

DEPARTMENT OF STATE
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

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PO-44L-772-B

Dr. James B. Hensen, Director
International Laboratory for Research
on Animal Diseases (ILRAD)
P. O. Box 47543
Nairobi, Kenya

DEC 23 1975 29p

Subject: AID Grant No. AID/ta-G-1270
PIO/T No. 931-11-130-310

3/68076

Dear Dr. Hensen:

Pursuant to the authority contained in the Foreign Assistance Act of 1961 as amended, the Agency for International Development (hereinafter referred to as "A.I.D." and/or "the Grantor"), hereby grants to the International Laboratory for Research on Animal Diseases (hereinafter referred to as "ILRAD" and/or "the Grantee"), the sum of Nine Hundred Thousand Dollars (\$900,000) in support of ILRAD's program for Calendar Year 1976. AID will give consideration, subject to availability of funds, to amending, this grant to provide additional funds in support of programs supported by the ILRAD core budget. These funds are to be used in support of ILRAD's program to develop effective control measures for trypanosomiasis and East Coast Fever. The general approach of the program is to develop immunological procedures for the prevention and control of parasitic diseases which seriously limit the livestock industry in Africa. In addition to research on the immunology of cattle, ILRAD will develop cooperative research efforts with a number of individuals and institutions throughout the world which have ongoing programs in research areas similar to ILRAD's.

Dr. James B. Hensen, Director
International Laboratory for Research
on Animal Diseases (ILRAD)

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The funds contributed under this grant, along with contributions from other specified donors, will enable ILRAD to support a highly trained professional staff to conduct research and training in animal health problems, publish and disseminate research findings, assist other institutions in applying research results, and conduct other related activities.

This grant is effective as of the date of this letter and shall continue in effect through December 31, 1976. Funds granted hereunder shall apply to specified costs incurred during the period January 1 through December 31, 1976. The sum of the grant represents up to 25% of ILRAD's core and operating budgets. Unless prior permission is obtained from the Grant Officer, funds provided by this grant are to be used exclusively for the support of ILRAD's core budget which is set forth as part of the total Calendar Year 1976 operating budget, attached hereto and made a part hereof.

This grant is made on condition that ILRAD shall carry out the activities as are more fully described in the Program Description (Attachment I), and shall administer the funds in accordance with the budget (Attachment II) and the terms and conditions hereof including Appendix "A" (Attachment III).

Dr. James B. Hensen,

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Please sign the original and all copies of this letter in the space provided below to acknowledge your understanding of the conditions under which these funds have been granted. The original and five copies of the letter and accompanying attachments are to be returned to my office.

Sincerely yours,



V. G. Perelli
Grant Officer
Technical Assistance Branch
Central Operations Division
Office of Contract Management

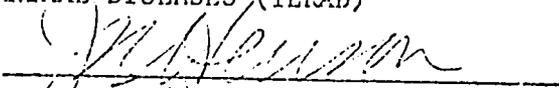
Attachments:

- I Program Description
- II. Budget
- III. Terms & Conditions (including Appendix "A")

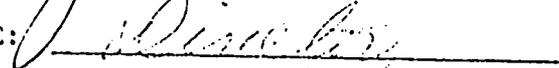
ACKNOWLEDGED:

INTERNATIONAL LABORATORY FOR RESEARCH
ON ANIMAL DISEASES (ILRAD)

BY:



TITLE:



DATE:

23/1/76

INTERNATIONAL LABORATORY FOR RESEARCH ON ANIMAL DISEASE

(ILRAD)

Program Description

January 1, 1976 through December 31, 1976

A. Project Objectives

The mandate of ILRAD is to develop effective control measures for trypanosomiasis and East Coast Fever. The general approach is an immunologic one to provide means by which the diseases can be controlled in domestic livestock. Inherent in such studies is the requirement for a good understanding of the basic immunology of cattle, an area that is incompletely known at this time. It must also be recognized that much of the basic information developed may well have wider application in both animal and human medicine.

Trypanosomiasis prevents maximum utilization of cattle as a source of food and animal by-products in many parts of Africa and in other parts of the world. The geographic area involved in Africa extends across the continent in a broad belt on both sides of the equator in zones where the rainfall is sufficient for harvesting good pasture resources and high potential for animal production. It is estimated that the cattle population in Africa could be doubled if trypanosomiasis were effectively controlled.

East Coast Fever (ECF) is a disease that is more regional in nature than trypanosomiasis, being more prevalent in East Africa where it causes death of animals as well as economic losses because of the husbandry practices that must be used to attempt to prevent cattle being infested with ticks which transmit the disease. In addition, there are important diseases in other parts of the world caused by organisms similar to Theileria parva, the etiologic agent of ECF. Information developed studying Theileria parva may also be applied to the control of these diseases.

In addition to the above mentioned objectives, ILRAD will develop co-operative research efforts with a number of individuals and institutions throughout the world which have ongoing programs of research in areas similar to ILRAD's. It is anticipated that ILRAD will be able to provide some of the expertise, technology, continuity and directional roles that are not currently evident on the international level. There is a great deal of research presently underway with inadequate coordination of these efforts. In addition to the development of co-operative research, ILRAD will develop training capabilities for post-doctorals, graduate students and others so that research technology and the information developed may be utilized in the developing countries.

B. Projected Activities

1. Research Program

The Research Program in ILRAD will be orientated and conducted as a problem solving effort directed to finding effective solutions to the control of Trypanosomiasis and East Coast Fever. The central theme in the organization will be the diseases under investigation with the research subdivided into Trypanosomiasis and East Coast Fever Programs. Under each of these programs will be a number of specific projects, each with the aim of defining and conducting the research needed to solve pertinent questions essential for the development of control procedures for these two diseases.

The approach and organization of the scientific staff will be such that the Programs (diseases) and Projects define the research structure. As one example, antigenic variation of trypanosomes represents a problem requiring investigation in relation to development of a successful vaccine for trypanosomiasis. A project designed to investigate antigenic variation will be developed with a project leader and co-workers constituting a project team. Individual scientists representing different disciplines will work together in the multi-disciplinary project team to obtain answers to the questions posed by this problem. Thus, a Parasitologist, Immunologist, Biochemist and Electro-Microscopist might work together on the various aspects of this specific project. In other cases, only one or two scientists might be involved on a specific project.

a. Trypanosomiasis Program (1976)

<u>Staff and Funding</u>	<u>1976</u>
Scientific Staff (man years)	14.00
Technical and Support staff (man years)	24.00
Funding (\$)	820,000

background

Trypanosomiasis of domestic livestock are among the most important diseases in Africa and elsewhere in the world. The causative organisms include Trypanosoma vivax that infects cattle, sheep, goats, horses and camels primarily in Africa, but also in the West Indies and Central and South America. T. congolense is said to be responsible for the most important form of African trypanosomiasis and infects cattle, sheep goats, swine and dogs. T. brucei also affects domestic livestock in Africa including cattle, pigs, sheep, goats, dogs, cats and horses. Other trypanosoma species occurring in domestic animals include T. theileri, T. uniforme and T. simiae, but these are of lesser importance as disease producing agents than T. vivax and T. congolense. T. gambiense and T. rhodesiense are the causes of human sleeping sickness in Africa. T. cruzi occurs in the Western Hemisphere and causes Chagas disease, an extremely important human disease in the Americas.

The approaches used in the ILRAD trypanosomiasis research program will have a strong immunologic orientation including development of vaccine that can prevent the disease. In order to develop such a preventative medical approach, however, many aspects of the disease, the organism and the bovine host must be understood. As an example, it appears that the antigenic make-up of the organism changes in the individual infected animal during the course of infection. This obviously has very important implications in the development of an immunization regime. It is intended that there be developed a multi-disciplinary approach to trypanosomiasis utilizing the skills, technology and expertise of such scientific disciplines as pathology, parasitology, biochemistry, immunology, ultra-structure and cell culture to attempt to answer pertinent questions that lead to the ultimate control of the disease. A group of outstanding international scientists is being recruited in the above disciplines to carry out this research. Also potential co-operative research projects are being defined with other institutions.

The trypanosomiasis program will be formulated on a program and project basis with the effective control of the trypanosomiasis the purpose of the research. The disease and disease mechanisms will be the threads of continuity that meld the research fabric of the institution into a functional and, hopefully, successful research venture. Finding effective solutions will be the overriding criteria for the research.

A number of projects will be developed under the trypanosomiasis program. The orientation of these projects will be to a specific question or aspect of the problems that seems most promising and necessary in terms of information required and the information that can effectually be developed. Scientists will interact in a group effort at the project level. Previous experience has shown that such a multi-disciplinary approach is most effective for conducting investigations on such complex biological problems as trypanosomiasis and East Coast Fever.

The above indicates some of the research orientation and program development in trypanosomiasis. Some of the general areas to be investigated by the trypanosomiasis program include the development of an understanding of the overall pathogenesis of experimental and spontaneous trypanosomiasis in cattle and understanding of the epidemiology of spontaneous trypanosomiasis in cattle emphasizing reinfection and persistence of the organism. Other areas include a study of the role and mechanism of immuno-suppression, the role and pathogenesis of anaemia in bovine trypanosomiasis, and the in-vitro propagation of trypanosomes in cell free culture and in bovine and tsetse cell cultures. The latter will be an effort to grow large amounts of the organism and associated antigen required for definition of the antigens and their ultimate use in immunization. Other areas include a study of the antigens of trypanosomes in cattle and an examination of the changes in antigenic structure of the organism during infection. Investigations on the occurrence and protective role of humoral and cellular immune responses in infected cattle and the development of effective immunization procedures will be carried out.

Investigations on the occurrence of mechanisms of tolerance to trypanosomiasis in so called "trypano-tolerant" breeds will be conducted.

ILRAD will develop co-operative research with individuals and or institutions in which relevant research is currently ongoing. The approach will not be to duplicate or replace, but interact with research programs in a number of laboratories around the world. An intramural research program in ILRAD that will interdigitate with those of other institutions will be developed so that the total efforts might gain from the broadened scope of the investigations performed. Co-operative efforts will be developed in a variety of ways and should be beneficial both to ILRAD, the other institutions and to the development of data required to control trypanosomiasis. Co-operative research and continuing scientific dialogue will be emphasised and will be an important component in ILRAD.

b. East Coast Fever Program

<u>Staff and Funding</u>	<u>1976</u>
Scientific staff (man years)	7.0
Technical and Support staff (man years)	12.0
Funding (\$)	458,000

Background

East Coast Fever is caused by Theileria parva and is an extremely important disease in East Africa. Diseases caused by similar organisms occur in the Middle East, India and elsewhere and are important diseases in those areas. The East Coast Fever research program in ILRAD will be directed to finding solutions to ECF with the information not only applied to ECF, but to other diseases caused by Theileria spp. ECF causes acute deaths in adult cattle and calves. It is endemic in many areas of East Africa including Tanzania, Kenya, Uganda, Ethiopia, Sudan, Somalia and in some parts of Zambia. In order to raise cattle in some of these areas, it is necessary to continually dip to prevent infestations of the tick Phiphipcephalus appendiculatus, the intermediate host and transmitter of ECF. Failure to dip or spray as frequently as twice a week in some areas results in disease in all ages of cattle. The death losses as well as the expense of frequent dipping, the weight loss or lack of weight gain in cattle that are frequently required to be driven long distances for dipping, and the detrimental influence on the pastoral environment due to frequent driving of animals to the dipping operations, all indicate a need for effective control methods for this disease.

A research effort on ECF has been ongoing at the East African Veterinary Research Organization (EAVRO) laboratories for several years. This group has made considerable progress and it is anticipated that ILRAD will work closely with them and others to provide additional research directed to the development of effective control measures for this disease.

The ECF program will be directed ultimately to the control of the disease thereby preventing death losses, abrogating the necessity of frequent dips and its associated deleterious effects on the animals and the environment. Thus, the problem must be approached with a strong immunologic orientation, as is the case in trypanosomiasis. In both of these diseases, an understanding of the basic immunology of the bovine will be required and, although not a separate program, will be an integral part of both the ECF and trypanosomiasis effort.

Various aspects of ECF will be studied in order to gain an understanding of the pathogenesis of the disease, of the host, of the parasite and of the interaction between the parasite and the host. The in vitro propagation of Theileria in bovine, tick and other cell cultures systems will be investigated. The organism, its early developmental stages and the antigens which it contains that are effective immunizing antigens will be elucidated. Other aspects of the program include a study of the mechanics of action of antibiotics and other chemicals on the development of the organism and the potentiating effects of adjuvants on immunization of cattle. The cellular immune responses in ECF and the development of a neutralization test that can differentiate various antigenic strains of the organism are extremely important and will be pursued. At present, one must resort to cattle challenge to accomplish such a differentiation, a costly and very time-consuming process. Lastly, but most importantly, efforts will be made via the data developed from the above and from co-operative programs to develop an effective immunizing procedure for cattle.

Co-operative research efforts will be developed with individuals or institutions with ongoing research throughout the world, as will be the case in trypanosomiasis. Close co-operation will be developed between ILRAD and EAVRO in order to gain increased scope and magnitude of research on this disease. The exact nature of the co-operative efforts have yet to be defined and are being explored at this time.

c. Research Support - 1976

<u>Staff and Funding</u>	<u>1976</u>
Staff (man years)	14
Funding (\$)	159,000

Staff for research support was 5 man years in 1975 which will increase to 14 in 1976. Associated funding levels increased from \$100,000 in 1975 to \$159,000 in 1976. Included in this category are the central laboratory support services, animals and associated support activities and equipment maintenance.

The principal central laboratory support services include dish-washing, glassware preparation, sterilization, media preparation and sterilization and central solution preparation. Included in animal support are supplies, feed, medications, etc. and personnel for maintaining both laboratory animal species, cattle, sheep and goats. Also included in this category is an electronics technician for equipment maintenance and the associated tools and supplies for maintaining the ILRAD scientific equipment.

2. Training - 1976

<u>Staff and Funding</u>	<u>1976</u>
Scientific staff (man years)	0.5
Support staff (man years)	0.5
Funding (\$)	80,000

ILRAD will be involved in several categories of training. Included will be the training of graduate students, post-doctoral fellows, technical and supportive staff and scientists from ILRAD and from other institutions. Training will be conducted in the form of courses, meetings, seminars, mini-courses, symposia, visiting scientists lectures, etc. and will involve many of the ILRAD scientific staff. The positions shown above are for a half-time Training Officer and secretarial assistance.

ILRAD will be involved in graduate education from the standpoint of research training for individuals in degree courses at other institutions. These may be located in Nairobi, other places in East Africa or elsewhere. The primary consideration here will be the training of the individual, the ability of ILRAD to supply the required research training and the development of the necessary inter-relationships with the degree granting programs of the co-operating universities.

ILRAD will be heavily involved in a post-doctoral program which will be the laboratory's major training activity. These individuals will have finished their doctoral training at other institutions and will come to ILRAD for additional training and experience.

ILRAD will sponsor a number of different types of educational meetings including symposia, courses, programs, conferences and seminars. A strong regularly scheduled intramural seminar program will be developed in several subject matter areas. These will be open to participation by individuals in the Nairobi area. These types of meetings provide a format for internal discussion and interaction as well as providing an educational resource for ILRAD Staff and for the staff from other institutions. It is anticipated that non-ILRAD scientists in the Nairobi area will be asked to participate by delivering seminars, etc. Lecturers and seminar speakers from outside the

Nairobi area will be brought to ILRAD for lectures and seminars. These individuals will also be available for interaction with other institutions.

ILRAD will provide publication and educational resources in the form of the library, information retrieval system, publications of scientific material and contribution to the existing scientific literature and journals.

3. Co-operative Programs

ILRAD will develop co-operative research activities with a large number of individuals and institutions around the world that are involved in areas of activity similar to ILRAD's. An effort will be made to correlate and interdigitate ILRAD's activities with those ongoing elsewhere to try to prevent duplication and to readily disseminate useful information among all the individuals or institutions involved. It is hoped that the development of such co-operative efforts will maximise the utilization of resources for increasing our knowledge about important animal diseases.

4. Library and Information Services

<u>Staff and Funding</u>	<u>1976</u>
Senior staff	1.0
Supervisory and Support staff	2.0
Funding (\$)	54,000

ILRAD library will be developed to serve ILRAD scientists as well as the scientific community in the Nairobi area. Several science libraries are available, but most are incomplete. ILRAD will develop its own requirements for books, periodicals, etc, and will take into account those currently available. We will fill the gap in the present holdings and also develop a data retrieval system.

5. Capital Development

Two small buildings that had previously been used for laboratories and animals quarters were located on the Kabete site provided by the Government of Kenya. These have been renovated for ILRAD use as has space in the Faculty of Medicine that is currently occupied by the WHO Immunology Training Centre. The total expenditure for renovation has amounted to \$89,000. Some additional was required in 1975 for renovation. The proposed new facilities consist of (1) a central research and administration complex, (2) housing and dining center and (3) field animal facilities.

The facilities have been planned to be as utilitarian and versatile as possible with efforts to keep costs down, but provide the required facilities in the types and amounts of space required; and to have functional, modern research complex that, coupled with outstanding researchers, can be effective in achieving the goals of ILRAD.

The estimated total cost of construction of this new proposed ILRAD facilities is \$5,076,500. This includes \$2,310,000 for the central research and administration complex; \$550,000 for housing and food services; \$266,000 for the field animal facilities; \$20,000 for vehicle service and maintenance area; and the remainder for site work, contingencies, fees and disbursements, etc. for a total of \$5,076,500.

\$1,498,000 was expended in 1975 construction of the field animal facilities and vehicle maintenance area, certain general construction activities and for prepurchasing of certain manufactured items of equipment that are experiencing a marked inflationary trend.

It is estimated that construction will be completed by May 1st, 1977 with an additional 6 months defects liability period extending beyond that.

C. Budget Summary for 1976

The total budget request for 1976 for the International Laboratory for Research on Animal Diseases is \$4,963,000. This can be subdivided into \$2,130,000 for core operations and \$2,833,000 for capital. The capital can be further sub-divided into \$341,000 for equipment, \$84,000 for vehicles and farm equipment, \$80,000 for working capital and \$2,328,000 for new construction. The 1976 budget was reviewed and approved by the Executive Committee and the ILRAD Board of Trustees and reflects the views of the Board.

The estimated expenditure for core operations for 1976 is \$2,130,000. This is an increase of \$1,256,000 over the core budget for 1975. The increase reflects the increased operational status of the Laboratory. This "phasing in" of the laboratory operations and research programs with associated increased scientific staff, technical support staff, general support staff and operational funds will continue until full staffing and operational levels are reached in late 1977 and early 1978. This results in the increase in the cost of the scientific and research programs in 1976 above the levels in 1975, as well as increase in practically all other categories.

The purchase of new equipment amounts to \$425,000 in 1976 of which \$341,000 is for research and support equipment and \$84,000 for motor vehicles and farm equipment. The level of funding for research and support equipment again reflects the evolution of the research program with its inherent equipment requirements.

Research programs will be funded at the estimated level of \$1,225,000 of which \$1,066,000 is for research and \$159,000 for research support. Many of the research programs will be fully functional and others will be in the active phase in process.

Training and conferences will amount to an estimated \$80,000 in 1976. Included in this figure will be hosting of a conference on trypanosomiasis as well as the development of training and other educational schemes. Library and information services are \$54,000 in 1976, approximately double the 1975 budget. This again represents phasing in of this activity area.

Construction of new facilities is estimated to require \$2,328,000 in 1976.

I. Program Reports

A. The following reports shall be prepared and submitted to A.I.D. as stated below:

(1) One hundred (100) copies of the comprehensive Annual Report of the overall program and fiscal matters for the entire calendar year for which the grant was made;

(2) Five (5) copies of the report prepared in connection with the annual International Centers Week. (This report will describe proposed program and funding requirements for the ensuing calendar year.)

(3) Five (5) copies of such other reports as may be prepared or requested from time to time on various other program activities.

Copies of the above stated reports in the quantities indicated shall be submitted to the Technical Specialist at the following address:

Dr. Guy B. Baird
Associate Director Research
Technical Assistance Bureau
Office of Agriculture
Agency for International Development
Washington, D.C. 20523

Additionally, one copy of each report shall be submitted to the Grant Officer whose name appears on the grant.

Questions on general program matters should be addressed to:

Mr. John Wiles
Program Analyst, Research
Technical Assistance Bureau
Office of Agriculture
Agency for International Development
Washington, D.C. 20523

Questions concerning the administration of the grant by its terms shall be addressed to the Grant Officer.

International Laboratory for Research of Animal Diseases (ILRAD)
 Net Financial Requirements @
 CY 1976

Core Research	1,066,000
Research Support Services	159,000
Conferences and Training	80,000
Library/Documentation and Informatio	54,000
General Adiministration	252,000
General Operating Cost	325,000
Contingency, indirect and other cost	194,000

Total Core	2,130,000
Total Capital	2,833,000

Net requirement \$4,963,000

Sources of Funds

United States (AID) - 30.2%*	900,000
Canada, Netherlands, Norway, Rockefeller Foundation, Saudi Arabia, United Kingdom	3,086,000
Other	967,000

TOTAL \$4,953,000

@Based on estimates available in October 75 and on consultations between AID and CGIAR in November 75.

*Higher than 25% because of capital costs of building program and limited funds from other sources. However, overall AID input to CGIAR is still within the 25% ceiling.

1/Specific donations for those listed not confirmed at the time this budget was prepared (Nov. 75). It is estimated, however, that the \$3.1 million total is the minimum amount that will be subsequently approved by the respective governments and organizations.

TERMS AND CONDITIONS

ARTICLE I. DEFINITIONS

These definitions are applicable throughout this Grant.

- a. "Grantor" shall mean the Agency for International Development, an agency of the Government of the United States of America.
- b. "Grantee" shall mean the organization or institution to which the Grant is made.
- c. "Grant Officer" shall mean the person executing this Grant on behalf of the United States Government and any other government employee who is properly designated Grant Officer; and the term includes, except as otherwise provided in this Grant the authorized representative of a Grant Officer acting within the limits of his authority.
- d. "Project Specialist" shall mean the person in the A.I.D. Scientific/Technical Office who has primary program responsibility for the Grant.
- e. "Local currency" shall mean the currency of the country in which activities under this Grant take place.
- f. "A.I.D." shall mean the Agency for International Development.
- g. "Administrator" shall mean the Administrator or Deputy Administrator of the Agency for International Development.
- h. "Government" shall mean the Government of the United States.
- i. "Mission" shall mean the United States A.I.D. Mission to, principal A.I.D. office or designated A.I.D. representative in, the country in which a program is being carried out.

ARTICLE II - ALLOWABLE COSTS

The Grantee shall be reimbursed for direct costs incurred in implementing the program supported by the Grant during its specified calendar Year/CORE/Operating Budget provided such costs are incurred in accordance with the terms and conditions of said grant, including the attached budget, and are determined to be allowable, allocable and reasonable in accordance with the principles set forth in sub-part -15.3 of the Federal Procurement Regulations as in effect as of the

ARTICLE III - ACCOUNTING, RECORDS AND AUDIT

The Grantee shall submit to the Grant Officer an annual financial statement certified by an independent public accountant. Financial records covering all phases of the Grantee's program, including documentation to support entries on the account records and to substantiate expenditures shall be maintained in accordance with accounting principles generally accepted in the U.S. and consistently applied, and shall be available for examination by personnel authorized by A.I.D. All such financial records shall be maintained for at least three years after final disbursement of funds under this Grant. The A.I.D. Auditor General and the Comptroller General or their duly authorized representatives reserve the right to conduct an audit of the Grantee's books and records to determine whether the Grantee organization has expended its funds in accordance with the terms and conditions of this Grant.

The Grantee agrees to make available any further information requested by A.I.D. with respect to any questions arising as a result of the audit.

ARTICLE IV - UNEXPENDED FUNDS AND REFUNDS

A. Funds granted hereunder but not disbursed to the Grantee prior to the expiration of the period for which the grant is made or its termination shall revert to A.I.D. Any funds disbursed to but not expended by the Grantee or for which the Grantee has not incurred a legally binding obligation within the purpose of the grant and prior to expiration of the grant period or its termination shall be refunded to A.I.D.

B. If, at any time during the life of grant, it is determined by the Grant Officer that funds provided under the grant have been expended for purposes not in accordance with the terms of the grant, the Grantee shall refund such amounts to A.I.D.

C. Expenditures which may be disallowed at the time of final audit of the grant will be refunded to A.I.D.

D. If use of Grant funds results in accrual of interest to the Grantee or to any entity to which the grant funds are made available for carrying out the purposes of this grant, the Grantee shall refund to A.I.D. an amount equivalent to the amount of interest accrued.

ARTICLE V - TRAVEL AND TRANSPORTATION EXPENSES

Unless otherwise approved in writing by the Grant Officer, the reasonableness of expenses attributable to this grant for travel, related allowances, and shipping will be determined in accordance with the

Standard Government Travel Regulations in effect at the time the costs are incurred.

The Grantee agrees, when such costs are attributable to this grant, to use less-than-first-class transportation unless such use will result in unreasonable delay or increased costs. When travel by other than less-than-first class accommodations becomes necessary, the Grantee shall certify to the facts involved in the voucher or other documents retained as part of his grant records to support his claim for reimbursement and for post audit.

ARTICLE VI - LIMITATION ON TRANSPORTATION

A. All international air shipment of goods, attributable to this Grant, shall be made, to the maximum extent practicable, on U.S. flag carriers. When other than U. S. flag carrier is utilized, the Grantee shall certify to the facts set forth in the voucher or other documents retained as part of his Grant records to support his claim for reimbursement and for post audit.

B. International Ocean Transportation. All international ocean transportation of persons and goods which is to be reimbursed in U.S. dollars under this grant shall be by U. S. flag vessels to the extent that they are available. With respect to the transportation of goods, where U. S. flag vessels are not available, or their use would result in a significant delay, the Grantee may obtain a release, in advance, from this requirement from the Resources Transportation Division, Agency for International Development, Washington, D. C. 20523,

giving the basis for the request.

ARTICLE VII - SALARIES AND WAGES

All salaries, wages, fees, stipends and allowances paid from funds provided by this grant shall be in accordance with the Grantee's usual policy and practice. Any deviations from Grantee's policy shall be documented and such documentation shall be retained as part of the grant records for audit by A.I.D. and/or the Comptroller General of the United States.

ARTICLE VIII - PROCUREMENT OF VEHICLES, EQUIPMENT, MATERIALS, SUPPLIES AND SERVICES

A. Except as may be specifically approved or directed in advance by the Grant Officer, or as may be provided in paragraph D, below, all equipment, vehicles, supplies and materials, the costs of which are to be attributed to this Grant and which will be financed with United States dollars, shall be purchased in and shipped from the United States and all services shall be obtained from U.S. sources. In addition, for any U. S. purchase transaction in excess of \$2,500, the Grantee shall notify the seller that the item(s) must be of U. S. source and production and comply with the componentry limitations and other requirements applicable to suppliers under A.I.D. Regulation 1, and that the supplier must execute and furnish Form AID-282 "Suppliers Certificate and Agreement with the Agency for International Development."

B. The Grantee shall obtain competition to the maximum extent practicable for any procurement the cost of which is not to be attributed to this Grant. Procurement by the Grantee without consideration of more than one source must be certified to and supported by adequate justification as part of the permanent grant records. In no event will any procurement be on a cost-plus-a-percentage of cost basis.

C. Procurements in-country, i.e., the country in which the Grantee's facility is physically located, which are less than \$2,500.00 and are for materials (regularly available and normally sold on the local market) which are to be consumed or expended in the performance of this grant, are exempt from the conditions set forth in Paragraph A. hereinabove, provided that the origin of such materials and supplies and the component parts thereof is a free world country as described in A.I.D. geographic Code 935."

D. Notwithstanding the provisions of paragraph A. above, an amount of up to \$ -0- of grant funds provided hereunder may be used to defray expenditures for in-country costs of local source and origin for items such as local staff local labor, and non-expendable supplies, materials, equipment, etc. For the purpose of interpreting this clause all bona fide employees of the grantee both local direct hire and the international staff are exempt from the above restriction on the use of grant funds.

ARTICLE IX - TITLE TO AND USE OF PROPERTY

Title to property such as vehicles, equipment, library acquisitions and other similar items purchased with grant funds vests in the Grantee institution. All such property must be used during the grant period for activities furthering the purpose of program for which it was purchased and may not be disposed of, provided it has useful life, without the prior written consent of the grant officer.

ARTICLE X - CAPITAL EXPENDITURES

A. Grant funds may not be used for new construction, alteration or improvements to buildings, fixtures, or facilities without the prior approval of the Grant Officer.

ARTICLE XI - CONVERSION OF UNITED STATES DOLLARS TO LOCAL CURRENCY

Whenever practicable Grantee agrees to convert United States dollars to local currency through the United States Disbursing Officer, American Embassy. When circumstances, certified to by the Grantee, do not permit compliance with this procedure, the Grantee may convert U. S. dollars to local currency through any local bank or accredited financial institution.

ARTICLE XII - TERMINATION

This Grant may be terminated, at any time, in whole or in part upon written notice from the Grant Officer to the Grantee. Upon

the Grantee's receipt of notice of such termination, it shall take immediate action to minimize all additional obligations financed by this Grant and shall cancel such unliquidated obligations whenever possible. No further reimbursement shall be made after the effective date of such termination, repay to the Grantor all unexpended portions of funds theretofore paid by the Grantor to the Grantee which are not otherwise obligated by a legally binding transaction within the purposes of this Grant. Should the funds paid by the Grantor prior to termination of this Grant be insufficient to cover the Grantee's obligations pursuant to the aforementioned legally binding transactions, the Grantee may submit to the Grantor within ninety (90) calendar days after the effective date of such termination, a written claim covering such obligations and, subject to the limitations contained in this Grant, the Grantor shall determine the amount or amounts to be paid by the Grantor to the Grantee under such claim.

ARTICLE XIII - OFFICIALS NOT TO BENEFIT

No member or delegate to the Congress or resident Commissioner shall be admitted to any share or part of the grant or to any benefit that may arise therefrom.

ARTICLE XIV - COVENANT AGAINST CONTINGENT FEES

The Grantee warrants that no person or selling agency has been employed or retained to solicit or secure this grant upon an agreement

or understanding for a commission, percentage, brokerage, or contingent fee except bona fide employees or a bona fide established commercial or selling agencies maintained by the Grantee for the purpose of securing business. For breach or violation of this warranty, A.I.D. shall have the right to cancel this grant without liability or, in its discretion, to deduct from the grant amount, or otherwise receive the full amount, of each commission, percentage, brokerage, or contingent fee.

ARTICLE XV - CONFLICT OF INTEREST

Other than in the performance of duty as specified by the Grantee in accordance with this grant, an employee or consultant assigned by the Grantee, whose expenses may be reimbursable hereunder shall not engage, directly or indirectly, either in his own name or in the name or through the agency of another person, in any business, profession, or occupation in any country to which he is assigned; nor shall he make loans to or investments in any business, profession or occupation in any country to which he is assigned.

ARTICLE XVI - SUBORDINATE AGREEMENTS

The placement of subordinate agreements, grants, or contracts (the costs thereunder which are attributable to this grant) with other organizations, firms or institutions is subject to the prior written consent of the Grant Officer. In no event shall any such subordinate agreement, grant, or contract be on a cost-plus-a-percentage-of-cost basis. Subordinate contractors (including suppliers) shall be

selected on a competitive basis to the maximum practicable extent consistent with the obligations and requirements of this grant.

ARTICLE XVII - PATENTS

Grantee agrees to notify the Grant Officer, in writing, of any invention or discovery conceived or first actually reduced to practice in the course of or under this grant. The Grant Officer will determine the patent rights to be afforded the Grantee in accordance with the Presidential Memorandum and Statement of Government Patent Policy (36 FR 16887).

ARTICLE XVIII - AMENDMENT

The Grant Agreement may be amended by formal modifications to the basic grant document or by means of an exchange of letters between the A.I.D. Grant Officer and an appropriate official of the Grantee.

ARTICLE XIX - GRANT AGREEMENT

The letter to the Grantee signed by the Grant Officer, and all attachments identified therein, which have been reviewed and agreed to by the Grantee, constitute the Grant Agreement.

ARTICLE XX - PUBLICATIONS

A. As agreed upon by A.I.D. and the Grantee, appropriate acknowledgement of A.I.D.'s support must be made in connection with the publication of any material based on activities conducted under the grant. The acknowledgement should also state that the information and conclusions in the paper do not necessarily reflect the position of A.I.D. or the U.S. Government.

B. TA/AGR will be informed of all publications and dissertations developed through Grantee's research program, and Grantee will provide at least two (2) copies of such publications as requested by TA/AG

C. The Grantee is permitted to secure copyright to any publication produced or composed under this Grant. Provided, the Grantee agrees to and does hereby grant to the Government a royalty-free, non-exclusive and irrevocable license throughout the world to use, duplicate, disclose, or dispose of such publications in any manner and for any purpose and to permit others to do so.

D. Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Government under any patent.

ARTICLE XXI- NOTICES

Any notice given by any of the parties hereunder, shall be sufficient only if in writing and delivered in person or sent by telegraph, cable, registered or regular mail as follows:

TO A.I.D. : Grant Officer
Office of Contract Management
Central Operations Division
Agency for International Development
Washington, D. C. 20523

TO GRANTEE: At Grantee's address shown in this Grant, or to such other address as either or such parties shall designate by notice given as herein required. Notices hereunder, shall be effective when delivered in accordance with this clause or on the effective date of the notice, whichever is later.

FEDERAL RESERVE LETTER OF CREDIT

FOR ADVANCE PAYMENT (APR. 1975)

(a) AID shall open a Federal Reserve Letter of Credit in favor of the Grantee in the amount of \$ 900,000 (for amending existing grants, add the word "remaining" here) available for obligation under this grant against which the grantee may present payment vouchers. The amount drawn by the grantee during any calendar (month or quarter) of this grant shall not exceed \$250,000 without the prior written authorization of the grant officer. The amount of the payment voucher shall not be in an amount less than \$10,000 nor more than \$1,000,000 but within the specific dollar ceiling on (monthly or quarterly) withdrawals.

(b) In no event shall the accumulated total of all such payment vouchers exceed the amount of the Federal Reserve Letter of Credit.

(c) If at any time, the grant officer determines the grantee has presented payment vouchers in excess of the amount or amounts allowable in (a) and (b) above, the grant officer may: (1) cause the Federal Reserve Letter of Credit to be suspended or revoked; or (2) direct the grantee to withhold submission of payment vouchers until such time as, in the judgment of the grant officer, an appropriate level of actual, necessary and allowable expenditures has occurred or will occur under this grant, and/or (3) request the grantee to repay to AID the amount of such excess. Upon receipt of the grant officer's request for repayment of excess advance payments, the grantee shall promptly comply with such request.

(d) Procedure for Grantee.

(1) After arranging with a commercial bank of its choice for operation under this arrangement and obtaining the name and address of the Federal Reserve Bank or branch serving the commercial bank, the Grantee shall deliver three originals of Standard Form 1194, "Authorized Signature Card for Payment Vouchers on Letters of Credit," signed by those official(s) authorized to sign payment vouchers against the Federal Reserve Letter of Credit and by an official of the Institution who has authorized them to sign.

(2) Upon execution of the grant the grantee shall receive one certified copy of the Federal Reserve Letter of Credit.

(3) The grantee shall confirm with his commercial bank that the Federal Reserve Letter of Credit has been opened and that funds are needed.

(4) To receive payment, the Grantee shall:

(i) Periodically, although normally not during the last five days of the month, prepare payment vouchers (Form TUS 5401) in an original and three copies.

(ii) Have the original and two copies of the voucher signed by the authorized official(s) whose signature(s) appear on the Standard Form 1194.

(iii) Present the original, duplicate, and triplicate copy of the form TUS 5401 to his commercial bank.

(e) Retain the quadruplicate copy of the voucher.

(5) Each drawdown should be initiated at approximately the same time that checks are issued by the organization in payment of program liabilities including those for allowable indirect costs, and in an amount approximately equal to the Federal share of such payments. Therefore, there is no necessity for the recipient organization to maintain balances of Federal cash other than the small balance necessary to provide for an element of bank float.

(6) A report of expenditures is prepared and submitted to the Office of Financial Management, within thirty days of disbursement. This report, submitted on Standard Form 1034, "Public Voucher for Purchases and Services Other Than Personal", and supported by certifications, listing of withdrawals, and documentation as required, itemizes expenditures made, identifying funds expended by line item of the approved budget and/or category supporting the agreement.

(7) The report of expenditures on Standard Form 1034 is reviewed against the grant provisions, and any disbursement improper under the grant is disallowed. The grantee is notified of the reason for the disallowance and is directed to adjust the next periodic report of expenditures to reflect the disallowance and to reduce its next payment voucher against the Federal Reserve Letter of Credit by the amount of the disallowance.

(8) Simultaneously with the submission of the report of expenditures, the grantee submits to the Controller a status report on the Federal Reserve Letter of Credit as of the close of the period covered by the report of expenditures. The report is prepared in the following format:

Status of Funding Report :

Federal Reserve Letter of Credit (FRLC)

Period from _____ through _____

A. Letter of Credit Position

1. Current amount of FRLC (including amendments) through reporting period \$ _____
2. Payment Vouchers on Letter of Credit presented (Form TUS 5401):
 - a. Credited prior to reporting period \$ _____
 - b. Credited during reporting period via TUS 5401 Voucher Nos. _____ through _____ inclusive \$ _____
 - c. Presented but not credited during report via TUS 5401's numbered _____ through _____ inclusive \$ _____
3. Total of all Payment Vouchers against FRLC credited or presented \$ _____
4. Balance of FRLC not drawn or requested this reporting period \$ _____

B. Cash Position

1. Cash on hand at beginning of period \$ _____
2. Plus: cash drawn during period \$ _____
3. Plus: refunds, rebates or other amounts received, to the extent allocable to disbursements charged against this FRLC \$ _____
4. Total cash available (sum of 1, 2, and 3) \$ _____
5. Less: disbursements during period \$ _____
6. Balance of cash on hand at close of reporting period \$ _____
7. Estimated number of days requirements covered by balance on hand (Item 6 above)
Days: _____
8. Advances to subcontractors; \$ _____ (included in B. 6 above)

(f) Refund of Excess Funds

(1) If all costs have been settled under the grant and the grantee fails to comply with the grant officer's request for repayment of excess Federal Reserve Letter of Credit funds, the Government shall have the right, on other grants held with the Grantee to withhold payment of Federal Reserve Letter of Credit or other advances and/or withhold reimbursements due the Grantee in the amount of the excess being held by the Grantee.

(2) If the Grantee is still holding excess Federal Reserve Letter of Credit funds on a grant under which the work has been completed or terminated but all costs have not been settled, the Grantee agrees to:

(i) Provide within 30 days after requested to do so by the Grant officer, a breakdown of the dollar amounts which have not been settled between the Government and the Grantee (The Grant officer will assume no costs are in dispute if the Grantee fails to reply within 30 days.);

(ii) Upon written request of the grant officer, return to the Government the sum of dollars, if any, which represents the difference between (1) the Grantee's maximum position on claimed costs which have not been reimbursed and (2) the total amount of unexpended funds which have been advanced under the grant ; and

(iii) If the Grantee fails to comply with the grant officer's request for repayment of excess Federal Reserve Letter of Credit funds, the Government shall have the right, on other grants held with the Grantee , to withhold payment of Federal Reserve Letter of Credit or other advances and/or withhold reimbursements due the Grantee in the amount of the excess being held by the Grantee.