

630.711
P 485

11-5-79

Proj. 5120094.1
.2
.3
.4

signed in

PD-AAA-251-A1

5120094 (47)

HIGHER AGRICULTURAL EDUCATION IN BRAZIL

An Evaluation Report

to

The Agency for International Development

by

Lyall E. Peterson, Retired and Self-Employed
Wendell G. Schaeffer, Chairman, Department
of Government, Texas Christian University
Harold R. Capener, Head, Department of
Rural Sociology, Cornell University

December, 1969

512-094.1
512-094.2
512-094.3
512-094.4

A.I.D.
Reference Center
Room 1636 NS

HIGHER AGRICULTURAL EDUCATION IN BRAZIL

The background, status and outlook of a major AID program activity involving assistance by four U. S. Universities to four of Brazil's leading Agricultural Education Institutions.

An Evaluation Report

to

The Agency for International Development

by

Lyall E. Peterson, Retired & Self-Employed
Wendell G. Schaeffer, Chairman, Department
of Government, Texas Christian University
Harold R. Capener, Head, Department of Rural
Sociology, Cornell University

December, 1969

HIGHER AGRICULTURAL EDUCATION IN BRAZIL

CONTENTS

	<u>page</u>
FOREWORD	1
I. SUMMARY	3
II. BACKGROUND STATEMENT	7
Scope of the Program	7
Rationale of the Program	8
Establishment of the Contracts	11
Present Status	13
III. ACCOMPLISHMENTS AND EFFECTIVENESS OF THE FOUR UNIVERSITY CONTRACTS	16
Purdue University <i>512-094.1</i>	17
Ohio State University <i>512-094.4</i>	28
University of Wisconsin <i>512-094.2</i>	37
University of Arizona <i>512-094.3</i>	45
IV. INSTITUTIONAL DEVELOPMENT: PLANNING, MANAGEMENT AND EVALUATION FUNCTIONS	53
Relevance of Goals	53
The Question of Phase-Out	55
Future Planning and Management	57
Monitoring and Evaluation	61
V. PROPOSED NEW APPROACH	67
Major Problems	67
Prospects for Expansion	71
VI. APPENDICES	
A. Bio Data on Team Members	
B. Team Itinerary	
C. List of Required Reports	
D. 1969 Cost Breakdown of Four Contracts	
E. Cost Summary of Four Projects	
F. Outside Support to Brazilian Schools	
G. Participant Training Summary	
H. Institution Building Indicators	
I. 1 and 2 - Institution Rating Sheets	
J. Related Projects or Proposals	

FOREWORD

The authors of this report were employed by the USAID Mission to Brazil to evaluate four AID/US Land Grant College contracts, all of which have been in operation for several years.*

These four contracts were designed (1963-64) as a package, to assist the leading Agricultural Colleges of Brazil; thereby to exert a strong collective influence over the agricultural production and rural development of this strategically important country.

The evaluation team was recruited by AID/Washington and arrived in Rio on June 15. In Rio, the first week was spent on orientation - - briefings were received from William Ellis, USAID Director, Robert Ballantyne, Mission Chief Evaluation Officer, many other USAID staff members, a number of Brazilian officials, and representatives of various international agencies. As time permitted, background material was also reviewed.

Following the briefings, visits were made to each of the four Brazilian institutions in question, and related agencies or projects. These widely scattered field visits consumed a month's time. A final week in Rio was utilized to round out information and to draft a tentative report for review and comment by AID.

On our return to Washington early in August, for debriefing, we stressed the importance of visiting the four U. S. University campuses, as a necessary complement to the review in Brazil. In late November and early December these visits to the campuses of the four universities were made and the final report was submitted. **

* See Appendix A for resumes of the three consultants.

** See Appendix B for study itinerary.

The team feels that it has made an honest effort to understand all of the ramifications and implications of the program in question. It fully realizes the difficulties inherent in an evaluation of this kind, which must consider the past and future as well as the present. Perhaps immodestly, it feels that it is now in a good position to make a fair appraisal of this particular situation and to suggest certain improvements in future operations that hopefully will be mutually acceptable and beneficial to all parties concerned.

In this evaluation report the team has attempted to 1) establish a general framework of reference in a background statement, 2) evaluate each of the four University contracts, 3) restate the goals yet to be attained, 4) indicate the major problems and 5) recommend a new approach for possible implementation in 1970. A brief summary precedes the detailed report.

For background information, for assistance on field trips, for many thoughtful ideas and for much logistical support, we owe a vote of thanks to too many persons to mention.

The team feels that it has made an honest effort to understand all of the ramifications and implications of the program in question. It fully realizes the difficulties inherent in an evaluation of this kind, which must consider the past and future as well as the present. Perhaps immodestly, it feels that it is now in a good position to make a fair appraisal of this particular situation and to suggest certain improvements in future operations that hopefully will be mutually acceptable and beneficial to all parties concerned.

In this evaluation report the team has attempted to 1) establish a general framework of reference in a background statement, 2) evaluate each of the four University contracts, 3) restate the goals yet to be attained, 4) indicate the major problems and 5) recommend a new approach for possible implementation in 1970. A brief summary precedes the detailed report.

For background information, for assistance on field trips, for many thoughtful ideas and for much logistical support, we owe a vote of thanks to too many persons to mention.

1. SUMMARY

1. The three writer-consultants -- with varied backgrounds and considerable experience related to this assignment -- were employed by AID to evaluate four U.S. University agricultural contracts, each of which has been operative in Brazil for six years or more. The contracting schools are Purdue University, Ohio State University, the University of Wisconsin, and the University of Arizona.
2. Higher agricultural education is of great, strategic importance to Brazil's future economic and social development. Hence, this program activity has a high priority with USAID/Brazil. Moreover, the ultimate success of this AID sponsored activity should have considerable impact throughout Latin America.
3. Only a small fraction of 1 per cent of all first grade school children in Brazil advance into an agricultural college. The needs and the active demands for this type of training are several times greater than the Universities' joint capacity. Much of the overall institution building job remains to be done -- hopefully with substantial inputs of foreign aid.

4. Purdue

With the help of Purdue UNIVERSITY, especially over the past decade, the Rural University of Rio de Janeiro developed the strongest higher agricultural education program in Brazil - possibly in all of South America. This technical assistance program, however, is far from complete. Several departments are still weak - even the strongest departments still lack the capability to accept PhD candidates. Continuation of the program for another decade is recommended but the goals and operational plans need to be re-examined and realistically restated.

5. Ohio State

The project has achieved program goals very rapidly in some curriculum areas and the participant program has been highly successful in building faculty strength and research competence. In other curriculum areas, however, no progress at all has been made. The present phase-out schedule is unrealistic and departure of the Ohio State staff would seriously damage the doctoral program that is about to be started. The project plan should be reworked, a new time schedule devised, and the process of doing this used to improve the discourse on institutional planning and development between ESALQ and Ohio State.

6. Wisconsin

The project at Porto Alegre is making good progress and the present operational plan is working out well. Important project goals are being achieved. The present program should be extended for five more years and then a new evaluation made to determine what should be done in light of the situation that will then prevail.

7. Arizona

Visible progress is evident from a very weak base. Project management is in a crisis situation on the home campus and unless this matter can be cleared up in the immediate future the project should be transferred to another institution or terminated. In any case, a careful re-examination of project goals and prospects is indicated at this time in view of the lack of a suitable market for graduates of the school and the need to reconsider the role of the school in the total region.

8. The relevance of the goals for institutional development under each of the four university contracts are reaffirmed. The operational plans to achieve these goals are basically "on track" and moving well in the right directions.

9. The level of goal attainment at the end of the first contract period (1971-72) will have brought each of the four Brazilian agricultural colleges to a point of offering a strong graduate program at the master of science level. Plans will have been laid for the second phase effort of developing PhD programs, a basic and applied research program and a third phase of utilizing these four regional "centers of excellence" as "mother institutions" to assist the growth of other agricultural colleges within each region.
10. It is the recommendation of the review team that the USAID/Brazil contract be continued through the decade of the 70s and that the goal achievement of phases II and III be vigorously pursued.
11. There are no blueprints to follow that guarantee the success of institution building. It is not a job to be done solely through bi-lateral agreements. As the institution grows and becomes more complex, other linking ties and multilateral agreements become necessary in order to marshal all of the required resources.
12. The progress of monitoring and evaluating contract programs increasingly require both hard and soft data, both quantitative and qualitative. New ways need to be devised and the information needs to be fed into a memory system to enable recall, comparison and accessibility. In addition the contracting universities must take a more active role in the on-site monitoring and evaluative data gathering and interpretive process.
13. In operation of these contracts over the years, numerous problems have arisen, some of which have assumed the proportion of major obstacles to future progress. The team has singled out the following as being most noteworthy:

- a. Project management and program planning need to be improved. Upgrading of the Chief of Field Party position is one key to a solution of this problem.
 - b. New devices, incentives, better orientation and language training are needed to maintain and increase the interest of U.S. University faculty members in overseas assignments.
 - c. The differences in the Brazilian host institutions need to be more clearly recognized in terms of budget allocations, phasing schedules, participant training, research program, extension services and other variables.
 - d. AID monitoring evidently leads to frustrations and misunderstanding. With AID concentrating on major issues (e.g., appointment of Chief of Party), more responsibility needs to be shifted to the U.S. university contractor.
14. The team is pleased to endorse a number of proposals that, together, may be considered as a new approach; to wit:
- a. AID is the key to activation of the proposed "Council of U.S. Universities for Brazilian Rural Development". A 211-D grant has been requested which should stimulate other sources of support.
 - b. The Executive Director position of the proposed Council is considered to be of vital importance, assuming a good selection and his assignment to Rio as headquarters.
 - c. It is hoped that the four existing contracts for Brazil can be concentrated into one of the proposed new Institutional Development Agreements.
 - d. This program activity should be coordinated, more effectively, with a number of related projects or proposals. A conference of the interested parties in Brazil may be the proper starting point.

II. BACKGROUND STATEMENT

This chapter is intended to provide a framework of reference for following sections which evaluate progress in some detail, appraise future outlook and make certain suggestions for improvement of this USAID/Brazil program.

Identity and Scope of this Program

The Four Contracts

This evaluation report is primarily concerned with four AID financed contracts for providing U. S. University assistance to Brazilian host institutions, with reference to higher agricultural education. The Brazilian host institutions were selected largely on the basis of their promise of providing leadership in their respective geographic regions to promote agricultural development. Without exception, the original choices have proven to be sound. The contracts in question are:

1. Purdue University with the Rural University of Minas Gerais at Vicosa (UREMG), which was initiated on a very modest scale in 1952 and has been materially strengthened since 1962.
2. Ohio State University (O.S.U.) with the Luis de Queiroz Agricultural College of Sao Paulo State University (ESALQ), in Piracicaba, which initiated operations in 1964.
3. University of Wisconsin with the University of Rio Grande do Sul in Porto Alegre (UFRGS), which also was first activated in 1964.
4. University of Arizona with the University of Ceara in Fortaleza (EAUEG), which got started early in 1964.

Evaluation Scope

The four contracts were reviewed as a group, since they all involve universities proceeding in the common purpose of attempting to transplant relevant U. S. Land Grant College (LGC) philosophy and development techniques into carefully selected Brazilian institutions.

In view of the common general purposes of these contracts, it was incumbent on the evaluation team to also consider various agricultural extension and research activities not being administered by the Brazilian institutions in question, but clearly related in view of the LGC concepts.

Rationale of this AID Program Activity in Brazil

Historical Notes

U. S. foreign aid to Brazil dates back to 1942/43, when agriculture, health and education missions were set up under the ex-Institute of Interamerican Affairs (IIAA), then directed by Nelson Rockefeller. In agriculture a Servicio (ETA), with U. S. and Brazilian co-directors, was established to plan and operate a number of projects of primary concern to the federal Ministry of Agriculture. Budgets were exceedingly modest by present standards, most of the U. S. technical assistance was provided by direct hire personnel, and the only consideration given to the problem of higher agricultural education was the granting of occasional participant training - "loias".

Beside IIAA and ex-OEAR office (now F.A.S.) of the U. S. Department of Agriculture also had rather extensive operations in Latin America, mainly concerned with the development of non-competitive crops, such as rubber, cacao, hard fibers, etc. The original OEAR was responsible for introducing Purdue University to Brazil in 1951. This took the early form of a very modest contract providing an Extension Specialist and a Home Economist to assist the Rural University at Vicosa to train extension and home demonstration agents. This project was designed to provide staff for the ACAR (a private, Rockefeller-sponsored, supervised credit operation) agency of the State of Minas Gerais. It has

since expanded into the nation-wide Federal Extension Service (ABCAR).

Purdue must be given credit for generating interest in the potential of university-to-university assistance. As U. S. foreign aid efforts evolved from IIAA to TCA to FOA and ICA, the interest of U. S. Land Grant institutions also developed. With the new Kennedy administration in 1961, and the Alliance for Progress program of AID, higher priority was given to agricultural education. It was, by then, quite apparent that Brazil was too big and complex for one university like Purdue to handle. Others were then invited to bid for contracts.

Strategic Importance of Agricultural Education

Brazil's size and economic potential indicate that it can become a powerhouse in Latin American and world affairs. Progress towards achievement of this potential requires increasing economic growth, and modernization of critical sectors of national activity -- especially agriculture and education. It also requires effective controls on inflation and population growth.

Agriculture employs about half of Brazil's growing population of 90 million people, and accounts for about 26 per cent of the net domestic product. Immediate goals in this sector are to stimulate diversification (away from over-dependence on coffee), and modernizing production to increase yields and to improve rural welfare. This sector has suffered from inflation and the consequent slowness of capital formation; from high input costs such as those for machinery, fertilizers, and pesticides; from discriminatory taxes, and from antiquated processing and marketing methods and facilities.

Agricultural education is a necessary priority consideration as a means of providing the manpower and leadership for modernizing the agricultural sector of the economy. The universities specializing in agricultural education can effectively focus on the following critical processes:

1. Train a new breed of agricultural technicians,
2. Concentrate on major research problems in their environmental region,
3. discover new knowledge and make existing information more available for user audiences,
4. coordinate work with other federal and state research and extension agencies,
5. provide technical training and assistance in agro-industrial service sectors like rural credit institutions, farmer cooperatives, domestic credit, fertilizer and pesticide companies, and processing and marketing organizations.

The universities, if they successfully emulate the land grant philosophy of science and service, will be perceived by the rural people of the region not solely as a teaching institution, but one of modern technical substance to influence their lives and livelihood.

Brazil now has some 18 agricultural schools offering university level degrees. Their range of size and quality is wide. Improvement and expansion of these schools is a long-range process. The main strategy of AID's assistance to agricultural education has been to concentrate on the four leading institutions, on the theory that as they become strong regional centers, they will in turn be in a key position to help train and develop technical staff and otherwise assist in the growth of other schools in their regions. Geographically, the four selected institutions are dispersed so as to reflect major regional differences. Each is steadily gaining prestige as a focal point of excellence in its own region.

Establishment of the Four Contracts

Pre-Contract Surveys

In 1962, three other universities besides Purdue were selected and invited to make pre-contract surveys in Brazil. These surveys by U. S. University teams, in cooperation with Dr. Richard Newberg, then Rural Development Officer of USAID/Brazil, eventually led to a selection of the appropriate Brazilian host institutions, and to terms of reference for negotiation of the existing contracts. All the projected program activities were rather carefully considered prior to their introduction and subsequent progress indicates that the pre-contract surveys were wise AID investments.

Initiation of the Program

The Purdue contract was enlarged, and new contracts were signed with Ohio State University and with the Universities of Wisconsin and Arizona in 1964. [All four contracts have had the common objective of transplanting and re-adapting to Brazilian conditions the U. S. Land Grant College concept.] It was believed that remarkable results could be achieved in Brazil through the approach of training top leadership and of closely coordinating the work of agricultural education, research and extension. The regional university was to become the focal point around which agricultural production would be stimulated and the welfare of rural residents might be improved. It is obviously difficult to evaluate the four contracts in question of terms of such broad-gauged goals. Perhaps it is more appropriate at this time to think in terms of creating a favorable climate for future advances. This would be in accord with the fact that the Land Grant Colleges of the U. S. had about one century to prove themselves more than worthy of the investment.

A number of other sub-goals can be enumerated for all four of the contracts. These would include, for example:

- ✓ 1. Improved physical plant facilities and equipment.
2. Increased student enrollment.
3. Training of staff for higher competency.
4. Improved quality and increased number of courses offered.
5. Development of graduate programs.
6. Improved and expanded research programs.
7. More effective coordination with State and Federal Research and Extension services.
8. Participant training grants.
9. Provision of technical advisors.
10. Development of experiment stations for research.

While these goals will be discussed and measured in following pages, the team feels that the tangible indicators of progress do, in reality, indicate a successful first phase input. (See Appendices G and H)

An objective of high priority has been the establishment of graduate programs in each of the four institutions that will eventually offer PhD degrees as well as the M.S., comparable to those granted by the better U. S. institutions. Once this level has been reached these four Brazilian institutions will be able to meet the needs for further faculty development of all higher agricultural education institutions in Brazil. Also, they will be able to supply qualified personnel for various government agencies and private industry.

Although all four projects have similar general objectives and goals, it is recognized that there have been (and still are) distinct variations in faculty capacities, in receptivity to U. S. technical assistance, in the strength of various departments, etc. These are discussed later in some detail.

While the specific goals of the contracts have been stated, revised and restated in many different documents they all add up to an ambitious effort to build up the selected Brazilian host institutions as viable "Science and Service" institutions. The philosophy of time frames for institution building is discussed later in the report.

Present Status

Key Significance

The university contract programs are of key significance to Brazil in terms of development strategy. AID's highest assistance priorities lie in the areas of education and agriculture -- both of which are served by these university agreements. The four University contracts as a group have absorbed a major share of AID grant funds over the past six years. Furthermore, the success of other AID projects depends to a significant extent on the University program, since all of the agricultural efforts must look to the University for the development of qualified Brazilian technicians.

Centers of Excellence

Brazilian officials in the National Research Council - (CNPq) identify three of the four institutions receiving AID assistance as the top centers for higher education in agriculture in Brazil. The fourth institution (the University of Ceara) is expected to become such a center in the near future, and will constitute the only one in the Northeast likely to achieve such a high level of excellence within the next decade. In the larger context, agricultural education remains but a small element within Brazilian higher education. The social sciences and liberal arts, law, medicine and engineering all attract significantly larger enrollments within existing universities and will continue to do so. In the general purpose universitie:

such as Rio Grande do Sul, Sao Paulo and Ceara, the agricultural schools account for about ten percent of the total budget, and a smaller percentage of the student body. In all of the contract institutions, however, enrollments have increased significantly in agriculture during the period of contract assistance and the agricultural schools have generally bettered their position viz-a-viz other schools in competition for university funds. In the one purely agricultural university, Vicosa, significant increases have been recorded in both enrollment and financial support since the contract began. (Appendices F and H)

Concentration on Graduate Training

A key factor in higher education for Brazilian agriculture is quality. Only quality can guarantee placement of graduates in worthwhile positions with the opportunity to make distinct contributions. Without quality graduate programs, Brazilian Universities will not be able to train needed faculty for the growing number of other schools that train undergraduates in agriculture and veterinary medicine. The primary hope for advancing the levels of technology, self-sustaining growth, and future expansion lies with the graduate program goals of the contract supported universities.

Costs

In Appendix D the 1969 budgets of the four Universities are compared. It will be noted that the major cost components are for U S. technical assistance and for participant training. For a program of this scope and in need of such broad scale campus support, the overhead items appear to be quite modest.

The dollar costs of this program, from the beginning until proposed phase-out dates, are summarized in Appendix E. Local currency costs (in dollars) have been largely Brazilian counterpart funds that were jointly administered

by the USAID Mission. The Brazilian University budget funds going into this program could not be determined accurately, but some indication is given in Appendix E.

* Agricultural Manpower Needs

From each 1,000 students entering the first grade in an elementary school, less than 400 finish the second grade, and only about 35 get through the 11th grade. About 10 of the original 1,000 get into a university, most of whom receive training in liberal arts, law, engineering, economics or medicine. There are approximately 20,000 university graduates per year -- less than 5 per cent of whom are trained in agriculture or veterinary medicine. About 1/2 of 1 per cent of the 19 to 25 year age group are receiving a higher education. The demand for university training in agriculture is about four times greater than the institutional capacity to provide it. Several agricultural schools more recently established to help satisfy the growing demands are poorly staffed and not equipped to do an adequate job. Manpower requirements for technicians with university training in agriculture far exceed the supply -- especially for well qualified graduates. Thus, the pressure on the agricultural schools is great, and the problem is likely to worsen before it can begin to be remedied.

In view of the above statement, it may appear strange to note that the last graduating class from the University of Ceara is having difficulty locating suitable professional jobs. This, however, is a regional problem, and symptomatic of other sectoral weaknesses in the Northeast, -- a matter of grave concern to both university authorities and to the Government. Naturally many of these new graduates will migrate to southern Brazil.

III. ACCOMPLISHMENTS AND EFFECTIVENESS OF THE FOUR UNIVERSITY CONTRACTS

Each contract program for improvement of higher education for agriculture in Brazil has progressed through the interaction of two institutions, the Brazilian university and its American partner. Inasmuch as no one of the Brazilian institutions was very similar to any one of the others when the program began, parallel progress was not possible. Each university or agricultural college had a distinctive character and confronted its own special set of problems. The American universities selected by the AID to collaborate with and assist the Brazilian institutions, while differing in some respects, were much nearer a comparable level of development. Each possessed a strong, well-balanced, and comprehensive program in agriculture with graduate study leading to both the Master's and Ph.D. degrees.

Furthermore, work on the four projects did not begin at the same time, and it is appropriate to expect that the oldest program, that of Purdue University at Vicosa, would have achieved greater progress than those of more recent origin. Such has been the case. Other factors have also intervened, such as the relative geographic isolation of the University of Ceara at Fortaleza, as well as the peculiar regional development structure for the North East, known as SUDENE, which has created certain bureaucratic impediments affecting the evolution of some aspects of the agricultural education program, such as that of home economics.

The above factors suggest that to be fair to all parties concerned, evaluation should be made on a project-by-project basis rather than by comparisons of the rate of progress at one institution with that encountered at another. Furthermore, the performance of both the host institution and its American counterpart will be distinguished, where possible, so as to get a measure of the achievements of each.

The Purdue University Project at Vicosa

The Rural University of the State of Minas Gerais (UREMG) was founded over forty years ago. From the outset, American influence was present in the person of an outstanding agricultural educator from the University of Florida. The concepts of teaching, research, and extension as the basic trilogy of university thrust in agricultural education were incorporated in the charter and other early documents influencing the institution's development. In the early years, nevertheless, emphasis was primarily upon teaching and the chair professor, or catedratico, dominated each of the many subjects prescribed by law as the basic curriculum. Research was not initiated at first, and extension activity was a commitment set aside for some future date. The institution was founded in a location far removed from any major urban center and in an area whose agricultural activity, the growing of coffee, had been virtually terminated. The region was viewed, and continues to be viewed, as suitable primarily for forest development and little else. Occasional pockets of fertile land make possible a limited agricultural development, including the raising of dairy cattle and feed crops. The isolation of the school is one of its principal features, as is the exclusive dedication to agriculture. Even the veterinary school once associated with the Rural University was moved to Belo Horizonte a number of years ago.

The relationship between Purdue University and UREMG extends back over a period of eighteen years. Initially the assistance relationship was supported by the Institute of Interamerican Affairs and covered the fields of home economics and extension work. The home economics program prospered moderately, but the effort to develop a successful extension activity in the university was not initially successful. In 1958 a more broadly conceived program was instituted under contract with the International Cooperation Administration (ICA) and in 1963 a further expansion took place with the support of AID, successor to ICA. Great changes have taken place as a consequence of this long collaborative effort.

The Operational Plan

The operational plan of the Purdue-UREMG project involves several basic elements:

1. Creation of effective research programs in the various branches of agriculture as part of the instructional effort and as a major focus of the work of the teaching staff.
2. Equipping of laboratories and classrooms so as to make possible genuine research and more effective teaching.
3. Improvement in the quality of the professional staff by sending selected professors abroad for graduate training in the United States at the Master's and Ph.D. levels.
4. Sending of Purdue University professors to UREMG to undertake research, select host country professors for advanced training, to teach courses left uncovered by the absence of professors studying abroad, and to introduce such new courses as a more balanced curriculum might require.
5. Provision of such other technical advice and assistance as would enable the host institution to become a more effective center for higher education in agriculture.

Performance Under the Plan

How well the operational plan has contributed toward the realization of these goals at Vicosa is indicated in the following chart. The rating is from one to five, the latter number indicating not only advanced competence but the presence of a graduate degree program at the Master's level. No Ph.D. programs are currently offered and none is contemplated in the immediate future. A Ph.D. in agricultural economics may soon become a possibility.

The Master's degree is offered in agricultural economics, animal science, horticulture, and soils. The programs in horticulture and soils are considered to be somewhat weaker than those in agricultural economics and animal science. With additional effort over the next two or three years, it should be possible to offer Master's degrees in forestry, entomology, and perhaps home economics. Somewhat more effort will be required in agricultural engineering, whereas the food technology program has little more than a physical plant and equipment,

STRENGTH OF INSTRUCTIONAL PROGRAMS AT THE RURAL UNIVERSITY OF MINAS GERAIS AT VICOSA					
Program Area	Rating				
	One	Two	Three	Four	Five
Biological Sciences* (Botany, zoology, cytology)					X
Physical Sciences* (Physics, chemistry, mathematics, geology and soils)			(Physics and mathematics are		X weak)
Social Sciences* (Economics, rural sociology, extension)					X
Animal Sciences*					X
Plant Sciences*					X
Agricultural Engineering* (Mechanics, farm machinery, irri- gation, storage, topography)			X		
Food Technology*	X				
Forestry			X		
Extension and Communication	NA				
Home Economics				X	
Plant Pathology and Entomology*				X	
Agricultural Education	NA				

* indicate a basic component of agricultural curriculum.
NA indicates not applicable or not identified as separate part of curriculum.

much of which has had a minimum of use up to the present time. The administrative leadership at Vicosa wishes to throw major resources and effort into both food technology and agricultural engineering in the next several years to bring them up to the level of other programs.

A somewhat special problem is presented by home economics, which now plans to give more and more emphasis to the preparation of young women for service trades and industry, as well as for secondary teaching, rather than for work with farm families in rural areas. The shift reflects a lack of adequately * remunerative employment opportunity in extension-type activities, which in the past provided most of the work opportunities. There is also some fear that the secondary education field is becoming saturated. Efforts to place graduates in

industry will be increased. Meanwhile, many of the students seek to obtain graduate degrees in agricultural economics.

Other important measures of accomplishment, apart from the curriculum development that has taken place, are the strength of research activity, extension work, attraction of outside financial support from industry, government research sponsors, and foundations, and capability for planning and administering the institution. In each of these areas, Vicosa would rate a four or a five on the preceding table.

Research Activity. UREMG has a well-advanced research program in the plant sciences and in horticulture, as well as in animal nutrition. It is particularly strong in the area of agricultural economics. Increasingly the institution is attracting research and grant funds from a variety of sources to support its various programs. Many of these sources are Brazilian government agencies, but included also are private enterprise, the Ford Foundation, and state entities. Most of the outside support is in the form of funds for specific research projects.

Extension Work. In the past several years, UREMG has been developing its extension efforts primarily in the western part of Minas Gerais in an area known as The Triangle. This region, a level area endowed with favorable soil conditions, is becoming a significant agricultural region for the entire country. UREMG maintains an experiment station in the area, gives special instruction and short courses to farmers in the area. The station is located at Capinapolis; much of the land has been donated by farmers of the area. Additional funds have been provided by the Ford Foundation and a major research grant is pending from the National Research Council (CNPq). It is important to note also that the national government extension service, the autonomous institution known as ABCAR, maintains a major training center on the Vicosa campus. The center is used not only to train extension agents, but also university students, community leaders, and

farmers. The relationship between the center, which is a regional program covering several states, and the university is close and mutually supportive. An example of such collaboration is in the development and conduct of training courses for administrators of cooperatives, a program jointly supported by the University, the National Cooperative Association, and ABCAR, the extension organization.

Administrative Capability. The leadership at Vicosa is of outstanding quality. They evidence a high level of sophistication in identification of problems, establishment of priorities in program development, and in development of management structure to strengthen and facilitate expanding programs. The existence of a position of Director of Research, filled by a competent and well-trained individual, is unique among the institutions studied. Concern for such matters as allocation of overhead costs among the various sponsored research projects, and achievement of balance in the total university research effort both reflect a high degree of administrative competence. Leadership in the university is also working to achieve greater diversification and specialization in the fourth year of undergraduate study, a long-time problem because of the numerous (eighteen at present) legally prescribed courses for all students, and to develop new institutes for the basic sciences, humanities, and social sciences in accordance with the university reform program.

Great progress has been made in totally revising the degree structure so as to give status and significance to the M.A. and Ph.D. degrees in place of the now outmoded titles of deutor and livre docente, and to develop the academic structure around the subject matter department rather than the catedra.

Perhaps no area has so greatly tested the administrative capability of the Vicosa leadership as the long struggle to maintain adequate financial support for the institution. In the early 1960's great support was obtained from the state government. Subsequently, however, owing to political changes in the

governorship, that support was lost and the university plunged into a financial crisis of such dimensions that in one year it received less than thirty per cent of its approved budget. In spite of these difficulties, the leadership was able to hold the institution together, keep the faculty intact, and eventually find a solution to the problem through federalization, a process just now being completed

The Performance of Purdue University

Over the years Purdue University in its contract relationship at Vicosa has emphasized the development of research competence and the preparation of UREMG professors by enabling them to obtain graduate degrees in the United States. The fact that Vicosa has four Ph.D.s in agricultural economics alone and undoubtedly the strongest program in this field in Brazil reflects the success of this effort. Purdue staff have for the most part been skilled scientists dedicating their efforts to their technical fields, some of which have been conceived quite narrowly. Discovery of new knowledge has been viewed as the key to unlock the future and institution building has been viewed primarily as development of high technical competence on the part of UREMG professors. Both resident staff and short-term professors have reflected much the same approach. Inasmuch as the host institution is relatively advanced and sophisticated, it has been able to make good use of the assistance it has received. Furthermore, the gradual rather than sudden build-up of the Purdue presence at Vicosa, probably more the result of the pattern of AID funding support than of a consciously adopted staffing strategy on the part of either Purdue or AID, appears to have made possible minimal losses in effort and better absorption of the external input by the host institution.

Purdue has had some staffing difficulties, particularly in finding the right person for the available post at the right time. Some posts have been vacant for months or even more than a year at various stages of contract operation. Others on occasion have been filled by mediocre people. Nevertheless, over the years a tremendous resource has been developed at Purdue in the presence there of

of some forty professors with Brazilian experience in their area of agricultural specialty and varying degrees of competence in the Portuguese language. No other American university can boast of such a resource.

The Purdue style of project management has not ordinarily stressed strong leadership and coordination in the field. Each professor has been permitted to function with virtually total technical autonomy. He has developed his counterpart relationship and proceeded with his teaching and research with minimal intervention of the chief of party. The latter has had his own technical specialty to develop and has treated his administrative duties as principally a series of facilitative chores. The home campus has taken the principal role in decision making as to timing, recruitment, program orientation, and over-all coordination of the university's efforts. This is not to say that the project chief of party has not worked closely with DREMG leaders in a great variety of matters fundamental to the success of the program, particularly as those related to control and expenditure of counterpart funds, selection of professors to be sent to the United States for training, equipping of laboratories and the many logistical problems which this part of the program entailed, and in working out with AID the many tasks of program planning and budget development.

Nevertheless, a team approach to institutional development has been stressed less than was clearly possible or perhaps desirable. Many professors have known little of the work of their associates; some chief of party have been no exception in this respect. Once a professor has completed his tour and returned to the United States, the state of affairs in which he left the department in which he was working has often remained a mystery to those remaining in other areas of activity. There could be little follow-up unless another man arrived in the same field. Furthermore, only on the home campus of Purdue could one obtain a broad perspective on the program as seen by the key administrators who over the years have managed the project.

Members of the Purdue staff have not all been fully aware of the basic changes being affected in UREM's academic and administrative structure. Key personnel on the home campus and those responsible for project management have quite intimate understanding of those changes already accomplished and others that are in the offing, but such understanding has not been adequately communicated to the technical staff member in the field. The latter, seeing only a part of the picture, are apt to view difficulties such as inadequate funding, compromises on the part of the host institution staff, and structural changes that tend to disrupt existing activities as set-backs and impediments to moving ahead on research projects.

Inadequate orientation and lack of effective leadership on the part of party chiefs has been a weakness in Purdue operations, but these factors have not been of sufficient seriousness to affect adversely overall contract performance. It is important to note, however, that further steps in university reform, particularly the creation of basic institutes for teaching the natural and social sciences in the first years of the undergraduate program, will create a host of new problems as faculty are reassigned and equipment redistributed. It is imperative that all those engaged in assisting the host institution understand what the changes signify and the importance of supporting them, even at the expense of loss of continuity in some existing activities. There exists a real hazard that absorption with research and the graduate program will tend to produce disinterest and even annoyance with the innovations. The changes also have long-run significance with respect to the kinds of personnel needed to make the new program work. Physics and mathematics professors may assume a higher priority for development and advanced preparation than some of the more readily identifiable professorships in applied agricultural technology.

Campus Support. It is well to remember that a major part of the work of contract execution does not take place in Brazil, but in the United States. Most important is the training of the Brazilian professors sent to Purdue or other American university for advanced training. Purdue's performance in this regard has been excellent, and those who have returned to UREMG with advanced degrees have provided the leadership in the development of academic excellence at their home institution. Initial selection of persons to receive advanced training has been very good, retention of trained persons has been quite satisfactory although by no means entirely successful, and quality of performance while in training has been outstanding. The present Vicosa faculty counts among its numbers forty-five with Master's degrees and six with Ph.D.'s, placing it clearly in the forefront of Brazilian agricultural university programs. This advantage will be substantially improved in the next few years as present participant training plans are carried out. (See Appendix G.)

Other aspects of campus support, such as selection of staff, commodity procurement, involvement of department chairmen, and general university interest in support of the program are outstanding.

Extension Work and Other Programs. Although Purdue professors in Brazil have participated actively in numerous extension training courses and have on occasion assisted the ABCAR training center located on the Vicosa campus, their program emphasis has not been on extension activities but rather on producing the hoped-for break-throughs that extension agents can use in the field. Development of the new research center in The Triangle will inevitably draw some members of the staff into this new environment in which they will be challenged to relate their efforts specifically to the problems of the area. This should prove worthwhile in broadening faculty outlook.

Mention must also be made of the excellent results achieved by Purdue University in working with the dairy processing school at Juiz de Fora. The school is in no way linked to the university at Vicosa, and it functions at

what might be considered junior college level in the United States. The program is excellent and the leadership, trained under the Purdue program, is outstanding. Effectiveness of the program, both in training and outreach into the surrounding community, appears well ahead of the comparable part of the food technology program at Vicosa, which is just beginning to get under way.

Future of the UREMG-Purdue Relationship

The combination of UREMG and Purdue working together at Vicosa has produced what is undoubtedly the strongest higher education program in agriculture in Brazil, possibly in all of South America. The success of this effort is in part owing to the length of time the program has been under way. Time is a major factor in institution building, and clearly the two institutions have made good use of the ten years of major collaboration in which they have been involved, as well as the earlier years of first acquaintanceship.

Nevertheless, that program is far from complete. The Master's program is currently effective in only four specialties: agricultural economics, animal science, horticulture, and soils. Major areas where it needs to be developed include forestry, entomology, agricultural engineering, agricultural technology, rural sociology, and various of the basic sciences. No doctoral program as yet exists and several years will pass before it will be inaugurated in one or two areas of the graduate program. If the ultimate goal is to be achieved, that of equivalence with a quality agricultural school in the United States, such as Purdue, continued collaboration will be needed for possibly ten more years at a minimum. It is time, however, that goals be realistically restated and the operational plan re-examined. At Vicosa the combination of American professors working on the campus and the training of host country professors in the United States has produced exceedingly satisfactory results. It would seem doubtful, however, that full-time professorial assignments to Vicosa by Purdue need be continued in those areas in which a corps of returned participants with Master's

and Ph.D. degrees are available. Given limited resources, effort should be concentrated in the weaker areas of the curriculum without, nevertheless, abandoning those areas that are on the threshold of excellence.

The investment of AID resources in Vicosa has been great. The results have been noteworthy. UREMG is within reach of attaining a status that will permit it to turn out not only well-prepared graduates in the various agricultural specialties needed to staff Brazilian agricultural development efforts, but also to prepare at the highest academic levels the teaching staff for other agricultural colleges throughout the country and for the replenishment of its own faculty. This is no time to cut off the program, and it will not be time two years from now.

Purdue University, as stated earlier, possesses a unique resource in its large faculty with Brazilian experience in the agricultural field. Some of this faculty should be rotated back into Brazil on a continuous basis, if not at Vicosa at other Brazilian institutions where their specialties may be needed more critically. AID is responsible for the existence of this resource and it should make certain that it is effectively used in the years ahead.

The Ohio State University Project at Piracicaba

The Higher School of Agriculture at Piracicaba, a division of the University of Sao Paulo, was founded at the turn of the century in 1901. From the outset its founder, Luiz Vicente de Souza Queiroz, who did not live to see his efforts completed and the school inaugurated, based his plans upon European models. It is not surprising that the school retained its European character and style until very recent times and that it still shows many elements of its past orientation. The catedra system of instructional organization was firmly implanted and faculty progress was rigidly measured by attainment of the deutor and livre docente degrees, both of which tended to reward eloquence and highly esoteric disquisition rather than research. Indeed, the school was a teaching and not a research institution in any real sense of the word. European professors were employed from time to time, as well as Brazilians.

The curriculum of the school was rigidly specified by law and included some twenty-three subject areas each of which had to be covered by all students to obtain the Engenhairo Agronomo degree. To permit some degree of specialization, the initial four-year program was expanded to five years and students permitted to diversify by specialization during the fifth year in plant science, animal science, food technology, agricultural engineering, forestry or economics.

When the possibility of American university assistance was first broached at Piracicaba a number of years ago, there was a sufficiently strong negative reaction among the faculty to discourage further pursuit of the matter, and this reaction was in part responsible for the Purdue University effort being directed to Vicosa, where the climate of receptivity was more favorable. Even several years later, when the Ohio State University contract possibility was mentioned, there was still some faculty opposition at Piracicaba and the expressed belief on the part of a few that American concern with technology would debase the philosophic quality of the educational program.

The general atmosphere prevailing at Piracicaba when the Ohio State University program first got under way in 1964 is of considerable significance, for it explains in part the lack of progress in some areas of effort and the slow progress in others. At the same time, it presented Ohio State with a real challenge. To date, that challenge has only partially been met.

The Operational Plan

The collaboration between ESALQ and Ohio State University involves essentially the same basic operational plan as that employed between UREMG and Purdue University.

1. Development of a research competence on the ESALQ campus as part of the instructional program.
2. Equipping of laboratories to make possible effective research and better teaching.
3. Training of ESALQ professors in the United States by enrolling them in Master's and Ph.D. degree programs in the various fields of agricultural specialization.
4. Provision of technical assistance through assigning of Ohio State University professors to engage in research and to teach on the ESALQ campus, and particularly to help develop programs at the graduate level.

The overall goal of the program to be attained by carrying out the operational plan has been the creation of a top quality program of agricultural education, research and extension at the Higher School of Agriculture at Piracicaba. The institution is to be developed to a level comparable to that of its associated American university so as to produce graduates capable of effective leadership in Brazilian agriculture and agro-industry, and advanced degree graduates prepared for high quality research and teaching in host country research and educational institutions. This is a particularly significant goal with respect to the region inasmuch as Sao Paulo is the principal agricultural as well as industrial state of Brazil.

Performance Under the Plan

The accompanying chart indicates progress at Piracicaba in relation to the operational plan. In general, the existence of degree programs at the post-graduate level leading to the Master of Science degree, is a measure of the Ohio State University contribution. Without such assistance, graduate level programs would not have been possible.

STRENGTH OF INSTRUCTIONAL PROGRAMS AT THE HIGHER SCHOOL OF AGRICULTURE LUIS DE QUEIROZ					
Program Area	Rating				
	One	Two	Three	Four	Five
Biological Sciences* (Botony, zoology, cytology)				X	
Physical Sciences* (Physics, chemistry, mathematics, geology, soils)					X
Social Sciences* (Economics, rural sociology, extension)			X		
Animal Sciences*					X
Agricultural Engineering* (Mechanics, farm machinery, irri- gation, storage, topography)		X			
Forestry			X		
Food Technology*		X			
Home Economics				X	
Extension and Communication	NA				
Plant Pathology and Entomology*					X
Agricultural Education	NA				
Plant Sciences*					X

* indicates a basic component of agricultural curriculum.

NA indicates not applicable or not identified as separate part of curriculum.

Post-graduate work is offered in a number of fields and leads to the M.S. degree only. This is a program requiring three semesters of work, plus a thesis. No Ph.D. is yet offered, but beginning in 1970 plans call for its being offered in soils and plant nutrition and in genetics and plant breeding.

Work in agricultural engineering is limited in scope and largely focused on farm mechanics. Food technology is poorly developed and limited to sugar and alcohol production. Forestry is highly developed at the wood products tech-

nology level, but it lacks the basic underpinning of reforestation, forest management, and work with land owners. Home economics is well developed and owes its existence in the school's curriculum to a strong Ohio State effort in this field. Attempts to introduce a program in agricultural education were unsuccessful owing to lack of interest in the host institution.

Contract progress at Piracicaba must be viewed in the light of the circumstances prevailing in 1964, particularly resistances in some sectors of the host institution faculty and deep-seated tradition of dedication to teaching as distinct from research or extension activity. A great deal has been accomplished in the physical sciences, the plant sciences, and in plant pathology and entomology in that outstanding research is being carried out in these areas on the part of both professors and graduate students. The contractor's effort in the social sciences, particularly agricultural economics, is beginning to bear fruit with the return of trained participants, but much remains to be done before a really strong program in this area is achieved. Lack of receptivity in the food technology area accounts for lack of progress in that field.

Piracicaba has enjoyed particular success in attracting research funds and special grants. Donors have included the National Development Bank, the Rockefeller Foundation, the Interamerican Development Bank, UNICEF, the French and British governments (scholarships), local industries, and similar sources. A grant from the Ford Foundation to support the social science program is anticipated. In the State of Sao Paulo, the ESALQ is clearly regarded as a center of academic and research excellence in agriculture.

Research Activity Research at ESALQ is well advanced in plant sciences, the biological sciences, some areas of forest technology, and in plant pathology. Considerable work is being done in animal nutrition. Such work as has been undertaken in the social science field has tended to focus on the reporting and

marketing aspects of agricultural economics.

Extension Work. The Higher School of Agriculture at Piracicaba does not have a strong extension program. Work is underway with truck crop growers and agro-industry in Sao Paulo, but the overall extension program is marked by little outreach beyond the campus, although a broad university-wide (University of Sao Paulo) program of area development in the South-Eastern part of the State of Sao Paulo is in the discussion stage. Assistance is being given to the State Extension Service in the training of extension agents and to the State Secretariat of Agriculture in its research and market information programs, and in these functions the Ohio State University staff has led the way. The basic dedication of the host institution professors to on-campus education to the exclusion of other activities is far from overcome.

Administrative Capability. The Higher School of Agriculture at Piracicaba is fortunate to have a very capable and dynamic dean. He understands his institution well, clearly envisions its future progress, but also recognizes the constraints of his office, as well as the antiquated system of which it is but a part and which is changing only gradually. The catedratico still dominates major program elements, and when this study was made reform measures had yet to be approved that would lead to departmentalization of all subject matter areas. Action by the state secretariat was awaited.

Basically, however, in spite of young and capable scientists in charge of certain key departments, the dean does not enjoy the support of a strong second echelon in program planning and administration, for it does not exist. The dean does his own planning and carries most of his plans around in his head, articulating them only when appropriate need and opportunity arise. In these circumstances the institution is highly vulnerable to a crisis in leadership should the present dean find greener pastures or more challenging opportunities elsewhere.

Present plans of the school emphasize further development of the graduate program with undergraduate enrollment held to the present level of two hundred students a year. A complicating factor in the near future is the strong possibility that the school will become the nucleus of a new general-purpose university. Already located in Piracicaba are state-supported schools of dentistry and engineering which are scheduled for incorporation into the expanded institution. Should this be followed by other aspects of the administrative reform concerning the creation of university-wide institutes for the instruction of the basic sciences, major changes in institutional administration will necessarily follow. There is great need for an expanded management capability.

The Performance of Ohio State University

The Ohio State University program of assistance at Piracicaba has not enjoyed the long period of development experienced by Purdue University at Vicosá. It began in 1964 and is currently scheduled to come to an end in 1971. The strategy of assistance employed by Ohio State has been similar to that of Purdue, but it has been less successful. Staff members have focused on research and teaching in their technical areas and carried on their activities with relatively little guidance or coordination except from the home campus. Relationships with the host institution and its professors have varied from excellent to poor. Not all staff members have been effective, usually because of poor counterpart relationships or the total lack of counterpart assignments for extended periods of time. Lack of receptivity on the part of a catedrático and the absence of interested host professors have frustrated the efforts of more than one Ohio State advisor. The Ohio State project does not appear to have become fully "wired in" to the Piracicaba school.

The project has suffered from inadequate planning, particularly as to identification of key program areas on which to concentrate. Staff have arrived

on the scene with little of the ground work having been laid that would enable them to carry out effectively their work assignments.

It appears that the Ohio State effort to manage the program from the U. S. campus has tended to under-rate the Brazil program, although the dean and the project manager in Columbus are deeply interested in the program and have not intentionally given it a lower priority than other demands upon their time and attention. The project manager and campus coordinator, both functions having been combined in a single individual, understands the management role essential to good project performance. Unfortunately, it simply is not possible to perform that role not only for the Brazil project but for a major program in India as well by correspondence and an occasional visit to the project site. Major management responsibility needs to be given the chief of party.

Consequences of the present arrangement have been lack of continuous and effective communication with the leadership of the host institution, lack of adequate participation in program planning, relatively poor staff morale, and inadequate orientation of the campus management in the U.S. with respect to problems and situations concerning which they are required to make decisions.

Obviously, the cautious reception given the American advisors has been a serious problem for which Ohio State is not to blame. Difficulty in interesting campus personnel in a Brazilian assignment, particularly when a foreign language must be learned, is not unique at Ohio State, but the option of other overseas opportunities in which the language requirement is absent does not tend to place Piracicaba at the top of a faculty member's preference list. A strong chief of party who made frequent trips to the U.S. campus and participated actively in recruitment and program planning could help overcome both of these difficulties.

The scholarship program for professors at Piracicaba has been of great importance to the strengthening of the instructional and research efforts of the ESALQ. Initially it was difficult to find persons to avail themselves of

the graduate training opportunities, as the host institution incentive system focused on traditional examinations and titles unrelated to the American M.S. and Ph.D. degrees. This is now changing and a new system of faculty advancement is emerging as a consequence of the university reform.

The leadership at Piracicaba considers the participant program the most significant input of the Ohio State contract. When those currently studying abroad, and those scheduled to go, complete their degree work and return home, the Sao Paulo institution will be one of the strongest academic centers in Brazil.

The use of short-term professors from Ohio State has also been particularly valued at Piracicaba. A number have been highly successful in the conduct of short courses and seminars. A continued emphasis on this kind of assistance is needed.

The greatest need at ESALQ, apart from gaps in curriculum strength, lies in the area of institutional administration. Unfortunately, there is little to indicate at this point that an offer of help would be perceived as relevant. The situation is complex and tinged with elements of great sophistication. The leadership of the school clearly regards the Ohio State contract as just one of many arrows in the quiver of institutional development. To be of maximum assistance future chiefs of party should focus on institutional policy and administration rather than on some aspect of agricultural technology.

Future of the Project. The project has achieved program goals very rapidly in some curriculum areas. The participant program has been highly successful. In some areas of specialization, however, no progress has been made at all. Many years will yet be required to bring up to standards of equivalence with those of strong American institutions all major fields of specialization needed to promote the agricultural development of Sao Paulo. The present phase-out date of the

project is, therefore, quite unrealistic. Departure of the Ohio State staff some two years from now would leave the host institution badly out of balance with little prospect of achieving a broad institutional program of high quality in the foreseeable future. Furthermore, it would seriously damage the doctoral program that is about to be initiated, for it will be heavily dependent on the Ohio State teaching staff for some years to come.

It is suggested that the project plan be reworked and new goals established and a new time schedule devised. This will help not only to overcome the lack of reality in the present schedule, but it should greatly improve the discourse in institutional planning and development between ESALQ and Ohio State.

The University of Wisconsin Project
At Porto Alegre

The University of Wisconsin undertook its program of collaboration with the Federal University of Rio Grande do Sul at Porto Alegre in 1964. From the outset the project has had a distinctively different emphasis and flavor from those at Vicosa and Piracicaba. Several factors account for this. The institution at Vicosa throughout its life has been an agricultural university located in a rural area. The school at Piracicaba, while nominally and structurally a part of the state-operated University of Sao Paulo, has also throughout its history functioned as a rather autonomous agricultural school located over one hundred miles from the main campus. In contrast, the agronomy and veterinary medicine school at Porto Alegre has functioned as a small but integral part of a much larger general-purpose university. Consequently, the presence and problems of the total institution directly impinge on the operation of the contract program. Furthermore, as a federal rather than a state institution, the University of Rio Grande do Sul has been subject to the constraints of distant decision processes with respect to budget, standards, and personnel actions. Finally, the agricultural parts of the total university had not over the years enjoyed the same degree of support and consequent institutional growth as had either of the more independent schools at Vicosa and Piracicaba. In 1964 the path to excellence was a long and tortuous one. Today, nearly six years later, much progress has been made down that path and the end is distantly in sight, but still far off on the horizon.

In determining its operational plan at Porto Alegre, the University of Wisconsin had to evaluate its opportunities in the face of certain basic realities which it could only indirectly influence. The local faculty were virtually all on a part-time basis and derived their livelihood from other employment. The curriculum was rigidly prescribed by law for the undergraduate program and could not be changed by the unilateral action of the local institution. There was no graduate

program: The institution was strictly a teaching institution with no real research program and no outreach in the community. In addition, the social science aspects of agricultural education were structurally located in a distinct part of the university, the Faculty of Economics. In this area, however, the beginnings of a graduate program existed.

In view of these circumstances, an operational plan was devised that contained these elements:

1. The principal effort would be focused on graduate education in which innovation and flexibility were possible. New courses leading to a Master's degree would be started in crop production, animal production, and soil science.
2. An effort would be made in the Faculty of Economics to strengthen graduate education in agricultural economics and rural sociology. This was to be done in conjunction with an Economic Research Institute.
3. Selected faculty would be sent to the United States for graduate education at the Ph.D. level. They would not normally be sent for the Master's degree as they would be required to have this before being sent abroad.
4. Laboratory equipment and library resources would be acquired to build instructional and research capability.
5. A strong effort would be made at the outset to relate the graduate program of the university to the agricultural problems of the state of Rio Grande do Sul.

Much has been accomplished under this operational plan. The accompanying chart indicates the degree to which various programs have progressed. The effort to relate the programs of the university to the needs of the state has been remarkably effective and has produced a tremendous break-through in the agricultural productivity of increasing portions of the region. It has been carried out through a program known as Operation Tatu, involving soil testing and treatment of deficiencies primarily by massive applications of lime on an experimental basis. The results proved so spectacular in increasing crop productivity (initial increases in yield averaged 800 per cent for wheat, nearly 500 per cent for corn, and 230 per cent for soybeans) that the program has become the basis for a major effort of the state extension service (ASCAR) and has attracted support of credit insti-

tutions, cooperatives, and other service institutions. The university continues to support and back-stop the effort which has now been extended to wide areas and a vast number of farms throughout the western and northern parts of the state. Of major importance has been the attention that the success of the program has focused on the university and its American contractor. Now it is much easier to get support and cooperation in program innovations. Consequently, very significant improvements have been achieved in university organization and structure. For instance, the catedra system has disappeared in the agricultural faculty and has been replaced by departments whose heads are elected. A new rank structure has been inaugurated beginning with assistant professor and leading to full professorship. More full-time people are engaged in teaching and research, being paid separately for teaching activities and work in the research institute.

STRENGTH OF INSTRUCTIONAL PROGRAMS AT THE FEDERAL
UNIVERSITY OF RIO GRANDE DO SUL

Program Area	Rating				
	One	Two	Three	Four	Five
Biological Sciences* (Botony, zoology, cytology)				X	
Physical Sciences* (Physics, chemistry, mathematics, geology and soils)					X
Social Sciences* (Economics, rural sociology, extension)					X
Animal Science*			X		
Plant Sciences*			X		
Agricultural Engineering* (Mechanics, farm machinery, irri- gation, storage, topography)	X				
Plant Pathology and Entomology*		X			
Food Technology*	NA				
Forestry	NA				
Home Economics	NA				
Extension and Communication				X	
Agricultural Education				X	

* indicates a basic component of agricultural curriculum.

NA indicates not applicable or not identified as separate part of curriculum.

Not directly susceptible of measurement, but of great importance is the improved quality of the undergraduate program in both the agronomy faculty and in the economics program. Better trained teachers have designed new instructional materials and have introduced research projects in the curriculum. Also by reason of the general university reform, it has been possible to introduce diversification into the undergraduate program and offer elective specialties. In the offing is the creation of general university institutes in the basic sciences and social sciences, but this cannot be made wholly effective until the entire institution has been moved to the new campus on which the agriculture school is already located.

It has been the plan of both the UFRGS administrators and the Wisconsin team to move forward with deliberate caution insofar as excessive specialization in the graduate program is concerned. Programs tend to be broad and general leading to the Master's degree. The degree is currently offered in soils, plant science (field and forage crops), animal nutrition, agricultural education, and veterinary science. Furthermore, it is the policy of the program leadership to send professors abroad for the doctoral degree only after they have served for two years on the faculty of the school, as well as having attained the Master's degree in Brazil. This may prove to be an unnecessarily restrictive policy, particularly when coupled with the high demand for teachers to meet existing student demand. When a professor is sent to the United States his vacant position is not filled because he continues to draw his salary to support family and supplement the meager AD-established allowance. Consequently, the release of a man for doctoral study entails a difficult decision as to whether he can be spared. The participant program has not moved as rapidly as might have been anticipated because of these considerations.

The school at Porto Alegre still faces major problems. Budgeted funds are not received on time and professors often work for months without pay. Similarly, the bolsas for graduate students are also frequently delayed. Large numbers of

the faculty hold several positions in addition to their university appointment. Furthermore, recent government restrictions on new public service appointments in an effort to control inflation has resulted in long delays in getting new faculty members (many of whom are new graduates of the Master's program) on the payroll.

Research. Research has become a basic part of the instructional program of both the agriculture school and the economic institute. This is a marked accomplishment. Furthermore, the soils analysis program and experimentation with soil nutrients have carried the benefits of on-going research throughout the State of Rio Grande do Sul. Nevertheless, the type of in-depth research currently going on in genetics, plant science, and plant and animal nutrition at Vicosa and Piracicaba do not as yet characterize the UFRGS program. On the other hand, the research in agricultural economics and rural sociology conducted through the economics institute is outstanding and particularly well related to the rural needs and problems of the state.

Extension Work. The extension program at Rio Grande do Sul is truly outstanding and without any equal in Brazil, insofar as the role of the university is concerned. Not only has the outreach capability of the institution been demonstrated in Operation Tatu, but also numerous short courses are given for a great variety of persons, particularly in collaboration with the state extension service.

Agricultural Education. The Rio Grande school has established with the assistance of Wisconsin an unusual program in agricultural education. This program is designed to train teachers of vocational agriculture. It is now functioning quite successfully and will make a strong contribution to agricultural education throughout the state. A key problem remains in achieving recognition by the secondary school system of the value of such special education in the form of salary differentials for those who complete the work.

Administrative Capability. Although both the economic institute of the Faculty of Economics and the Faculty of Agriculture have capable leadership at Rio Grande do Sul, there is an absence of leadership at the university level. The rector is a physician and devotes little time to his university responsibilities. Furthermore, the general management of the business affairs of the university by the university council is poor. These facts account in part for the frequent delays in receipt of budgeted funds, the difficulty of getting appointments to the faculty approved, and so on.

On the other hand, capable people head the various departments in the two schools affected by the Wisconsin program and cooperation between these schools, which at one time maintained an arm's length relationship, is increasingly close.

Outside Support. A significant measure of progress is the growing support being received for research and training activities from outside organizations, foundations, and other government agencies, such as the National Research Council. This will be increasingly helpful in meeting the financial requirements of the growing program, but it has also created problems of grant fund management. The host institution's financial and administrative structure and procedures have never contemplated the management of such resources.

Performance of the University of Wisconsin

At the outset of the assistance program, the University of Wisconsin gave strong leadership to the chief of party and staffed the position with a man capable of exercising it effectively. The same pattern has generally prevailed to the present time; the Wisconsin chief of party today is the strongest team leader encountered among the four programs evaluated. Project management is in the field, not on the home campus. The project staff functions as a team and not as a collection of individual scientists each pursuing his own technical interest. The esprit de corps of the group is high and this spirit has been projected to both technical and administrative counterparts in the host institution.

In spite of its project management pattern, however, Wisconsin has had some of the same problems that the other American universities have experienced in personnel recruitment, timely filling of vacancies, and lack of suitability of some individuals or their families for overseas work. The technical quality of the staff appears to have been high and to have remained so.

On the Wisconsin campus there has been a very lively interest in the Brazil project and department heads and staff have been involved actively in support of the people in Porto Alegre. Backstopping has been good and the campus coordination role effectively performed. The graduate training of UFRGS professors is not all taking place at Madison, however, and persons have been sent to those other universities whose programs seemed most relevant to the needs of the participant. The selection of participants and the work given them appears to be excellent. A real problem will be that of retention upon their return to Porto Alegre owing to the relatively low salaries they will receive.

One of the first efforts of the Wisconsin staff was familiarization with the host institution's environment and potential clientele. Extension of existing technology to those who could use it became the keynote of the project rather than the search for new knowledge. Stress was quickly placed on soil deficiency as a major problem of crop production in Rio Grande do Sul, and this led directly to the breakthrough of the already-mentioned Project Tatu. This major accomplishment is a direct and highly significant accomplishment of the Wisconsin program, and AID should take real and justified pride in it.

Future of the UFRGS-Wisconsin Relationship

As indicated earlier, the program at Rio Grande do Sul has a very long way to go to achieve the goals of excellence in agricultural education that are its objectives. The inculcation of the extension service concept, one of the major goals for higher education in agriculture, has clearly been accomplished. Development of research capability and high quality graduate education will take many more

years because of the long time required to train the human element that must make up the faculty of the host university. The continuation of technical assistance is also essential if solid growth is to take place during the long period of faculty training in Brazil and abroad.

It will be at least five years before UFRGS will be able to boast the faculty resources that now characterize the schools at Vicosa and Piracicaba. In other words, the school at Porto Alegre started with less of a foundation than the other institutions possessed when the assistance program began. What is needed is a continued strong input of assistance along the lines of the present operational plan for a five-year period. At the end of that time, say in 1974, a new plan should be developed in the light of the conditions that will then exist. For the present however, the existing plan is valid, it is working well, and it should be continued.

It might prove useful, however, to reexamine the policy of UFRGS concerning possession of the Master's degree before sending a faculty member abroad for graduate training. There is more to graduate education than the technical training involved. A key part of the participant training is the new orientation to the educational process and philosophy that the trainee obtains in the United States. This is needed by many professors who will never get a Ph.D. degree, but who would benefit from a Master's program outside of Brazil.

The University of Arizona Project at Ceara

When the University of Arizona first initiated its assistance program at the University of Ceara in Fortaleza in 1964, the agricultural school of that institution consisted of a number of buildings, a group of part-time faculty who appeared on campus only to lecture, and a student body whose indifferent attention in class attested clearly to a lack of interest in what the professor had to say. Apart from the classrooms, the buildings were virtually empty, for laboratory equipment and materials were almost non-existent. No real library existed and no one used what few materials were available.

Today, the agricultural school at Fortaleza presents a totally different aspect. A much larger number of students attend classes in which they actively participate, in which they make use of laboratories and the equipment they contain. A well-organized library is available and students are seen using it. Professors are to be found at work on the campus in research and experimentation and not just in the lecture hall. The institution has an experimental farm which it is in the process of developing into a useful adjunct of the research and educational program. These changes have all taken place in five years. AID and the University of Arizona may justifiably take pride in the success that has attended their efforts.

The changes at Fortaleza are no more dramatic than those accomplished by the other universities that have benefitted by AID support for higher education in agriculture. They are simply more visible by reason of their basic simplicity. The progress achieved, however, constitutes only a bare beginning in the development of a strong, agricultural school capable of quality instruction, innovative research and effective outreach in its area.

The Operational Plan

The operational plan of the Arizona program at the University of Ceara embraces the same basic elements found in the other university plans.

1. Development of effective research programs in the various branches of agriculture as part of the instructional effort and a major concern of the teaching staff.
2. Equipping of essential laboratories and development of library resources.
3. Training of host institution professors through participant scholarships in the United States and at other Brazilian universities.
4. Provision of technical assistance to the host institution in development of graduate study programs leading to advanced degrees.

The Arizona program approach is somewhat different from that of the other programs in two respects. The professors from Tucson have worked with counterpart staff in preparation for graduate study programs and in development of research projects, but they have not engaged in teaching and have had minimal contact with students. In the other programs, teaching on the part of the American staff has been a significant element of support, although most of it has been at the graduate level which at Ceara does not yet exist. A second difference has been the greater use of the other Brazilian schools of agriculture for the training of faculty to the Master's level. Once a graduate program has been inaugurated at Fortaleza, the Arizona professors do expect to take part in instruction. There is also a strong feeling among them that Master's degree training in Brazil is far less useful than that in the United States because it has not produced hoped-for changes in attitude concerning the nature of their functions and their dedication to scientific inquiry.

The following chart indicates areas of academic and research progress at the University of Ceara. This progress, insofar as teaching quality is involved, is largely attributable to the better work of the growing number of younger professors who have returned from M.S. degree training in the United States. It should be noted that no Ph.D. candidates have as yet completed their study abroad and the school has no holders of that degree.

STRENGTH OF INSTRUCTIONAL PROGRAMS AT THE
UNIVERSITY OF CEARA AT FORTALEZA

Program Area	Rating				
	One	Two	Three	Four	Five
Biological Sciences* (Botany, zoology, cytology)			X		
Physical Sciences* (Physics, chemistry, mathematics, geology, soils)			X		
Social Sciences* (Economics, rural sociology, extension)			X		
Animal Sciences*			X		
Plant Sciences*				X	
Plant Pathology and Entomology*	X				
Agricultural Engineering* (Mechanics, farm machinery, irri- gation, storage, topography)		X			
Food Technology*	X				
Forestry	NA				
Extension and Communication	NA				
Home Economics	NA				
Agricultural Education	NA				

* indicates a basic component of agricultural curriculum.
NA indicates not applicable or not a part of the curriculum.

Some of the above ratings are less than firm owing to the fact that instructional and course organization does not coincide perfectly with the categories. It should also be noted that the new organization of the university that will become effective next year may greatly alter items in the basic science and social science categories, as parts of these programs will become courses to be taught in university-wide institutes. It is far from clear at this time which subjects in certain categories will be shifted out of the agriculture school.

Furthermore, some areas will be greatly strengthened within the next year by the return of professors studying abroad, and it may be possible to begin some graduate course work. Some professors are very reluctant to begin graduate instruction until some adjustment is made in the salary pattern to award them for the additional teaching load involved.

A number of changes have been made in the management of the agriculture school as a direct consequence of the assistance program. These include adoption of the semester system admission of students twice rather than once a year, diversification program permits some specialization in fourth year of study, and the use of faculty planning seminars has proved highly beneficial and is now employed in other parts of the university. The catedra system has been replaced by subject-matter departments.

Research. Development of a strong research program at Fortaleza is still some time in the future. It depends heavily on the further development of the experimental farm located some sixty miles from the campus. Funds and equipment are being allocated to advance this research facility in anticipation of the postgraduate program as well as long-range basic and applied research.

Extension. An active extension program does not yet exist, but plans have been prepared to develop training programs for business and industrial people working with the agricultural economy. An effort is made to assist farmers who from time to time come to the school, but outreach possibilities are definitely limited until the research capability of the school is further advanced.

Administrative Capability. The University of Arizona staff has been fortunate in the receptivity it has received from the host institution leadership. There is a strong determination on the part of the rector and department heads to improve the university as rapidly as possible. The lack of a director (dean) of the agriculture school for the past year seriously slowed the decision-making process, but a capable younger man has now been chosen for the position and additional progress under his leadership should be rapid.

Major administrative problems persist, however. Low salaries and the inability of the university to supplement them from sources other than the university budget is a serious problem. In spite of this difficulty, however,

returning participants have remained at the school and none has yet sought greener pastures to the south. The fact that about 30 per cent of the faculty are part-time employees and that the other 70 per cent must find some form of outside supplementation to support themselves and their families places serious constraints on commitment and professional aspiration. Much of the difficulty in this regard, as well as in some other aspects of program development, has been the restrictive control exercised by SUDENE, the development authority of the Northeast. SUDENE must approve all program agreements, the release of CONTAP funds for local currency support, and the choice of participants for study abroad. The lack of a program in home economics is due to SUDENE's refusal to approve the expenditure of any funds for this field.

Performance of the University of Arizona

There has been a great deal accomplished by the University of Arizona at Fortaleza, but progress has been achieved at considerable cost in strained relationships between the university and AID, particularly the monitoring office for the Northeast at Recife. Several factors have contributed to this problem, not the least of which has been the uncertainty on the part of party chiefs and campus administrators as to just where their responsibility lay. There seems to be no real question on this point from the standpoint of AID, but the campus coordinator persists in his insistence that the University of Arizona is responsible only to AID Washington. His long-continued effort to manage this project personally from the Tucson campus has created a great number of problems within the university itself, for he reports directly to the president of the university, by-passing the dean of agriculture, department heads, and other concerned individuals, and whenever issues have arisen he invariably has been supported from the top. Arbitrary actions have been common in all phases of project operations, including even the reassignment of participants to different fields of study than those for which they were sent. Unfortunately, too, has been

a strong inclination to down-grade the importance of orientation and language instruction for staff being sent to Fortaleza. In effect, the present arrangements virtually deprive the project of much of the strong support it needs from the school of agriculture, the very resource whose competence AID sought to tap when it awarded the contract to the university.

In the latter part of 1968 the campus at Fortaleza was greatly troubled by student efforts to have the Arizona contract group removed. The situation became very tense, and the reactions of the Arizona staff indicated considerable panic and inexperience in dealing with organized student opposition, to which was added a lack of understanding of their real relationship to AID and the American Embassy. Eventually, however, the faculty of the agronomy school got behind the contract program. The student opposition, a minority effort coming largely from outside the agronomy school, was quelled. The crisis served to weld closer ties between Arizona and Ceara faculty members, and it also resulted in the publication of a document distributed to all students of the university explaining the purposes and objectives of the contract relationship. The opposition effort appears to have backfired, for the relationship seems to be stronger now than at any time in the past. The disagreeable affair did nothing, however, to increase the confidence of the AID monitoring office in the management of the contract.

A weakness of the Arizona group in the face of student opposition was their almost total isolation from regular student contact. The lack of classroom contact with students may well have been an error in project strategy. As it is now, some of the Arizona professors exhibit a genuine fear of students, and are quite insecure as to their possible future relationships with them. They are quite unprepared for the inevitable student initiatives in political rather than technical areas of discourse.

The University of Arizona campus coordinator demonstrates an increasing

inability to manage the Brazilian project effectively. Staff selection has been slow, orientation and language training weak or non-existent, and forward planning uncertain. The staff in the field uniformly criticize the backstopping as inadequate, irresponsible, and arbitrary. A change in leadership restoring the program to the school of agriculture where it belongs is urgently needed.

A distinct problem of the Arizona/Ceara program has been its isolation and lack of communication with the related programs at other institutions. Little outside support has been attracted in spite of the progress that has been made, and this is owing in part to ignorance of opportunities for supplemental funding. Library development reflects a serious overdependence on English language materials that will be little used by students. This is not the case at Piracicaba or Vicosa. Many of the titles are available in Portuguese or Spanish, but those placing the orders have only a limited knowledge on the subject. There is a great need for more interproject communication.

Future of the Arizona/Ceara Project

In spite of significant progress in the instructional program at the University of Ceara, a great many problems remain. A great many years will be required to bring the institution to a leadership position in agricultural education comparable to that of the schools at Piracicaba and Vicosa. Given a change in project management, Arizona has the interest and capability to provide the assistance program necessary to such achievement. Unless such resources are made fully operational, however, an inevitable atenuation will set in. Continuation of the program should be made conditional upon such changes as may be necessary to bring this about.

There are other problems as well. Graduates of the agriculture school at Fortaleza find few opportunities for employment. Many drift into other fields of activity because no positions are open to them. In contrast, the graduates of Vicosa and Piracicaba have in recent years found from three to

four jobs apiece to choose among. The contrast is largely the result of the depressed condition of the agriculture of the state and the Northeast generally. Future agricultural possibilities for the region are far from certain. It may be years before the graduates at Ceara find a ready market for their capabilities and skills.

If it is possible to bring about the changes indicated above, the project program should immediately be replanned in close consultation between both universities and AID. In such process, careful attention should be given to the problem of placement of graduates and a meaningful solution found. There is little to be gained in turning out an endless stream of agriculture graduates who never have an opportunity to work in the field of their specialty.

IV. INSTITUTION DEVELOPMENT: PLANNING,
MANAGEMENT AND EVALUATION FUNCTIONS

Relevance of the Goals for Institutional Development
and the Operational Plans to Achieve Them

The relevance of the goals for Institutional Development in each of the four U. S. University contracts are confirmed. The operational plans to achieve these goals are, with notable exceptions, "on track" and moving toward achievement.

Each of the four projects can point to major accomplishments and a genuine strengthening of the host institutions in both quality and scope of their agricultural education programs. Each of the Brazilian institutions was at a significantly different start-up point when the contracts began. It is inappropriate, therefore, to make comparisons in contract performance among the U.S. Institutions. The only meaningful comparison is one based on where the contracting institution and the host institution were, at starting time, where they are now, and the nature of the obstacles that have been overcome.

The broad general objective as set forth is concerned with a process of institution building. Each of the U. S. Universities has been concerned with this process, but in vastly different settings and circumstances. Some of the critical variables associated with the current institution building process are as follows:

1. Identification of subject matter disciplines appropriate to the institution and development of viable curriculums to provide relevant undergraduate and graduate training.
2. Selection and provision of advanced degree training for sufficient staff to offer in-depth instruction in the various disciplines.
3. Development of a broad network of science subjects at different levels to provide undergraduate and graduate students with meaningful majors and minors in substantive fields.
4. Developing a staff capable of providing guidance and supervision to students particularly those at levels of graduate training and supervision of thesis research.
5. Development of an adequate library.
6. Emergence from a traditional undergraduate teaching institution into a research and public service unit with a philosophy of the extension of relevant knowledge within the state and region.
7. Development and use of an agricultural experiment station to pursue basic and applied research where related disciplines link up to resolve practical problems.
8. Development of functional relationships with National and State Research and Extension Organizations through whom the discovery and dissemination of useful knowledge also occurs.
9. Procurement of additional supporting funds from a variety of extra public and private sources to provide student bolsas, aid research development, purchase equipment and supplies, build new buildings, sponsor in-service and short-course training, etc.
10. Development of administrative and planning capacities of selected staff to insure requisite leadership, an educational and service philosophy, and continuity for programmed institutional growth.

All of the contracts now have fully developed curriculums at the undergraduate level although there are many rigidities in these patterns.

By 1970 three of the host institutions will have developed a fairly strong graduate program at the M.S. level. Since the contracts are either to be terminated or renewed by 1971-72, the question arises as to whether the goals for Institutional Development will or will not have been met. The answer obviously is provisional -- like asking whether a person in his late teens is or is not an adult. The institutions will have risen in the period of seven to eight years to a remarkable capacity in the normal terms of institution building. From among the criteria cited above, most of them will have been partially met. None of them will have been wholly met, if indeed they can ever be.

The contract of the University of Arizona with EAUFC is coming along at a slower pace, having started under vastly differing circumstances. One would expect the tempo of development to pick up, although it must be recognized that agricultural development in the Northeast is in a cause-and-effect relationship to other sectoral development in the area.

The Question of Phase-Out

In the opinion of the writers, the contracting Universities have made reasonable and, in a number of particular instances, outstanding progress in assisting and facilitating the growth and development of the host institutions. Each has come a long way. The team would, therefore, deem it inefficient, shortsighted and wasteful of inputs to think seriously of contract termination.

It is recommended that the institutions concerned continue to plan and organize with renewed vigor to achieve the goal expansion and institution development processes associated with later phases of institution building. First, however, it will be useful to review some of the considerations undergirding the rationale for continuing to build regionally located agricultural education centers in Brazil.

The following are representative:

1. USAID/Brazil has placed high priority on the strategy of developing four regional agricultural educational institutions in Brazil.
2. Each of these institutions under selected guidance and assistance has made substantial progress in the period of the current contract.
3. The advent of the recent Brazilian University reform measures, partly influenced by the philosophy of institution building under the contracts, adds a significant new thrust to development in each of the regional universities.
4. The build-up of federal and state experiment stations and extension units adds useful structure in a process of modernizing the agricultural systems. Additional work is needed in developing functional linkages between these units and the universities.
5. The cumulative build-up of agencies, organizations and foundations of international and national character and private and public origin now makes possible the concept of managing agricultural institution building along strategic lines of multi-lateral contracts and agreements, thus increasing the range of resources and the number of problems that can be simultaneously addressed.
6. The National Research Council (C.N.Pq.) has outlined the concept of building and supporting regional centers of excellence. The long-range philosophy is to utilize strong regional educational centers as "mother-institutions" to foster and up-grade the capacity of other schools in the

state, and within other states in the region. One can visualize this symbiotic relationship of a strong center with advanced graduate training, basic research, adequate equipment, and a program of size and scale adding the appropriate multiplier effect to the role of U. S. Universities in seeking to upgrade agricultural education.

7. There are many pitfalls in cross-cultural institution building processes. There are no long established patterns in past history, nor any foolproof blueprints in current history to chart the manner or means by which to proceed with such assistance. The problem is how one university, in its unique environmental setting, can be expected to hurriedly cross over and transfuse another university rooted in a totally different lingual, cultural, and environmental setting with a development process.
8. That institutional development is not a short and quick process is coming to be better understood. That desired institutional growth lends itself to careful planning in incremental phases is also being better understood. That it is highly appropriate to identify stages of growth and stipulate conditions of development at certain phases is also appropriate for evaluation, but to confuse these early stages and conditions with the end goals of institutional development is neither appropriate nor correct. At best, the early stages are means, not ends.

In recommending contract continuation beyond the dates of 1971-72, major considerations have been given to ways and means by which the contracts can be more efficiently planned and managed.

Future Planning and Management of Contract Programs

The patterns of operation for the four contracts are firmly established. For the most part, they have been correct patterns to accomplish the first phase. In projecting ahead there are a number of planning-requirements and focused strategies that can be identified.

1. Within each host institution there are a few departments that have been more difficult to get moving than others. These require more detailed attention and planning. A reasonable model of "turn around time" for selection, preparation and training of a Brazilian staff member at the M.S. level in a U. S. university is between 3 and 3½ years. A back-up team (minimum of 2 or 3) of staff holding advanced degrees (M.S.) are needed before a department can enter into a meaningful training program at the masters degree level. The logistics are complex, first, to find staff eligible to nominate for advanced training; second, to find others to teach their classes while they are gone; and third, to compete with other departments for the training slots since they too are anxious to advance their programs.
2. The "turn around time" for the PhD trainee is 4½ to 5 years, including completion of the M.S. degree. Here, also, a back-up team of 3 or 4 staff holding the PhD degree is needed, along with qualified personnel in the related disciplines, in order to manage a viable PhD training program.

Preferably there will be a few PhD degree trained staff to supervise the M.S. degree training even in the early stages.

3. The numbers of participants from each of the host institutions scheduled for M.S. or PhD training in the U.S. through the life of the present contracts are shown in appendix G.

A total of 81 will have received M.S. degree training, 59 of which will have been sponsored by the Ohio State University and University of Arizona contracts. The Purdue and Wisconsin contracts have generally adopted a policy of encouraging completion of the M.S. degree within their own or another of the contracted host institutions.

A total of 67 will have received PhD degree training, distributed as follows: OSU (ESALQ) 19, Wisc. (UFRGS) 14, Purdue (UREMG) 24, Arizona (EAUFC) 10. 34 of the 67 have not yet started their training, and therefore may not be expected to complete it before the period 1973-75.

Normally a host institution has about 8 subject matter departments -- a minimum of 3 PhDs in each department would call for a total of 96. This minimum number could conceivably be reached about 1975 if present training quotas were continued. Optimum levels might be achieved if participant quotas were stepped up as they should be, and long term technician assignment patterns potentially adjusted downward.

4. As the host institutions move closer to sponsorship of full fledged M. S. programs and a few pilot PhD level offerings in the strongest departments, the need for long-term technicians can shift to use of short-term consultants. This assumes the short-term men would be called upon to make qualitative inputs into curriculum research, short-courses, administrative procedures, publications, equipment handling, etc. It assumes the host institutions would be moving well into the second phase. This pattern would advance the technician-counterpart relationship to one characterized more as colleague-ship and a mutuality of scientific endeavor. It would also initiate more fully the "mother-institution role" in relation to neighboring satellite schools.

Budget shifts could begin to be planned, and managed to accommodate these changing program needs.

5. The present tendency for each of the contracts has been to largely operate in the insulation and autonomy of their own regions on a bi-lateral basis with their host institution. A definition of a fully developed institution is one that is characterized by a "strong network of indispensable interdependencies". This implies in planning ahead that the notion of multi-lateral agreements must come into play. The needs of the host institution are massive, and no single specialty organization or agency can be expected to supply all of them. This requires innovative and entrepreneurial leadership within the institutions. It encourages a philosophy of broadening horizons, establishing linking ties and mutual plans among the four contracting universities and the host institutions, and with numerous of the other public and private organizations and foundations that have specialized interests bearing on University programs.

6. Special planning attention must be directed to the development assistance being given by AID through I.R.I. for improvement of the chain of federal agricultural experiment stations as well as the establishment of research stations at the host institutions under the contracts. It is said that six of the eight federal regional stations are near rural universities. Appropriate linking ties would better insure quality research, make better use of trained research technicians, and combine limited resources to address critical problems of concern to agricultural development.
7. Similar working arrangements need to be planned and contracted with the federal and state extension organizations to develop viable operating procedures, communication channels, and mutually rewarding partnership roles if the outreach of the host institution is to have any impact on the rural environment it is destined to serve.
8. A serious structural bind now exists within the host institutions that precludes the feasibility of effective long-range planning within the host institutions. This difficulty arises since the dean's office is an elective position for a three-year term. It is like any political office -- a fight to get elected, settle down for service for a year or more, then run for re-election. Some normal ways need to be developed, like forming an institutional planning board that will permit continuity and the opportunity to involve the wise heads of the institution in long-range direction setting.
9. Serious planning attention needs to be given the critical phases of developing, procuring, and creating subject-matter materials in Spanish or Portuguese to be used in instructional programs. With new upsurges in undergraduate enrollments and pushes to add a qualitative dimension through graduate programs, much hinges on the management and procurement of these materials.

Incentives for staff to publish their research, develop teaching syllabi, write text books, and publish notes will help. In addition, the four contracts should combine resources and launch into a translation and procurement program to match the magnitude of the needs.

10. Many references have been made in this report to the mounting importance of sound planning and management in institution building processes. The days of the scientist technician serving a partial role as chief of party and subject matter expert are past. The new problems call for the best of program-building, resource-linking expertise available. These skills are scarce and when found they should be used, shared and suitably rewarded. They should be supported with office management help to handle the routine, and be free to confer, travel, observe, plan evaluate, delegate, stimulate, and cause overall balanced institutional growth.
11. In the search for meaningful variables that might be maneuvered or manipulated to enhance the institution building process, perhaps none is as important as the great asset that the staff and students of the Brazilian institutions bring. These are the attributes of a sense of pride, of self-determination, a vision of institutional destiny. These qualities make for a sterling partnership in an institution building venture. These will result in the building of reciprocal intellectual communities with ties and connections facilitating rotation of staff and students, course work and materials, collegueship and enduring friendships. Such reciprocal payoffs will lead to sustained and quality work of global significance

Monitoring and Evaluating Future Contract Programs

A major responsibility for monitoring the contract programs in the past has been assumed by various personnel in the USAID/Brazil offices. The tendency in newly emerging programs is to focus assessment and evaluation largely on the input side. This approach has been characterized as the cannon-ball style of evaluation. The artillery officer could measure his inputs of powder charge, set the elevation and azimuth, hopefully correct for windage and pull the lanyard. What happened to the cannon ball was out of his hands from that point on.

The pattern of counting participants, technicians, man years, books, pieces of equipment and dollars spent is clearly a preoccupation with inputs. These are important considerations, the point to be made is that they are not all of the considerations.

A more sophisticated model for program monitoring and evaluation is derived from missile firing and direction control. Here, all intelligence information is utilized leading up to a successful launch, after which, additional adjustments and corrections insure desired guidance and control to final destination.

The problems of assessing institutional development has all the complexities of missile management. There is need of being intimately acquainted with the technical details, program nuances, opportunity climates, vested interests, alignments of influence, expanding goals, multi-directional strategies, institutional linkages, etc. The calculation and feed-in of this kind of information relative to adjusting the planning and management functions (guidance control) is not possible for the AID/Brazil based officer alone. Those at the institution site, building the program in an everyday sense, are also ones who need to be constantly gathering, evaluating, and utilizing data.

Some considerations which may influence future evaluation and monitoring procedures are as follows:

1. The continuous and timely feed-in of technical data strongly suggests that the persons with access to information need to be part of the guidance control team. This is in opposition to the notion that a monitoring and evaluation function is best done by a person outside the system with no vested interests who can presumably be more objective. In the subtleties of institution building, such an outsider simply cannot gain access to the relevant information at the right time nor feed it in for use in the best way.
2. As the institution building processes move toward more specialization and complexity, the dependencies of AID will turn more and more to the competent U.S. Universities, and as these Universities become more totally committed they gain more competence and thus escalate better institution building procedures.
3. The fraternity of U.S. Universities involved in international institution building is growing larger as well as coming into closer association and exchange. The formation of new consortiums of units working on joint projects or in similar regions attest to this trend.

The four contracting universities in Brazil have moved a step beyond their consortium to propose a "Council" which would bind them still closer in pursuit of their common goals of institution building in Brazil. They propose that an "Executive Director" be employed for the purpose of placing a full-time professional "institution developer" in the common employ of the universities. The functions of such a person would be to search out, plan, and organize short, medium, and long range procedures by which the universities might more successively excel in international development work. Such a person would travel freely between and among the institutions in Brazil as well as in the U.S. His headquarters would probably be in Rio, where he could pursue functional linkages with appropriate ministries, foundations, agencies and organizations of an international, national, private or public nature.

A person in this "Ombudsman" type role, working closely with USAID/Brazil and strong chiefs of party, deans, and department heads at host institutions, could be a valuable resource in the evaluation and monitoring procedures.

4. The complexity of institution building is such that new tools and gauging devices need to be developed. Date relevant to the following kinds of questions are increasingly pertinent:
- a) What changes are taking place in the perception and aspirations of students for possible careers in agriculture or in agro-industry?
 - b) What changes are taking place inside the classrooms in terms of students' attitudes toward professors, lectures, examinations, study habits, library assignments, etc.?
 - c) What significance does the University reform act hold for students, for staff, senior staff, administrators?
 - d) What relative value do students and staff attribute to degrees earned in Brazil as compared to those obtained abroad, especially in the U.S.A.? Is this pattern changing?
 - e) When does a staff in a department feel it is ready to begin offering a graduate program at the M.S. level? At the Ph.D. level? What criteria do they use?
 - f) What measures can be used to determine whether the local institution in its philosophy of service and out-reach has achieved any degree of acceptance in the rural environment or has any intrinsic value in the minds of the people?
 - g) What are the basic strengths of the institution? What could it rely on to hold it together in adversity?
 - h) What are the weaknesses of the institution? What is holding it back?
 - i) How often have returning staff participants been assembled in systematic seminar sessions to consider questions and make recommendations on procedures and efficiencies of institution building or contributing to the planning and guidance system?
 - j) How often in the U.S. have returning technicians been assembled in systematic seminars to address the same questions?

- k) How can the rich reservoir of U.S. technicians with experience in Brazil, mastery of the Portuguese language, and a continuing interest, be utilized within contracts, or on loan to other contracts, for short or long term assignment?
- l) What are the fundamental program and problem areas of mutual international significance that challenge the pursuit and investigation of scientific collegueship, mutual exchange of staff, resources, students and facilities? How can additional research and financial support be mobilized to pursue these challenges?
- m) What can be predicted about the relationships, program priorities and support sources of a strong agricultural college (School of Agronomy) located in a general university, when the agricultural college probably has more advanced trained staff, better libraries, and more equipment than any other college in the university?
- n) What combination of hard data (quantitative), and soft data (qualitative) can be used to measure progress or stages of development?

Questions as listed above are representative of the type of data that can be gathered and fed into a memory system that needs to be developed. Measures of an evaluative order can be assigned. Of particular importance is the principle of asking the people who know, or who should be involved, to provide the data. An illustration of this point on two crudely formed assessment devices is the rating sheets in Appendix I-1 and I-2. Obviously these would have little value if completed by only one or two persons. If they were completed by a large sample of those in a position to know, or who are involved, they could serve as a technique of quantifying data, and also be used to reassess changes over time.

The problem of evaluation and monitoring cannot be said to be wholly the responsibility of USAID/Brazil, nor of the contracts themselves. Both have a legal and moral responsibility. That more of the qualitative measurement needs to be assumed by the contracting universities seem indicated. That the quantitative (auditing functions) need to be monitored by USAID/Brazil also is indicated.

V. PROPOSED NEW APPROACH

In retrospect the team feels that each of the U. S. Universities in question can justifiably point with pride to major accomplishments. During the past several years each of the host institutions in Brazil has been materially strengthened in both the quality and scope of the agricultural education program. Each can point to much stronger faculties that are becoming more able to offer both M. S. and PhD degree programs in divers departments. It is to be expected that project emphasis should still vary, however, depending upon differences in the host institution's readiness to use, and capacity to absorb, foreign aid.

Review of Major Problems

Looking to the future, the team wishes to make special note of several problem areas in which improvements are needed.

Project Management

The need for improved project management and program planning is a major concern. In the case of Brazil, one of the four U. S. Universities has been outstanding in this respect. In this case, it was demonstrated that strong leadership in the field was the key to program planning, good coordination, and effective relationships with the leaders of the host institution.

Conversely, the attempt to manage programs, set goals, and control priorities on the U. S. campus is highly presumptuous. Such remote control fails to take into account the dynamic growth and reforms taking place in Brazilian higher education over the past few years. Opportunities are lost for important advances in institutional development.

We question the tendency to view the chief of field party's function as a part-time duty to be performed by a specialist devoting most of his time to research and teaching. We believe that the field party chief should be an experienced administrator who can look to his campus coordinator as an expeditor and not a boss. He should have broad responsibilities in staff recruitment and orientation and he should be free to visit the home campus, from time to time, to make sure that his campus backstopping is adequate.

Project chiefs of party all complain of the numerous clerical or logistical chores that consume much of their time. This is a real problem. AID should recognize the need to free the party chief so that he can have the time to handle properly the more substantive responsibilities and duties. Thus, it seems apparent that administrative-assistant type staff should be more adequately funded.

The project management problem is not unique to Brazil. We realize that it has created difficulties all over the world. Hence we are relieved to note that AID is seriously considering a new type of University agreement and other arrangements that promise to improve this situation.

Faculty Recruitment

The problem of faculty recruitment has been troublesome to all contractors. Faculty members coming to Brazil not only face the difficulty of learning a foreign language, but they face the prospect of professional isolation with attendant losses in opportunities for research, publication, and professional advancement. With each passing year it may be expected that greater recruitment difficulties will be encountered as competition for scarce faculty among American institutions mounts and as the glamour of foreign assignment fades into the background.

New approaches are needed. Three-year tours with intermediate home leave might help greatly. Opportunities to attend professional conferences in the United States or in Latin America might also help. Intensive language training in "full involvement" situations should be well worth the cost in avoiding lost effectiveness and wasted effort after the faculty member arrives abroad. Finally, a rotational form of individual relationship to an overseas project might be considered, with three years abroad, two years at home, and a second two or three year tour abroad -- or a series of short tours abroad after an initial three-year assignment. Percentage limitations on salary increases probably should be removed after initial assignment, and the faculty member given the same salary treatment he would have received had he performed comparable service at home.

Project Relevance

Project relevance among the four programs in Brazil is reflected in part by the degree to which the related Brazilian university has achieved integration with its environment. For example, one of the institutions has not yet reached the stage of development that will enable it to perform major service functions in its region. Obviously, the problems of the four Brazilian universities are not all the same, and the approach taken with respect to contract support, funding, and phasing schedules should be more flexible. The American universities generally should become more sensitive to the relative status of their host schools and their environmental status and assist in planning more realistically institutional development efforts and AID support.

AID Monitoring

It is evident that AID has encountered considerable difficulty in relating to the University contractors. The problems that arise have to do with rapport, communications, folkways of academia, credibility, rights, privileges, freedoms, measurement of performance, and evaluation of progress. More specifically:

1. For this type of (institution building) program, it is difficult to establish clear-cut goals as well as appropriate procedures for attaining them.
2. The AID system of reducing project plans and schedules to statistical measures apparently leaves something to be desired. The most significant accomplishments seem to defy measurement. This begs the question of how best to measure the stages of institutional development.

3. AID attempts to collaborate in staff recruitment and participant selections lead to much misunderstanding and some bitterness. Perhaps this type of AID intervention should be confined to the key positions of chief of field party and campus coordinator.
4. A peculiarity of the Brazil contract is that, with the exception of Purdue at Vicosa, they deal with only a small segment of the total University. Thus, the relationship of the agricultural schools to other parts of the University is a matter of growing concern. As these Ag schools develop, they are tending to become the tail that wags the dog, by virtue of having better trained faculty, foreign advisors, and more modern equipment. Implementation of the University reform plans will doubtlessly flush out some of these issues in the coming periods.

Prospects for an Expanded Program

There appears to be a real need for a new approach which can raise the level of university concern and performance while at the same time simplifying AID's task of program evaluation and monitoring, thus making the process far more relevant to the essential features of institutional development. This new approach would reverse the current patterns of administrative responsibility. The reversal would place a greater burden of contract performance on the shoulders of U. S. universities, but would at the same time create a better mechanism for assuring performance.

The new approach should bring into play a higher level of management competence on the part of universities, a competence which they possess but have not generally employed in the conduct of overseas programs. The higher level of management competence must extend to assisting the

host universities to inter-link the many national and international resources available to support institutional development programs, and to make optimum use of them in accomplishing goals and objectives. Finally, the new approach should clarify and focus responsibility of AID as financial and program sponsor and facilitate AID's task of keeping abreast of program elements, priorities, problems and accomplishments.

It is with the above points in mind that the following suggestions and recommendations are made.

Continuation of Program on Expanded Basis

The ambitious goals for this activity imply that continuing assistance at least during the next decade is required. Like many other AID projects, these university contracts have had their trials and tribulations. It would seem entirely appropriate, therefore, to consider ways and means of improving the program to accelerate progress and to provide a more unified effort. In this connection, it is appropriate to consider a number of related AID projects or proposals, all of which are rather closely related to higher agricultural education (see Appendix J).

Council of U. S. Universities for Brazilian Rural Development

This proposed Council is being organized by the Agricultural College of the four U. S. Universities, all of which now have had several years of good experience in Brazil. The Council intends to serve as

a coordinating and liaison mechanism in order to improve the competence of these (and possibly other) U. S. Universities to aid Brazil in its agricultural education and development efforts.

The Council plans to employ an Executive Director, who, if well selected, could be of great importance to the USAID/Brazil program in question. This man should have his headquarters in Rio, with direct access to the USAID Director and to high Brazilian officials as well as to the U. S. University party chiefs. He should be free to travel back to the U. S., from time to time, as the program requires.

The organizers of this consortium have considered this move for some time, and have prepared a prospectus type of paper. Also, it is understood that this consortium has submitted a formal request to AID/W for the financial assistance that is required as a basis for activating the Council. A 211-D grant from AID would be earmarked primarily for use in the U. S. to increase the Universities' competence to assist Brazil.

Aside from action on the 211-D grant proposal, this group of Universities is also considering the feasibility of financing the Executive Director position from funds to be negotiated for 1970, under the existing individual contracts.

The writers strongly endorse the proposal to activate this Council and hope that AID will be able to provide support, which should have a pump-priming type of influence.

Proposed Institutional Development Agreement

The CIC report of September, 1968 evaluated the worldwide experience under some 56 AID financed U.S. University contracts for agricultural development. A major recommendation in the CIC summary report asked for action in finding a new method of AID's relating to the U.S. University in financing the long-term type of project that is exemplified by the four Brazil contracts in question. In response to that recommendation, a joint committee of University and AID officials spent several months together this year, culminating in a scholarly statement in support of the general premise that AID should sign a new type of "Institutional Development Agreement" with a selected group of Universities, on a trial basis.

Briefly, the proposed new agreement -- based on the big fund of past experience -- would replace the existing standard contract, would vest both more responsibility and flexibility with the University, and would more clearly recognize the rather unique aspects (long range institution building) in this type of project endeavor.

The team is attracted to this idea. It certainly fits the Brazil situation. Therefore, it is recommended that the four college contracts, as a group, be used as one of the new trial agreements. This relates very well to the proposed Council with a competent Executive Director, stationed in Rio.

Other Projects or Proposals Related to the Higher Agricultural
Education Program

The projects or proposals to which we refer are listed and briefly described in Appendix J.

From our rather superficial review of these projects it seems apparent that their broad objectives are similar, in many respects, to those of the University contracts; hence they can exert a strong influence on the rate of institution building and on the possibilities of breakthroughs in agricultural development.

The arrangements described above, under the preceding recommendations, would have a most important bearing on how these other projects or proposals can best be coordinated with the University program. In any event, we are pleased to note that experiences of the past several years have now generated such keen interest in broadening the scope of this high priority activity in Brazil.

Coordination

The higher agricultural education needs of Brazil are such as to command the attention of several important agencies that should be working together more closely. A suggestion has been made that one or more conferences be held in Brazil to bring the relevant parties together. Besides AID and U.S. Universities, such a conference would invite (at least) representatives of the Brazilian Agricultural Colleges, the Ministries of Agriculture, Education and Planning, the National Research Council (CNRq) and such Foundations as Ford and Rockefeller.

There is much to be discussed. Such a conference might lead to some formal arrangement that would tend to expand and compliment the proposed Council of U.S. Universities. We endorse this idea.

BRIEF BIO DATA ON TEAM MEMBERS

Lyall E. Peterson

Retired from Civil Service and now employed part time as an International Development Consultant by AID, World Bank and private consultant firms. Educated at St. Olaf College and University of Minnesota. Associated since 1943 with Latin American Affairs, with AID and predecessor agencies, Rockefeller program, private firms and the Inter-governmental Committee for European Migration. In charge of agricultural assistance Programs in several L. A. countries and (1962-64) head of L.A. Rural Development Division in AID/Washington.

Harold R. Capener -

Professor and Head, Department of Rural Sociology, Cornell University - 1966-1969. Professor Rural Sociology 1964-1966. Professor, Department of Agricultural Economics and Rural Sociology, The Ohio State University - 1953-1964. Team member USAID contract team in Ludhiana, Punjab, India - 1958-1963. Acting Group Leader - 1963. Training Officer U. S. Public Health Service, Office of Surgeon General - 1949-1953. Officer, U. S. Marine Corps - 1942-45. Highest rank - Captain.

Education: B.S. and M.A., Utah State University - 1942 and 1946; Ph.D., Cornell University - 1951.

Wendell G. Schaeffer -

Chairman, Department of Government, Texas Christian University; President, Governmental Affairs Institute, 1966 - 1969. From 1959-1966, professor of public and international affairs, University of Pittsburgh. Assistant Dean of Graduate School of Public and International Affairs 1961-1963. Associate Dean 1963-1966. Dean of University of Pittsburgh Faculties in Ecuador, 1963-1966. 1950-1959, member of Public Administration Service Staff, working as supervisor on many consulting projects in Latin America, Asia and United States. 1948-1950, Professor of Political Science and History, University of Florida.

Education: B.S., University of Southern California - 1939; M.A. and Ph.D., University of California, Berkeley - 1946 and 1949

Higher Agricultural Education Program - Brazil

ITINERARY OF THREE MAN TEAM

June 9-14	Preparations and briefings in AID/W.
June 16	Arrival in Rio.
June 16-21	In Rio - Review of background material and briefing meetings with various officials.
June 22-26	Travel to Sao Paulo State. In Piracicaba - Review of facilities and conferences with Ohio State University team and the Brazilian staff and administration at ESALQ. Travel to city of Sao Paulo with stops at Nova Odessa (live-stock experiment station) and Campinas (state research and extension center). In Sao Paulo - visit with acting Rector, University of Sao Paulo, Agricultural Economics Institute, U.S. Consul, wholesale market, etc.
June 27 - July 2	Travel to the state of Rio Grande de Sul - there to review the contract program between the University of Wisconsin and University at Porto Alegre. Returned to Rio July 2.
July 3-5	In Rio. Briefings for the next field visits.
July 6-9	Travel to Vicosa in the state of Minas Gerais with stop at Juiz de Fora to visit a Dairy Technology School receiving Purdue University assistance. At Rural University in Vicosa review of program and facilities; conferences with Purdue team, University staff and administrative officials.
July 10	Travel to Belo Horizonte to visit the School of Veterinary Medicine and Animal Husbandry (part of Minas Gerais Central University). Return to Rio July 10.
July 11	Travel to Recife to confer with USAID - NE Brazil Mission.

ITINERARY (continued)

- July 12 Travel to Recife to confer with USAID NE Brazil Mission.
- July 13-16 Review of contract program between the University of Arizona and the University of CEARA.
- July 17 Return travel to Rio, with de-briefing stop in Recife (USAID Office)
- July 18-25 In Rio. Final conferences with various USAID and Brazilian officials. Preparation and submission of preliminary team report.
- July 26 Departure from Rio.
- August 4-9 Follow up with AID/W for discussion of team report with various interested parties.
- November 11-22 Further follow up with AID/Washington and visits to campuses of the University of Wisconsin, Purdue University, and the Ohio State University.
- December 7-17 Visit to the University of Arizona and return to Washington for preparation of final report.

Higher Agricultural Education Program - Brazil

LIST OF REQUIRED UNIVERSITY CONTRACT REPORTS

1. Quarterly Report - Purdue University Contract calls for such a report. The Mission does not see the necessity for a quarterly report and has instructed the Contracting Office in AID/W to review the contract accordingly, but this has not been done.
2. Semi-Annual Report - Submitted by Ohio State University and University of Wisconsin Chiefs of Party.
3. Annual Report - Submitted by all four University Contractors. The American technicians normally prepare a report to the Chief of Party covering their area of responsibility and these are consolidated into one report.
4. Quarterly Status Reports - Formerly, mission requirement for all projects, but have recently been discontinued.
5. PROP (Non Capital Project Paper) - Introduced in 1969. This is the basic component of AID's project management system and provides the link between sector planning and project operations. Replaces E-1 narrative justification previously accompanying the fall budget submission. Required for all projects and approved by AID/W, serves for life of project, with revision only when major changes are made.
6. PIP (Project Implementation Plan) - First introduced in 1966, this plan is prepared on each new project and normally accompanies the PROP. It is also prepared for each on-going project and describes in detail project personnel requirements, steps in carrying out projects, progress indicators, and participant and commodity requirements. The PIP is normally revised yearly.
7. PAR (Project Appraisal Report) - Introduced in 1969, this document is now required annually for Mission and AID/W use. It represents a summary analysis of the project to include evaluation in the following categories: project impact, implementation report, role of cooperating country and programming implications.

NOTE: Preparation of the PROP, PIP and PAR is the responsibility of the USAID Project Coordinator. He relies heavily on assistance from the University Chief of Party for preparation of the PROP and PIP. The Chief of Party in turn works jointly with the COB host organization in preparing the PIP. A copy of the PIP should accompany the PROP when submitted to AID/W.

A U-307 report is prepared semi-annually by Project Coordinator for submission to AID/W. The contractor is not involved in the preparation of this report.

Higher Agricultural Education Program - Brazil1969 COST BREAKDOWN
(In thousand U. S. dollars)

<u>Cost Components</u>	<u>OSU</u> <u>ESALQ</u>	<u>Wisc.</u> <u>URGS</u>	<u>Purdue</u> <u>UREMG</u>	<u>Ariz.</u> <u>EAUFC</u>	<u>TOTAL</u> <u>all four</u>
<u>A. U.S. Dollar Costs</u> ^a					
1. U.S. Tech. Assist.					
a. Salaries & Allowances					
1) In Brazil	187	204	275	218	884
2) In U.S.A.	23	25	36	15	99
b. Travel & Transport.	63	53	114	66	296
2. Participant Training	150	78	132	84	444
3. Equipment & Supplies	60	50	75	16	201
4. Other \$ Costs (incl. overhead) ^b	61	100	196	70	427
	---	---	---	---	---
SUB TOTAL	544	510	828	469	2,351
	---	---	---	---	---
<u>B. Local Currency Funds</u> <u>Converted to U.S. \$</u>					
1. Local Personnel	12	20	20	15	67
2. Travel and Transport.	6	26	32	20	84
3. Participants	19	25	0	28	72
4. Other Support	11	33	67	87	198
	---	---	---	---	---
SUB TOTAL	48	104	119	150	421
	---	---	---	---	---
<u>T O T A L</u>	592	614	947	619	2,772

a. Composed of both dollar and trust fund cruzeiros inputs (housing and education allowances paid in cruzeiros as well as international travel and per diem)

b. Overhead rates as percentage of salaries are:

	<u>OSU</u>	<u>Purdue</u>	<u>Wisc.</u>	<u>Arizona</u>
On Campus	32.51	57.1	45	43
Brazil	13.99	33.8	28	30

Higher Agricultural Education Program - Brazil

COST SUMMARY OF FOUR U. S. UNIVERSITY CONTRACTS

- in '000 \$ U. S. -

Time Periods	<u>Furdue</u> <u>UREMG</u>	<u>O.S.U.</u> <u>ESALQ</u>	<u>Wisc</u> <u>URGS</u>	<u>Arizona</u> <u>EAUFC</u>	Total Costs
A. U.S. Dollar Costs					
Thru 1968	4,850	1,782	1,896	1,847	10,375
1969	262	406	335	305	1,308
1970 thru phase- out <u>b/</u>	1,250	900	1,050	1,000	4,200
Sub Total	6,362	3,088	3,281	3,152	15,883
B. Cruzeiro					
Thru 1968	725	400	406	450	1,981
1969	122	50	110	-	432
1970 thru phase- out <u>b/</u>	250	120	230	510 <u>a/</u>	1,110
Sub Total	1,097	570	746	1,110	3,523
A & B Grand Total	7,459	3,658	4,027	4,262	19,406
C. Brazil Univ. Budget <u>c/</u>					
1962	306	1,304	70		
1969		2,800	200		

a/ Includes \$250,000 (NCR \$1,000,000) in 1970 budget for exclusive use in development of University Experiment Station

b/ Estimated

c/ Agricultural School Estimated Portion of Total Budget

Higher Agricultural Education - Brazil

OUTSIDE SUPPORT TO UNIVERSITIES

- in '000 \$ U.S. -

Sources	Brazilian Agric. Colleges ^{1/}		
	<u>ESALQ</u> Piracicaba	<u>UREMG</u> Vicosa	<u>URGS</u> Rio Grande du Sol
A. <u>Brazilian Sources</u>			
BRDE - Ec. Dev. Bank	318	66	34
IBC - Coffee Inst.	13	162	-
INDA - Nat'l. Dev. Inst.	8	-	72
FAPESP - Research	22	-	-
Braz. Atom. Energy Comm.	55	-	-
CAPES - Prof. Org.	18	-	5
CNPq - Nat'l. Res. Counc.	18	-	12
DNOCS - Drought Agency	-	25	-
ETA - Min. of Ag.	-	25	-
MEC - Min. of Educ.	-	-	23
SUDESUL - S.E. Org.	-	-	30
Central Bank	-	-	53
Other Misc. Brazilian Contributions ^{2/}	33	-	18
B. <u>Other Sources</u>			
U.S. Foundations ^{3/}	-	-	106 ^{5/}
Other	8	-	-
Totals ^{4/}	493	278	353

^{1/} Univ. of Ceara' excluded because no appreciable support was reported. Funds are being sought from Ford Found. and Bank of N.E. Brazil.

^{2/} Includes Pulp & Paper Ind., Coffee agency, small banks, S.E. State Extension services, etc.

^{3/} Ford & Rockefeller - This information is incomplete

^{4/} Totals are incomplete - Excludes Gov't. support thru contab & trust funds - Data mainly for year 1968.

^{5/} For 1959/65 period

Higher Agricultural Education Program - Brazil

U.S. PARTICIPANT TRAINING SUMMARY

as of July, 1969

Factors	<u>OSU</u> ESALQ	<u>U. Wis.</u> URGS	<u>Purdue</u> UREMG	<u>Arizona</u> EAUFC	Total 4 Schools
A. <u>Post Graduate Training in U.S.</u>					
a. <u>M.S. Degrees</u>					
1. Completed	10	1	9	10	30
2. In Trng.	10	2	3	9	24
3. Planned	11	4	3	9	27
Sub-Totals	31	7	15	28	81
b. <u>Ph. D. Degrees</u>					
1. Completed	1	0	10	0	11
2. In Trng.	10	4	5	3	22
3. Planned	8	10	9	7	34
Sub-Totals	19	14	24	10	67
B. <u>Short Term to U.S.</u>					
1. Completed	14	13	17	11	55
2. Scheduled	4	3	0	15	22

Higher Agricultural Education Program - Brazil

INSTITUTION BUILDING INDICATORS

<u>INDICATORS</u>	<u>1962</u>	<u>1964</u>	<u>1969</u>	<u>Estimates</u> <u>1972</u>
<u>A. Undergraduate Enroll.</u>				
ESALQ/O.S.U	462	790	1029	1050
UFREMG/Purdue	350	773	1021	1500
UFRGS/Wisconsin	300	406	509	600
EAUFC/Arizona	280	300	600	800
	-----	-----	-----	-----
Sub-Total	1112	2269	3159	3950
	-----	-----	-----	-----
<u>B. Graduate School Enroll.</u>				
ESALQ	0	86	89	100
UFREMG	51	90	82	120
UFRGS	0	5	50	85
EAUFC	0	0	0	20
	-----	-----	-----	-----
Sub-Total	51	181	221	325
	-----	-----	-----	-----
<u>C. Staff Members with M.S.</u>				
ESALQ	2	18	25	90
UFREMG	20	28	45	100
UFRGS	3	3	22	38
EAUFC	1	1	20	50
	-----	-----	-----	-----
Sub-Total	26	50	102	278
	-----	-----	-----	-----
<u>D. Staff with PhD Degree:</u>				
ESALQ	0	2	5	12
UFREMG	1	1	6	42
UFRGS	0	0	2	7
EAUFC	-	-	-	6
	-----	-----	-----	-----
Sub-Total	1	3	13	67
	-----	-----	-----	-----

SOURCES: USAID/Brazil files and U.S. Univ. Team reports

Institutional Rating Sheet

Institution _____

<u>Item</u>	<u>Poor</u>										<u>Excellent</u>
	1	2	3	4	5	6	7	8	9	10	
<u>Chief of Party</u>											
<u>Mission Orientation</u>											
<u>Staff Suitability</u>											
<u>Campus Support</u>											
<u>Moral of Staff</u>											
<u>Local Leadership (dean)</u>											
<u>Local Rector</u>											
<u>Counterpart Relations</u>											
<u>Capability Local Prof.</u>											
<u>Local Morale</u>											
<u>Institutional Maturity</u>											
<u>Buildings & Facilities</u>											
<u>Equipment</u>											
<u>Extension Outreach</u>											
<u>Interlocal Relations</u>											
<u>Library</u>											
<u>Breadth of Research</u>											
<u>Strength of Research</u>											
<u>Research Relevance</u>											
<u>Participant Selection</u>											
<u>Retention of Particip.</u>											

Raw Score _____
 Weighted Score _____

Institution Rating Sheet

DEPT.	Undergraduate Teaching		Graduate Program				Extension Program	
	Core Curriculum well developed	Curriculum reflects diversification and appropriate balance	Teaching Staff		Research Program		Degree to which curriculum incorporates Extension Philosophy	Degree to which curriculum trains for practical application
			Now have a qualified Teaching Staff	Now have a sufficiently diversified Teaching Staff	Capacity to develop and supervise good M.S. Research Studies	Have developed intermediate and long-range research objectives		

For each column select an appropriate number on a rating scale of 1-10 indicating a judgement of the present stage of development.

Undeveloped 1 2 3 4 5 6 7 8 9 10 Highly Developed

AID PROJECTS OR PROPOSALS RELATED TO HIGHER AGRIC. EDUCATION IN BRAZIL

A. Active Projects Devoted Exclusively to Subject

1. The four U.S. University Contracts - with Purdue, Ohio State, Wisconsin and Arizona - have been operative for 6 or more years. As of 12/31/69 they will have cost close to US\$11.7 millions (in dollars) plus US\$2.4 millions in dollar equivalent of Cruzeiro funds. From 1970 thru scheduled phase out dates an additional US\$5.3 million is now budgeted, including both dollar and cruzeiro funds.

B. Active Projects with Some Bearing on the Subject

1. The IRI Research contract for assistance to the federal agric. research agency, costing USAID about US\$10.6 million (including \$2.2 million of counterpart funds) from inception to phase out has had a limited influence on the subject but should become more directly involved. The U.S.\$12.0 million AID loan now being negotiated with Ministry of Agriculture should eventually involve more formal arrangements for cooperation with Universities.
2. The Mississippi State contract for Seed Improvement has benefitted Universities to a considerable extent and such cooperation should continue for the life of this project.

C. Other Pending USAID Loans

1. The loan being negotiated with CNPq (National Research Council), for US\$1.5 million plus US\$2.5 million of counterpart cruzeiro funds will have a very direct bearing on this subject.
2. A preliminary multi-million dollar loan proposal, also entirely concerned with this subject - with emphasis on multiplying the effects of past technical assistance by extending benefits from "centers of excellence" to the other (weaker) institutions.

D. Research and Institutional Grants

The following grants or proposals, are either wholly or partially concerned with the subject. Specifically:

1. The four (or five) U.S. Universities working in Brazil have announced the formation of a Consortium and have requested a 211 D. Institutional Grant of (proposed) US\$1.5 million for the primary purpose of increasing their competence in the U.S. in order to better serve the interests of Brazil.

2. Purdue University has requested a Research grant for work on improving the nutritive value and on increasing the production of basic food and forage crops. Much of this work would be centered in Brazil, primarily in cooperation with UREMG (Vicosa).
3. Wisconsin University also has requested a research grant to build on some pilot efforts in rural development which have proven to be exceptionally promising in Rio Grande do Sul.
4. University of Arizona, Colorado State University and Utah State University - have secured a Research grant for work on Water management and it is understood that some of the work may be done in NE Brazil, in cooperation with the University of Ceara'.
5. Ohio State University has been awarded a Research grant, to study Capital Formation, and a substantial part of the work will be carried out in cooperation with Agricultural Economics Departments of the Brazilian U's.
6. The North Carolina State going research grant activity on soil fertility also bears on the subject, to the extent that such work is done in Brazil.