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FROM: [illegible]
SUBJECT: [illegible] PROJECT RIVER (PROP)
REFERENCE: [illegible]

TO: BRAZIL

PROJECT NO: 512-11-610-012.0

DATE: December 5, 1969

CATEGORY: X

PROJECT TITLE: Aptitude Testing

PERIOD OF PERFORMANCE: FY 69 through FY 70

PERIOD OF FINANCIAL REQUIREMENTS: FY 69 through FY 71

STATEMENT OF PROJECT FINANCIAL REQUIREMENTS:

U.S. Dollars \$ 277,000

Local Currency (Trust Fund in US\$) 50,000

Cooperating Country Cash Contribution 50,000

Total \$ 374,000

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I. SUMMARY

Justification

Education is seen by the Government of Brazil as the basic component necessary to achieve national development goals. The Ministry of Education and Culture (MEC) has recognized the need to expand educational opportunities for students at all levels. In order to achieve this desired expansion, however, numerous obstacles must be overcome. In the case of higher education, good results will not be achieved until the system of student admissions is based on objective and valid indices of ability and potential. Secondary education cannot become fully productive until selection and guidance decisions are based on objective measures of aptitude in the major career fields. Mass programs of vocational training cannot be carried out efficiently until accurate selection and placement procedures are systematically used.

This project is designed to develop aptitude tests, to be administered at the completion of primary school, which will assist educators in predicting success of students entering secondary schools in pursuance of scholastic, commercial and technical education. Through improved selection techniques, resulting in lower drop-out rates, a more complete utilization of Brazil's secondary education facilities will be possible. As a residual benefit, the professional staff developed through the project will have technical knowledge of psychological test construction, and thus will be able to produce similar tests for more accurate measurement of the ability and potential of students seeking admittance to Brazil's institutions of higher learning.

Project Goals

A primary project goal is to develop a strong national testing facility, staffed by well-trained psychologists. To this end twelve psychologists will be recruited and trained, and in-service training for about twenty junior professional staff members is planned.

Concurrently, an effort will be made to develop tests to determine, at the conclusion of primary school, student aptitude to pursue scholastic, commercial, or technical education at the ginásio level. To this end, development, validation and refinement of twenty-seven tests which can be made into three test "batteries" of nine tests each, should be achieved by the end of CY 1970.

A third goal, is through lectures, seminars and short courses, to inform and educate industrialists, operators of commercial establishments and educators as to the value of aptitude testing as a selection and placement tool. A portion of this goal will be achieved through production and dissemination of brochures and other publications.

Minimum Factors Acceptable Achievements

While satisfactory progress has been made in the development and validation of aptitude tests, actual utilization of such tests by educational institutions has not been achieved. Adoption of testing as a procedure for more efficient selection is necessary for improvement of Brazil's educational system. Thus the following are established as minimum levels of achievement necessary to project success:

1. Utilization of aptitude tests by the National Industrial Apprenticeship Service

(SENAC) and the Division of Industrial Education (DEI) of the Ministry of Education and Culture, in at least three states. The preferred states are: Guanabara, Rio de Janeiro and Minas ~~Gerai~~ Gerais.

2. Recruitment and training of a minimum staff consisting of 12 psychologists, 20 junior professionals and 25 field coordinators.

General Approach and Plan of Action

Two technicians, provided through a USAID-financed host country contract, work with the Getulio Vargas Foundation (GVF) ~~personnel~~ personnel in writing, validating and refining aptitude tests. The tests will be administered to approximately 10,000 students in ^{the} Guanabara area. During the test administration, staff members will be trained in processes of administration, and subsequently in scoring and analysis.

On a continuing basis, efforts are ~~being~~ being made to recruit qualified persons for relevant university training in the U.S. Likewise, in-service training in the development, administration, evaluation and utilization of psychological tests will be provided to the Foundation staff during the project's life.

Contacts will be made with leaders of the National Industrial Apprenticeship Service (SENAI), the National Commercial ~~Apprenticeship~~ Apprenticeship Service (SENAC), and the Division of Industrial Education of MEC (DEI-MEC) to secure commitments to use aptitude tests in selected states.

Nature of Inputs - All Sources

This project was initiated in Brazil in April 1966 in cooperation with the Getulio Vargas Foundation, and was part of an AID/W project to develop aptitude tests for utilization in Korea, Nigeria, Brazil and Thailand. In June 1968, USAID/Brazil began to finance the Brazilian phase of the project through a host country contract between the Getulio Vargas Foundation and the American Institutes for Research. The contract provided for the services of two psychologists, and a program of participant training to develop a professional staff for a permanent testing institution. Short-term consultant services were also included.

In addition to the funds provided by the Foundation, the Brazilian Government, through CONTAP, has provided funds to pay the salaries of additional full and part-time staff members, and to purchase certain equipment used in the machine scoring of tests.

Financial support from the three sources is as follows:

1. USAID finances the contract between the American Institutes for Research (AIR) and the Getulio Vargas Foundation. US\$200,000 was obligated to finance the first 18 months of a 24-month contract.

2. NCr\$250,000 in CONTAP funds were obligated by a separate ProAg to finance certain cruzeiro costs of the project, including local personnel, travel, training, equipment services and supplies through December 31, 1969.

3. The Getulio Vargas Foundation budgeted NCr\$529,126.42 for support of the project for the two-year period.

While not directly related to the USAID project, the Ford Foundation has provided significant assistance toward development of the Testing Institution. Ford Foundation personnel have concentrated on the construction and refinement of "Achievement" tests, while USAID technicians have concentrated on construction and refinement of "Aptitude" tests.

The Ford Foundation provided US\$279,000 to support their project from February 1967 through January 1969, and a request has been made by the GVF for an additional \$80,000 to support the project from February 1969 to January 1971. Scholarships have been provided by the Ford Foundation for two Brazilians who are now in the U.S. pursuing university work toward a Master's degree.

II. SETTING OR ENVIRONMENT

Due to a critical shortage of public secondary schools, less than 50% of Brazilian children have an opportunity to continue their education beyond the primary school level. Because of this shortage, it is especially desirable to insure that only students possessing good potential to complete secondary school training be selected. A major end of this project is to provide Brazilian educators with standardized aptitude tests to facilitate selection of the best students. Aptitude tests can also assist in selecting those students most capable of succeeding in a program of industrial or commercial education. Both SENAI and SENAC, the major Brazilian institutions engaged in preparation of skilled workers for industry and commerce, lack standardized test instruments to predict probable success of students seeking admittance.

By the time the aptitude testing project is scheduled to terminate in December 1970, the four states participating in the proposed Secondary Education Sector Loan project will have administered aptitude tests for selection and placement of students in comprehensive schools (gimásios polivalentes). It is planned that use of the tests will also be extended to states beyond those which participate in the Secondary Education Sector Loan. Likewise SENAI, SENAC and the Division of Industrial Education of MEC will have adopted standardized aptitude tests for application in three states.

Standardized tests to determine eligibility for entrance to Brazilian universities (exames vestibulares) will have been constructed and adopted by all faculties through implementation of Law No. 5540 of November 28, 1968. The Comissão de Estudos de Testes e Pesquisas Psicológicas (CEPEPP), that professional testing institution developed by the Aptitude Testing project, will have prepared or assisted in preparing tests for the purposes listed above.

III. STRATEGY

The GOB has long recognized the need to improve and expand its educational facilities as a means to progress. USAID's similar interest is longstanding. The present project is a continuation of an AID/W regional project designed to determine the effectiveness of aptitude testing in predicting student success.

The project's general strategy is three-fold;

- (1) to develop a competently staffed national testing facility,

(2) to create a serviceable "battery" of aptitude tests with which to improve student selection, and

(3) to sell the idea of using aptitude tests as a selection and placement tool.

Support to project goals by the Getulio Vargas Foundation has been excellent. Since 1966, the GVF has steadily expanded its staff assigned to work with the project, and has organized a Human Resources Division, of which the Aptitude Testing project is a part. Top administrators of the Foundation foresee a broadened role for the professional staff of the division, which will include construction of tests "shelf-ready" for use at all educational levels, as well as the establishment of a school evaluation and accreditation service.

The aptitude testing project is likewise closely related to work being done with SETHAC to improve the quality of its vocational education program and the scope of its services. Use of aptitude tests to select those individuals most suitable for industrial and other vocational careers should result in more competent workers. The same reasoning would apply to students exhibiting commercial aptitude who wish to enroll in SETHAC schools. Tests that could be developed by CETEP to determine grade level placement would be extremely valuable in the USAID-endorsed literacy education program of the Cruzada ABC. Construction of standardized or special tests to determine the capabilities of students seeking entrance to universities is a function which the testing institution could perform.

The most important aspect of the project, in its current stage of implementation, is the refinement and subsequent expansion in the utilization of aptitude tests for students seeking enrollment in secondary schools. Extensive utilization of aptitude tests to select the more capable students will improve the overall quality of students entering instructional programs.

Development of ginásios polivalentes through the Secondary Education Sector Loan could provide new openings for approximately 225,000 Brazilian youth. Until such time as openings exist for all these students capable of absorbing instruction at this level, testing to select only the most capable will be needed. The Aptitude Testing project will provide tests for this purpose.

IV. PLANNED TARGETS, RESULTS AND EXPECTED OUTPUTS

Institutional Development:

By the close of this project, there should exist in Brazil an organization capable of and responsible for the design and implementation of testing programs to promote national goals in human resources development. The important specific targets are:

The Getulio Vargas Foundation will have assembled, by August 1970, a staff of 12 psychologists in the field of psychological measurement, all of whom will have received the necessary training and experience to conduct meaningful test-development research, and to manage large-scale testing operations.

By April 1970, the testing facility will have achieved financial self-sufficiency. This can be done through production of tests which have value, through a program to disseminate information on the value of tests, and through businesslike, cost-effective operating procedures.

Test Development and Standardization:

Another target is the construction and printing, by April 1970, of an "on-the-shelf" inventory of 30 different standardized tests for use in determining the scholastic, technical or commercial aptitude of youths completing elementary school.

Practical Application:

The overall objective in the area of practical application is to introduce testing on a regular, continuing basis into all the major areas where measurement of potential or evaluation of achievement can enhance the effectiveness of manpower utilization. It is anticipated that aptitude tests developed for primary school graduates will be utilized in determining admissions to the schools constructed or re-oriented through the Postate Secondary Education Sector Loan.

Other major critical areas where attempts will be made to introduce Aptitude Testing are the following:

- (1) selection of students for admission to secondary schools,
- (2) selection of candidates for vocational training provided by agencies outside the formal educational system (e.g., SENAI, SENIAC, and the MEC intensive program for the development of industrial manpower),
- (3) accurate evaluation of achievement in school at both the primary and the secondary levels, and of the effectiveness of basic literacy training,
- (4) employee selection by private industry,
- (5) occupational classification of military personnel, and
- (6) civil service employee selection.

V. COURSE OF ACTIONInstitutional Development:

Since the beginning of the present phase of the project, the Fundação Getúlio Vargas has elevated the CETEPP to the status of a center (The Center for Test Studies and Psychological Research), within its Institute for Professional Selection and Guidance (ISOP). Policy-making for the Center resides in a three-man committee consisting of the directors of ISOP, the Human Resources Center (CETRIU), and the Public Administration Institute (IBRA). The Brazilian supervisor of the project is an experienced psychologist, who was for a number of years the director of ISOP's Selection Division.

The CETEPP has a total professional staff of about 20 persons, of whom eight work exclusively on the aptitude-testing project. Four of those eight are supported by CCETAP funds. Another 8-10 staff members work exclusively on the achievement-testing project, supported by a Ford Foundation grant. The remainder are associated with both activities.

Training of personnel is an important element in institution building. In this light, the following actions have been taken or will be taken under this project:

- a) One participant completed, in June, an eight-week study tour of U.S. institutions, which included a workshop at the Educational Testing Service.
- b) One participant has been nominated for a similar study tour presently being planned and coordinated. This will probably take place in April and May of 1970.
- c) Two participants have been nominated for Master's degree training, to begin in January 1970. One will undertake the program in Measurement and Evaluation at the Teachers College, Columbia University. The other has made application to several graduate departments of psychology in the field of industrial psychology.
- d) One participant has been nominated for post-MA training in the field of counseling and guidance. She will enter Teachers College, Columbia, in ~~June~~ January 1970, to take courses over a six-month period.
- e) Four trainees have been receiving on-the-job training within the CETPPP since February 1969. This has included formal instruction in test development and in psychological statistics (the latter offered by one of the U.S. technicians), and practical work connected with the CETPPP's research activities. Four other trainees will be selected for similar training before the end of 1969.
- ~~xxxxxx~~
- f) Five participants, who will be staff members of Brazilian organizations involved in testing and evaluation (such as MEC, SENAI, SENAC) will undertake a study tour of eight weeks duration, to be organized by the contractor. This is scheduled to take place during the second quarter of 1970.
- g) In June or July 1970, a seminar/workshop organized by the CETPPP ~~xxxx~~ will be held for selected psychologists and educators from throughout Brazil. The theme will be aptitude measurements.

Also in 1970 technical assistance will be provided to EPEM to help develop and execute a program of rudimentary, in service training for technicians in those state secretariats of education which participate in the sector loan.

Test Development:

Some 30 tests have been developed and tried out. About half of these were developed for the aptitude-testing project by Brazilian professionals working with the CETPPP, advised by American technicians. Another dozen were adaptations of tests developed by the contractor for use, originally, in West Africa. The remaining few were developed by other Brazilian organizations or were translations of American tests commercially available in Brazil.

Four try-out sessions had already been held under the regional program using various combinations of the tests in trial batteries. In May 1969 another try-out session was held, at which a total of almost 10,000 tests were administered to about 1,100 students in seven different Guanabara schools. The data have been analysed and conclusions drawn concerning steps to follow in the development of valid and useable test instruments.

Intercorrelational analysis will identify the tests which will be included in the final battery. Item analyses will enable the individual tests to be constructed in ~~their~~ their most efficient form. The final battery will consist of about 15 tests, and will comprise

5 sub-batteries, in the academic, industrial and commercial areas.

The next test administration, using the refined instruments, will take place early in 1970. Its main purpose will be to establish norms of test performance appropriate to the population of potential test users in the State of Guanabara.

CCNTAP funds are being used to cover costs of writing and publishing two pamphlets concerned with aptitude testing. One, aimed at an audience of students and others who are potential examinees, is being readied for publication in an edition of 10,000 before the end of 1969. It was written by a well-known Brazilian psychologist and vocational counselor contracted by CENEPP. The other, also scheduled to be written before the end of this year, is to be aimed at teachers, administrators, vocational counselors, personnel specialists, and other potential users of aptitude testing programs. These pamphlets will be the newest in a publication series which was inaugurated with Ford grant funds, and which now consists of eight publications.

Procedures for Implementing Large-Scale Testing Programs:

A major project effort during 1970 will be to convince educational entities to use aptitude testing programs for selection and guidance. Widespread utilization of standardized tests is not a current practice in Brazil. One need only refer to the chaotic situation of the examination programs for entrance into secondary schools and universities to be aware of both the lack of and the need for such a system.

The next administration of the aptitude battery is planned for early 1970. Tests will be administered to a large and representative sample of students in Guanabara schools for the purpose of developing score norms. This administration will also serve as a demonstration testing program, and will be an important step in promoting utilization of aptitude tests on a regular, continuing basis. Prior to this important tryout new instructions will have to be written for a number of the tests, administration procedures will have to be standardized, and examiners will have to be trained. This is now underway.

In addition to this, automatic data processing methods will have to be perfected. These are currently under development, and are to be tested on a small scale using data collected in May 1969. Methods include machine scoring of answer sheets, concurrent punch punching of IBM data cards, automatic computer print-out of examinees' test scores, and computer calculation of essential statistical data. The methods should be ready for operational application during the next scheduled testing tryout.

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NONCAPITAL PROJECT FUNDING (Obligations in \$000)

Table 1
Page 1 of 2 pages
COUNTRY: BRAZIL

Prop Data:
ORIGINAL: X
Rev. N°:

Project Title: Aptitude Testing

Project N°: 512-11-610-042.9

Fiscal Years	Ap	L/G	Total	Cont ^{1/}	<u>Personnel Serv.</u>		<u>Participants</u>		<u>Commodities</u>		<u>Other Costs</u>		
					<u>AID</u>	<u>PASA</u>	<u>Cont</u>	<u>U.S.</u> <u>Agen.</u>	<u>Cont</u>	<u>U.S.</u> <u>Agen.</u>	<u>Cont</u>	<u>U.S.</u> <u>Agen.</u>	
Prior thru Actual FY 69	AG	B	200	200	-	-	100	-	45	-	-	-	55
Operational FY 70	AG	G	77	77	-	-	27	-	35	-	7	-	8
Budget FY 71			-										
B + 1 FY 72			-										
B + 2 FY 73			-										
B + 3 FY 74			-										
All Subs Yrs			-										
Total Life	AG	G	277	277	-	-	127	-	80	-	7	-	63

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^{1/} Memorandum (nonadd) column.

Fiscal Years	AID-controlled Local currency		Other Cash Contribution Cooperating Country	Other Donor Funds (\$ Equiv.)	Food for Freedom Commodities		
	U.S. owned	Country owned			Metric Tons (000)	CCC Value & Freight (\$000)	World Market Price (\$000)
Prior thru Actual FY 69		23		59			
Operational FY 70		15					
Budget FY 71							
B + 1 FY 72							
B + 2 FY 73							
B + 3 FY 74							
All Subs Yrs							
Total Life		38 ^{1/2}		59			
1/ Trust Fund.							

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