The Brazilian Government now appears to be embarked fully upon a program to implement the recommendations of the summit conference.

The principal instrument for implementing these recommendations is the Conselho Nacional de Pesquisas (CNPq), which was created in 1951 as an independent agency directly responsible to the President of the ~~Rep~~ Republic. Its principal mission is to promote and stimulate the development of scientific research and to advise the President on the formulation and execution of scientific policy. ~~Specifx~~ Specifically, the Council is authorized to provide grants and scholarships for advanced graduate training and research, for the acquisition of scientific equipment and the services of specialized personnel, for the total or partial support of research institutions and for overseas study and attendance at international conferences. The Brazilian Government has steadily increased the annual budget of the Council, which is rapidly becoming the counterpart of such U.S. institutions as the National Science Foundation, the National Academy of Sciences and the President's Science Advisory Committee.

In 1965 AID/Washington~~xx~~ began a program to stimulate the application of scientific technology to economic and social development in four countries - Peru, Brazil, Nigeria and the Philippines. The program established in Brazil a cooperative relationship between the NAS and the CNPq for identifying areas in need of scientific research and development and [illegible] for making recommendations to [illegible] the nation's capacity to perform re-
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search. USAID/Brazil continued the project when AID/Washington funding terminated in June 1968.

C. STRATEGY

In the search for immediate solutions to the problems of economic and social development basic scientific research traditionally has been assigned a lower priority than technological applications. The Developmental Science and Technology project merges these two approaches through the identification and stimulation of scientific research in areas meaningful to Brazilian economic development. By taking advantage of the contact established between the NAS and the CNPq in the first phase of the project, USAID/Brazil provides, through the NAS, the services of U.S. scientists, who work with Brazilian scientists selected by the CNPq to determine relevant research projects.

The Brazilian Government has placed increasing emphasis on scientific research and has provided the necessary funds to support this emphasis. Between 1968 and 1969 the federal government increased the budget of the CNPq over 100 per cent to approximately US$15 million. The government has also made a reasonably successful effort to attract Brazilian scientists in other countries to return home.

A close association has developed between the [illegible] CNPq and the NAS, principally as a result of the leadership of Dr. Antonio Couceiro, the CNPq director, who has long been prominent in scientific circles in Brazil and abroad. With his interest in and understanding of the problems of scientific development in Brazil he has assured a productive working relationship in pursuit of the project goals. At the administrative level Dr. Couceiro and his assistants have made innumerous contacts at the Foreign Office to provide special consideration for the U.S. scientists coming to Brazil.

Cross Relationships

The project bears upon several USAID programs in the fields of industrial development, agriculture research, human resource development and engineering through the identification of meaningful projects in support of Brazil's economic development.

D. PLANNED TARGETS, RESULTS AND OUTPUTS

Although difficult to quantify, the project should bring about major changes in the area of scientific development in Brazil, including the following:

1) The [illegible] identification and recommendation of meaningful research projects in areas of priority to Brazilian economic development, including the fields of health, industry, mineral resources, agriculture and transportation.

2) The encouragement of better [illegible] equipped facilities and better trained scientists in these fields

3) The stimulation of a greater injection of funds in support of Brazilian scientific research.

4) The strengthening of the CNPq as a national scientific institution.

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5) The development of a national science policy, particularly with regard to the training and retention of scientists and scientific research.

E. COURSE OF ACTION

Phase I - April 1966 - March 1967

1. The CNPq identified Brazilian scientists willing to participate in a developmental science and technology program.

2. The NAS identified U.S. scientists willing to give their time, without charge, in assisting Brazil to develop a program of research in science and technology.

3. A general workshop was held at Itatiaia, Brazil in April 1966, which was attended by scientists selected by the CNPq and the NAS, as well as USAID technicians, to consider the general organization and methods of for the transference and development of meaningful scientific and technical knowledge in support of Brazil's economic development program.

4. The weeklong workshop recommended that joint U.S.-Brazilian scientific study gem groups be established to identify research problems and recommend research projects in the following areas:

a. Industrial research

b. Mineral resources

c. Agricultural research

d. Agricultural economics

e. Norms, measurements and testing

Phase II - April 1967 - March 1969

1. The joint study groups met from one to three times each to design work plans, to analyze development problems in their area and to gather information upon which to base their reports and recommendations.

2. A second general workshop was held in Washington, D.C. in February 1968, at which time reports of progress were submitted by representatives of each study group. Approval was given for the formation of two additional study groups in chemistry research and computer ms sciences, as well as to a recommendation that mechanism be created to stimulate U.S. professors and researchers to go to Brazil to assist in its scientific development.

3. The chemistry study group met in Rio de Janeiro in August 1968 and agreed upon a course of action mx which would be formally recommended to the general workshop in April 1969.

4. A computer sciences feasibility study team visited Brazil and prepared an interim report for submission to the general workshop in April 1969.

Phase III - April 1969 - March 1970

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1. In April 1969 the general workshop members received reports and recommendations for action from the industrial research, agricultural research, chemistry and mineral resources study groups.

2. The chemistry study group recommended an action program to establish postgraduate research laboratories at three Brazilian institutions and to stimulate U.S. professors and researchers to come to Brazil.

3. The general workshop approved two additional study groups in earth sciences and transportation and recommended the need for a study group in computer sciences.

4. The planning and arranging of participant training, recommended by the agricultural economics study group, was implemented in June 1969.

5. A project agreement to implement the recommendations of the chemistry study group was developed and subsequently signed on June 30, 1969.

6. The NAS and CNPq will identify and appoint members of the earth science, transportation and computer sciences study groups.

7. These three study groups will each meet once to analyse development problems in their area and to gather information for a preliminary report to the general workshop in April 1970.

8. Study groups in the industrial research, agricultural economics, agricultural research and mineral resources study groups will meet to discuss their preliminary recommendations with the CNPq before presenting them to the general workshop.

Phase IV - April 1970 - December 1970

1. A General Workshop will be convened to discuss the progress of the study groups and determine what future action, if any to recommend.

2. Final reports will be prepared by the study groups and presented to the CNPq.

3. These reports will be published by the CNPq and disseminated to the appropriate ministries of the Brazilian Government and to USAID.

4. The recommendations in these reports will be discussed by the USAID developmental science and technology committee to determine what further action, if any, should be recommended to the Mission Director.

5. The industrial research, agricultural economics, agricultural research, mineral resources and norms standards, and measures study groups will be placed on a standby basis with no further meeting dates set.

6. Second meetings of the earth sciences, computer sciences and transportation study groups will be held during October and November.

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Phase V - January 1971 - December 1971

1. Final reports and recommendations will be prepared by the earth sciences, computer sciences and transportation study groups for presentation to the general workshop scheduled to be held in Brazil in April 1971.

2. A general workshop will be convened in Brazil by the CNPq in April 1971 to receive reports from all active and standby study groups.

3. Recommendations for action programs will be referred by the CNPq and USAID to specific implementing agencies.

4. Chairmen of the study groups, staff personnel of the CNPq and the MAS and representatives of USAID will meet during the workshop to determine if the need exists for the establishment of additional research study groups.

5. A follow-up to determine the status of the implementation actions will be conducted from May to October 1971, and a final project report will be prepared by December 1971.

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NONCAPITAL PROJECT FUNDING (Obligations in $000)

Table 1
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COUNTRY: BRAZIL

PROP Date:
ORIGINAL: X
Rev. No:

Project Title: Developmental Science and Technical Research NAS/CNPq

Project No: 512-11-690-263.8

Fiscal Years	Ap	L/G	Total	Cont 1/	Personnel Serv. AID	Personnel Serv. PASA	Personnel Serv. Cont	Participants U.S. Agen.	Participants Cont	Commodities U.S. Agen.	Commodities Cont	Other Costs U.S. Agen.	Other Costs Cont
Prior thru Actual FY 69	AG	G	434	434	-	-	273	-	55	-	2	-	104
Operational FY 70	AG	G	89	89	-	-	65	-	-	-	1	-	23
Budget FY 71	AG	G	65	65	-	-	44	-	-	-	4	-	17
B + 1 FY 72			-										
B + 2 FY 73			-										
B + 3 FY 74			-										
All Subs Yrs			-										
Total Life	AG	G	588	588	-	-	382	-	55	-	7	-	144

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$ Equivalent (000's)
Exchange rate $1.00 = NCr$4.00

Project N?: 512-11-690-263.8

Fiscal Years	AID-controlled Local Currency: U.S. owned	AID-controlled Local Currency: Country owned	Contribution Cooperating Country	Other Donor Funds ($Equiv.)	Food for Freedom Commodities: Metric Tons (000)	Food for Freedom Commodities: CCC Value & Freight ($000)	Food for Freedom Commodities: World Market Price ($000)
Prior thru Actual FY 69		-					
Operational FY 70		47					
Budget FY 71		32					
B + 1 FY 72							
B + 2 FY 73							
B + 3 FY 74							
All Subs Yrs							
Total Life							

1/ Trust Fund

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