

AGENCY FOR INTERNATIONAL DEVELOPMENT
Washington, D.C. 20523

OFFICE OF THE AUDITOR GENERAL
AREA AUDITOR GENERAL - LATIN AMERICA

AUDIT REPORT
USAID/BRAZIL
STATE OF SÃO PAULO
SCIENCE AND TECHNOLOGY DEVELOPMENT
LOAN NO. 512-L-088
(PROJECT NO. 512-21-270-319)

For the period May 30, 1973
through August 31, 1974

Audit Report No. 1-512-75-31
November 14, 1974

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INTRODUCTION

The State of São Paulo Science and Technology Development Loan (No. 512-L-088) ^{1/} for \$15 million was signed by the State of São Paulo and A.I.D. on May 30, 1973. The loan funds are to finance the dollar costs of technical assistance and training in support of the São Paulo Science and Technology Program. This program seeks to increase and broaden the use of technological services by the industrial and agro-industrial communities; to extend the scope of technological services available; and to improve the capabilities of organizations that provide such services.

The São Paulo Program, with a total estimated cost of \$40.9 million including the loan amount, involves the development of a system by which government resource allocations to science and technology are, to the extent possible, based on the needs and opportunities of the market place. The major components in the system are:

- Comprehensive technological planning and programming of the state's science and technology activities.
- A Fund for Scientific and Technological Development in the São Paulo Development Bank through which low-interest, risk venture loans can be made to industry and research institutes for engineering, development, product design, market analyses and research.
- A standards and quality assurance program coordinated with the Federal Government to develop norms and standards and to establish facilities for product certification.
- Financial incentives for researchers in the universities and the research institutions to work with the private sector.
- Academic courses, seminars and workshops in research management, marketing, quality control, information sciences, and agriculture, and industrial engineering to meet private sector needs.
- An extension program through which the facilities and capabilities of the system can be provided to meet the demand for technology which exists in the private sector and assist other state governments, universities and research institutions identify and improve the supply of technology for industry and agro-industry.

The A.I.D. loan portion of the program encompasses some of the above components and focuses on a combination of institutional and systems development. These areas include: research planning and management; information systems for extension, marketing and reference services; market research; technological extension units; reference and testing laboratories; new technological services; and coordination and resource allocation. To demonstrate to

^{1/} Project No. 512-21-270-319.

industry and research institutes the value of the systems being developed, demonstration projects are to be undertaken in two priority sectors: food technology and metallurgy. Technological facilities will respond to known market needs to show that research and adoptive technology can improve the production, competitive position, and profits of Brazilian industries and provide higher quality, lower costs products to consumers.

The São Paulo State Council of Technology is responsible for the execution of the program. Other involved major state supported institutions include: the Institute of Technological Research; the Institute of Food Technology; and the University of São Paulo.

The basic purpose of our examination was to review the overall aspects of the São Paulo Program, with primary emphasis on the A.I.D. loan portion, to determine that the executing agency was effectively utilizing the resources made available to accomplish the stated objectives. Other purposes were to evaluate the effectiveness of the financial and administrative management of the loan and the extent of compliance with A.I.D. policies, regulations and procedures.

SUMMARY

The São Paulo Program, still in its initial phases, is basically progressing as contemplated. It appears to be a dynamic program being conducted under capable leadership.

The loan element of the program can be considered as generally on course. We did note, however, certain conditions warranting the immediate attention of USAID management. These conditions are summarized below along with accompanying recommendations:

- A need exists to coordinate certain research activities planned under the Food Technology Demonstration Project with similar activities being conducted under the USAID Agricultural Research Project, Loan No. 512-L-077. We have recommended that effective coordination be established among the concerned parties. (See pp. 4 to 6).
- Semi-annual independent audit reports have not been submitted as required. Accordingly, it was recommended that a request be made of the State Council to insure compliance with this loan provision. (See pp. 6).

STATEMENT OF FINDINGS AND RECOMMENDATIONS

Implementation Progress

The São Paulo Program, which is being built on the existing infrastructure in São Paulo, appears to be a dynamic endeavor under responsible leadership. The program, still in its early stages, is progressing about as planned.

Comprehensive technological planning and programming of activities by the State Council are increasingly being based on the surveys of research institutions which has enabled it to determine institutional capabilities so that eventually research institutions and private industry may be more closely integrated.

The Fund for Scientific and Technological Development has provided financing for research and engineering projects and for research facilities to enhance the usage of Brazilian expertise to solve industry problems. Almost all of the cruzeiro equivalent of \$13,769,000 ^{2/} in the Fund has been committed. Forty contracts have been executed for the equivalent of \$6,024,000 and the State Council has allocated the equivalent of nearly \$6,885,000 to research institutes for acquisition of equipment and improvement of facilities. Since the initial capital of the Fund is almost fully committed, the State of São Paulo is negotiating another loan with the Federal Planning Ministry to increase the Fund to the equivalent of \$22,923,000 ^{3/} for operations in 1975-76.

Extension activities promise to further identify the demand for technology which exists in the private sector and which can be met through contracts with research institutions.

The A.I.D. loan supported element of the above program can be considered generally on course. As of July 31, 1974, a total of \$3,129,738 had been committed and \$269,375 had been disbursed, leaving an uncommitted balance of \$11,870,262. As planned, five contracts have been awarded to U.S. institutions by the State Council to provide the needed technical assistance and training. Pertinent contract data is as follows:

<u>Contract Date</u>	<u>Contractor</u>	<u>Area</u>	<u>Contract Amount</u>
7-16-73	Denver Research Institute	Metallurgy	\$ 626,295
1-15-74	Vanderbilt University	Management	224,664
3-28-74	Consortium for the Development of Technology	Food Technology	1,970,078
4- 1-74	Stanford Research Institute	Marketing	308,701
5-30-74	Massachusetts Institute of Technology	Science Policy	354,243

Our review of documentation in the project files and interviews with State Council and research institution officials confirmed that the services provided to date by the above contractors have been satisfactory.

^{2/} Exchange rate of Cr\$5.81 to US\$1.00
^{3/} Exchange rate of Cr\$6.98 to US\$1.00

In the research planning and management area, both long and short-term consultants have assisted the management of the State Council in defining the structure and responsibilities of its various divisions. Assistance has also been given to the University of São Paulo in development of the curriculum in research management and in the management organization of the Faculty of Economics and Administration.

A contractor has not yet been selected to develop an information system to provide data on technological and market trends for the research institutes, private sector, and planners at the State Council. Components of the system will include: industrial technological information; patent information; agricultural information; and domestic and foreign information, including data on organizations and services available.

Marketing surveys are in process to determine the research capabilities of the more than 100 research institutes within the state for more effective interaction between industry and the institutes. Marketing models are being developed for various size existing research institutions.

The establishment of a system for standardization and quality assurance in which both the Institutes of Technological Research and Food Technology will be involved has been delayed. This delay is attributable to extensive negotiations with the U.S. National Bureau of Standards to arrive at an acceptable agreement. However, the agreement is expected to be signed in the near future.

The Loan Agreement provides for approximately 75 man-years of services by post-doctoral fellows through the University of São Paulo system. These services are to assist in developing new specialized fields, modernizing curricula and strengthening the various departments involved including engineering, agricultural engineering and management. The precise areas of study are yet to be determined and the mechanism for obtaining post-doctoral fellows has not yet been established.

Demonstration projects are underway in designated priority sectors: food technology and metallurgy. In the near future, it is expected that the latter project will be able to demonstrate to industry explosive cladding and forming in a new facility constructed for this purpose.

Conditions which we believe deserve the immediate attention of the USAID are described below with accompanying recommendations.

Coordination of Research Activities

An effective means of coordination needs to be established between the interested parties regarding certain research activities planned under the Meat Sub-project of the Food Technology Demonstration Project and similar activities being conducted under the National Cattle Research Project financed by Loan No. 512-L-077, Agricultural Research.

The Meat Sub-project, funded by Loan No. 512-L-088, is to include, among others, research activities in the following areas: dry season feeding; grass-legume pastures; forage digestibility tests of genetic materials; improvement of cattle through selection and cross-breeding; cattle management; and disease identification. Technical assistance in this area is to be furnished to the Institute of Food Technology over a 5-year period by the aforementioned consortium, representing a group of U.S. universities, through a contract dated March 28, 1974 with the State Council. This contract covers only the initial two years of the assistance. To date, only minimal short-term consulting services have been furnished under the contract. The activities are to be conducted at the Institute and also at the Animal Husbandry, Agronomy, and Biological Institutes within the State of São Paulo.

Under Loan No. 512-L-077, A.I.D. is assisting the Government of Brazil in planning and administering a large-scale national agricultural research program. Included in this program, administered by the Brazilian Company for Agricultural Research are certain priority research areas, among which is the Cattle Research Project. Current sub-projects under this latter project include: cattle production; forage improvement; forage production, management and conservation; pasture establishment and management; and animal nutrition. The Company has a contract with the University of Florida to provide the required assistance. The activities are being conducted at the National Center for Cattle Research in Brasilia, and in the State of Rio de Janeiro.

The total estimated cost involved under each of the projects was not readily ascertainable; however, it is rather substantial. The activities are planned to be conducted through April 30, 1978 for the Meat Sub-project and through June 30, 1976 for the Cattle Research Project.

As indicated above, the research activities involved under the sub-projects of the two respective projects are similar in nature. This is not meant to imply that these activities are necessarily duplicative of each other. For example, the areas of the country, the breeds of cattle, and the types of grasses are different. Nevertheless, the possibility exists that analogous activities may be conducted with a resultant inefficient utilization of resources.

At present, the two projects are operating independently of each other since a means of effective coordination has not been established by the USAID. This is primarily because the responsibility for monitoring the activities under each of the loans is vested in different USAID offices. Activities have only recently commenced under the Meat Sub-project, so little, if anything, has been lost at this stage.

In our opinion, effective coordination of the research activities between the two respective projects would greatly enhance the possibility of achieving the desired results under each and allow for a more efficient use of resources. This could preclude a possible near duplication of efforts and provide for the exchange of valuable information.

Recommendation No. 1

That the USAID, in conjunction with the interested parties, establish effective coordination between research activities planned under the Meat Sub-project of Loan No. 512-L-088 and similar activities being conducted under the Cattle Research Project of Loan No. 512-L-077.

Auditing Requirements

Although semi-annual independent audit reports relating to the financial and progress aspects of the program, including the loan, are required by Section 4.09 of the Loan Agreement and Implementation Letter No. 1, none have been received by the USAID.

In accordance with the above legal instruments, the São Paulo State Secretary of Finance and Planning assigned an auditor, in July 1973, to audit the books and records related to the project maintained by the State Council. In August 1973, the State Council project coordinator advised the USAID of the intended scope of such audits and that they would be carried out semi-annually.

Contractual activities under the program began with a letter of intent, dated in July 1973, to contract with the Denver Research Institute. The Conditions Precedent were met on November 1, 1973. Therefore, using these two dates and allowing, in each case, the required additional 60 days for submission of the audit report to the USAID, the initial report should have been received between the end of March and June 30, 1974. However, as of August 31, 1974, the USAID had not received the report covering initial program activities.

In our opinion, the USAID should have established a firm date for initial audit reporting purposes in order to assure compliance with this important provision. However, this was not done.

These audits represent an important management tool for the State Council in addition to enhancing the USAID's effective monitoring of the loan. Hence, compliance with this provision should be enforced.

Recommendation No. 2

That the USAID request the State Council to insure compliance with the semi-annual independent audit report provision established by Section 4.09 of the Loan Agreement and Implementation Letter No. 1.

BACKGROUND AND SCOPE

Background

The development of scientific and technological research in Brazil has greatly lagged behind the growth of the economy in general and of its industry in particular. Nearly all of the technology absorbed by industry and other segments of the productive system has been imported and will likely to be so for some time to come. Moreover, such technology has been incorporated into the productive system with little adaptation.

Also, little progress has been made in the Brazilian production of new techniques required for industrial growth. Thus the process of technological change in the Brazilian economy has not been paralleled by development of an internal capacity for generating technical knowledge. In other words, Brazilian industry has been dependent for technical changes upon the results for research development abroad.

Starting in 1968, the Brazilian Government decided to undertake a coordinated effort to improve the situation of science and technology in Brazil with a definition of a national policy and the establishment of priorities and programs in this area.

In its First National Economic and Social Development Plan (1972-74), under caption: "Acceleration of Scientific and Social Development", the government established its strategy toward adapting imported technology to Brazil's specific requirements (e.g., industry's competitive capacity and employment), and developing the country's ability to meet its own scientific and technical needs.

In December 1971, the USAID received an official request from the Governor of the State of São Paulo, the most highly industrialized state in Brazil, for a loan to help finance its Science and Technology Development Program. The loan was subsequently authorized, in the amount of \$15 million, by AID/Washington on February 27, 1973. The Loan Agreement was signed on May 30, 1973.

The State of São Paulo has the largest and probably the most advanced professional manpower base and the technological infrastructure in Latin America. The locus of the program is São Paulo, however, the services will be available and used Brazil-wide.

A description of each of the major state institutions involved in the program follows in the succeeding paragraphs.

The State Council is chaired by the State Secretary of Economy and Planning. It was established in August 1971 with responsibility for setting state policies in industrial, agricultural and bio-medical technologies and coordinating the research activities of all public research institutions as well as of private institutions receiving state financial assistance. The Council, assisted by a management group, is to serve as the control and coordination center for the program, including the administration of A.I.D. loan funds.

The Institute of Technological Research reports to the Governor through the President of the Administrative Council. It is the leading industrial research institute in Brazil. The Institute has the responsibility to provide research and technical assistance to private industry and government enterprise in the State of São Paulo. It also provides assistance in other regions of Brazil.

The Institute of Food Technology is responsible to the State Secretary of Agriculture. It promotes research and application of new techniques in preparation, storage, processing, packing, distribution, and utilization of foodstuffs. The Institute also cooperates with universities in the training of food technology specialists and in the training of middle-level technicians. Other activities include: the training of industry personnel, students and graduates; and the advising of official credit institutions of food industry projects.

The University of São Paulo represents one of the best all-around universities in Brazil. A number of research institutions are associated with the University. There are, however, weak spots within some of the major departments involving science and technology. It also suffers, as do most universities in Brazil, from lack of involvement in market oriented research. The São Paulo Program, with the assistance of the University's leadership, is designed to eliminate the weak areas and to concentrate more on the needs of the market.

The São Paulo Development Bank began operations early in 1971. Its capital stock of about \$23 million is 98 percent owned by the State of São Paulo. Its operations are divided into three broad areas: rural credit, industrial financing, and the financing of services including surveys, feasibility studies and research. In March 1972, the Fund for Scientific and Technological Development was established within the Bank with an initial capital of the cruzeiro equivalent of \$13,769,000. Half of this amount came from the government and half from the state. Through the Fund, low-interest, risk venture loans are made to industry and research institutes. Applications for these loans are first funneled through the State Council for review prior to their submission to the Bank.

Scope

The Brazil Residency of the Area Auditor General, Latin America, has performed an examination of the State of São Paulo Science and Technology Development Loan (P. 12-L-088). This was the first such examination and covered the period from the inception of the loan on May 30, 1973 through August 31, 1974. The audit was performed from (June 24, 1974 through September 27, 1974).

Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the Borrower's financial records and loan related documents, inspections, and discussions as were considered necessary in the circumstances. Site visits were made to the State Council, and to the Institutes of Technological Research and Food Technology in the São Paulo area.

We did not examine the financial records maintained by the contractors employed by the Borrower since the records are generally maintained at the contractors' main offices in the U.S. and are subject to audit by the Borrower and the Office of the Auditor General, AID/Washington.

EXHIBIT A

Distribution of Report

Mr. Marvin Weissman, Mission Director, USAID/Brazil	6
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State Department - Country Director - Office of Brazil Affairs (ARA-LA/BR)	1
AID/W - Executive Director (ARA-LA/MGT/EX)	1
AID/W - Office of Program Operations (LA/OPNS)	1
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Office of the Area Auditor General, Latin America (AAG/LA) - Miami	1