AIRGRAM **DEPARTMENT OF STATE** 6180644 ②

UNCLASSIFIED
CLASSIFICATION

PD-AAA-845-B1

For each address check one ACTION | INFO

TO - AID/W TOAID A-573 X
DAR ES SALAAM USAID A-135 X
KAMPALA USAID A-139 X

DATE REC'D. Reference Center Room 1656 NS
1968 APR 15 AM 11 41

2
DISTRIBUTION
ACTION
AFR
INFO.
WC
WOF
AMPC

TAPD

15p.

DATE SENT 4/17/68

FROM . NAIROBI

SUBJECT . Noncapital Project Paper, Proposed Project, Animal and Crop Production

REFERENCE . (A) M.O. 1025.1, (B) TOAID A-272 (Dar es Salaam USAID A-49, Kampala USAID A-52)

NONCAPITAL PROJECT PAPER (PROP)

A. Country East Africa Regional Project No. 618-11-110-644

Submission Date April 10, 1968 Original X Revision No. ____

Project Title: Animal & Crop Production

U.S. Obligation Span: FY 68 through FY 1971

Physical Implementation Span: FY 1968 through FY 1972

Gross life-of-project financial requirements:

U.S. dollars	679,000
U.S.-owned local currency	
Cooperating country cash contribution	180,000
Other donor	
Totals	859,000

65W
OTHER AGENCY
State
AGRIC

PAGE 1 OF PAGES 15

DRAFTED BY	OFFICE	PHONE NO.	DATE	APPROVED BY:
E.A.Gales:et	EAORA		4/10/68	A.L.Boucher, E.A. Regional AID Officer

AID AND OTHER CLEARANCES
DIR/Kenya: CSHinman (Draft) DIR/Tanzania: SHButterfield (Draft) EAAFRO: OStarnes (Draft)
DIR/Uganda: WCMuller (Draft) Project Manager: EMSmith, F&A

UNCLASSIFIED
CLASSIFICATION

AID-5-39 (9-62) (Do not type below this line) PRINTED 3-63

B. Summary Description, Including Tabulation of Planned Inputs

1. Necessity and Justification - This proposed project stems from an East African Community (EAC) request for six operational personnel to staff established positions in the East African Agriculture and Forestry Research Organization (EAAFRO), a research organization administered by EAC and serving Kenya, Uganda, and Tanzania. EAAFRO is responsible to the EAC Research and Social Council for all matters of general policy, and to the EAC Natural Resources Research Council for its research policy. In 1966 EAAFRO became an Associate Institute of the University of East Africa.

The economy of the East African Region is based predominantly on agriculture and livestock. Agriculture is the occupation of over 80 percent of the people in the region. Agriculture and livestock products also comprise 80 percent of the commercial exports of the area, and together with their related manufacturing, processing and transportation services provide the base for the most important source of government revenues in East Africa. This project, therefore, would support a priority sector from the standpoint of development potential and also strengthen the regional aspects of the East African AID program.

This PROP was cleared by the East African Regional Council. The Council endorses the project and has determined that its implementation would further regional integration in East Africa.

EAAFRO, and the EAC Secretariats for Finance and Administration, and Communications and Research have reviewed this proposal, concur in its accuracy, and have determined that EAAFRO funds will be made available when required to implement EAAFRO responsibilities.

2. Project Goals and Targets - The purpose of the project is to fill established positions in a regional institution which has international staff and support, and is working on goals that parallel AID objectives in East Africa. It is proposed that an intermediary contractor provide the American personnel.

EAAFRO is responsible for undertaking research in the fields of agriculture and forestry, on problems that:

(1) Are common to at least two of the East African countries and which can be investigated most efficiently and economically by a central research organization;

(2) require longer-term investigations or more intensive study than can be undertaken by National Departments; or

(3) require highly specialized and expensive equipment or the services of such specialists as can only be justified on an East African basis.

To these functions may be added, as and when the occasion arises, and through the medium of a specific request, scientific advice and discussion between EAAFRO research scientists and national research scientists, on problems pertinent to national programs.

EAAFRO has requested AID assistance in recruiting the following specialists on a salary topping-up basis:

(a) Animal Nutritionist

(b) Range Ecologist

(c) Nematologist

(d) Plant Pathologist

(e) Soil Physicist

(f) Spectrochemist

Job descriptions for these positions are outlined in Section C of this PROP. The first two specialists would serve in the new EAAFRO Animal Production Unit which is an amalgamation of three research units - Animal Husbandry, Range Ecology, and Wildlife. (A PROP, ref B, was submitted to AID/W on 11/30/67 for two wildlife ecologists on a salary topping-up basis for the wildlife component.) EAAFRO will endeavor to obtain the chief of the Animal Production Unit from Foundation sources. The Animal Production Unit, therefore, would have four AID technicians - the Animal Nutritionist, Range Ecologists, and two Wildlife Ecologists.

The Nematologist, Plant Pathologist, Soil Physicist, and Spectrochemist would be assigned to research divisions dispersed throughout EAAFRO. These four positions are essential in supporting plant development which undergirds animal production. EAC has attempted to recruit these personnel mainly through the U.K. Ministry of Overseas Development, but there is a scarcity of British scientists in these fields. EAAFRO now is broadening its base of recruitment to include scientists from Canada, the U.S., and Australia.

EAAFRO requests that the six specialists, with the exception of the Nematologist, serve for a period of at least four years. As a condition precedent, EAAFRO undertakes to have either one local officer-trainee-counterpart assigned to assist each expatriate officer, or to nominate a replacement for which AID will provide MSc degree training in the U.S. for up to two years.

Under this project, EAAFRO would provide basic salary of $4,200 per year for the American technicians, physical facilities (office, laboratory, housing), necessary supplies and equipment such as appropriate laboratory equipment, secretarial support, local travel, and international transportation for the participant trainees. AID would provide the technicians on a salary topping-up basis, train replacements, as may be necessary, allow $10,000 for purchase of special research materials, finance two field vehicles and provide certain household equipment.

UNCLASSIFIED

NON CAPITAL PROJECT FUNDING (OBLIGATIONS IN 000)

Table 1
Page 1 of 2

COUNTRY: East Africa Regional Project Title: Animal & Crop Prodctn Research

PROP DATE Mo/Day/Yr. 4-10-67
Rev. No.
Project No. 618-11-110-644

Fiscal Years	Ap	L/C	Total	Cont 1/	Personnel Serv. AID	Personnel Serv. PASA	Personnel Serv. CONT	Participants U.S. Agencies	Participants CONT	Commodities DIR U.S.Ag	Commodities CONT	Other Costs DIR U.S.Ag
Oper FY 68	TC	G	317	300			300			7		10
Budg FY 69	TC	G	112	75			75	37				
B+1 FY 70	TC	G	175	150			150	25				
B+2 FY 71	TC	G	75	75			75					
Total Life	TC	G	679	600			600	62		7		10

1/ Memorandum (nonadd) column

UNCLASSIFIED

TOAID A-573

NAIROBI

NAIROBI TOAID A 5 15 UNCLASSIFIED

Table 1
Page 2 of 2

Exch rate $1=Shs. 7.1

Project No. 618-11-1[redacted]0-6[redacted]

Fiscal Years	Other Cash Contribution Cooperating Country
Oper FY 68	45
Budg FY 69	45
B+1 FY 70	45
B+2 FY 72	45
Total Life	180

C. Setting or Environment

1. Conditions and Environmental Factors - The East African Agriculture and Forestry Research Organization (EAAFRO) is an international research organization serving the three East African countries, Kenya, Uganda, and Tanzania. It is administered by and forms a department of the East African Community.

EAAFRO was first established at Nairobi in 1948 and absorbed the former East African Agricultural Research Institute established at Amani in Tanganyika in 1944 which in turn had replaced the earlier East African Agricultural Research Station set up at Amani in 1927. The present headquarters of EAAFRO including the central laboratories, experimental farm and forest plantations, were established at Muguga, some 17 miles northwest of Nairobi, in 1951, on a 1,600-acre estate donated by the Government of Kenya. This estate is shared with the East African Veterinary Research Organization. The routine administration and accounts of both EAAFRO and EAVRO are carried out by the Joint Services Division. Close liaison is maintained between the two organizations and they are jointly responsible for the library which is the largest and most complete library for agriculture and ancillary sciences in East Africa. Responsibility for research on animal husbandry is also shared by EAAFRO and EAVRO. The former undertakes research on animal management, pasture and nutrition whereas EAVRO is responsible for research on animal physiology and genetics. Both organizations utilize the facilities of the Muguga South farm which is administered by the Director, EAAFRO.

Not all of EAAFRO's Research Divisions are sited at Muguga. The Sorghum and Millet Research Division is at the Agricultural Research Station at Serere, Uganda; the Maize Research Team is at the Grassland Research Station at Kitale, Kenya; the Coffee Berry Disease Unit is housed in the University College, Nairobi, while the Forest Pathology Division occupies laboratories at the Nairobi District Office of the Kenya Forest Department near Muguga. The Sugar-cane Breeding Division is located temporarily at the Kikambala Research Station of the Kenya Department of Agriculture. Under development are sub-stations at Kibaka in Tanzania and Kawanda in Uganda. One other Division, namely the East African Herbarium, is sited adjacent to the National Museum in Nairobi.

Expenditure for research in EAAFRO in 1966 was approximately $840,000 derived as follows: 73 per cent came from EACSO including a matching grant from Great Britain of 43 per cent, 12 per cent from Great Britain under the Overseas Aid Scheme, 6 per cent from the U.S. Agency for International Development, 4 per cent from the Coffee Boards of the three East African countries and 4 per cent from the Rockefeller Foundation. In addition grants were received from the Munitalp Foundation and the Norwegian Agency for International Development.

EAAFRO's staff includes 37 scientists, five science trainees, and 70 technician/assistants. For the last two years EAAFRO has been directed by Dr. Ordway Starnes under Rockefeller Foundation grant.

Substantial technical assistance in the form of staff, travel grants and equipment are received by EAAFRO from a number of external donors. NORAD, in addition to supplying five officers, made several gifts of laboratory and field equipment for

use by their officers. AID supplied two officers, housing, transport, capital and recurrent costs associated with their posting. In addition, AID defrayed all costs associated with the posting of two cereals specialists for a period of several weeks to determine the state of knowledge and to develop a research proposal on the subject of sorghum for food purposes.

The Canadian Office of External Aid granted a further period of secondment to a specialist to continue his research on agricultural meteorology. The University of Wisconsin made available an expert to work on tea insects of East Africa. The staff and recurrent costs of research on coffee and sugar-cane were defrayed by the respective industries.

The Rockefeller Foundation continues its grants for research on sorghum breeding, for the support of the library, for travel grants and the graduate training of research officers and for the posting of the Director.

The Swedish Government presented scholarships at Uppsala University and a travel grant to enable visits by an officer in the Herbarium to major European herbaria. The Kenya Forest Department has continued to provide housing for certain EAAFRO staff, and for forest pathology laboratory facilities.

Danish Aid, the Carnegie Foundation, Netherlands Aid, FAO, International Atomic Energy Committee, and the Peace Corps have also assisted EAAFRO.

During 1966 funds were provided for the purchase of materials for the construction by EAAFRO staff of a fourth block of laboratories. A grant has been obtained from the Rockefeller Foundation for certain equipment for this laboratory and for improving the instrumentation in existing laboratories.

2. Job Descriptions of Established Positions Requested by EAAFRO.

a. Animal Nutritionist - Qualifications for this position are at least three years post-graduate experience, and demonstrated competence in the conduct of animal nutrition experiments particularly under pasture, range and feed lot conditions. The candidate should be prepared to assume responsibility for a chemical section now performing twenty to thirty thousand analyses of botanical and rumen samples annually.

Job Duties

(1) Beef feeding trials - The objectives are to induce increased appetite in zebu cattle, to determine optimum age at which to introduce zebu to stall feeding, optimum weight to slaughter, and the effects of liveweight gain on carcase competition. This work is currently underway, but should be accelerated.

(2) Effect of rumen condition on dry matter intake - The objective is to examine complexes involved in regulating appetite in zebu and exotic cattle using rumen fistulated identical twins of both species. This is a proposed follow-up on earlier work which indicated that the limitation on growth rate in zebu cattle, and of exotic cattle, is a result of lower feed intake rather than of digestive ability.

(3) Summary and analysis of existing data.

Allometric and feedlot studies - Utilizing present staff and facilities this work will require two years and some computor services.

(4) Pasture and animal nutrition research

Grazing trials - Olongonot - Objectives are to evaluate quality of available herbage under different managements to that actually consumed, correlate quality of consumed herbage and total yield of available herbage with production, to determine effects of various grazing pressures on botanical changes, to determine economics of supplementation, and to develop methods of sampling for botanical and chemical analysis, to assess techniques of oesophageal fistulation and to determine quality of carcases produced, and to select indigenous beef cattle.

(5) Grazing trials - Chemograph - Currently underway the objectives are to establish the nutritive value of browse plants in overgrazed areas, the ability of domestic animals to subsist on browse, to determine the production of an area destroyed by overgrazing to that of an adjacent recovered area, and to develop techniques for botanical separation of herbage eaten by animals as collected from oesophageal fistulae, to compare nutritive value of herbage eaten to that available for grazing and to study the nutritive value of fodder in these areas.

b. Range Ecologist - Qualifications are a minimum of five years post-graduate experience in practical aspects of range ecology with emphasis on the exploitation of grasses and herbage for domestic and wildlife production. The range ecologist should have experience in East Africa and a willingness to collaborate in current work on pasture agronomy with specialists in both animal husbandry and wildlife. The Ecologist in range work would be concerned with ecological conditions and browse utilization, ~~and in woody plant work would be concerned primarily with forage crop studies.~~

Job Duties

Development of range survey methods - This can be divided into three sub-projects as follows:

(a) Grass species identification from vegetative characters - The objective is to develop a system for the rapid identification of East African grasses, to test this system and to make it available to ecologists and range workers throughout East Africa. Limited studies are currently underway.

(b) Range Survey Sheet - The objective is to develop a practical survey sheet for evaluating rangeland sites, to field test this, and to make it available to ecologists and rangeland workers in East Africa.

(c) Range condition and trend - This is a very high priority project having as objectives an assessment of criteria which may be used in determination of optimum range conditions, to assess these criteria in relation to different land-use

systems and ecological zones, and to evolve methods for determining range conditions and trend based on selected criteria.

c. Nematologist -

Job Duties - In view of petitions by the Chief Research Officers of the three East African countries that this program be greatly strengthened, technical assistance will be sought for the following projects:

(1) Continued survey of plant-parasitic nematodes in East Africa soils - Apart from identification of nematodes found in routine samples this work will entail the building up of a permanent collection of mounted specimens, the description of new species, and other taxonomic studies.

(2) The pathogenicity of various plant-parasitic nematodes in important East African crops - In laboratory and glasshouse experiments various plants will be inoculated with the most common plant parasitic nematodes under control conditions. The pattern of attack and penetration, and the symptoms produced by the plant will be investigated and correlated. Major species of nematodes on forage, cereal and food crops will be investigated over a period of about four years.

(3) Crop losses due to nematodes in various crops - In field experiments replicated nematicide-treated and untreated plots will be compared, both for population densities of nematodes and for final yield of the crop grown. Crop loss will be correlated to the population densities of nematodes affording a basis for the recommendation of nematode control measures. A recent experiment of this nature with maize will need to be repeated as the population densities in both the treated and untreated plots were negligibly low. Currently a slightly different experiment with tea is underway. Experiments of this type on coffee and sugarcane are in preparation. These experiments will require approximately five years to completion.

(4) The influence of abiotic factors on the biology of plant-parasitic nematodes - The effects of soil moisture, pore size and moisture tension on survival, movement and capability to attach plants of nematodes will be investigated to determine reasons for observed differences of behaviour of nematodes under different conditions. This is a two-year study.

(5) Nematodes as vectors of plant viruses - The objectives of these studies is to establish the relationship between nematodes and viruses. It will include transmission tests in which virus-carrying nematodes will be expected to inoculate healthy plants with viruses, and also possibly attempts to inoculate healthy nematodes with viruses. Estimated time required for this work is four years.

d. Soil Physicist - The soil physics section of EAAFRO has been generally concerned with the effects of cultivation equipment and other soil management practices on soil structure and water infiltration. The importance and relevance of this type of work to the cultivation practice and machinery policies in East Africa was stressed heavily at the Specialist Committee on Agricultural Machinery, but field studies require the maintenance of large scale experiments and the operation of often

novel and costly equipment. Accordingly, the scope of experimental work depends completely on the cooperation of outside bodies. At present two investigations are in progress on the effects of minimal cultivation tillage techniques on soil structure and water conservation at West Kilimanjaro and Kongwa, Tanzania, in cooperation with the Northern Regional Research Centre, Tengeru, and Plant Protection Ltd., and a third study of the effects of several implements on soil structure and crop growth is in hand at Katumani, Kenya, in cooperation with the Department of Agriculture, Kenya. The Specialist Committees for Agricultural Machinery and for Soil Fertility recommended that the Physics Division should undertake a basic long term investigation to define appropriate physical parameters to describe and compare aspects of soil structure relevant to the effects of implements and to aeration and drainage in important East African soil types. The contribution of EAAFRO to the existing experiments is severely limited by the absence of a specialist in soil physics in addition to the Head of this Division. The governmental contribution to the experiments on hand is very considerable and no other studies on the physical environment of the soil are being conducted in East Africa apart from routine water holding capacity determination.

Job Duties

(1) Calibration of neutron moisture meters - The calibration of these meters supplied by the International Atomic Energy Agency in the soils at Muguga and in the Kenya catchment experiments has presented unexpected problems that are as yet unexplained. In view of the potential usefulness of the neutron moisture meter for soil moisture studies in East Africa, a more critical study of the calibration problem will be carried out over the next two years.

(2) Crop Water use - One of the most important limiting factors to crop production in the tropics is the very high water requirement for evapotranspiration. Information on crop water use is necessary for the rational planning of both rain grown and irrigated crops. Several research projects on crop water use using hydraulic lysimeters are already in progress on a cooperative basis and most of these will extend over the next 5 years.

Projects in hand include lysimeter studies of the water use of maize at Mwea Irrigation Settlement, in cooperation with the International Atomic Energy Agency and the Department of Agriculture, Kenya; the water use of sugar at Arusha Chini, Tanzania, in cooperation with the Tanganyika Planting Company and the Northern Regional Research Centre, Tengeru; the water use of pyrethrum at Njombe, Tanzania, in cooperation with the Pyrethrum Board, Tanzania; the water use of sorghum at Serere, Uganda, in cooperation with the Sorghum/Millet Breeding Division of EAAFRO; and the water use of tea at Kericho, Kenya, in cooperation with the Tea Research Institute of East Africa.

In addition, there are outstanding offers of financial and technical assistance to operate another lysimeter study of the water use of cotton and beans at the Mbarali Irrigation Scheme, in cooperation with the Water Development Department, Tanzania, and for further studies of the water use of sugar from the Mumias Sugar Scheme and the Chemilil Sugar Company, Kenya.

(3) Water use of Crops under stress - Besides the strong support from members of the Specialist Committee on Applied Meteorology for more work on potential evapotranspiration studies, there have also been a number of requests that high priority be given to an investigation of the evapotranspirational response of crops to water stress. It may be possible to incorporate some such study into existing experiments, but it would be more convenient and desirable to carry out this type of experiment under close supervision at EAAFRO.

e. Spectrochemist - The specialist would be primarily an analyst and assigned to the analytical phase of work under the following projects:

(1) Micro-Nutrient status of important agricultural soils in East Africa - An intensive programme of field sampling followed by soil analysis and greenhouse pot experimentation is indicated. This would be planned along the lines of preliminary screening of crop yield in the presence of macronutrients, plus the presence of all essential micro-nutrients and would involve micronutrient analysis of the greenhouse crop. If this screening showed suspected deficiency in further pot experiments plus individual trace elements would be carried out, again in the presence of macronutrients.

Financially this would involve a substantial commitment in respect of greenhouse accommodation, clean water production and chemical nutrient salts.

A final phase would involve field trials with micronutrients that had been pin pointed in the greenhouse work and there would be a need for considerable co-operation and collaboration at the National level. A survey phase of this project could be worked into the Regional Calibration project described under (5) with advantage.

(2) Soil Phosphorus in East Africa - This would require rather basic work on arable soils with particular reference to the role and importance of organic -P and its mineralization. This work would also involve greenhouse pot test studies.

(3) Sulphur Status of East African Arable Soils - These investigations would entail diagnosis, including soil and plant analysis tests, distribution and correction. This work would also involve greenhouse pot test and field trials.

(4) Charge Properties of Soils - This investigation would require the talents of a clay mineralogist/physicist. Once these characters have been defined their usefulness need be determined.

(5) Calibration of yield and fertilizer response of individual crops with soil and plant analysis values - This proposed new regional service project was drafted in detail by a sub-committee of the Specialist Committee on Soil Fertility in March, 1967.

The project is designed to be conducted over two growing seasons in each of the three countries. Crops considered of priority interest are maize, groundnuts, wheat and beans. Sites would be carefully selected and characterized. Cultivation, spacing, planting, varieties and fertilizer treatment would be carefully standardized and controlled insofar as feasible. This research would entail 24 to 36 trials in Kenya, 36 in Tanzania and 60 in Uganda.

f. Plant Pathologist - The pathologist would be requested to assume responsibility for diseases of sugar cane and other food crops. In regard to sugar cane, parallel with the breeding program, it will be necessary to carry out a program of disease testing, first of all to develop reliable techniques for the evaluation of the disease reaction of the varieties already in existence, and which it is intended to use for breeding, and secondly to apply these techniques to the varieties in the process of selection, so that their disease reactions may be known before they are released for commercial cultivation. The process of sugar cane breeding, once started, is a continuous one, with new varieties coming forward for testing from each year's work.

It has been found in sugar cane breeding and selection that there is a very high negative correlation between high yield and high sucrose content. When these factors are combined with disease resistance, the chances of finding outstanding individuals are very small indeed, so that the greater the number of seedlings which can be tested efficiently, the greater the chance of finding an outstanding individual.

3. Relationship of Project Goals to Country Development and Program Strategy - The project will enhance the research capabilities and increase the contribution of a regional institution operating on behalf of the three East African Governments in an area that is recognized as high priority in all three country development plans. The USAID FY 1969 Program Memorandum for East Africa recognizes that East Africa's economy is based predominantly on agriculture and livestock and that while East Africa has both abundant natural resources and a favorable climate to support a great expansion in agricultural and livestock production, problems related to human resources and institutional development must be solved before substantial further progress can be made. The PM points out that there is a staff function which must be performed in research to determine what seed and tillage practices must be employed on the regional scene and to discover improvements which should be employed. All research stations are suffering from a serious shortage of qualified and experienced research officers due to the departure of expatriates. Of those on duty at one representative station in 1962, two-thirds had left by 1965. All the countries face the problem of finding a sufficient number of their nationals who can be trained as research officers by working along side experienced expatriates. This project, in addition to providing needed research expertise, will assist by training local agriculturists at the advanced degree level.

D. Priority of Project Goals - The project would fill regular established positions which are the mainstream of EAAFRO's efforts. In 1967 FAO/SF/21 entitled "East African Livestock Survey - Development plans and requirements" clearly described (a) the generally low productivity of domestic animals in Africa, (b) the need to utilize all available protein sources including wildlife, (c) the need to utilize efficiently vast semi-arid areas of Africa, (d) the need for a mechanism designed to facilitate multidisciplinary effort on the problems.

E. Strategy

1. Manner and Extent of Proposed Project's Contribution to U.S. Goals - This input of agricultural research expertise is primarily addressed to the U.S. goal of stressing agricultural development as one of the major sectors of concentration.

The project assists a regional institution that contributes to the agricultural productivity of the region as a whole.

2. Alternative Approaches or Techniques - One programming alternative to reach the same objective would be the use of Participating Agency (PASA) personnel rather than topped-up contractor personnel as proposed by this PROP. Assignment of PASA personnel poses a problem in terms of the limited personnel ceiling. The use of contractor personnel is proposed in accordance with Policy Determination 37 of February 10, 1967 (M.O. 1000.2) in which it is stated that "in choosing between other government agencies and the private community as sources of needed skills, it is AID policy, other factors being equal, to favor the private community."

3. Cooperating Country Leadership - There is strong support of EAAFRO from the EAC.

4. Gross Relationships/Inventory of Related Assistance - This proposed program has a direct relationship with the East African Wildlife Research project, ref B, proposing two American technicians as the wildlife research division would be component of Animal and Crop Production. It would also be of benefit to the USAID agricultural and livestock programs now underway in the three East African Countries.

The British Ministry of Overseas Development support of EAAFRO in FY 1967 was continued in the form of a grant equal to 40% of the total gross expenditure (excluding recruitment and training and special expenditure) provided through EAC. The Ministry of Overseas Development also provided postgraduate scholarships and funds for short-term training of EAAFRO staff, and supplied short-term specialists to assist EAAFRO research.

A.I.D. provided $52,696 for Millet research and a further $13,720 for the Maize Breeding program. The Rockefeller Foundation subscribed $33,337 for Sorghum research, $2,800 for books and periodicals, $20,160 for the E. A. Scientific and Technical Literature Service, and approximately $56,000 for laboratory equipment. The Foundation continued to underwrite the emoluments of Director EAAFRO and expenses relating to that office, and to provide travel grants and postgraduate scholarships for EAAFRO staff. The Ford Foundation donated $24,959 towards the cost of convening the Wildlife Management and Land Use Symposium.

The Coffee Research Foundation of Kenya, the Coffee Marketing Board of Uganda and the Coffee Board of Tanzania contributed equally a total of $28,000 to the Coffee Berry Disease research program. The University College, Nairobi, has accommodated the Unit, and the services of a technician were provided by Netherlands Aid. The Government of Kenya subscribed $840 for Catchment research. The Tea Boards of the three E. A. countries, through the Tea Research Institute, provided $2,318 towards the cost of the survey of insects associated with tea culture. The Norwegian Agency for International Development provided, in part or whole, the services of five technicians. It has also provided equipment to the value of more than $8,400 and funds for the erection of a large glasshouse. The Canadian Office for External Aid has continued to provide the services of one technician.

The International Atomic Energy Agency has supported neutron probe studies with a grant of equipment and funds to the value of $4,374. Danish Aid provided two specialists from the Danish Volunteer Service. Carnegie Foundation continued its grant to provide books and periodicals for the library. F.A.O. subscribed towards the cost of the services of a technician. The U.S. Peace Corps contributed the services of one person to EAAFRO.

F. Planned Targets, Results and Outputs

1. Specifications for Completion of the Project - The project will be brought to a successful termination when qualified, trained East Africans are available to replace expatriate technicians and budgeting provision is made for salaries and other continuing operating expenses, although this PROP proposes no AID commitment beyond 4 years.

2. Continuing Operational/Maintenance Requirements - Additional burden on EAAFRO will be budgetary provisions in respect to local employees who replace American staff and maintenance of vehicles provided under the project.

G. Course of Action

1. Description and Interdependence of Inputs - EAAFRO, located at Muguga, Kenya, 17 miles from Nairobi, will provide all requisite physical facilities for the project, including office and laboratory space, operating supplies, and furnished housing at sub-economic rent. Field work will necessarily be conducted in each of the three countries of East Africa in collaboration with the appropriate ministries and EAAFRO will provide the costs of all transportation within East Africa. EAAFRO will provide a basic salary of $4,200 per annum for each of the specialists.

AID would provide six operational specialists (Animal Nutritionist, Range Ecologist, Nematologist, Plant Pathologist, Soil Physicist and Spectrochemist) on a salary topping-up basis for four years to fill established positions within EAAFRO. AID would also provide MSc. degree training in the U.S. for up to two years each for East African replacements of the American specialists where counterpart-trainees have not been provided by EAAFRO. EAAFRO will provide international transportation to New York and return and family maintenance allowances for the participant trainees; AID would provide all other training costs. The participants will be bonded to serve at EAAFRO upon completion of training.

Although EAAFRO will provide furnished housing at Muguga for the technicians, in accordance with current USAID policy in East Africa the hard furnishings will be supplemented by a stove and refrigerator for each of the Americans. Title to the stove and refrigerator will be vested in AID. No non-AID resources are available to finance the special nature of proposed AID inputs.

2. Role of Cooperating Country Self Help Actions - No further enabling legislation or administrative reforms are required.

3. Extent to which Cooperating Country Must Contribute its Own Resources to Insure Effective Implementation - EAC contributions are vital to the success of the project. The key elements are payment of basic salary for the Americans, thus ensuring budgetary provision for East African replacements, and appropriation of local personnel

to the project for training as replacements, so that no gap will exist upon completion of U.S. services.

4. Appropriateness of Proposed Scale of Project - The scale of the project appears appropriate in relation to the task objective. The six positions have been determined and approved by East African official bodies. Further review by AID would not appear to be necessary in view of the fact that each position requires budgeting of resources by EAAFRO.

5. Capacity of Project to Produce Desired Results - The success of the project depends in large measure on the quality of personnel provided, both in respect to the U.S. technicians to be recruited by AID and the replacements to be provided by EAAFRO.

6. Ability of Environment to Absorb, Support and Utilize Project - The environment for this project is highly favorable. This project will be problem solving and action oriented with research results lending themselves to immediate beneficial application in all three East African countries.

H. Approval - The proposed project described above represents agreements reached among the various parties who have signed below, on the clear understanding that any obligation of funds by AID is subject to approval of the project by AID/Washington and that obligation of funds by all parties are subject to availability of necessary funds.

P. B. MATEMBA

(In draft)
O. STARNES

A. L. BOUCHER

FERGUSON

Upon receipt of EAC clearance we will cable.