Appendix 5A to HB 3, Part I
(TM 3:19)

PD-AAG-684

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT PAPER FACESHEET

1. TRANSACTION CODE: C (A = ADD, C = CHANGE, D = DELETE)

PP

2. DOCUMENT CODE: 3

3. COUNTRY/ENTITY: BURUNDI

4. DOCUMENT REVISION NUMBER: 1

5. PROJECT NUMBER (7 digits): 695-0101

6. BUREAU/OFFICE: A. SYMBOL: AFR; B. CODE: 06

7. PROJECT TITLE (Maximum 40 characters): Basic Food Crops

8. ESTIMATED FY OF PROJECT COMPLETION: FY 85

9. ESTIMATED DATE OF OBLIGATION: A. INITIAL FY 80; B. QUARTER 1 (Enter 1, 2, 3, or 4); C. FINAL FY 83

10. ESTIMATED COSTS ($000 OR EQUIVALENT $1 –)

A. FUNDING SOURCE	FIRST FY B. FX	FIRST FY C. L/C	FIRST FY D. TOTAL	LIFE OF PROJECT E. FX	LIFE OF PROJECT F. L/C	LIFE OF PROJECT G. TOTAL
AID APPROPRIATED TOTAL	1,130	1,240	2,370	2,851.5	2,606.5	5,458
(GRANT)	(1,130)	(1,240)	(2,370)	(2,851.5)	(2,606.5)	(5,458)
(LOAN)	( )	( )	( )	( )	( )	( )
OTHER U.S. 1.						
OTHER U.S. 2.						
HOST COUNTRY	-	897.1	897.1		2,389.1	2,389.1
OTHER DONOR(S)		-				
TOTALS	1,130	2,317.1	3,267.1	2,851.5	4,995.6	7,847.1

11. PROPOSED BUDGET APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. 1ST FY 80 F. GRANT	E. 1ST FY 80 G. LOAN	H. 2ND FY 81 I. GRANT	H. 2ND FY 81 J. LOAN	K. 3RD FY 82 L. GRANT	K. 3RD FY 82 M. LOAN
(1) FN	110	010	-	2,370	-	700	-	1,418.8	-
(2)									
(3)									
(4)									
TOTALS									

A. APPROPRIATION	N. 4TH FY 83 O. GRANT	N. 4TH FY 83 P. LOAN	Q. 5TH FY ___ R. GRANT	Q. 5TH FY ___ S. LOAN	LIFE OF PROJECT T. GRANT	LIFE OF PROJECT U. LOAN
(1) FN	969.2				5,458	
(2)						
(3)						
(4)						
TOTALS						

12. IN-DEPTH EVALUATION SCHEDULED: MM 11, YY 81

13. DATA CHANGE INDICATOR. WERE CHANGES MADE IN THE PID FACESHEET DATA, BLOCKS 12, 13, 14, OR 15 OR IN PRP FACESHEET DATA, BLOCK 12? IF YES, ATTACH CHANGED PID FACESHEET.

2 (1 = NO, 2 = YES)

14. ORIGINATING OFFICE CLEARANCE

SIGNATURE: [signature]

TITLE: AID Affairs Officer/Bujumbura

DATE SIGNED: MM 11, DD 12, YY 79

15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM 11, DD 19, YY 79

AID 1330-4 (3-76)

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

FROM : AFR/DR, ~~John W. Koehring~~ JWKoehring

SUBJECT: Burundi Basic Food Crop Project, 695-0101

I. Problem:

Your approval is required for a grant of $5,458,000 from the FAA Section 103 (Agriculture, Rural Development and Nutrition) appropriation to Burundi for the Basic Food Crops project, No. 695-0101.

II. Discussion:

A. Description:

The purpose of the Basic Food Crops project is to help the Government of Burundi (GRB) make improved varieties of food crops and improved cultivation techniques available to small farmers in the high altitude food production area. The A.I.D. project is the second component of the four-component Burundi Government High Altitude Food Crop Production Program which comprises: (1) Research, (2) Seed Multiplication, (3) Extension Service and, (4) Marketing. A.I.D. will help establish the seed multiplication farm—which will concentrate on the multiplication of wheat and maize seeds at first, followed by peas, beans and sweet and irish potatoes. The project will last six years.

AID's sector strategy concentrates on increasing the production of basic food crops, improving nutrition, and implementing soil conservation programs. The Basic Food Crops project contributes to this strategy by helping to bring to the small farmer those inputs required to increase production of the major food crops of the area that have a relatively high nutritional value.

The primary beneficiaries of the seed multiplication program will be the 20,000 rural families that participate in the GRB High Altitude Food Crops Program. Secondary beneficiaries include the neighbours of participating families, and the country as a whole, which will benefit from a reduced food import bill to the extent that domestic wheat and maize are substituted.

B. Financial Summary:

An overall dollar breakdown of the A.I.D. funds requested in tabular form is indicated below.

	First Year	Life of Project
Commodities	$1,434,200	$1,712,900
Technical Assistance	498,700	1,515,000
Participants	44,100	106,600
Other (Inflation, Contingency)	393,000	2,123,500
Grant Total	$2,370,000	$5,458,000

(See Table 6, page 45 of PP)

The GRB contribution of $2.4 million for the Life of Project (LOP) will finance the salaries of host country personnel for the seed farm. The GRB will also provide office supplies and seed for the first year of project operations; pay half the fuel cost of farm operations; supply half of the farm's fertilizer and agricultural chemicals; maintain the farm buildings; and, provide 300 hectares of suitable land for the farm, paying for any necessary land clearing.

The other donors participating are the European Development Fund (FED) and the Belgian Government. The FED has assisted with the ongoing ten-year GRB program called the High Altitude Food Production Program. The A.I.D. seed multiplication project depends, in fact, on coordination with the extension aspects of the FED-assisted High Altitude Food Production Program. The FED will provide the extension component after the A.I.D. seed multiplication phase. Their overall financial contribution is estimated at $5.60 million.

The Belgians are providing technical assistance for the first component of the overall program, which is the applied agricultural research conducted by ISABU. Belgium provides $1.8 million over four years for technical assistance to ISABU.

C. Socio-Economic, Technical and Environmental Description:

1. Socio-Economic:

At the review of the original Project Paper (PP) in August 1979, there were concerns among the review committee members about the human rights situation in Burundi, especially as it related to the Hutus as the direct beneficiaries,and the role of women in agriculture. The AAO subsequently provided additional information that satisfied the committee. It is contained in Bujumbura 2412 (LOU). This cable is on file in AFR/DR.

The requirements of the HA State Department Human Rights Committee were satisfied January 8, 1980. Burundi is classified as a Category I country which requires that the HA Committee be notified before an A.I.D. project is authorized. The notice was sent December 20, 1979 and clearance was assumed ten days later.

2. Environmental Analysis:

The ECPR recommended that AAO provide additional information on how the pesticides purchased under this project will be stored, controlled and managed. AAO responded with a satisfactory explanation (concurred with by REDSO/EA) in Bujumbura 2655, which is attached to the PP as Annex M. The negative determination recommended in the PP has therefore been accepted.

3. Technical Analysis:

The technical soundness of this activity has been questioned repeatedly since the project's inception. The concerns centered around whether it is technically possible to grow wheat as the primary crop and maize and beans as secondary crops on the project site at Kajondi, given the relatively poor quality of the soil at that location. The AID/W agriculture specialists repeatedly requested soils

tests to ascertain the exact Ph content and aluminum toxicity of the soil to assure themselves that the seed multiplication effort is viable. Although these tests are presently underway, the results were not in at the time that the ECPR met. A telephone conversation with a REDSO/EA agronomist, followed by a cable (Nairobi 22516) assuaged some of the concern. During the conversation the REDSO agronomist indicated that other countries with similar soil conditions have grown the crops in question; research literature in general suggests that lime applications of two to four tons per hectare provide significant crop yield responses; and growing a green manure crop such as buck wheat will correct the aluminum toxicity problem.

On the basis of this conversation, the ECPR recommended that the project be authorized on condition that satisfactory soils tests and maps of the entire area be made available to A.I.D. before any disbursements are made. A Condition Precedent to disbursement, 2(a), in the Project Authorization expresses this concern.

D. Covenants and Conditions Precedent:

Condition Precedent 2(a) of the Project Authorization has been strengthened due to the serious need to clarify the site and soils issue outlined above. The text of 2(a) has been changed to read, "evidence to confirm that land of adequate area and quality for the AID-funded seed multiplication farm and associated structures has been allocated to the project. Satisfactory results from the soils tests and maps of the entire area will constitute such evidence."

In addition to the Conditions Precedent and Covenants outlined on page 51 of the PP and the change indicated above, the ECPR recommended that the GRB covenant that: (1) plans be made for commercialization of the seed farm

operation during the life of the project; (2) that women be recipients of a portion of the training offered under this project. (It was also agreed that A.I.D. will initiate further dialogue with the FED to satisfy AID's concern that the extension program involves women to the extent that Burundian women are involved in agriculture.); and, (3) a work plan be developed which indicates the project's phasing and operation vis-a-vis the other donor projects. Fulfillment of the last covenant will result in explicit plans for distribution of the seed and for budgetary accounting procedures for seed sales.

E. Waivers:

It is requested that you approve a waiver to procure agricultural equipment totaling $444,352 on a proprietary basis and approve another waiver to procure vehicles totaling $220,500 from Geographic Code 935 countries. The justification for these waivers is set forth in Annex I of the Project Paper.

F. Implementing Agencies:

The implementing GRB agency will be the Directorate of Agronomy of the Ministry of Agriculture.

G. Congressional Apprisement;

The Congressional Notification (CN) went to Congress on January 7, 1980 with expiration January 22, 1980.

H. Officers Responsible for Project:

The officer responsible for this project in the field post is Abbe Fessenden; the AFR/DR officer responsible for backstopping this project in Washington is Renee Laryea.

III. Recommendation:

That you sign the attached Project Authorization and thereby authorize the proposed project for life-of-project funding of $5,458,000. Of this amount, up to

$2,370,000 will be obligated from the FY 1980 OYB. The remaining will be obligated in FY 1981 ($700,000) and future years ($2,388,000).

By signing the Project Authorization you will approve the afore-mentioned waivers. In addition it is recommended that you sign the Initial Environmental Examination approving the Negative Determination.

Drafted:AFR/DR/CAWARAP:RLaryea:bfc:1/30/80

Clearances:

AFR/DR/CAWARAP:LBond(draft)
AFR/DR/ARD:SKrause(draft)
AFR/DR:LHeilman(draft)
AFR/DR/ENGR:BPayette(draft)
AFR/DR:NCohen
AFR/DR/EHR:FMoore(draft)
AFR/DR/SDP:BBoyd(draft)
AFR/DP:GCauvin(draft)
GC/AFR:EDragon
AFR/CA:RKlein(draft)
PPC/PDPR/RD:ESimmons(draft)
SER/COM/ALI:RStader(draft)
DAA/AFR:WHNorth

Attachments: a/s

PROJECT AUTHORIZATION

Name of Country : Burundi

Name of Project : Basic Food Crops

Number of Project: 695-0101

1. Pursuant to Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize the Basic Food Crops project for Burundi involving planned obligations of not to exceed $5,458,000 in grant funds over a six year period from date of authorization, subject to the availability of funds in accordance with the A.I.D. OYB/allotment process, to help in financing foreign exchange and local currency costs for the project.

2. The project will assist the Government of Burundi to make available to small farmers in certain areas in Burundi improved varieties of seeds, plant materials, and improved cultivation techniques for basic food crops. To achieve this objective the project will establish a seed multiplication farm and will coordinate project activities with research, marketing and extension efforts being undertaken by the Grantee and other donors. The Assistance will provide financing for participant training, technical, construction and other services, commodities and certain other costs.

3. The Project Agreement which may be negotiated and executed by the officer to whom such authority is delegated in accordance with A.I.D. regulations and Delegations of Authority shall be subject to the following essential terms and covenants and major conditions, together with such other terms and conditions as A.I.D. may deem appropriate.

4. a. <u>Source and Origin of Goods and Services</u>:

   Goods and services, except for ocean shipping and except as stated in paragraph d. below, financed by A.I.D. under the project shall have their source and origin in the Cooperating Country or in countries included in A.I.D. Geographic Code 941 except as A.I.D. may otherwise agree in writing. Ocean shipping financed by A.I.D. under the project shall, except as A.I.D. may otherwise agree in writing, be financed only on flag vessels of the United States or the Cooperating Country.

b. Conditions Precedent:

(1) Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, the Cooperating Country shall furnish in form and substance satisfactory to A.I.D., evidence that the contribution by the European Development Fund (FED) to the Higher Altitude Food Crop Production Program will be forthcoming on a timely basis, and in an amount adequate to allow implementation of the Basic Food Crops project.

(2) Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement for the purpose of financing construction of buildings under the project, the Cooperating Country shall furnish in form and substance satisfactory to A.I.D.

(a) Evidence to confirm that land of adequate area and quality for the A.I.D.-funded seed multiplication farm and associated structures has been allocated to the project. Satisfactory results from the soil tests and maps of the entire area will constitute such evidence;

(b) Final site plans, construction plans and specifications; and

(c) An executed contract for construction services. The condition precedent set forth in this subparagraph may be satisfied separately for each unit of construction and applies only to A.I.D. financing of construction services and not to other, technical, services incident thereto.

c. Covenants:

The Cooperating Country shall covenant, in substance, as follows:

1. To provide evidence to A.I.D., at times and in a form mutually agreed upon by the Parties, that the Cooperating Country will be able, and has allocated sufficient resources, to replace the seed farm's equipment and vehicles once A.I.D. assistance is terminated. The Parties will meet periodically to assess efforts to satisfy this covenant.

2. To provide individuals to receive participant training on a timely basis and in accordance with the schedule contained in the Project Agreement's amplified project description. Personnel receiving training under the project will be returned to the project upon completion of their training, or to such other position as the Parties may agree to in writing.

3. To provide all necessary counterpart and technical personnel as may be required by the project on a timely basis and in accordance with the Project Agreement's amplified project description.

4. To furnish all necessary recurrent cost funding in accordance with the schedule contained in the Project Agreement's amplified project description, which may be modified in implementation letters.

d. Waivers:

In accordance with the justifications contained in Annex I of the Project Paper, the following waivers to A.I.D. regulations are hereby approved:

1. The requirement contained in A.I.D. Handbook 1, Supplement B, Chapter 12 competitive procurement is hereby waived to permit procurement of agricultural equipment (approximately $444,352) on a proprietary basis.

2. The requirement under A.I.D. Handbook 1, Supplement B, Chapter 4 vehicles procured with A.I.D. funds have their source and origin in

the U.S. (A.I.D. Geographic Code 000) is waived to permit the procurement of eight project vehicles and a low-boy trailer (approximate cost of $219,500) which have as their source and origin countries included in A.I.D. Geographic Code 935 (Special Free World). It is hereby certified and determined that exclusion of procurement of the project vehicles and trailer from free world countries other than the cooperating country and countries included in Code 941 would seriously impede attainment of U.S. foreign policy objectives and the objectives of the foreign assistance program and that special circumstances exist which justify waiver of the requirements of Section 636(i) of the Foreign Assistance Act of 1961, as amended.

Clearances:
AFR/DR/CAWARAP:LBond _____
AFR/DR/ARD:SKrause(draft)
AFR/DR:LHeilman (JWK for) _____
AFR/DR/ENGR:BPayette(draft)
AFR/DR:NCohen (JWK for) _____
AFR/DR/EHR:FMoore(draft)
AFR/DR/SDP:BBoyd(draft)
AFR/DP:GCauvin(draft)
GC/AFR:EDragon _____
AFR/CA:RKlein _____
PPC/PDPR/RD:ESimmons(draft)
SER/COM/ALI:RStader (JWB for) _____
DAA/AFR:WHNorth _____

Date _____

_____
Goler Butcher
Assistant Administrator
for Africa

Burundi Basic Food Crops Project Paper

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B. Logical Framework

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PID Review Cable
Cable on Site, Soils and Agronomy Questions

D. Statutory Checklist

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E. Initial Environmental Examination
Engineering Analysis
611 (e) Certification

F. Financial

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ISABU Recommended Chemicals
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Soils Tests for Nearby Sites and Preliminary Tests on Four Seed Farm Sites

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Vehicle Procurement Waiver

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M. Project Authorization and Request for Allotment of Funds

INTRODUCTION

A. SUMMARY DESCRIPTION

The purpose of the Basic Food Crops project is to help the Government of Burundi (GRB) to make available to small farmers in the high altitude food production program area improved varieties of seeds/plant materials for basic food crops as well as improved cultivation techniques.

AID will achieve this through helping establish a seed multiplication farm, which will concentrate upon multiplying maize and wheat seeds at first, followed by peas, beans, and sweet and irish potatoes. The project will last six years. It is the first phase of a long term program in seed multiplication and food crop production.

The Basic Food Crops project is a component of a decade long Burundi Government High Altitude Food Crop Production Program. This program is designed to:

-- Increase food crop production in the tea perimeters along the Zaire/Nile Crest at altitudes of 1,900 to 2,500 meters, principally for on-farm consumption;

-- Supply wheat and maize to a local flour mill to reduce wheat imports; and

-- Increase small farmer income.

The ten year program will begin with production of maize and wheat, the principal cereal crops (usually consumed as gruel) of the Zaire/Nile crest. It later includes peas, beans, sweet potatoes and irish potatoes. Sorghum and millet are consumed in liquid form. The program has four parts:

1. Research: ISABU, the Agricultural Research Institute, has already conducted a number of varietal testing research activities at high altitudes, particularly on maize and wheat. ISABU receives Belgian Technical Assistance and will conduct varietal testing and research on agronomic packages. The results will be fed into the seed multiplication activities.

2. The Seed Multiplication Farm: Seed and plant materials for the extension program will be multiplied on the AID financed seed multiplication farm. This is the Basic Food Crops project.

3. Extension Program: The European Development Fund (FED) food crop extension program is a ten year project which will be implemented in two phases. It grew out of the experience gained on the tea production project. It includes intensive extension programs to restore soil fertility and increase yields of food crops. It stresses low cost inputs, crop rotations, etc., and uses a network of extension agents, assistants and farmer/demonstrators.

4. Marketing: The FED tea project includes developing a marketing network for tea, which has exacting collection and processing requirements. Under the FED extension project, more collection points will be established for food crops and some additional farm to market roads will be built. The Muramvya flour mill, for which equipment has been ordered, is located in the middle of the tea zones on a major East/West highway. The mill itself will organize handling, transportation and storage of the wheat for processing into flour.

The primary beneficiaries of the seed multiplication program will be the 20,000 rural families that participate in the High Altitude Food Crops program. Their nutrition will be improved through increased availability of basic food crops, and their cash income will be increased substantially through selling wheat, maize and potatoes exceeding to their consumption requirements. We expect that return to labor will be more than FBu 90 per day, well above the legal minimum daily wage. Since women grow almost all foodcrops, the female members of rural households will benefit the most.

The secondary beneficiaries include the neighbors of the participating families in the program zone and also in other high altitude areas who may purchase seed/plant materials from the participating farmers as well as adopt cultivation techniques. The population of the tea perimeter was about 29,000 families (131,000 people) in 1977. We think that the population will grow to at least 35,700 families by 1990, and that many of them will also benefit from the project, given the high rate of farmer to farmer spread of successful agricultural innovations in Africa and elsewhere. The varieties should also spread to other high altitude areas outside of the perimeters. In addition, the country itself will benefit from a reduction of the food import bill, in that domestic wheat and maize will be substituted for import. The value of the wheat attributable to the program upon completion will be more than $ 2.5 million per year. The value of the increased productivity resulting from the project will be the survival of the increased population of the already densely inhabited area.

The project's outputs include:

-- Physical facilities for a 300 hectare seed farm, at Kajondi, about 140 km south east of Bujumbura;

-- Seed farm operated by trained GRB personnel;

-- Sufficient quantities of extension seed produced for the High Altitude Food Crops Extension program;

-- Production techniques developed for both seed multiplication and for the farmers participating in the extension program to increase their yields with a low quantity of purchased chemical inputs.

AID's inputs ($ 5,458,000) include financing an institutional contract for eleven work years of three long term contract advisors (a Project Manager/Agronomist, a Farm Equipment Operator/Mechanic, an Administrative/Logistics Officer). There will be 27 work months of consultants' services in the institutional contract. In addition, there will be eight work months of consultants' services connected with project evaluations, and short term construction and seed multiplication advisors personal services contracts. Participant training will include some long term and short term training in the U.S. , and substantial third country short term training in crop production at CIMMYT, IITA or similar international agricultural research organizations. There will be some short third country courses for lower level personnel in seed handling and processing.

AID will provide vehicles, farm equipment, seed processing and laboratory equipment, household appliances and furniture. In the early years of the project, AID will provide gasoline and diesel fuels and agricultural inputs, but in later years of the project these operating costs will be financed by the GRB out of revenues from the sale of seeds. AID will also finance the construction of eight houses and a dormitory, office buildings, workshops and storage buildings. AID will also pay for miscellaneous materials and costs associated with applied research on varieties, cropping systems and agronomic practices.

The GRB contributions ($ 2.4 million) will include the cost of the land and its clearing, salaries and benefits of GRB seed farm personnel. The GRB will gradually pick up paying for fuel and other seed farm operating costs beginning in FY 1982. A GRB letter of request is attached to the PP as annex B. The GRB has submitted a formal detailed project proposal to the European Economic Commission for the extension program. That project is now in advanced stages of review prior to final approval.

B. PID ISSUES

Most of the issues raised in the PID review were dealt with in the original Project Paper. The following list indicates where in the PP one can find a particular issue discussed.

1. How Should Food Production Problems be Addressed?

See Section I for the project description and approach to the sector, and Section II/C for technical analysis for the reasons why AAO decided to tackle multiplication of maize and wheat seed first. The project is a component of an overall cropping systems approach.

2. Overlap with ISABU

Please see sections I/A, I/C and II/C regarding ISABU activities, Belgian technical assistance and the current state of foodcrop research.

3. GRB Institutional Capacity

Please see I/B, II/D and III/B on staffing, II/A and III/A on economic analysis and financial analysis, and III/B/5 on covenants.

4. Title XII

The project's major objective is to set up and run a seed multiplication program, although the project manager must have sufficient knowledge of agronomy to be able to make use of ISABU's advances in food crop research. The operational nature of the project does not lend itself to the strengths of Title XII institutions, many of which do not possess staff skilled in this area. The project requires agricultural technicians and consultants with skills that are more likely to be found in institutions, firms,and/or agro-businesses which supply this type of manpower. Title XII institutions should be allowed to compete for the prime contract along with others (see sections II/D and III/B).

5. Availability of Qualified Technicians

Section II/D on administrative feasibility and III/B on implementation cover language requirements, housing and other problems. We should consider hiring non-US citizens under the prime contract if necessary to meet the technical and linguistic qualifications. No schooling is available at the project site, and there are no English Language schools in Bujumbura, although good boarding schools can be found in Kenya. We are willing to provide separate maintenance

allowances to permit uninterrupted schooling of technicians' children. A radio link already exists at a nearby research station and AAO will ask the GRB for permission to set up a radio at the seed farm's office to tie into the Ministry of Agriculture's network.

C. PROJECT PAPER REVIEW ISSUES

The issues raised in the PP review are addressed in the paper itself and separately as indicated below.

1. Farm Site and Soils

a. Maps and Road Links. See Annex A for site location maps and description of the road links to the seed farm site. The site has been surveyed and a topographic map will be completed shortly and forwarded separately.

b. Soils and Aluminium Toxicity. Please see section II/C and cable prepared by REDSO/EA's senior agricultural advisor attached to annex D on farm operations. He recommends that sufficient information is available to permit approval of the project and that the detailed soils map of the site should be prepared using PD and S funds before farming starts. Annex D also includes copies of detailed soils tests run near the farm site on the same soils series.

2. Pilot Smallholder Seed Multiplication

We have provided funds for designing a smallholder seed multiplication program in year four of the project (just before the second in-depth evaluation). Since we expect that the proposed activity will tie into other programs of the Agronomy Department, we have provided for extended consultancies to oversee implementation of the pilot activity during years 5 and 6 of the Basic Food Crops Project. Of course, the in-depth evaluation may result in recommendations of changes in project design and staffing for implementing the pilot smallholder multiplication program, or it might become a separate project (see section II/B/1 and III/C on evaluation).

3. On-Farm Research Capabilities

See section II/C and REDSO/EA agricultural advisor's cable for discussion of this issue in light of ISABU and other donor activities. AAO intends to prepare a Small Farm Systems research

project for FY 1981 implementation. One component will address the specific question of testing food crop varieties and cultivation techniques in farmers fields.

4. Farm Equipment

Please see Section I/B/2 on inputs and Annex F's equipment lists.

5. Basic Food Crops as Phase I of Long Term Program

Please see Section I/A and discussions of project implementation.

6. Analysis of Specific Pesticides Costs and Benefits

When the GRB and the Contract team decide what agricultural chemicals will be used on the seed farm, AAO will prepare a const/benefit analysis amendment to the IEE in order to comply with Regulation 16. No chemicals will be purchased before the analysis is completed and only EPA approved pesticides will be used under this project.

7. Nationality of Beneficial Ownership of Burundi Based Construction and Engineering Firms

Since some firms which may participate in, or supervise construction of the AID financed buildings may have 50 percent or more country 935 ownership, we will process and submit separately a waiver to permit such firms to draw up specifications, supervise engineering and construct the buildings.

8. Beneficiaries

Please see sections I/C/3, II/A and II/B. Please refer to septel which addresses the question of ultimate beneficiaries.

9. Title XII Institution

Please see A/4 above and sections II/D and III/B.

D. RECOMMENDATIONS

1. We recommend that AA/AFR authorize the Basic Food Crops Project of $ 5,458,000.

2. We recommend that AA/AFR approve the attached waivers for proprietary procurement of farm equipment from a U.S. manufacturer and a source/origin waiver for passenger vehicles, pickup trucks and larger trucks.

I. PROJECT DESCRIPTION

A. PURPOSE AND GOAL

1. AID Objectives and Sector Strategy

a. GRB and AID Development Strategy

Burundi is one of the poorest of the less developed countries. The average per capita income, in current market prices, is about $130, although it is much less in outlying areas. The physical quality of life index (PQLI) is 23, one of the lowest. The economic outlook for the next decade is bleak, because a rapidly expanding population competes for declining food supplies. More than 90 percent of the population survives on subsistence farming, and less than 10 percent of the adults have functional literacy.

Burundi's population of approximately 4.0 million is squeezed into an area of 10,747 square miles, making it one of the most densely populated sub-Saharan nations. Roughly 200,000 people live in major towns and the remainder are in rural areas. With population growth expected to attain 8,000,000 by the year 2000 and double again by 2025, Burundians will have less than half the present per capita acreage by the turn of the century.

The incidence of malnutrition, disease and infant mortality is very high. On average, the population has a diet seriously lacking in proteins, fats, minerals and vitamins. While the average caloric intake is estimated at about 1,890 calories (88 percent of the accepted minimum intake), most individuals have relatively little understanding of good nutritional practices and seldom slaughter cattle for their meat. The average annual per capita consumption of meat is four to seven pounds, but per capita milk and milk by-products reach 16 liters (which is considered high by African standards and helps reduce-but not eliminate-the protein deficiency).

The major goal of the GRB's current Five Year Plan (1978-82) is to bring about "social and economic development emphasizing the development of agriculture and increase the purchasing power of the rural masses." The means of achieving this objective include: (1) increasing food production to improve the nutritional level, both in quality and quantity, and achieve food security for the people; and (2) reduce under-and unemployment both in towns and in rural areas.

AID's assistance strategy in Burundi is designed to help the growing numbers of rural poor cope with a declining food production system and a deteriorating environment. Prompt implementation of

assistance programs is needed so that AID can help the GRB slow down the decreasing ability of the land to support the population. The first phase of a three phase approach includes assistance in the areas of improving the capabilities to plan rural development programs; increasing the production of basic food crops; improving nutrition; implementing soil conservation, land use and resource analysis programs; and increasing the ability to use alternative energy sources.

b. Sector Goal

The sector goal to which the Basic Food Crops Project contribute is:

To improve the nutritional intake and economic status of the people of Burundi.

In order to reach the project goal we assume that the GRB will continue its development policies with full support from various donors.

Agriculture's contribution to the GNP is estimated to represent approximately $290 million or 58 percent of the total GNP. Export earnings from cash crops accounted for the bulk of Burundi's 1977 total export trade of $97,500,000 with coffee representing 90 percent of the total earnings. The GRB also places an increased emphasis on tea as an export crop (1977 earnings of $2,300,000).

In comparison with many African countries, Burundi can support more people per unit of land because its diversified ecoclimatic conditions permit production of a wide range of crops and several growing seasons. The country has a relatively high average elevation (ranging from 2,200 feet at Lake Tanganyika to 8,900 feet along the Zaire-Nile Crest). Temperatures range from an annual average of 73°F in the lowlands to cooler highland readings which may occasionally reach freezing. The rainfall distribution allows two harvests a year in most places. Soils appear more fertile and crops do not suffer heavily from the wide range of diseases and pests when compared with lowland tropical regions.

An estimate of land use distribution is: all crops- 37 percent; pastoral land- 23 percent; forest- 3 percent; and urban, water filled, waste and other- 37 percent. Pastoralists compete with sedentary farmers for land, but in some areas livestock have virtually disappeared due to the need to grow crops. The traditional subsistence crops are maize, wheat, peas, cassava, beans, bananas, plantains and sweet potato. Most Irish potatoes are marketed in Bujumbura as a cash crop. Minimum amounts of tropical fruits are also grown. Interplanting of crops is common, particularly in densely populated areas. The practice of using fallow

to increase nitrogen availability has virtually disappeared because of population pressure in densely inhabited areas. Cash crops include coffee, tea, groundnuts and cotton. Statistical data on the production of subsistence crops are scanty. The present major constraints to crop production are lack of good seeds, antiquated tillage methods, lack of fertilizer and a lack of money for the average farmer to pay for any improved inputs.

GRB goals articulated in the 1977-82 Five Year Development Plan indicate significant devotion to soil and water conservation, increased food and export crop production, increased animal and fish production, and improvement of the forestry sector. In 1975, agriculture received a smaller percentage share of the national budget (4.1 percent) than it did in 1970/71.

In the past, the GRB has not placed a high priority on food production, but, in practice, stressed export crops. A shift has occurred in that the Third Plan's agriculture sector programs place a new emphasis on food crops; on introducing modern farming; and ending fragmentation of farms as well as an intensification of export crop production. The Five Year Plan recommends increased crop production through the use of selected and high yielding seeds, fertilizer, insecticides, better cultural practices, use of bovine traction, mechanization in suitable zones, protection against erosion, and placing more highly skilled agricultural technicians in government positions.

AID's sector strategy concentrates upon increasing the production of basic food crops, improving nutrition, and implementing soil conservation programs.

The draft Sector Assessment gives a high priority to increased food crop production for on-farm consumption and for marketing. Consequently, the institutions which contribute towards increasing food crop production should be strengthened. An adequate supply of seeds/plant materials of improved varieties and associated agronomic practices are a necessary precondition to food production programs, along with adequate research, extension, storage and marketing programs.

The potential AID project closely related to Basic Food Crops project is:

> the Small Farm Systems Research Project (FY 1981). It will develop within ISABU (the Agricultural Research Institute) a capability for executing "operational research" for the testing of new varieties and cropping systems and establishing recommended low cost practices under field conditions for small farmers.

c. Subsector

The subgoal of the Basic Food Crops project is:

> To improve the nutritional intake and income of small farmers in the tea production zones.

In order to meet the subgoal we assume that the farmers will use the new varieties and production techniques. In addition, we expect that the FED (European Development Fund) extension project will materialize as planned (See section I/C for description).

The High Altitude Food Production program involves increasing food crop production in the four tea production perimeters of Remera, Muramvya, Ijenda and Tora, which cover about 800 square kilometers along the Zaire/Nile crest. The two northern perimeters have more than 250 people per square kilometer, while the southern pair have a less dense population. Approximately 29,000 families lived in the program area in 1977 and about 20,000 will participate directly in the program.

The major crops of the Zaire/Nile crest are maize, sorghum/millet, wheat, peas, beans, sweet potatoes and irish potatoes in addition to tea. Wheat has been grown in the Zaire/Nile crest region for many years. It is usually consumed by producers as gruel. Interplanting is common and yields of most crops are very low. Adding together the area cultivated in both growing seasons, the average area planted by a farm family varies from .89 ha to 1.14 ha, (See section III/C).

The High Altitude Food Production Program is based on a Ministry of Agriculture proposal of April 1978. It will be implemented over a decade and has several major objectives including increased food production, better nutritional balance for the farm family, additional cash income, as well as increased domestic wheat and maize production to reduce the dependence on wheat imports.

The Food Crop program grew out of a European Development Fund Tea Production project. For the past four years the FED has provided staff, extension assistance and infrastructure development in support of improving farm methods (primarily for tea production), use of fertilizers and crop marketing. The results from the tea projects are encouraging. The plots of tea are well cared for and healthy. The production areas are expanding. The result of this program wherein a completely new crop with exacting cultivation and marketing requirements has been introduced successfully augurs well for an Expanded Food Production program.

The High Altitude Food Production Program should increase maize yield of participating farmers to 1,100 kg/ha and the total maize production in the tea perimeters (including that of farmers not in the program) will amount to 9,380 MT by the seventh year of the project, an increase of more than 3,900 tons. The GRB proposal assumes end of project

(1990) wheat yields of 1,400 kg/ha while production in the tea perimeters will increase from 1,765 MT to 9,540 tons (the average area planted per participating farmer should increase to .32 ha/farmer). We believe a figure of 1,000 kg/ha is more likely, unless major breakthroughs occur in substituting triticale for wheat and development of wheat varieties with tolerance to aluminum toxicity. Pea, bean, sweet potatoes and irish potatoes are grown on the same areas as before, and the yields should double (peas 842 kg/ha; beans 600 kg/ha; sweet potatoes 9,166 kg/ha; and irish potatoes 9,572 kg/ha). Production should increase from 2,995 to 5,152 MT for peas; 388 MT to 673 MT for beans; from 7,058 MT to 11,998 MT for sweet potatoes; from 2,099 MT to 4,183 MT for irish potatoes.

The four components of the program are:

(1) Research. This component consists of a link into ISABU (the agricultural research institute) which conducts varietal testing research on high altitude food crops at Kisozi and other stations. ISABU, which receives aid under the Belgian Technical Assistance program, will provide breeder seed for improved varieties used in seed multiplication (See section I/C and II/C).

(2) Seed Farm. The Seed Multiplication component is the Basic Food Crops project proposal presented in this PP. This project is the first phase of a long term involvement in food crop production in the Zaire/Nile crest zone.

(3) Extension. The FED will provide the extension component. Their project, which is currently undergoing revisions prior to final approval, has the following objectives: additional food production and better nutritional balance for the farm family; increased ability to market wheat and maize and a consequent augmentation of cash income; knowledge of production methods and organization of storage and marketing; and a general improvement of the ability to meet basic human needs.

The FED project has a "pre-production" phase I of four years, during which time the personnel, infrastructure and material necessary for an intensive food crops production effort will be put into place. It includes contact with and training of farmers, activities to reduce erosion and increase soil fertility, and some increase in food crop production. The method of extension uses local assistants to monitors who receive on the job training as the key contacts with model farmer/demonstrators as well as farmers for experimentation on cropping systems. The second phase of the project (years five to ten) is a food crop production program.

The FED activities project that there will be a slight increase in land planted in food crops within the perimeters and some redistribution among food crops area by the end of the decade.

(4) Marketing. The GRB is building a flour mill at Muramvya on the main east-west highway to Bujumbura, and intends to mill wheat and maize from the project, and then market it in Burundi. The flour mill company, MINOTEBU, will take care of the handling, transportation and storage of wheat and maize between the farm sites and the flour mill. The ground breaking ceremony for the mill was held in late July 1979.

The domestic wheat produced in the perimeters would replace much of the wheat currently imported into the country. The GRB estimates that the mill will use all 9,400 MT of wheat and 4,000 MT of maize in excess of the participants subsistence requirements. In light of the current caloric and nutritional levels, we anticipate that on farm consumption of wheat and maize may well increase more than anticipated in the Ministry of Agriculture (MINAGRI) estimates.

2. Project Purpose

The purpose of the basic food crops project is to help the GRB:

> Make available to small farmers in the high altitude food production program area improved varieties of seeds/plant materials for basic food crops as well as improved cultivation techniques.

This six year project for seed multiplication is the first phase of what is intended will probably be a long term AID involvement in food crop production in the Zaire/Nile crest ecological zone.

The conditions that indicate that the project's purpose have been achieved include:

-- Establishment of a fully operational 300 ha seed farm;

-- Farm operated by trained Burundian MINAGRI personnel, without resident expatriate technical advisors;

-- Production of improved seed for distribution, reserves and seed at levels of 87 tons of maize, 258 tons of wheat, 17 tons of beans, 74 tons of peas, 239 tons of Irish Potatoes, and plant materials for 180 ha of sweet potatoes.

The assumptions made for achieving the project purpose are:

-- That AID funding will become available at the times that it is needed;

-- That the GRB will support the project as agreed, with land, counterparts, funding and infrastructure;

-- That ISABU will continue to provide an adequate research base for seed multiplication; and

-- That the FED extension program is effective.

The AID financed seed farm will produce, dry, process, test for purity and germination, and store both basic and extension seed. It will use a simple and time tested seed multiplication system described in section II/C. ISABU will supply foundation seed, which will then be planted on the seed farm to produce pure seed. In turn this will be used to produce seed which will be delivered to the extension component of the high altitude food production program for distribution to farmers. The project emphasizes the production of "reasonably good quality" seed rather than seed of "certified" quality (see Sections II/C and D and annex G for additional information on farm operations).

The climate and rainfall patterns at the seed farm site near Kajondi permit production of two crops a year. Although it is south and east of tea perimeters, it has a similar altitude (1,950 meters) substantial rainfall, is suitable for mechanization, and is reasonably fertile offer use of appropriate agronomic practices. The area has a light population, but sufficient to meet the casual labor needs live nearby and would be glad to earn some cash income by supplying casual labor.

The crops selected for multiplication are those which are commonly grown and accepted along the Zaire/Nile crest. They also have a relatively high nutritional value. Maize and wheat will be multiplied first, because suitable varieties of those two crops are available. Maize and wheat, eaten in the form of gruel, are the major cereals in the diet of high altitude zones. Although maize and wheat can be grown in both seasons, wheat does better in the second season. Peas, beans, potatoes, sweet potatoes will go into multiplication in year three of the project. Triticale (wheat x rye) may be added pending the outcome of further tests. In addition, we think that project implementation will proceed more smoothly if only a couple of crops are grown at first and others are added at a later date.

3. Beneficiaries

a. Primary

The primary beneficiaries of the seed multiplication program will be the 20,000 rural families that participate in the high altitude food crops program. In analyzing the benefits, it must be remembered that the objective of the High Altitude Food Crop Program is the increased production of all food crops, not just maize and wheat. Much of the wheat, most irish potatoes and some maize will be sold, thus increasing cash

income substantially. The remaining cereals and most of the sweet potatoes, peas and beans will be consumed by the producing household.

The estimated farm production budget for an average sized farm with a total of 1.03 ha. grown in both cropping seasons is FBu 8,492 ($94.82) for input expenditures. These calculations use high input costs for fertilizer and agricultural chemicals, and we estimate that the average participating farmer will not use many purchased inputs. He/she will rely on crop rotation, composting, green and animal manure as alternatives, which should lower input costs. Using the higher yield figures for wheat, the net revenue to the average farm would be FBu 25,450 ($284.20) or a return to labor of 96 FBu/day. With the lower wheat yield figure, net revenue will be FBu 21,694 ($242.26), or a return to labor of FBu82/day. These figures are well above the legal daily minimum wage of FBu 50/day.

In terms of net increase in food production per participating household, higher yielding wheat would amount to 37.6 percent of the total, while the lower yields would permit wheat to account for 28.1 percent of the total increase in production. Total production per household would increase from 776 kgs/household (158 kg. person) to 1,613 (329 kg/person) for lower wheat estimates, and 1,740 kg (355 kg/person).

b. Secondary

The secondary beneficiaries include three categories:

(1) The neighbours of participating families in the FED project area may purchase or be given seeds or cuttings of improved varieties, or pick up on improved techniques. The population of the tea perimeter was about 29,000 families (131,000 people) in 1977. We think that the population will increase to about 162,000 people, or about 35,700 families. At least half of the 15,700 families not directly involved in the project will probably pick up some of the benefits in improved seed cuttings, techniques and general food availabilities.

(2) We anticipate that a number of farmers living near the high altitude food program zones, but in the same ecological conditions may use improved seeds obtained through barter or purchase from farmers in the project area. In most countries, the "farmer-to-farmer" spread of improved varieties and/or agronomic practices gains more converts than the extension agent himself can actually reach. The two most likely areas for the spread of Maize and wheat are the Kisosi region just to the east of the program area (where the Belgians are providing some limited assistance to food crop and tea programs) and the area south and west of Tora. These already is a small "commune seed multi-

plication" activity under the Ministry of Agriculture and the local governments (Seed produced only on 1.5 ha. of land). We expect that improved maize varieties, which should do well at altitudes down to 1,500 meters, will spread particularly fast outside the program zones.

(3) The country itself will benefit. The country's food import bill will be reduced to the extent that domestic wheat and maize are substituted. In 1978, the wheat equivalent imported into the Republic of Burundi was 12,878 MT, valued at more than $3,950,000. The value of wheat attributable to the program upon completion will be $2,511,000 per year. Local cost of flour per kilogram has increased from 11 FBu to 37 FBu between 1970 and 1977

c. Women

Women grow most food crops in Burundi, including in the project area. The traditional roles of Burundian women are subordinate to men. In present day practice, however, women are permitted a fair amount of initiative regarding food crop production. This is particularly true of a widow with minor children, who can control her late husband's property. Until she remarries, the widow acts as trustee for minor children.

Within the High Altitude Food Crop project areas about 55 percent of the 15 to 59 year olds are women. One third of all homesteads (rugo) have women as permanent or temporary head of households. Even if adult men are resident in the Rugo, they are rarely involved in food crop production. Women work much longer hours in the fields and appear to take initiative for seed selection and cultivation methods. In most cases, women will benefit more from the improved seeds and cultivation techniques since they will be able to produce more units of food on the same land with less labor input per unit of food produced. Total labor requirements per hectare for high yielding varieties may well increase, but the return to labor from foodcrop production should increase much more. In addition, there will be increased food for the entire family. Since women do not usual own or benefit from cultivation of the traditional cash crops, the sale of food crops excess to the family's subsistence needs will provide some cash income to households headed by women.

The extension services are overwhelmingly staffed by men, which poses a problem of transmission of extension information. A well brought up Burundi woman will not speak in a meeting when men are present. It is not particularly socially acceptable for an unrelated male extension

agent to teach cultivation practices to an unchaparoned woman. In addition a male farmer may not always be interested in conveying accurately to a woman information which he thinks concerns women's affairs. Extension personnel must also be able to work with female heads of household.

The AID financed portion of the program does not include extension, but we are very concerned about the need to reach women food crop farmers in order to ensure a successful food production program. Since the FED program finances a socio-economist for two years in the pre-extension phase of the program to gather information about a complex sitation, AID has, an will continue to, urge the FED to conduct its study on detailed extension aspects of the project and recommend extension activities and approaches specifically designed to reach women food crop farmers.

Possible approaches include a serious effort to recruit some women at various levels of the extension service. Forty women are now enrolled at ITAB (the four year post secondary technical training institute for agriculture); but almost none are trained as field extension assistants. Some should be hired for the program and posted so that two or more female extension assistants, or a husband and wife team, work together. Particular emphasis should be placed on recruiting women trainers from among primary school graduates, perhaps having two of them work a territory together or be paired with men. They would recruit other women as model farmers. Despite the fact that women usually will not speak at mixed gatherings, we suggest that all male model farmers in the FED program and their wives attend extension meetings and short training sessions. It may be feasible to have large meetings for women only.

The Ministry of Social Affairs and Labor has 58 social centers (foyers sociaux) throughout Burundi and 152 planned under the Five Year Plan. These centers currently teach women nutrition, health and sanitation, but only eight percent of the curriculum is addressed to agriculture. These centers could be used more intensively for food crop extension work in the project areas.

B. OUTPUTS AND INPUTS

1. Outputs

a. "Physical facilities for a 300 ha seed farm."
We have decided that logistic backstopping, transportation and staff availabilities necessitate a single farm of roughly 300 ha. While arguments can be made for dispersed seed production centers (because of drought risk, disease problems and use of different locations as demonstration centers), it will be much easier to operate a single farm. It

also permits some economies of scale for certain types of equipment.

The only site that meets the minimum requirements for the availability of suitable land is Kajondi, about 140 km south-east of Bujumbura. It is roughly 3 1/2 to 4 hours by road from the capital at present, but many of the roads are currently undergoing paving/upgrading. It is also connected, by a major road, to the tea/foodcrops program perimeters (see annex N for further descriptions).

The farm will be mechanized for land preparation, seeding, application of fertilizers/pesticides, some cultivation and some aspects of seed production. Basic mechanization will be provided for seed threshing or shelling/drying and processing/packaging.

b. "Seed farm operated by trained GRB personnel." Table I provides a schedule for American and local staff, including time spent in participant training outside of Burundi. By project completion, the seed farm director will have acquired specialized training in seed production. Two Burundian agronomic technicians, an Administrative Assistant, and a Chief Mechanic will work underneath the Director. One of the Burundi agronomic technicians (Cereals) will receive the equivalent of a B.Sc. The Seed Assistant will have had two years of specialized training after secondary school. The technicians and assistants will be aided by moniteurs (practical post primary training), machinery operators, drivers and laborers.

Assumptions made in achieving this output include the availability of a sufficient number of Burundians with basic training who can receive specialized training in various aspects of seed production, agronomy, equipment maintenance and administration. We believe that the project will not have difficulty in finding trainable people. Only one position requires the equivalent of a B.Sc. agronomy. The incumbents of the Cereals, and Legumes/Root Crops positions should have completed their training as agricultural technicians at the Technical Agricultural Institute of Burundi. It has 200 students at present in its four year technical program and it will expand to 250 in the near future. Much of ITAB's program is in livestock and cash crop oriented, so the technicians will need intensive specialized short term training in food crop production under this project.

The levels of training for staff proposed herein are consistent with the general staffing pattern levels in other Ministry of Agriculture field stations.

c. "Quantities of seed produced"

At the end of the project it is expected that the seed farm will produce annually the following quantities "extension seed".

Maize	87 MT
Wheat	258 MT
Peas	74.4 MT
Beans	16.8 MT
Irish Potatoes	239.3 MT
Sweet Potatoes	216.0 MT

d. "Production techniques developed"

By the end of the project the technicians will have developed seed production and cultural methods for the soil and agronomic conditions which permit reaching the yield targets of the seed farm with acceptable cash limits. Methods for the seed farm will include crop rotation, green manuring, and cultivation techniques applicable to each crop.

We envisage that eventually the seed farm will not be able to meet the country's requirements for seed suitable for areas over 1,700 meters, although it can produce sufficient seed for the limited high altitude food production program. Since Basic Food Crops is the first project in what we expect to become a continuing involvement in food production programs, a study for phase II activities will be built into this project. Ideally, seed multiplication should be done on a localized basis preferably on small plots by farmers themselves. Given the very small size of farms and shortages of trained manpower for supervision, careful analysis will be required before launching a pilot program. Therefore, we have added a three month consultancy of an extension agronomist in the fourth year of the project to prepare a feasibility study for a pilot activity of decentralized, preferably small farmer, seed multiplication. The study must be completed prior to the in-depth evaluation scheduled for October 1983, and the evaluation team will recommend a course of action. We have included eight months of an extension agronomists time in the last two years of the project to oversee Agronomy Directorate implementation of the program.

In addition, the agronomy staff of the farm will conduct production trials on varieties, yields, succession interplanted cropping patterns, planting times, land preparation and cultivation techniques using tools and other inputs commonly available to small farmers. The end result should be recommendation for "packages" for each crop variety used in the High Altitude Food Production Program. The technicians and advisors must coordinate their work with ISABU's researchers and with the FED extension staff, who will conduct substantial applied research working with model farms and farmers/demonstrators in the tea perimeters themselves.

e. Assumptions

In order to achieve the output targets, we assume that:

-- Qualified contract staff are obtained.
-- GRB personnel are available for training.
-- GRB personnel are willing to stay with the Seed Farm for several years.
-- Consultants are available on a timely basis.
-- GRB provides a suitable site.
-- No disasterous climatic conditions or pest outbreaks will occur.

2. Inputs

a. U.S. Government

(1) US Technicians. AID will finance 11 work years of long term contract technicians (see Annex J for job descriptions).

(a) Project Manager/Agronomist (FSR-03 level): (Five years). The incumbent, who will reside at the seed farm, will provide guidance and technical expertise for production and processing of extension seed, as well as agronomic expertise. He/she will develop a system, working with the FED, ISABU and GRB for coordinated seed production and distribution, provide liaison with ISABU in applied research in high altitude food crop production by smallholders, collaborate with FED on seed distribution/extension programs; and coordinate with the GRB participant training and on the job training for Burundian staff members. Once the seed farm is operational, the Project Manager will also assist the FED, where appropriate and requested, with extension and agronomic activities. He/she will serve as chief of party for the contract team must have a background and training in agronomy as well as the experience necessary to set up and operate the seed farm. He/she must have a tested French capability at the S-3/R-3 at minimum.

(b) Engineer/Machinery Advisor (FSR-04): (Four years). The incumbent will help develop the seed farm and will train Burundi staff to operate and repair all farm and seed processing equipment. The large quantity of mechanized equipment demands that a full time technical advisor be provided on the farm for four years during which time the seed farm will have gone through at least two cycles of the seed multiplication process. He/she will reside at the seed farm. S-3 French is required.

(c) Administrative/Logistics Officer (FSR-05 level): (two years). The incumbent will expedite the ordering of locally purchased materials, customs clearance of imported commodities and machinery. He/she will handle all administrative and logistical matters associated

TABLE I - A.I.D. FINANCED ADVISORS, GRB STAFF AND TRAINING REQUIREMENTS

---AID financed
_____GRB on board

xxx GRB - training

Staff Positions	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986
Project Manager/Agronomist (A.I.D.)	- - - - -	- - - - - - -	- - - - - - -	- - - - - - -	- - - - - - -	- - - - -	
Station Director (ITAB graduate Miss State Short Course		xxxxx					
Cereals Technician (4 years post secondary, -upgrading to B.Sc.		xxxx	xxxxxxxxxxxxx	xxxxxxxxxxxx			
Root Crops/Legume Technician (4 years post secondary & third country training)		xxxx					
Seed Assistant (2 years post secondary and Mississippi State short course)		xxxxxx	xxxxxx				
Cereals Monitor (post primary and practical)				x			
Root Crops Monitor (post primary and practical			x				
Legume Crops Monitor (post primary and practical)				x			
Administrative Assistant (post secondary)							
Bookkeeper/Typist (post primary)							
Agricultural Engineer/Machinery Advisor A.I.D.	- - - - -	- - - - - - -	- - - - - - -	- - - - - - -	- - - - - -		
Chief Mechanic (short course)		xxxx					

	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	FY 1986
Assistant Mechanic							
Logistic/Administrative Officer	- - -	- - - - - - -	- - - -				
TDY-Consultants - outside major contract (7 workmonths)							
TDY - Construction Supervisor/ Engineer 4 months	- - -						
TDY - Seed Plant Operations Manager 3 months	- - -						
Soils Tests processing (PD&S)	- -						
Evaluations (8 workmonths)							
Agricultural Economist (1 work month x 3)			-		-		-
Agronomist (1 workmonth x 3)			-		-		-
Sociologist (1 workmonth x 2)					-		-
TDY within contract (27 workmonths)							
Aluminum toxicity (1 workmonth x 2)	-		-				
Seed Processing (1 workmonth)		-					
Intermediate technology (1 workmonth)			-				
Phase II extension multiplication initial examination and preparation of pilot program (3 workmonths)				- -			
Supervision of pilot program (4 workmonths x 2)					- - -	- - - -	
Miscellaneous consultancies (including phytopathology, etc.) (1 workmonth x 12)	- -	- -	- -	- -	- -	- -	

with the AID financed seed farm personnel; help facilitate planning and implementation of construction; and also provide assistance to participant training. He/she will reside in Bujumbura and have S-3 French. (See Section II/D on administrative feasibility).

(d) Consultants. The project includes 27 workmonths of consultant services within the prime contract and 15 workmonths (for evaluation and accelerated project start-up). These consultancies are included in Table I above. See annex J for specifics.

b. Participant training ($106,600)

(1) Long term U.S. One two and a half year academic program to upgrade the senior technician to B.Sc./Ingenieur Agronôme standards ($40,000).

(2) Short term U.S. non-degree training. One eight month seed production course at Mississippi State or equivalent for seed technician ($13,000), and one five month course ($10,000).

(3) Third country short term. In accordance with handbook 10, Chapter 7, training will be at facilities to which AID has contributed and regularly has participants attending, and/or has an AID mission to handle program implementation.

2 wheat/maize production courses at CIMMYT (Mexico) or equivalent (five months each) ($16,000)

1 root crop/legume crop production course at IITA (five months ($7,000)

3 short seed production courses in Francophone Africa such as those run by USAID/Cameroon (one month each) ($10,500)

1 short farm-machinery maintenance course in Francophone Africa (2 months) ($4,500), such as the AID financed heavy equipment training center

(4) Observation/training tours

2 Kenya (two months total) ($3,600)

c. Commodities

(1)	Vehicles 2 - 5 ton trucks, one low boy trailer 2 pickup trucks, 6 station wagons, spare parts, shipping etc. Vehicles include replacements purchased in FY 1983. Details are in Annex F Source/origin waiver requested in Annex I.	$220,500
(2)	Farm equipment - 6 sets involving tractors, plows, cultivators, plus fertilizer applicators, corn shellers, grain treshers, trailers, POL storage tanks, two wheel tractors, generators, etc. miscellaneous farm and shop equipment, spares and shipping. Details are in Annex F, proprietary procurement waiver request in Annex I	$613,174
(3)	Seed Processing Plant Equipment and Seed Laboratory Equipment. Please see Annex F	$155,830
(4)	Three sets Household Appliances and Furniture	$ 68,800
		$1,058,324

d. Construction

Under the project, AID will finance construction of three type A houses, five type B houses, a type C dormitory, one office building, a seed storage building, a fertilizer/pesticide storage building, a workshop equipment shed, and appropriate site works, water and electrical systems. The U.S. contribution is estimated at $654,500 excluding contingency and inflation factors.

e. Other Costs

AID will pay POL for the first two and a half years of farm operation ($151,000), fertilizers for the first three and a half years ($245,900), and plant protection materials for the first three and . half years ($90,800). Office supplies will be financed by AID during the first three years ($4,900). Vehicles and farm equipment maintenance will be

financed by AID for the life of the project ($80,000) (spare parts are included under commodities). AID will pay the rent on the Bujumbura residence of the administrator ($19,200) as well as maintenance and repairs on all three houses occupied by AID technicians ($33,000). In addition, AID will pay for miscellaneous materials and costs associated with applied research on varieties, cropping systems and agronomic practices during the first three years of the project, as well as buckwheat seed in the first year of the project.

2. Government of the Republic of Burundi

The GRB will finance the salaries of host country personnel provided for the seed multiplication farm ($650,400 before inflation). The senior personnel are shown on Table 1.

The GRB will provide office supplies and seed from the first year of project operations. In FY 1982, the GRB will pay half the POL costs of farm operations, picking up on the full amount by FY 1983. In 1983, the GRB will supply half the farm's fertilizer and agricultural chemicals. By the next year they will finance the full amount. The GRB will provide all maintenance to the farm buildings ($650,400 before inflation).

The GRB will provide 300 hectares of suitable land for the farm. They will provide funds for resettlement costs-if any (the project site's population density is very low). They will provide for land clearing, (if necessary). They will finance office furniture/equipment, drawings, final bid documents and consulting services for overseeing construction ($862,200) prior to inflation.

C. OTHER DONORS

1. European Development Fund (FED) High Altitude Food Production Program

The objectives of the ten year FED High Altitude Food Production Program in the tea growing areas of the Zaire/Nile Crest include:

-- Additional food production and better nutritional balance for the farm family;

-- Supplying part of the wheat and maize requirements of the flour mill (and ending wheat imports);

-- Increasing small farmer income.

The food crop program grew out of a tea production project, to which FED provided staff, extension assistance and infrastructure development to improve tea production and farm methods as well as marketing. The FED intends to take advantage of both infrastructure and personnel

resources developed under the tea project in implementing the food production program. The GRB submitted the proposal to the FED's headquarters in Brussels last year and the GRB is currently preparing answers to a series of questions asked by the FED. Once the GRB responds to the questions, the project proposal will go before the FED's Board of Directors for approval. The project's financing has already been earmarked within the current fourth fund. Since the seed multiplication activity is an integral component of the overall High Altitude Food Production Program, the FED will not sign their implementation documents until after AID has obligated the funds for seed multiplication. The FED project has two phases. Infrastructure and material necessary for an intensive food crops production effort will be put into place during the four years of Phase I. It includes contact with and training of farmers, erosion reducing and soil fertilization programs, and some increase in production. The FED intends to provide FBu 501,888,000 ($5.60 million) for Phase I. The second phase of the project lasts six years and will be a food crops production program for maize, wheat, peas, beans, sweet and irish potatoes. Inputs for this phase will be determined later.

The FED will finance a project director (ten years), two regional directors for two areas covering the project's four zones (five years each), a socio-economist to establish an extension plan based on detailed socio-economic information from small farm families (in years one and eight of the project) and a marketing expert who will assist in the delivery of agricultural inputs as well as marketing crops (years four to ten). Government personnel will counterparts for the project director and two regional directors, eight agronomic assistants (two per zone and 20 extension agents (five per zone). They will also use between 100 and 180 local extension assistants who will work directly with up to 1,000 farmer/demonstrators.

In each of the four tea perimeters, FED will provide basic infrastructure including an office building, eight storage units for seed and tubers, 84 sheds for farm inputs, housing and road paving within the central compound. The FED will also provide one workshop, a radio broadcasting/receiving station and additional storage space for 2,000 tons of wheat and maize at the Mill. Vehicular support will include five station wagons, for technical assistance staff and counterparts, four small trucks and four five ton trucks for extension and marketing respectively and eight motorcycles and 20 bicycles for agronomic assistants and extension agents respectively. The FED will also finance some equipment and building materials to small farmers for manuring, composting, and drying of produce. A particularly strong emphasis will be placed on using manure and composting to reduce fertilizer requirements for small farmers.

2. Belgian Assistance

The most important Belgian project affecting the Basic Food Crops project is technical assistance to ISABU for agricultural research, since ISABU conducts applied agricultural research and supplies the breeder's seed used in the project. Belgium provides $1.8 million over four years for technical assistance to ISABU. An ISABU research station is located at Luvironza, within 30 minutes of the seed farm site. (Please see Section I/A/1/b and II/C for more information).

3. Other programs which have an indirect impact are discussed in Annex L.

II. PROJECT SPECIFIC ANALYSES

A. ECONOMIC ANALYSIS

1. Current Status of Food Production

Burundi, one of the poorest of the developing countries, has an economy based almost entirely on agriculture. Food production accounts for about 50 percent of GDP. As illustrated in annex H Exhibit 1, the output of major food crops increased less than 10 percent between 1970 and 1977, while the population grew by 17 percent. Thus, per capita food production fell by about 7 percent. An estimated 5 to 7 percent of total food production (apart from home brewed beer) enters the market. Most of the marketed food goes to urban areas in the form of vegetables and cereals. Where coffee, tea or cotton are not cultivated, food crops also provide a source of income. Please see section II C (Technical Analysis for information on cropping patterns and potential and actual yields).

In addition to augmenting domestic food production, the project will provide a basis for decreasing imports of cereals. In 1978, cereal imports stood as shown in Exhibit 2. Wheat imports since 1970 are set forth in Exhibit 3. Although the quantity of flour imported has increased by less than 10 percent, the total cost has nearly quadrupled, and the cost per kilogram has jumped from 11 FBu to 37 FBu between 1970 and 1978. The foreign exchange savings from wheat production is estimated at $372,000 by 1983, and is expected to level off at $2.55 million by 1989 as per Exhibit 8. Approximately 60 percent to 65 percent of total wheat consumption will thus be domestically produced. Maize production is also expected to result in foreign exchange savings. Current maize imports valued at $20,000 would be entirely eliminated by the third year of the project. Transportation costs for both maize and wheat also represent foreign exchange savings.

2. Marketing of Food Crops

Marketing of food crops in Burundi is left to market forces, which function with some efficiency in the Bujumbura and other urban areas. Surplus produce is sold to local traders who either resell locally or arrange for transport to Gitega or Bujumbura. Farmers near urban areas grow more food crops for sale, having nearby and relatively secure markets. Farmers further away face considerable uncertainties in marketing any surplus.

Market forces determine prices to the food producer. The Statistical Division of the Ministry of Planning surveys prices regularly (see Exhibit 4 for representative "farm gate" prices for selected food crops). The prices clearly indicate a major upward trend, with increases ranging from 88 percent for wheat to 173 percent for beans since 1970. The marketing of produce grown in the project area will vary. Most products

will be sold through current marketing machanisms. The flour mill will guarantee a market for maize and wheat. The FED project will provide four trucks to the Mill for the purpose of marketing operations. The mill will collect maize and wheat at established collection points in the project areas during the appropriate seasons. The Mill will offer guaranteed prices of FBu 30 per kg. of wheat and FBu 20 per kg. of maize to the producer. As per Exhibit 2 the guaranteed price for wheat is double the current market rate, while that for maize coincides with the market rate. The price offered for wheat is somewhat above the import price for 1978 (FBu 28 per kilo including milling costs). We expect that imported wheat will be considerably more expensive in 1979, given fuel shortages and transportation disruption.

We anticipate that marketing food crops in the project area will be relatively easy because of the dense road and trail network within the perimeters and the exacting tea collection and marketing requirements.

3. High Altitude Food Production and Small Farm Budget Analysis 1/

There are about 29,000 small farms in the project area with a total of nearly 29,000 hectares in food crops when both growing seasons are combined. Small farms may also have up to half an acre (0.2 ha) under tea production and varying amounts of land for animal pasture.

Production and income from food crops in the four project areas was estimated at FBu 3,000 - 13,000 per household in 1977, of which an estimated 5 percent was marketed. (See Section II/C for a description of yields, crops and area covered).

4. Returns to the Farm Family

Total production of food from the average farm will increase from about 777 kg to 1,740 kg. by the end of the decade long program (see Exhibit 6). Maize production should increase from 172 kg to 384 kg per family. Wheat/triticale, using high yield estimates of 1,400 kg/ha should

1/ The data for this analysis are not based on empirical data collection and analysis, but rather on the best estimates of the consulting firm SOBEMA which prepared the project feasibility study for the government. This report failed to mention tea, for which statistics were obtained from a visit to tea project area. The main cash crop grown in the project area is tea, introduced gradually since 1974 under the auspices of a FED project. Tea is an attractive cash crop because it sustains adverse weather conditions and produces income throughout the year. Since tea bushes take two to three years to come into production, income from tea is only now beginning to become significant. Income from tea should double over the next few years as new plants come into production.

increase from 82 to 445 kg/household, and to 318 kg for low estimates. Even using high yield estimates, wheat accounts for 37.6 percent of the increase in food production. Assuming that triticale and/or sufficiently high yielding wheats/cropping practices are not used and yields drop to 1,000 kg/ha, wheat's share in increased food production drops to 28.1 percent.

Since the total cereals production per household along the crest is only about 52 kg per person at present we anticipate that a sizable percentage of the maize and wheat/triticale will meet subsistence requirements. We estimate that 440 to 490 kg of grain would be consumed per household, or saved as seed, out of a total production of 829 kg/household (for high yields of wheat/triticale). Therefore, the nutritional well being of families participating in the program would increase substantially. It should be noted that the GRB assumes that all wheat production in excess of current production levels will be marketed, as well as some maize production.

Exhibit 5 includes production costs and revenues for each food crop in the program. These costs are based on projections and best estimates rather than on empirical findings. The return to labor per day of work ranges from FBu 73 for maize to FBu 93 for wheat/triticale at high yield (and return to labor at 56 FBu/day for low yields), FBu 98 for peas, FBu 54 for beans, FBu 262 for irish potatoes and FBu 146 for sweet potatoes. These returns compare favorably to an estimated return of FBu 90 for tea, and unskilled labor of FBu 50 per day. Production costs include large quantities of fertilizer. Both FED and AID agree that chemical fertilizer inputs may be excessive in light of logistic and credit constraints. The FED plans to emphasize crop rotation, composting and animal manure as an alternative. Input costs would thus be reduced by 50 percent for most crops and the return to labor may increase, although more labor would be required. While yields will probably decline somewhat, the return to the farmer would probably be higher, depending upon availabilities of compost and manure.

Since the market for maize and wheat will be guaranteed, most farmers would probably concentrate on these two crops and benefit from the others primarily in terms of increased family consumption. Many would also sell their irish potato production. Since all food production should become more efficient as a result of the project, most farm families would be able to expand total production of cash crops such as wheat, maize, and tea. Total acreage cropped in a year would expand from 84.5 to 103.1 ares. Limitations of labor availability at key points is the only possible constraint. Despite the relatively high levels of rural underemployment for much of the year, most farm families can only provide so much labor at peak times and extra workers are not usually available at

peak seasons. Many families have made substantial investments of labor in tea, and most will not reconsider this investment once the plants are in the ground. We anticipate that the problem will be resolved in one of the following ways:

-- More efficient food production will release additional labor which could be devoted to wheat and maize; and

-- Farmers in high altitude zones who do not grow tea will have stronger incentives to produce wheat and maize for sale, particularly when wheat/triticale yields increase.

5. Economic Feasibility

a. Least cost analysis. The project can be justified economically by considering alternatives to the establishment of the Seed Multiplication Farm. The major alternative is direct importation of improved seed for distribution to farmers. Certified breeder seed is considerably more expensive than seed currently provided by ISABU, while certified seed for farmers use is expensive and costly to transport from Nairobi. The estimated value of the extension seed produced by year 3 is FBu 70 million or over $750,000. The cost of importing the seed at current Kenya prices is $963,000, excluding sweet potatoes, for which seed/tubers are not commercially available from Kenya. As set forth in Exhibit 8, Table 2, the present value of the imported seed, excluding sweet potatoes and transportation, would equal the present value of the AID and GRB costs of the Seed Multiplication Farm by the eighth year of the project. In addition to constituting the least cost alternative, the Seed Multiplication Farm will enable Burundi to save considerable foreign exchange (over a $1,000,000 per annum after 1986, at current prices, plus transport). (See Section III/C for technological justification favoring domestic seed multiplication.)

b. Benefit/cost analysis. The benefits of the program will be the increases in small farmer food production which accrue to the national economy. These increases imply better nutrition for Burundi's population and foreign exchange savings for the national economy.

We estimate increases in food production at nearly $1,000,000 in 1983, increasing to about $5 million by 1988. The value of the seed produced at the seed farm also constitutes a benefit of the project.

The program costs include contributions by AID, FED, the GRB and by small farmers, based on actual expenditures or disbursements. We assume inflation is equal for both costs and benefits.

The benefit cost ratio for the project is 1.39 based on a discount factor of 15 percent. The analysis is set forth in Exhibit 9.

B. SOCIAL FEASIBILITY

1. General Characteristics of the Population

Three of the four tea perimeters are located in Burundi's most densely populated provinces (Ngozi, Muramvya and Bujumbura) where the rural population may reach 272 inhabitants per square kilometer. The total population of the four provinces is roughly 1.9 million, or slightly less than half Burundi's population.

The population of the four tea perimeters was estimated at about 29,000 families and 131,000 people in 1977. About 50 percent of the population is between 15 and 59 years of age, and 55 percent of these are women. If one takes 15 to 17 year olds, 58 percent are female, indicating the magnitude of outmigration of young men to Bujumbura and elsewhere to obtain schooling, jobs and income. The distribution between the sexes is most imbalanced in the Mugamba commune of Tora, where 75.4 percent of 15 to 17 year olds are girls.

2. Social Structure

Burundi is one of the few contemporary African States with a single pre-colonial language (Kirundi) within borders which define an indigenous hierarchical society institutionalized in a caste system. At the bottom of the scale were the pygmy twa hunters. Hutus comprise the majority. They are Bantu hoe cultivators who moved in to displace the Twa about five or six centuries ago. In turn, they were subjected to a gradual invasion of Tutsi herdsmen of Nilo-Hamitic stock who established control over the Hutu and the remnants of Twa population. Tutsi dominance was based on control of land and cattle.

Burundi society today can no longer be understood simply as a three part caste system. Over time, the introduction of cash crops helped some rise above the absolute poverty line, while others lost out as population increases, overgrazing and erosion have all contributed towards diminishing the land's carrying capacity. The caste divisions began to crumble, inter-marriages occurred, and blurring occurs as a result of socio-economic forces. Consequently, in contemporary Burundi, proverty and limited social mobility are shared more or less equally beneath the governing groups.

The typical farm family is the basic unit living in a single rugo (homestead), surrounded by a fence and containing places for animals and storage. The rugo shares a colline (hill) with roughly a dozen similar units usually occupied by kinsmen. Burundi's social structure is extremely fragmented, making access to social services difficult and costly. Some observers feel that the strong sense of family identity, and the absence of village structures are serious constraints to social and economic progress.

The inhabitants of the hills have access to few social services. Education and health facilities can only meet the needs of a fraction of the populace. About a quarter of the primary school age children attend school. Pure drinking water programs have just begun. No organized transportation system exists. Although a dense network of roads and trails exists in the tea zones, most farms are two to five miles from a road, and a five mile radius is the practical limit of head loading.

3. The Role of Women in Agriculture

The traditional roles of Burundian women are subordinate to men, and include food crop production as well as care of the children. Men care for livestock, hunt, clear land, prepare charcoal and, more recently, produce cash crops. Men are recruited for agricultural work on government estates, research stations, mission farms and development projects. Seasonal/part time activities exist in road construction, road maintenance and reforestation programs. Male heads of families with insufficient land or without cash crops seek outside work to the greatest extent.

Women have had little political power, few legal rights, and could not inherit cattle or land outright. A woman has no right to independent action outside the colline. Although she may marry her equal or inferior, she may never marry her superior in traditional practice. In practice, however, they have the major influence on food production and a fair amount of freedom to make decisions regarding food. As mentioned above, 55 percent of the 15 to 59 age group in the high altitude food crop project zones are women, and 58 percent of the 15 to 17 year olds are female. Surveys indicate that one third of the household heads in the FED project zones are either permanently or temporarily female. Even in cases where the rugo head is a male, women outnumber men on food crop fields by ratios that vary from 3 men to 10 women (land preparation) to one man for 20 women (weeding). In addition, we think that women, not men, decide what seeds are used for foodcrops and how much of the foodcrop they want to grow.

Consequently it will be women who actually use the seed produced by the project, and who will get a higher return (yield) per unit of labor on the same land by growing the improved varieties and using improved agronomic practices. Because women usually do not have their own cash crop fields, most female heads of households will also increase the household cash income by selling maize and wheat surplus to subsistence needs.

4. Factors Affecting the Spread of Innovation

The experience with introducing new and exacting cash crops leads us to think that farmers will be willing to alter their agronomic practices on food crops if they see that it results in increased total production/food supply (assuming any surplus to family requirements is marketed easily). The FED program relies heavily upon the extension service set up within the project zones, including more than 30 moniteurs (extension assistants) and between 100 and 180 encadreurs (trainers) who work with up to 1000 model farmers out of 20,000 participating families. We expect that the farmer to farmer spread of improved varieties and agronomic practices may be greater than anticipated in the Government's request for the high altitude food crops program. We expect that the rate of adoption, over time, will be as high as in the Western Kenya districts where hybrid maize has become so widespread.

One problem regarding adoption of new food crop varieties and agronomic practices is that the extension service is male and most food producers are female. Burundi women traditionally will not speak up when men are present. Their husbands may not be interested in transmitting information regarding food crops (which are women's business). Although the AID component of the high altitude food production program does not finance extension activities, AAO Burundi has requested that FED's studies for phase II extension activities include ways to reach women food crop farmers. A number of specific approaches are discussed in Section I/A/3.

C. TECHNICAL FEASIBILITY

1. Ecological and agronomic conditions of the tea perimeters and the seed farm

The mountains and ridges of the Zaire/Nile crest form the backbone of Burundi, with food crops being grown between 1,660 and 2,300 meters. The four perimeters of the high altitude food production program are located in this zone. Since coffee cannot be grown above 1,800 meters, tea is the principal cash crop. The extension projects' perimeters are above the 1,800 meter contour. Food crops include maize, wheat, peas, sweet and Irish potatoes. The dry season lasts three months, and annual precipitation reaches 1,400 mm (55.1 inches). The average annual temperature is 17°C (62.6°F) with an average annual minimum temperature of 11°C (51.8°F).

The soils in the project zones are primarily latisols (a humic ferrasols in French classification). A general range of PH 4.5 to 6.0 level is found throughout the cropping area. Soils are generally low in organic content, and aluminium toxicity problems occur throughout the country. The better soils are in the north.

The table below gives average area under food crops per family, total area planted, and current yields.

	ha/rugo	yield kg/ha	Total area planted ha.
Wheat	.12 - .25	410	4,340
Maize	.35 - .49	450	12,030
Peas	.09 - .40	420	7,110
Beans	.02 - .17	300	1,300
Irish potatoes	.01 - .03	4,790	567
Sweet potatoes	.01 - .12	4,580	1,540
Sorghum	.01 - .13		
Millet	.01 - .07		

The seed farm, located near Kajondi is similar in almost all respects to the four districts: altitude 1,950 meters and 40-50 inches rainfall. The soils are covered with natural grasses at present and have a PH 4.5 - 5.2 with a low level of organic matter. The following actions are planned to increase soil fertility:

-- Plant a cover crop for green manure such as buckwheat, sweet potatoes or legumes. Barn yard manure will be used in preparing the soil for seed multiplication. The cover crops add organic matter and prevent erosion;

-- Working under the plant residues after harvest will be practised before planting the next seed or cover crop;

-- Correcting the acidity will be done by applying one to two tons of lime per hectare.

The land is relatively flat and has a grass cover. There is a perennial stream at one edge of the site and a number of springs. The site is suitable for mechanization and is located conveniently near a major road for travel to the four program areas and Bujumbura.

We believe that the development of moderately mechanized seed farm is the appropriate vehicle for seed multiplication in Burundi, considering the stage of development and personnel resources. The decision to multiply seeds within Burundi is based on economic and technical considerations.

2. Research capability and seed availability

a. ISABU (the Agricultural Science Institute of Burundi)

ISABU, the agricultural research organization in Burundi, consists of five departments. The head office is in Bujumbura, where 15 expatriates and 23 Burundian professionals work in soil/plant department, while three foreign and two local experts work in socio-economic and animal production departments. The four main research stations have (four foreign and eight Burundian) are staffed with both Burundian and foreign scientists and the four substations have five Burundian agriculturalists. Most of the expatriates are financed by Belgian technical assistance.

Research on food crops has had a high priority in Burundi for the past five years. Screening nurseries, yield trials and fertilizer response testing has expanded rather rapidly.

As part of the high altitude food program, ISABU is expected to conduct research on:

-- Identifying high yielding varieties which are responsive to the soil and water management practices followed by Burundian farmers.

-- Appropriate cultivation practices, including acceptable lime applications, and anti-erosion techniques.

-- More productive farming systems (rapidly maturing varieties, rotation sequences, interplanting systems, more efficient harvesting/land preparation methods).

-- Examining methods of weed and insect control based on integrated pest management control.

-- Increasing labor efficiency through appropriate tools.

-- Breeding in resistance to common pests and diseases as well as other tolerances.

ISABU will strengthen its linkages with other research and food crop improvement programs such as those of the Plant Breeding CIMMYT Institute in Njoro, Kenya. ISABU will provide technical support to the seed farm on soil and fertilizer problems and cultural production practices.

The collaborative research linkages already established (since 1974) with CIMMYT/East Africa, INTSOY, IITA and IRRI will be further strengthened. It is planned to secure additional wheat cultivars developed through a Mexico X Brazil cross breeding program. Hopefully the aluminum toxicity tolerance characteristics of Brazilian breed wheats will play an important role in the Burundi cross breeding program. Same of the Mexico X Brazil crosses are already being tested by ISABU scientists. Romany is one such variety. ISABU has started an extensive testing program for triticale, which is tolerant of aluminum and extremely acid soils. Eventually triticale may replace some of the wheat.

During the past five years ISABU scientists have tested out more than 170 cultivars of wheat, 79 cultivars of triticale and some 21 different cultivars of maize. This varietal screening program, in addition to yield performance, fertilizer responsiveness and the altitude testing has provided a wealth of knowledge on how foreign breed crosses perform under the local environment. In our opinion there is a well balanced food crop research program underway in the country.

b. Research-Extension Linkages

It should be noted, however, that ISABU has had limited collaboration with the small farm milieu. More research should be done on cropping systems involving successive cropping and interplanting. Until such time as ISABU develops a small farm systems research division which has an extensive farmer field testing program, the FED extension staff will engage in a testing program in cooperation with farmers. This will include verification that varietal selections, fertilizer recommendations, planting dates and cultural practices are appropriate for small farmers. The FED plans to establish a few small traditional farms as models for study and also use about 1000 model farmers for their on-farm demonstration trials and to determine economical packages on farm inputs under specific locations. The extension project will be involved in planning these trials and utilizing their extension agents to introduce and demonstrate the new seeds and recommended farm practices to the participating farmers.

Research is also needed on determining economical lime application and treatments for the farmers. Trials should include lime only as well as lime mixed with fertilizer and applied with or near the seed at very low rates of application. Although both logistics and economics make chemical fertilizer usage on food crops costly, developing economical treatments should make the investment practical in the future. Trials should be carried out using the proper nature of fertilizer (e.g. phosphate or ammonium phosphate), low treatment levels or application methods which separate the fertilizer from the seed (to avoid damage). The effectiveness and safety of any method must be assured through on-farm trials prior to recommendation.

The GRB Department of Agronomy has already in place some 25 seed multiplication centers located throughout the country. These centers are generally 1.5 hectare in size. The seed distribution through the centers is the responsibility of the extension service. While the seed distribution efforts are relatively new, we believe experience gained at the centers will be helpful as the Kajondi seed farm begins to come into operation.

c. System for Varietal Releases

The GRB does not have a formalized procedure for varietal releases. In practice, representatives of MINAGRI's General Directorate of Planning, the Secretary of State for agricultural production, the Department of Agronomy and ISABU meet to discuss and approve new varieties. Representation of other parties and programs involved in seed improvement is always welcome.

d. ISABU's Seed Supply

In the 1977/78 cropping season, ISABU's three high altitude experimental stations produced the following quantities of seed:

Romany wheat	236 kg.	Peas	1,000 kg.
Kisosi maize (for high altitude)	3,664 kg.	Potatoes (tubers)	16,000 kg.
Beans	299 kg.	Sweet potatoes (transplants)	200 kg.

As the quantity indicates, ISABU has the ability to produce the required amounts of foundation seed. As an example ISABU has about 300 kilos of Romany wheat seed available for planting in the 1980 crop year. ISABU's seed production and distribution program will not duplicate that of the Basic Food Crops project because the Kajondi seed farm's production will be distributed in four program areas while ISABU's will go into country rural food crop areas.

3. Choice of Crops and Varieties for the Program

The first few years of the project concentrates on maize and wheat, partially because ISABU has researched these crops at high altitude stations, and suitable varieties are available or soon will be released. ISABU also participates in the East African maize and wheat trial programs and can benefit from the work done by East African Research Organization, CIMMYT, IITA, INTSOY, IRRI.

a. High Altitude Maize

There are several promising maize varieties. The currently recommended one is Kisozi, a locally developed long season (200 days) variety dating from the 1940's. It was the high altitude "marker" variety in the 1978 trials producing an average of 3,092 kg/ha without fertilizer. It yielded an average of 3,802 kg/ha in country wide averages when fertilized.

The best performer in 1978 was an EAFRO (Kenya) variety, KCA (E7) C10, a late white maize that obtained average yields of 4,292 kg/ha without fertilizer and 5,917 kg/ha with fertilizer. Although further testing is needed before release, ISABU thinks it is so promising that 80 farmers will grow it next year in acceptability trials.

Another Kenya variety, HA Comp, did nearly as well (averaging 4,093 kg/ha without fertilizer). Both varieties may be released within two years.

b. Wheat

The current standard variety of soft wheat was 10.180-54-29 but two Romany varieties (Mexico via Kenya and Rwanda) yield 60 per cent more with fertilizer, show tolerance to aluminum toxicity, adapt well to poor soils and appear to be resistant to rust diseases (*Puccinia spp.*) It is a tall wheat. The two Romany 1977 types have yielded between 1,500 to 2,500 kg/ha in the tests. Kyoka wheat appears to do as well as Romany, but is less disease resistant.

Since wheat does not produce yields in acidic soils containing aluminium, ISABU has been conducting research on triticales (wheat X rye). They thrive on acidic soils and several varieties do better than Romany, giving up to twice the yield under the same conditions. Many varieties are attacked by rust, and further screening tests are necessary. To date the T-74 line is best. We do not expect any triticale multiplication before the third year of the project.

c. Peas

The standard improved variety of pea currently disseminated is called Kyondo. There are some other varieties which do slightly better. Yields can rise to 800 kg/ha without fertilizer and 1,200-1,300 kg/ha with fertilizer. The 1978 trials were conducted throughout the country. We do not expect to start multiplication of peas until the third year of the project, because more testing of suitable varieties is needed.

d. Beans

ISABU has conducted research on beans, in collaboration with CIAT tests which were conducted on research farms at various altitudes. More testing at high altitude is required to select the most suitable varieties for multiplication.

e. Potato

White potatoes are grown primarily as a cash crop at high altitudes. The standard Arka variety of Dutch origin is quite disease susceptible, and in the 1978 research report ISABU recommended distribution of Condea and Sangema varieties, which are more disease resistant. The imported varieties yield at least 9,000 kg/ha without fertilizer and a minimum of 13,000 kg/ha with fertilizer.

Potatoes will be multiplied during the third year.

f. Sweet potatoes

The standard locally used high yielding sweet potato variety is Carolina Lee, which can yield over 38 tons/ha. the IITA varieties will be tested in future years.

Much more work is needed on clones suitable for high altitudes. We do not intend to include sweet potatoes in the multiplication program until the third year.

4. Farmer's Yield Increases

A. Yields to the Farmer

Present yields of food crops in the project area are quite low. Given this low yield base, it should be relatively easy to double the yields of participating farmers with the improved seed, fertilizer

animal manures and cultural practices by the end of the high altitude food crop program .

	Current yield Project area kg/ha	Participating farmers post project estimate kg/ha	Seed Farm estimate kg/ha
Maize	450	1,100	2,200
Wheat/Triticale	410	1,400*	1,900*
Peas	410	842	1,100
Beans	300	600	1,000
Irish Potatoes	4,750	9,572	13,000
Sweet Potatoes	4,583	9,166	13,000

5. Seed Farm Operations

Foundation seed from ISABU will be multiplied at the seed farm. Seed produced at the farm will be disseminated through a sales and distribution system operated by the extension service. The FED will organize train and support an extension program responsible for the introduction of new seed.

A. Planting Times

(1) Maize will be planted at the beginning of the first rainy season (October) and harvested six or seven months later (April-May). Early maturing varieties would permit double cropping with wheat.

(2) Wheat would be planted in February and March and harvested in June to August.

(3) Peas grow best during the second season, but they can be multiplied in either. They can follow maize and wheat in the rotation.

(4) Beans can be multiplied in the first season and may, as a legume, follow wheat in the rotation.

(5) Sweet potatoes will be grown in the first season for obtaining cuttings for distribution, and also in both seasons as a cover crop.

(6) Potato can be multiplied in either season.

(7) Land not under wheat or maize cultivation will be planted with a cover crop (buckwheat and sweet potato to add organic material and nitrogen as well as retard leaching). Wheat and maize will be rotated whenever possible.

* The high average yield figures given here for the end of the project a decade hence are dependent upon a sizable portion of the wheat acreage being planted in triticale instead.

B. Land Preparation, Planting and Fertilizer

Wheat and maize land will be plowed and disc harrowed.

The wheat and maize will be planted with mechanical planters equipped with fertilizer applicators. One half of the fertilizer will be broadcast with the fertilizer spreader after plowing and before disking, and the other half will be applied at the time of seeding. The lime/fertilizing mixture for wheat will be applied in the seeding furrow at a suggested treatment of mono-amonium phosphate (1-2: 1 ratio) and 2000 kg of finely crushed lime ($CaCO_3$).

Peas will be planted at a rate of 50 kg/ha, beans at 60 kg/ha, potatoes at 1,500 kg/ha, and sweet potatoes at 1,000 kg of cuttings/ha.

C. Cultivation and harvest

Maize cultivation will be by a tractor mounted cultivator. Wheat will be swathed, loaded on trailers by hand and fed into a thresher. The bagged grain will then be transported by trailer to the seed processing plant. Maize will be hand shucked and shelled for processing.

Immediately after harvesting, the crop residues will be worked back into the soil, and finally seeded with one of the other crops or a cover crop. Wheat and maize will be rotated.

6. Further Information

Please see annex G for data on:

-- Breeder seed supplied by ISABU;
-- Farm land in Project Areas that can be planted with extension seed;
-- Farmer and ISABU cultivation practices;
-- Agricultural chemicals suggested by ISABU; and
-- Production schedule for seed multiplication farm.

D. ADMINISTRATIVE FEASIBILITY

1. Government of the Republic of Burundi

a. Ministry of Agriculture and Livestock (MINAGRI)

The Seed Multiplication Farm and the High Altitude Food Crops Production Program are administered by the Directorate of Agronomy. The Directorate handles agricultural extension for crops although regional and commodity development programs may have their own extension organizations. The Director reports to the Minister of Agriculture and Livestock through the Director General for Agriculture. The Director of Agronomy intends to appoint a senior officer as coordinator of the High Altitude Food Production Program soon after AID and FED approve their financing. He will coordinate the extension and multiplication wings of the program, as well as work with ISABU.

ISABU, the research organization, reports to the Ministry of Agriculture and to high level Departments within the Ministry of Rural Development related to agricultural activities. Since the new Minister of Agriculture once headed ISABU, we can expect close coordination between the two Departments. Although special efforts will be needed to ensure that it does in fact occur.

b. Manpower Availability

Although a truly nationwide agricultural extension service does not yet exist for food crops in Burundi and personnel trained in agriculture are scarce, we think that both this project and the extension program will be able to meet staffing requirements. Individuals who graduated from ITAB and other institutions will receive training to sharpen their skills, in most cases at an international agricultural research institute. We have deliberately selected grade levels to correspond with those of ISABU's field stations. This may help retain people working in the countryside.

The GRB must provide the necessary counterpart personnel for staffing and training on a timely basis, thus permitting proper training abroad and on-the-job, for continuing efficient operation after AID contract personnel have left. GRB personnel will also be able to take full advantage of the technician's expertise while machinery is being installed and run in.

c. Seed Farm Management

The GRB counterpart of the AID contract project manager/agronomist will be the director of the seed farm. He will assume full responsibility for operating the seed farm at least two years before the departure of the AID advisor. In his absence, the senior seed technician will be acting Director of the farm. The Director will work constantly on program coordination with ISABU and FED.

The seed farm will have an Administrative Officer as well as appropriate secretarial and bookkeeping staff. The GRB will provide counterparts for other contract and support staff needed to run the seed farm efficiently. (See details on operating funds in the Implementation section III/B/4 regarding accounts).

The farm will have staff for machinery maintenance and repairs. It will possess a substantial workshop, farming operations such as plowing, disking and mowing, will require only a tractor driver, while materials handling will require two or three people plus a driver. The semi- mechanized harvesting will require about four person/days hectare. The GRB will finance permanent and casual laborers to meet all seasonal labor demands of the farm. In the area of the seed farm, the only opportunities for cash employment are work on research farms, cash crop harvesting and road maintenance. We expect that employing laborer will not be difficult despite the areas relatively low population density.

Only one U.S. farm machinery dealer (Ford) operates in Burundi. More than 98 percent of spare parts and components for Ford tractors are manufactured in the U.S., although assembled tractors and spare parts are usually obtained by the Ford dealer in Europe and the United Kingdom. The dealership stocks a good supply of commonly used parts and can obtain others in 15 days by airfreight. Only major repair work will be carried out by the dealer.

The fertilizers, herbicides/fungicides and insecticides which may be necessary for large scale seed multiplication can be purchased from at least three companies in Bujumbura. The agricultural chemicals recommended by ISABU for wheat and maize are given in annex E. The precise chemicals will be decided upon later. Storage tanks for petrol and diesel fuel will be installed at the seed farm because recent severe shortages justify the provision of these tanks. All POL products are refined in Kenya and Tanzania prior to importing.

d. ISABU

The agricultural research institution (see section II/C will provide the breeders' seed for multiplication, as well as conduct applied research on food crop production, varietal trials, and agronomic practices. ISABU already provides breeder seed to other programs, and, with the Belgian technical assistance, is well able to meet its share of administrative demands of the project.

e. The Flour Mill

The new flour mill and the high altitude food production program must coordinate the collection, marketing, and transporting of the maize and wheat. The FED already has collection points for the tea program, and will be providing a marketing advisor beginning in year four. More collection points will be built, as well as vehicles provided for input distribution and commodity collection.

2. U.S. Government

We propose that the project be implemented through a contract with an institution or firm. It would recruit long term advisors and short term consultant. The AID Project Manager/Agronomist will be counterpart of the GRB farm manager. His primary contact point in the Ministry of Agriculture will be the GRB high altitude food crop program coordinator. One of his major tasks will be to take agronomic research results and apply them to planning the work of the seed farm, as well as working with the FED's extension projects testing and model farm program to be certain that he is producing the most effective and productive varieties for the small farmer given the constraints of the extension program. (Five Years). The agricultural mechanic/engineer advisor will serve four years and will be based at the Kajondi farm. His counterpart will be the farm's chief mechanic.

During the first two years of the project, the contract will finance an administrator/logistics officer, who will live in Bujumbura. It will be necessary for the contract team to provide its own logistic support. Neither the Embassy nor the USAID have the necessary logistic/administrative capability to make local purchases and handle the myriad details of importing equipment, customs clearance and arranging transportation of supplies in a country more than a thousand kilometers from the nearest ocean port by road. The administrator's main task will be commodity procurement and logistics, establishment of inventory systems, and all administrative/logistic support for contract team members and short term consultants. He/she will also give some on-the-job training

to the GRB Seed Farm Administrative Officer. The administrator will be supervised by the contract team Project Manager/Agronomist. His main contact point within USAID will be direct hire agricultural officer, although on certain matters he will work with Embassy Administrative, General Services and Consular personnel for clearance of personal effects and visas. His/her chief contact point with MINAGRI will be the senior coordinator for high altitude food production programs. This individual may designate other GRB personnel to work with the administrator. The administrator's counterpart will be the GRB's administrator in Kajondi.

An ISABU research station and the headquarters of the Bututsi project are about 25 minutes by vehicle from the Kajondi site. There is a field suitable for STOL aircraft at the Luvyironza station and a two way radio of the Ministry of Agriculture that connects with the Bujumbura headquarters. Although contract personnel will be allowed to pass messages through this channel, we hope that the GRB will grant permission to install a radio tying into the Ministry of Agriculture net in the Kajondi farm's office.

The seed farm is less than four hours from Bujumbura in the dry season. (See details in the Engineering, IEE and Transportation Annex).

The only possibilities for children's schooling are:

- Correspondence courses (calvert, U of Nebraska)
- French language day schools in Bujumbura
- Boarding schools in Kenya and elsewhere

3. <u>European Development Fund</u>

The FED is in its fourth year of implementing the tea production project which has its own administrative support system. The FED will expand the activities to include food crops. Tea will receive less emphasis as its extension requirements are less demanding once the program is well under way. The FED will be expected to coordinate their activities with the other participating farmers in a mutual effort towards assisting small farmers.

E. ENVIRONMENTAL ANALYSIS

We expect no significant adverse environmental impacts as a result of the Basic Food Crops Project. Agricultural research will be conducted at existing research stations. The seed multiplication farm will be established on pasture land. Services for support of the seed farm personnel either exist already or will be developed as part of the AID project. Pesticide and herbicide use will be restricted to agricultural research stations and the seed farms. Only EPA approved commodities will be used. An amendment to the IEE will be processed once GRB and contractors decide which commodities will be used. They only significant impact of the program are positive: improved nutritional and economic status of the Burundian people.

Please see the IEE attached as part of annex E to this paper.

F. ENGINEERING ANALYSIS

The construction plans for the project are based on building types and contracting procedures normal to Burundi. Construction includes three class A houses, five class B houses, four dormitories, office and lab space as well as workshop and storage space. The design team inspected examples of proposed buildings and they are suitable to the multiplication farm's requirements. The construction schedule allows sufficient time for probable delays. It will not delay any seed farm operations since importation of farm equipment requires long lead times and ISABU equipment can be borrowed for small acreages. A REDSO/EA engineer has determined that the construction plan meets the requirements of the FAA Section 611 (a). (See Annex E)

III. FINANCIAL ANALYSIS, PROJECT IMPLEMENTATION AND EVALUATION

A. FINANCIAL ANALYSIS

1. Summary Project Cost Estimates

Tables 2 through 5 provide data on project expenditures over the six years of project.

Total expenditures on personnel including overhead and profit over the life of the project amount to $ 1,515,000, while training comes to $ 106,600. Capital investment (vehicles, farm equipment, laboratory/ seed processing equipment, furniture, appliances and construction) amount to $ 1,612,900. Other costs ($ 856,200) includes operational travel, POL (2 1/2 years requirements), fertilizers and agricultural chemicals (3 1/2 years requirements), maintenance, rent, and miscellaneous operating costs. We have allowed $ 858,800 for inflation and $ 485,500 for contingencies. The total U.S. contribution for the project is $ 5,458,000.

AID will contribute 69.5 percent of the total project costs and the GRB will contribute 30.5 percent.

GRB expenditures are detailed in Table 4 and summarized in Table 2. The GRB will always contribute wages and salaries as well as land, land clearing (if necessary in the first year), and some consultant services connected with construction. The GRB will also begin to pay half POL costs in FY 1982 and half fertilizer/chemical costs in FY 1983, moving on to full costs in the FY 1983 and FY 1984, respectively.

Table 6 is a projected obligation schedule.

2. Recurrent cost analysis

Table 7 sets forth annual recurrent costs for the Seed Multiplication Farm. The recurrent costs (excluding depreciation) level off during the fourth year of the project at FBu 25,549,000or about $ 285,300. As indicated in the summary cost estimates, by FY 1984 the GRB will finance local staff, all seed, fertilizers and chemicals, as well as petroleum products, and farm building maintenance. Early in the project AID will finance petroleum products, agricultural chemicals and fertilizers. Throughout the project AID will maintain equipment and vehicles (most spare parts are purchased with equipment). As the project progresses, we expect a substantial drop in fertilizer input costs because of the effect of green manuring and crop rotation on soil fertility.

Revenues from the sale of seed will begin in FY 1982 of the project, when seed is first sold to over 5,000 farmers. Revenue will be at the same rate of FBu 24.6 million ($ 274,000) in FY 1984 until FY 1986 when they decline to $ 271,000.

TABLE 2

SUMMARY COST ESTIMATE AND FINANCIAL PLAN

(U.S. $000)

Source	AID $	AID LC	HOST COUNTRY $	HOST COUNTRY LC	TOTAL $	TOTAL LC
Personnel	1,208.7	306.3	-	256.8	1,208.7	563.1
Training	63.0	43.6	-	-	63.0	43.6
Capital Investment	790.2	922.7	-	862.2	790.7	1,784.9
Other Costs	135.0	721.2	-	650.4	135.0	1,371.6
Sub total	2,196.9	1,993.8	-	1,769.4	2,196.9	3,763.2
Inflation	444.7	414.1	-	449.3	444.7	863.4
Contingency	209.9	198.6	-	170.4	209.9	369.0
Total	2,851.5	2,606.5	-	2,389.1	2,851.5	4,995.6
	5,458.0		2,389.1		7,847.1	
	70 %		30 %		100 %	

Table 3

AID Expenditures By Fiscal Year (U.S.$)

	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	Total
Personal							
Long Term Contract Personnel/Salaries and Allowances	79.2	158.4	135.4	112.5	86.7	30.3	602.5
Long Term Contract Personnel: Transportation and Freight	48.2	69.0	36.4	13.6	18.1	11.3	196.6
Consultants	91	42.5	34	63.6	35.9	35.9	302.9
Overhead and Profit	57.7	93.6	85.5	77.3	66.1	32.8	413
Subtotal Personnel	276.1	363.5	291.3	267.0	206.8	110.3	1,515
Participant Training	44.1	44.0	11.5	7.0			106.6
Capital Investment							
Vehicles	113.8		106.7				220.5
Farm Equipment	441.2		172.0				613.2
Laboratory/Seed Processing Equipment	155.8						155.8
Furniture/Appliances	68.9						68.9
Construction	431.9	222.6					654.5
Subtotal Capital	1,211.6	222.6	278.7				1,712.9
Other Costs							
Operational Travel	4.2	8.4	6.6	4.8	3.6	1.2	28.8
Other Operating Expenses, Maintenance, rent, POL, Fertilizer, etc	104.4	274.7	210	116.5	61.6	60.2	827.4
Subtotal Other Costs	108.6	283.1	216.6	121.3	65.2	61.4	856.2
Total Project Components	1,640.4	913.2	798.1	395.3	272.0	171.7	4,190.7
Inflation (12%) 1)	86.4	127.3	199.5	160.1	155.0	130.5	858.8
Contingency	153.5	91.3	79.8	39.5	27.2	17.2	408.5
Grand Total	1,880.3	1,131.8	1,077.4	594.9	454.2	319.4	5,458

1) Inflation is 20 percent on construction

TABLE 4

GOVERNMENT OF BURUNDI EXPENDITURES

(US. $000)

	FY 1980	FY 1981	FY 1982	FY 1983	FY 1984	FY 1985	TOTAL
Operating Costs							
Staff	32.4	42.4	45.5	45.5	45.5	45.5	256.8
Office Supplies	1.3	1.3	2.2	2.2	2.2	2.2	11.6
Agricultural Materials							
Seed	1.1	2.0	2.0	2.0	2.0	2.0	11.2
Fertilizer				35.5	71.1	71.1	177.6
Agricultural Chemicals				18.7	37.4	37.4	93.5
Fuel			35.5	70.1	70.1	70.1	244.8
Maintenance of Buildings		22.3	22.3	22.3	22.3	22.3	116.1
Subtotal	34.9	68.0	107.5	196.1	250.3	250.3	907.2
Capital Costs							
Value of land	670.0						
Resettlement costs	16.8						
Land Clearing, initial preparation 100 ha	94.9						
Office furniture/equipment	15.1						
Drawings, plans (Consultants)	26.7						
Supervision (Construction)	39.3						
Subtotal	862.2						
Total GRB expenditures	897.1	68.0	107.5	196.1	250.3	250.3	1,769.0

Note: Totals may not add due to rounding.

19 July 1979

Table 5

Costs of Outputs

(without inflation or contingency)

($000)

	Output 1	Output 2	Output 3	Output 4	Total
AID					
Personnel	227.2	151.5	1,060.5	75.8	1,515.0
Participant Training	-	106.6	-	-	106.6
Capital Investment	1,712.9	-	-	-	1,712.9
Other Costs	-	-	742.2	114.0	856.2
Subtotal	1,940.1	258.1	1,802.7	189.8	4,190.7
percentage	46.3	6.2	43.0	4.5	
GRB					
Personnel	38.5	12.8	192.6	12.8	256.8
Capital Investment	862.2	-	-	-	862.2
Other Costs	-	-	630.4	20	650.4
Subtotal	900.7	12.8	823	32.8	1,769.4
percentage	50.9	.7	46.5	1.9	

Table 6

Obligation Schedule of A.I.D. Funds

	FY 1980	FY 1981	FY 1982	FY 1983	Total
Personnel	498.7	145.6	450	420.7	1,515
Participant Training	44.1	44	11.5	7	106.7
Capital	1,434.2	-	278.7	-	1,712.9
Other Costs	108.6	336.2	200	211.4	856.2
Subtotal	2,085.6	525.9	940.2	639.1	4,190.7
Inflation	130.9	82.8	359.6	285.5	858.8
Contingency	153.5	91.3	119	44.7	408.5
	2,370	700	1,418.8	969.2	5,458

The seed farm receipts cover almost all costs including local salaries. If salaries (which are paid from the Department of Agronomy) are deducted, the seed farm can make a profit of FBu. 3.1 million.

In an earlier version of the paper, we prepared an analysis of depreciation of vehicles, equipment and other costs. Some costs and rates of replacement have been changed in this paperdue to requests by Project Committee and technicians to increase the number of tractors, and decisions not to replace other equipment quite as rapidly. We think that the depreciation will amount to approximately $ 133,000.00 a year.

Part of depreciation could be covered from the "profit" of more than FBu. 3.1 million after meeting recurrent costs (minus) wages and salaries (see second paragraph III A 3 below for other means of financing replacement of equipment).

Two assumptions are critical to the validity of the recurrent cost analysis. The first is the assumption that inflation will increase at similar rates for both expenditures and revenues. If this assumption is proved incorrect during the final evaluation of the project, then the GRB should reassess the situation and provide additional funds for the operation of the Farm.

A second necessary assumption is that farmers will continue to demand seed from the Farm. Replacement rates for seed have been estimated at three to six years, depending upon the crop (see Technical Analysis). Should farmers decide that their own seed can last longer than three to six years, demand for improved seed could fall. This situation is largely mitigated by two factors: first, with the exception of wheat, all crops propagated on the farm will be suitable for use in medium altitude zones, thus expanding the demand from 29,000 families in the project area to the majority of Burundi's 700,000 farm families. And second, the Seed Farm will keep up with variety developments of new varieties at ISABU, and constantly offer even better seeds to small farmers. It is expected that these factors will bolster the demand for seed from the Seed Farm.

3. Financial Viability of the Seed Farm

The Seed Farm is being established as a service to small farmers to increase food production, which in turn will benefit the GRB through balance of payments savings. Thus the Seed Farm is not expected to operate on a commercial basis, with revenue from sales covering all operating and investment costs. The initial establishment of the Seed Farm is based on a considerable subsidy/grant element from AID, and from GRB in terms of salaries and fuel. However, if the GRB continues to provide salaries and fuel, the revenue from the Seed Farm will cover all additional operating and investment costs, as demonstrated in the recurrent cost analysis above. The GRB will be able to cover its contribution to the Seed Farm from

increased revenue and foreign exchange savings. Thus the Seed Farm and the project are expected to be financially viable once AID grant funds are fully dispersed.

The recurrent costs for the extension component of the project, including salaries for extension agents, vehicles and fuel will be met from the GRB extension budget. The GRB should be able to finance these costs from foreign exchange savings from wheat imports, and/or from a small tax on wheat or bread consumption. The recurrent costs associated with the marketing of wheat and maize will be financed from the operating budget of the Mill, which will purchase these items from collection points throughout the project area.

TABLE 7

RECURRENT COSTS OF SEED FARM

ANNUAL REQUIREMENTS

FY 1984 AND LATER YEARS

(000 FBu)

1. Expenditures

Operating		
Wages and Salaries		4,074
Office Supplies		200
Agricultural Materials		
	Seed	180
	Fertilizer	6,360
	Agricultural chemicals	3,350
Fuel		6,250
Maintenance		
	Buildings	2,000
	Vehicles x	895
	Equipment x	2,239
Subtotal		25,549

2. Revenues

Sale of Extension Seed	19,600
Surplus (20 %)	2,400
Tubers	2,600
Revenues	24,600

3.	Balance (including local staff)	minus	949
4.	Balance if local staff is deducted	plus	3,125

x Vehicle and equipment spare parts purchased in quantity at the same time as vehicles/spare parts.

B. IMPLEMENTATION PLAN

1. Contractor

The project will be implemented under a contract, either with an institution or a firm, which will supply the contract team and the short term consultants. Most Title XII institutions do not have particular expertise and strength in the operational skills and expertise needed to run a seed farm. If the project were an agricultural research or an extension research program, it would be more suitable for implementation by a Title XII institution. Title XII institutions should not, however, be excluded from the bidding on the project.

The contractor will be responsible for long and short term technical assistance as described in Sections I and II/D. French language requirements for long term personnel are high (S-3 minimum) but are absolutely necessary for the success of the project. An exception may be for the Agricultural Engineer and Administrator positions, for which the combination of S-2 French and S-2 Swahili may be substituted for S-3 French. All project personnel must meet the language requirements before arriving in Burundi.

In addition, contractor responsibilities include all administrative arrangements regarding recruitment, transportation and shipment of household effects for the technical assistance team, and its logistic support. Also, the contractor will be responsible for working with the Ministry of Agriculture to develop training programs and select trainees.

The contractor will prepare a comprehensive PPT type analysis from which detailed annual work plans will be developed. The analysis and first annual work plan will be submitted to AID/Burundi and the GRB in French and English six months after the project manager arrives in Burundi.

2. Outside Short Term Consultants and Technicians

a. Construction Advisor: In order to facilitate prompt implementation, a four month personal services contract for a construction advisor will be let as soon as possible after the obligation of funds. This individual will work closely with GRB in organizing the final plans and beginning construction of the seed farm buildings and housing (GRB Ministry of Public Works will administer the construction contract, and a private firm will do final plans and bid documents for a local firm to construct the buildings).

b. Short Term Seed Farm Advisor: The project provides funding for a three month long consultancy of a senior advisor on seed multiplication. This individual will bridge the gap between the signing of the Project Agreement and the arrival of the long term advisors. He/she will prepare the final specifications for the farm and seed equipment, help lay out the farm, and supervise land preparation, liming, manuring and planting of the first few hectares of Romany wheat for multiplication. He/she will also supervise planting of cover crops/green manure crops in fields used for the maize multiplication planted in October 1980. The advisor will also submit a final procurement plan for all farm equipment and machinery with the assistance of REDSO/EA's supply advisor.

c. Evaluation Consultants: The eight work month of evaluation consultants will be provided through indefinite quantity contracts, RSSA/PASA, and/or personal services contracts. Five workmonths are financed under the project and the other three for the ex-post evaluation, must come from project design or similar sources of funding.

3. AID

AID/Burundi will monitor the project implementation. The project Officer will maintain close contact with MINAGRI and the Project Manager and will assure that the contractor and MINAGRI perform according to the project agreement. AID/Burundi will monitor project performance (as per contractor work-plan submissions) and conduct regular evaluations to ensure that project implementation is on schedule and that the project meets output targets.

AID/Burundi will prepare and submit to the MINAGRI a series of Project Implementation Letters during the life of the project. These letters will describe specific actions to be taken during the project's implementation and will clarify and expand upon the responsibilities and conditions as set forth under the Project Agreement. It is anticipated that all commodities and equipment listed in Annex F except for project vehicles will be procured through a procurement service agency such as the Afro-American Procurement Center (AAPC). All project vehicles will be from a non-U.S. source as per procurement source waiver justification given in Annex I. Agricultural inputs, POL, some household appliances, furniture and construction materials will be purchased locally. It will have Burundi and source 941 funding, or come within the limitations set for "off the shelf" purchases.

4. Government of the Republic of Burundi

The implementing GRB agency will be the Directorate of Agronomy of the Ministry of Agriculture. The GRB will appoint a coordinator for the entire high altitude food production program. He will work with both the FED and AID components of the program. The GRB must recruit technical and other staff for the farm on a timely basis and select personnel for training. The GRB will provide land, office furniture, salaries and other operational expenses.

The GRB will establish a separate account for project operating funds in a Bujumbura bank. These will include funds for POL, fertilizers and farm chemicals, office supplies, utilities, miscellaneous operating expenses (including in country travel allowances for GRB personnel) and small scale research activities. One source of the funds will be the proceeds from the sale of seeds to farmers, in addition to direct budgetary contributions. AID will contribute most of the required funds for POL and agricultural inputs in the first few years of the project, before substantial revenues are generated by the seed sales. The signature of both the Burundi Seed Farm Director and the AID project manager, or his designee will be required to authorize expanditures from the joint account. In addition, the Ministry of Agriculture will establish a replacement mechanism to ensure that adequate resources are available for timely replacement of the seed farm's equipment and vehicles. As the project proceeds, it is expected that GRB seed farm staff will assume more functional and managerial responsibilities while the technical assistance team's role becomes increasingly advisory in nature.

5. Conditions and Covenants to the Project Agreement

a. Conditions Precedent

(1) Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement, the Grantee will furnish in form and substance satisfactory to A.I.D. evidence that the contribution by the European Development Fund (FED) to the Basic Food Crops program will be forthcoming on a timely basis and in an amount adequate to meet project needs.

(2) Prior to any disbursement, or the issuance of any commitment documents under the Project Agreement for the purpose of financing project construction, the Grantee will furnish in form and substance satisfactory to A.I.D.:

(a) evidence to confirm that adequate land area for the A.I.D. funded seed multiplication farm and associated structures has been allocated to the project.

(b) final site plans, construction plans and specifications, and

(c) an executed contract for construction services. This condition precedent may be satisfied separately for each unit of construction and applies only to A.I.D.-financing of construction services and not to other, technical, services incident thereto.

b. Covenants

The Grantee will covenant, in substance, as follows:

(1) To provide evidence to A.I.D., at times and in a form mutually agreed upon by the Parties, that the Grantee will be able to, and has allocated resources sufficient for replacement of the seed farm's equipment and vehicles after A.I.D. assistance is terminated. The Parties will meet periodically to assess efforts in satisfying this covenant.

(2) To provide individuals to receive participant training on a timely basis and in accordance with the schedule contained in Project Agreement's amplified description. Personnel receiving training under the project will be returned to the project upon completion of their training, or to such other positions as the Parties may agree to in writing.

(3) To provide all necessary counterpart and technical personnel as may be required by the project on a timely basis and in accordance with the Project Agreement's amplified description.

(4) To furnish all necessary recurrent cost funding in accordance with the schedule contained in the Project Agreement's amplified description, which may be modified in implementation letters.

6. Implementation Schedule

Annex K provides a chronological listing of all critical project events. We anticipate that the project will be authorized and the Project Agreement signed in December 1979. The first members of the technical assistance team (Project Manager/Agronomist and Administrative/Logistics Officer) should arrive in Burundi in July 1980.

We have provided funds to cover seven workmonths of personal service and/or indefinite quantity contracts for a construction advisor and a seed farm advisor. These consultants will start up project operations prior to the arrival of the long term advisors, thus preventing loss of a cropping year. The first multiplication of wheat seed will be planted on a few hectares in April 1980, using tractors and equipment borrowed from nearby ISABU stations, plus barnyard manure. Additional land will be planted in March-April in buckwheat and sweet potato, which then can be plowed under prior to planting in maize during October 1980. In this way, a growing season will not be lost and farmers will receive some improved seed for planting as early as April 1982. In addition, the two consultants will accelerate construction work, commodity procurement and general project implementation.

Since the Basic Food Crop project is the first phase of a long term food production program, this project will include both the planning and implementation of a pilot seed multiplication activity by smallholders. The basic study will be done just before the second in-depth evaluation scheduled for October-November 1983. The pilot program itself will be implemented in FY 1984-85.

Project implementation will span six years with the project assistance completion date scheduled for September 1985 when all participant trainees will have returned to Burundi and the seed farm project manager will have departed.

C. EVALUATIONS

Two major evaluations will be conducted during the life of the project and one after its completion. Each evaluation will include consultants as well as GRB personnel, contract team members and FED participation. It is extremely important that the major evaluations occur at the time set forth in this document, even if project implementation is delayed.

1. First In-Depth Evaluation (October/November 1981)

The first in-depth evaluation will appraise the progress made on seed farm development and establishment of linkages with FED, the Directorate of Extension and ISABU. This evaluation will require an outside agricultural economist and an agronomist for one month each. They will base their evaluation on the following key points:

a. A critical examination of the seed varieties supplied by ISABU for multiplication. The adaptability and yield potentials of new varieties will also be examined.

b. Appraisal of plans made for including women foodcrop farmers in extension programs.

c. Appraisal of progress made on establishing and operating the seed farm.

d. Analysis of GRB support (funding, counterpart staff and work-force, participating trainees, local supplies, customs clearances, etc.)

e. Review of linkages established and activities with ISABU, FED and GRB.

f. Examination of the flour mill in Muramvya and its potential impact on participating farmers.

2. Second In-Depth Evaluation (October/November 1983)

By this time the seed farm will have completed the seed multiplication cycle and the participating farmers will have harvested maize and wheat crops. The evaluation will require a seed technologist, agricultural economist and an anthropologist for one month each. The evaluation will cover:

a. A complete review of the Project and its linkages with the ISABU and FED activities.

b. Determination of benefits accruing to the target population including microeconomic analysis of benefits at farm level.

c. Evaluation of efforts made in reaching women food crop producers.

d. Recommendations regarding a detailed plan for a pilot test program that includes smallholders in seed multiplication. The recommendations will be based on a consultants report completed before the evaluation begins. Implementation of this recommendation may require revision of the project paper, or may result in establishing a separate pilot project under Accelerated Impact Program type procedures.

e. Detailed examination of the seed multiplication process and possible need for revision, including methods for covering recurrent costs.

f. Review of the participant and on-the job training programs.

g. Examination of alternatives for projects during the second phase of the FED financed programs.

3. End of Project Evaluation (March 1986)

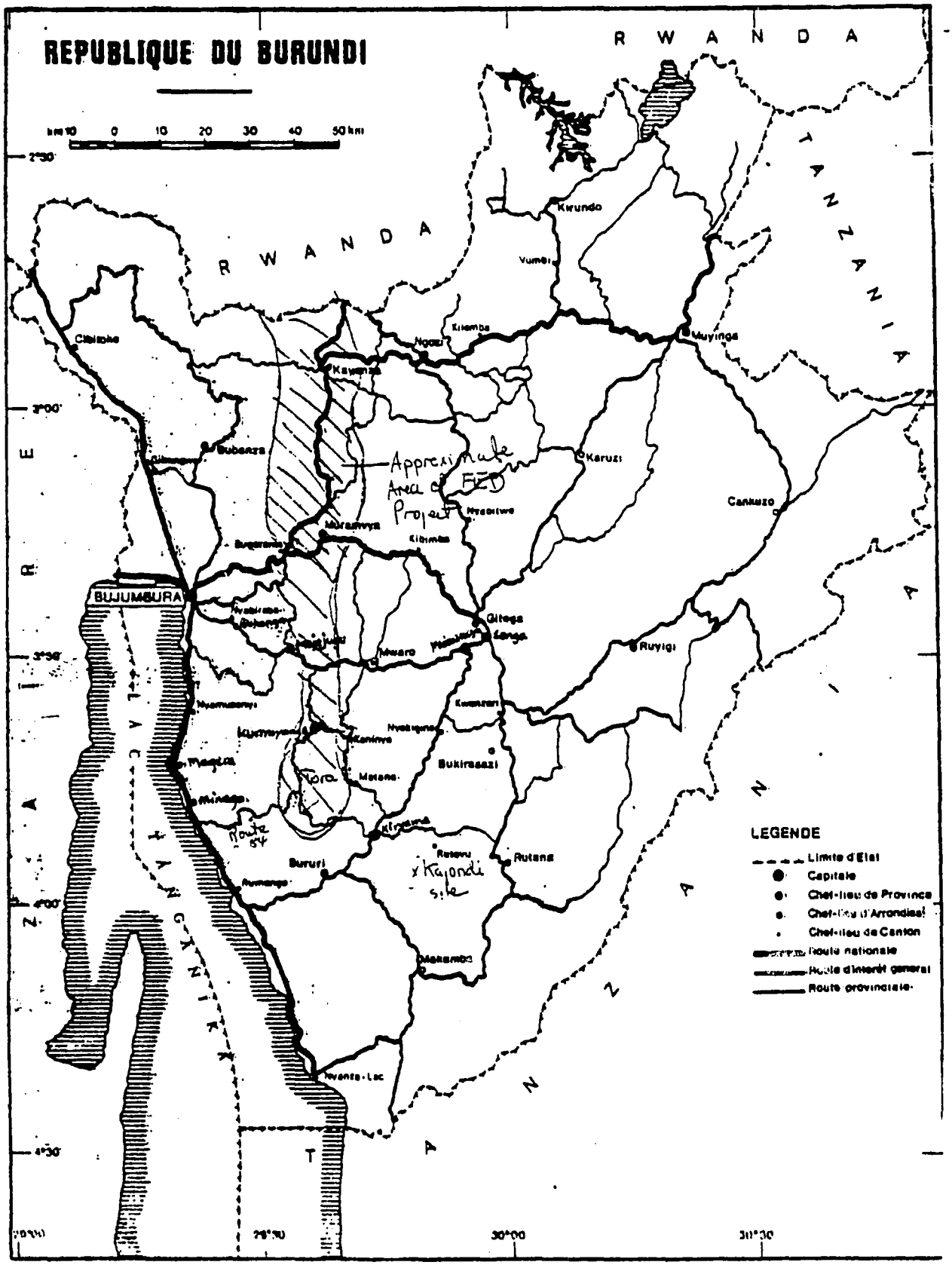
The evaluation will require the services of an agricultural, economist,agronomist and anthropologist for one month each.

The team will conduct an overall review of the entire project after the seed farm is operating without expatriate assistance. They will examine the project's impact on participating farmers and its indirect effect on other agriculturalists in the project area. They will examine the possibilities for farmer participation in seed multiplication. The major theme will be to determine the lessons learned for seed multiplication, crop production, extension and marketing of food crops along the Zaire/Nile crest, and elsewhere in Burundi.

Annex A

Maps

Routes to the Seed Farm Site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Bururi
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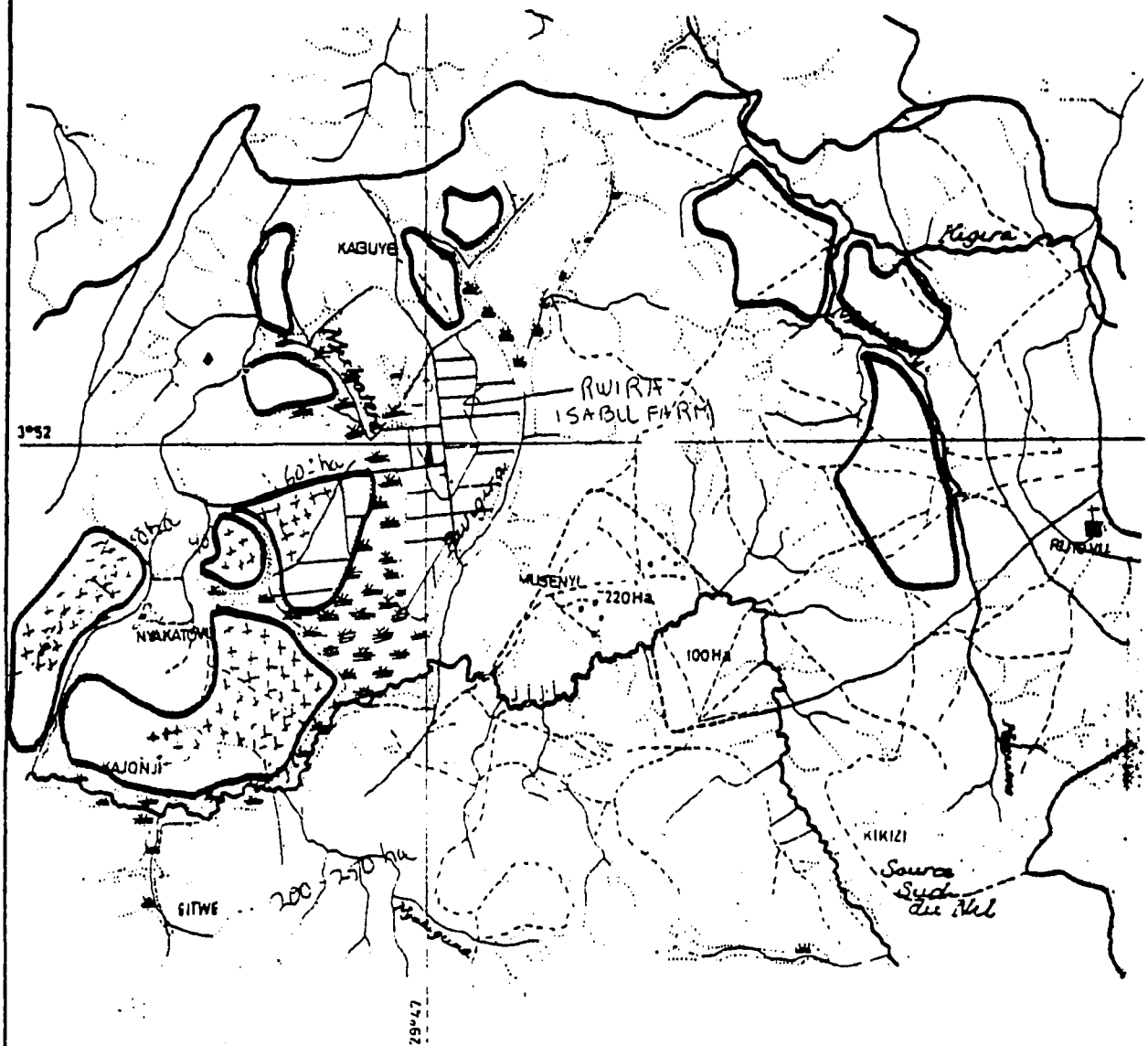
Chef-lieu de Canton
Route nationale
Route d'interêt general
Route provinciale



MINISTERE DE L'AGRICULTURE DE L'ELEVAGE
ET DU DEVELOPPEMENT RURAL

Dpt. DE L'AGRONOMIE

Extrait de la carte S4/29
SE-4
1:50000

SURFACE TOTALE 320 Ha

Emplacement proposé
pour la ferme semencière
4 parcels of 250-250 ha, 50 ha; 60 ha;
40 ha. total 350-400 ha available

SERVICE TOPOGRAPHIQUE NAT.

Annex A

Alternative Roads Between Seed Farm Site and Bujumbura

(AAO has based all travel time on VW microbus. Travel will be quicker in more powerful passenger vehicles, slower in heavy trucks).

1. Via Gitega (171 kms)

The route via Muramvya and Gitega is longer than any of the others, but it is the best all weather road at present and can carry heavy equipment without difficulty. The road is two lanes wide and paved for the entire 100 kms from Bujumbura across the crest to Gitega. This road goes through the Muramvya perimeter and there are good road links to the Northern perimeter. It is currently the best in the country. While there may be brief temporary blockages by occasional slides after very heavy rains in October/November and February-April, it is the major trucking route to Kigali, Uganda and the Indian Ocean ports, so all slides are cleared up promptly. A more powerful automobile will cover the distance in less time. The road between Gitega and Luvyironza station (route 6), is a high grade dirt road 1 1/2 to two lanes wide, well gravelled and with good drainage and bridges. It goes across rolling plateau country, with no major hills and no problem bridges. At present this route takes less than four hours in the dry season and about four and a half hours in the rainy season.

2 a. Via Buhonga, Mujejuru, Kumuyange, and Matara.

This is the shortest way to the seed farm, about 116 kms. Between Bujumbura and Mujejuru the road climbs over 2,000 meters to cross the crest. It is a fairly narrow dirt road, with frequent hairpin curves and prone to slide damage during the rainy season. Although well gravelled, there can be slick spots from the clay subsoils during the rainy season. The road from Mujejuru south along the crest to Kumuyange is relatively well gravelled, well maintained, but narrow. There are some bad spots with vertisol clays in the rainy season . A few bridges have slippery approaches and should be crossed with some caution during the rainy season. Kumuyange-Kaninya - Matana is similar. The Peoples Republic of China has agreed to upgrade and pave these roads during the next few years. At present, Luvyironza to Bujumbura can be done in four hours during the dry season and about five in the wet (if the road climbing to the crest is not blocked by slides). One paved, travel time will drop to less than three hours during the dry season and four hours during the wet season. This road provides access to the Ijenda perimeter. One can continue north to the two northernmost perimeters.

2 b. Via Kumuyange and Tora.

This route is slightly longer than 2a, and consequently somewhat slower. In the dry season it takes four and a half hours and in the wet perhaps an hour more. This road provides access to the southern two perimeters.

3. Bujumbura-Rumonge-Bururi (128 kms)

Route 3 along the lake will soon be a completely paved two lane highway (about 30 kms are paved already). At present only one spot is slightly prone to slides, but slide debris is cleared quickly. The Rumonge-Bururi-Luvyironza road (route 6) is a reasonably good quality one and a half to two lane dirt road, but with many curves, hairpin bends and steep slopes. Slides sometimes occur but they are cleared quickly. This road is also scheduled for renovation. Present travel time is about four and a half hours in dry season, an hour more in wet season. Once these roads are completely paved, travel time should be reduced to less than two and a half hours in the dry season.

4. Via route 84.

When the rehabilitation of route 84 is completed, the travel time from the seed farm to Bujumbura should be less than three hours during the dry season and four and a half (because of the steep escarpment) in wet season. When slides occur, this will have a lower priority than route 6 for removal of debris. It should be noted, however, that after completion of the project, it will have a very well trained maintenance crew compared to many other roads. This road will evenutally provide access to the southern-most (Tora) perimeter from Bujumbura.

5. Heavy equipment can be carried easily over the Gitega route. Route 3 is another possible routing for heavy equipment, particularly after it is upgraded.

6. The wettest periods, when most problems occur with the roads are mid October-mid December, and March-May. Very little rain falls from mid-May to early October. It should be noted that the 1978-79 rainy season was exceptionally heavy.

7. Using the present radio link at Luvyironza station, it should be possible to ascertain if there have been slides across any of the main roads crossing the crest before one starts travelling to Bujumbura. It should also be noted that the ISABU station has set aside a field for a STOL airplane in case of serious emergencies.

8. A house can be rented near the Luvyironza station for project personnel to use on overnight trips before the project's housing is ready.

ANNEX B

Project Title: Basic Food Crops
Project Number: 695-0101

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project (Obligations) 79-82
Total U.S. Funding : $4,921,000
Date Prepared 17 July, 1979

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objectives to which this project contributes. Goal: To improve the nutritional intake and economic status of the people of Burundi. Sub-Goal: To improve the nutritional intake and income of subsistence farmers in the target tea production zones.	Measures of Goal Achievement: Improved nutritional intake and disposable per capita income. Sub-Goal: Food crop production data. Wheat and Maize purchase records	Comparison between internationally accepted statistics on per capita nutritional intake, and rural incomes, measured by sample surveys on nutrition and household surveys. Sub-Goal: Periodic sample surveys of project area (FED/AID evaluations) GRB agricultural statistics Flour Mill purchase data and FED marketing data Sample survey of local markets	Assumptions for achieving goal targets: GRB will continue its developmental policies with full support from other donors. Sub-Goal: Farmers use new varieties and production techniques FED extension project materializes as planned Flour Mill constructed and in operation.
Project Purpose: To assist the GRB make available to small farmers in the high altitude food production program area improved varieties of seeds/plant materials for basic food crops as well as improved cultivation techniques.	Conditions that will indicate purpose has been achieved (EOPS) Fully operational 300 ha. seed farm Farm operated by trained Burundi MINAGRI personnel, without resident expatriate advisors Production of improved seed/plant materials for distribution (maize, wheat, peas, beans, irish potatoes, sweet potatoes)	Seed farm records, AID reviews/evaluations Seed farm and MINAGRI records. Seed farm records	Assumptions for Achieving Purpose: AID funding becomes available when needed GRB supports project as agreed, with land, counterparts, funding and infrastructure ISABU provides adequate research base for seed multiplication FED extension program is effective.

Outputs	Magnitude of Outputs	Means of Verification	Assumptions for Achieving Outputs
Physical facilities for seed farm	A 300 ha. seed farm established with buildings and equipment	AID and MINAGRI records	GRB provides a suitable site
Seed farm operated by trained GRB personnel	See Table 1 for staffing pattern/ training program	AID and MINAGRI records	GRB provides staff and releases them for training
Quantities of seed/plant materials produced.	By FY 1986 the following will be produced each year wheat - 258 MT maize - 87 MT peas -74.4 MT beans -16.8 MT Sweet Potatoes - 216.0 MT Irish Potatoes - 239.2 MT	Seed Farm Records	No disastrous climatic conditions or pest/disease outbreaks occur
Production techniques developed.	"packages" developed for each crop and tested with FED/extension participation seed production techniques developed	Seed farm and FED records	Consultants arrive on a timely basis Cooperation with FED and ISABU

Inputs	Implementation Target		Assumptions for providing inputs
AID 11 work years (3 technicians) long-term contract advisors 39 workmonths consultants Construction Supervisor 1 long-term U.S. academic program 1 short-term U.S. non degree training 7 third country short-term training 2 Observation/training programs Commodities Construction Other Costs GRB: Personnel, Operating Expenses, Land & Capital Investment Breeder seed.	AID (without inflation) contract personnel, long and short-term $1,515,000 Participant training $106,600 Vehicles, farm and lab equipment household appliances $1,058,400 Houses, farm buildings $654,500 Including POL, contract overhead, etc. $856,200 GRB Personnel $256,800 Operating costs $650,400 Capital Inputs $796,800	AID and GRB project records and observations	Consultants and contract staff available on a timely basis Commodities procured on a timely basis Construction of seed farm on timely basis GRB secured land on a timely basis GRB budgets funds and makes them available when needed Breeder seed available when needed GRB identifies and releases appropriate personnel for training.

Annex C

Government of the Republic of Burundi's Letter of Request

P.I.D. Review Cable

Cable on Project Site, Soils and Agonomy Questions

Répondu : 13/7/72

REPUBLIQUE DU BURUNDI

Ministère de l'Agriculture, de l'Elevage et du Développement Rural

Secrétariat d'Etat à la Production Alimentaire

N° 710.2/218/70.-

Bujumbura, le 14 Juin 1970.

Annex E

A Monsieur le Représentant de l'U S A I D

à BUJUMBURA.-

SOUS/COUVERT DE :

Monsieur le Ministre des Affaires Etrangères et de la Coopération

à BUJUMBURA.-

Monsieur le Représentant,

Je vous demande d'analyser favorablement la requête faite auprès de l'USAID de participer dans le financement du projet "Cultures vivrières en Haute altitude".

Ce projet comprend 2 phases avec 4 ans chacune et s'étendra sur les périmètres RÉMERA, MURAMVYA, IJENDA et TORA sur la crête Zaïre-Nil.

Comme vous en avez exprimé le désir lors de notre entretien, le domaine de l'intervention de l'USAID serait la multiplication des semences; tandis que les autres actions reviendraient au FED et au Gouvernement du Burundi.

Veuillez agréer, Monsieur le Représentant, l'assurance de ma considération très distinguée.

LE SECRETAIRE D'ETAT CHARGE DE LA PRODUCTION ALIMENTAIRE,

Lazare, NDIKUMASA.-

COPIE POUR INFORMATION A :

Monsieur le Premier Ministre, Ministre de l'Agriculture, de l'Elevage et du Développement Rural à BUJUMBURA.-

Monsieur le Ministre du Plan à BUJUMBURA.-

Annex C

10/12/77

TELEGRAM

ACTION: XXX AID AE BUJUMBURA STATEV 244415

INFO: CHGE EC ADM CRN UNCLASSIFIED
AMB

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R 120242Z OCT 77
FM SECSTATE WASHDC
TO RUTAOK/AMEMBASSY BUJUMBURA 4600
RUVQC/AMEMBASSY NAIROBI 2679
BT
UNCLAS SECTION 1 OF 2 STATE 244415/1

Basic Food Crops Project File

AIDAC

E.O. 11652: N/A

TAGS:

SUBJECT: PROJECT COMMITTEE REVIEW OF BURUNDI BASIC FOOD CROPS PID

1. PROJECT COMMITTEE REVIEW OF SUBJECT PID WAS HELD ON WEDNESDAY, SEPTEMBER 21. COMMITTEE RECOMMENDED APPROVAL OF PID FOR FURTHER DEVELOPMENT OF PROJECT.

2. COMMITTEE REACTION TO PID WAS FAVORABLE. PID APPROACH WAS PERCEIVED AS ADDRESSING BURUNDI'S FOOD CROP PRODUCTION PROBLEM IN MOST FEASIBLE MANNER, I.E., CROPPING SYSTEMS APPROACH, IN LIEU OF OTHER ALTERNATIVES SUCH AS RELIANCE ON FERTILIZER BASED APPROACH GIVEN COUNTRY'S LONG TERM INABILITY TO PROCURE RELATIVELY EXPENSIVE AGRICULTURE INPUTS DUE TO ITS POOR ECONOMIC SITUATION. COMMITTEE DID HOWEVER RAISE SEVERAL POINTS WHICH IT BELIEVED FIELD SHOULD CONSIDER IN CONTEXT FURTHER DEVELOPMENT THIS PROJECT.

3. CONSIDERABLE DISCUSSION CENTERED ABOUT QUESTION HOW BEST ADDRESS FOOD PRODUCTION PROBLEMS IN BURUNDIAN CONTEXT. GENERAL CONSENSUS WAS THAT STRATEGY MENTIONED PARA 2 ABOVE, I.E., CROP SYSTEM APPROACH, WAS PROPER. HOWEVER THERE WAS SOME CONCERN, WHICH NOT SHARED BY ALL COMMITTEE MEMBERS, THAT PID APPROACH COULD/SHOULD BE BROADENED TO INCORPORATE

MULTIPLE CROPPING PACKAGES DEALING WITH PULSES, MAIZE, SORGHUM AND CASSAVA. FURTHER, SOME COMMITTEE MEMBERS OF OPINION THAT CONCERN OF PROJECT WITH QUESTIONS INVOLVING SEED TECHNOLOGY SHOULD BE DEFERRED PENDING FULL VARIETAL SCREENING ACTIVITIES. OTHER COMMITTEE MEMBERS HOWEVER BELIEVED THAT GIVEN POOR STATE OF BURUNDI SEED STOCK, SEED TECHNOLOGY ACTIVITIES ARE ESSENTIAL. IT WAS ALSO NOTED THAT SOME ATTENTION SHOULD BE GIVEN TO CONSUMER TASTE ACCEPTABILITY IN ANY ADAPTIVE RESEARCH WHICH PROJECT MAY UNDERTAKE.

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4. COMMITTEE DISCUSSED POSSIBILITIES COORDINATING THIS ACTIVITY WITH RWANDA OR ON BROADER REGIONAL BASIS BUT CONCLUDED THAT WHILE MOVES IN THIS DIRECTION WOULD BE DESIRABLE, LOCAL POLITICAL SENSITIVITIES MAY MAKE THIS IMPRACTICAL.

5. QUESTIONS WERE RAISED CONCERNING MANNER THIS PROJECT WILL RELATE TO BURUNDI AG RESEARCH INSTITUTE (ISABU) AND ALSO HOW PROJECT WILL RELATE TO ONGOING BELGIAN ASSISTANCE TO ISABU. FOR EXAMPLE, WILL THIS PROJECT DUPLICATE OR OVERLAP WITH BELGIAN EFFORTS OR CNMPPLEMENT THEMT EXTENT/NATURE OF BELGIAN INVOLVEMENT -- PAST, PRESENT AND FUTURE -- NEEDS BE FULLY CONSIDERED.

6. COMMITTEE MEMBERS WERE CONCERNED THAT THE PID TOUCHED VERY LIGHTLY ON GOB INSTITUTIONAL CAPACITY TO PARTICIPATE FULLY IN PROPOSED PROJECT. COMMITTEE CAUTIONED THAT THIS WILL NEED CAREFUL ANALYSIS AND THAT FINAL PROJECT DESIGN MUST BE TAILORED TO GOB CAPABILITIES (E.G., PERSONNEL AND FINANCIAL RESOURCES) AT PRESENT, DURING AND AFTER PROJECT COMPLETED. ALSO, GOB INTEREST/COMMITMENT TO PROJECT AND THEIR ABILITY SUPPORT IT BEYOND PERIOD OF AID ASSISTANCE MUST BE AFFIRMED/ADDRESSED IN DESIGN PHASE.

7. COMMITTEE CONCLUDED THAT THIS PPROJECT MAY HAVE GOOD CANDIDATE FOR LONG TERM UNIVERSITY RELATIONSHIP THROUGH TITLE XII PROGRAM. SHOULD FIELD DESIRE PURSUE TITLE XII ALTERNATIVE, IT MAY DESIRE THAT THE UNIVERSITY WHICH EVENTUALLY SELECTED AS TITLE XII CONTRACTOR BE ASKED TO DEVELOP PP WITH ADVICE AND GUIDANCE OF FIELD PERSONNEL. FURTHER, SHOULD THIS APPROACH BE PURSUED, FIELD MAY DESIRE TO FIRST RESEARCH THIS PROJECT IN SOMEWHAT MORE DEPTH TO DEVELOP GUIDELINES FOR POTENTIAL UNIVERSITY CONTRACTOR. (NOTE: AID/W PREPARED FORWARD LIST OF RECOMMENDED UNIVERSITITIES SHOULD FIELD DESIRE PURSUE TITLE XII ALTERNATIVE.) CABLE SENT BUJUMBURA SUGGESTING DR. HUGH POPENOE MEMBER JOINT RESEARCH COMMITTEE ON TITLE XII AND W. FUELIE, AFR/DR, INCLUDE BURUNDI ON ITINERARY. THEY PREPARED ARRIVE 3 NOVEMBER TO DISCUSS POSSIBILITIES TITLE XII INVOLVEMENT AS WELL AS OTHER THOUGHTS CONCERNING APPROACH TO INCREASING FOOD PRODUCTION.

8. THERE WAS USUAL CONCERN EXPRESSED OVER DIFFICULTY OF SECURING QUALIFIED TEAM OF FRENCH-SPEAKING AG TECHNICIANS TO MANAGE PROJECT. COMMITTEE FELT THAT ONE POTENTIAL ADVANTAGE OF TITLE XII APPROACH COULD BE THAT THE UNIVER-

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SITY SELECTED WOULD BE ENCOURAGED/REQUIRED TO STRENGTHEN ITS FRENCH CAPABILITY. IF TITLE XII APPROACH NOT SELECTED, AID/W SHOULD BE INFORMED REASONABLY SOON OF MINIMAL FRENCH REQUIREMENTS FOR OVERALL PROJECT IMPLEMENTAT ON AND FOR EACH RESIDENT TECHNICIAN SO THAT SEARCH FOR QUALIFIED CANDIDATES CAN BE INITIATED. COMMITTEE ALSO NOTES THAT WHEREAS FOUR "SELF-CONTAINED TRAILERS" ARE BUDGETED, PERMANENT HOUSING IS NOT. ASSUME HOUSING IS/WILL BE AVAILABLE AND THAT TRAILERS ARE FOR FIELD TRIPS ONLY. TO EXTENT TRAILERS MAY BE EMPLOYED IN LIEU OF PERMANENT HOUSING, BELIEVE RECRUITMENT PROBLEM WILL BE AGGRAVATED, PARTICULARLY INSOFAR AS HIRING TECHNICIANS WITH SPOUSES/ FAMILIES IS CONCERNED.

9. FOR AID/W RECRUITED DESIGN TECHNICIANS, FIELD SHOULD SUBMIT SCOPE OF WORK FOR EACH TECHNICIAN, TO INCLUDE WRITING REQUIREMENTS (E.G., TRIP REPORT, DRAFT OF PP SEGMENT). ALSO NEED KNOW PROPOSED FIELD DESIGN SCHEDULE AND DESIRED ETA EACH TECHNICIAN.

10. AFR/DP GUIDELINES SUGGEST THAT FOR PROJECTS UNDER DOLS 2.0 MILLION, PROJECT AMOUNTS BE ROUNDED TO DOLS 50,000 INCREMENTS UP TO DOLS 2.0 MILLION AND IN DOLS 100,000 INCREMENTS FOR PROJECTS GREATER THAN DOLS 2.0 MILLION. THIS SHOULD BE CONSIDERED IN PLANNING YEARLY PROJECT INCREMENTS TO ARRIVE AT REALISTIC LOP TOTAL.

11. COMMITTEE NOTED THAT UNDER NEW PID GUIDELINES AN IEE NOW REQUIRED AT TIME OF PID SUBMISSION. COMMITTEE THEREFORE RECOMMENDED THAT IEE BE PREPARED AND SUBMITTED AT EARLY STAGE IN ANY FURTHER DEVELOPMENT THIS PROJECT. FURTHER, GIVEN NATURE THIS PROJECT, SOIL CONSERVATIONIST MAY BE GOOD CANDIDATE AND SUFFICIENT TO PREPARE ADEQUATE IEE.

12. AFR POUCHING MEMORANDA FROM AG TECHNICIANS, WHO PARTICIPATED PID REVIEW, CONTAINING ADDITIONAL THOUGHTS/ OBSERVATIONS CONCERNING PROJECT AND ITS FURTHER DEVELOPMENT.

13. DUE AFR-WIDE BUDGET CUTS NOW UNDERWAY, BURUNDI AID LEVEL FOR FY 1979 WILL BE REDUCED SOMEWHAT FROM LEVEL RECOMMENDED IN ABS REVIEW. ALTHOUGH CDO SHOULD EXPECT SOMEWHAT REDUCED LEVEL FOR ALL PROJECTS IN Y 1979, DEVELOPMENT OF THIS PROJECT SHOULD GO FORWARD. WILL ADVISE SEPTEL RE DETAILS FY 1979 PLANNING LEVEL. VANCE

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FROM:	CLASSIFICATION	
[redacted]	[redacted]	2169

[redacted]
E.O. [redacted]
TAGS:
SUBJECT: [redacted] BASIC FOOD CROPS (695-[redacted])

ACTION: [redacted]
[redacted]

[redacted] 2169

[redacted]

[redacted]
[redacted]
[redacted]
[redacted]

[redacted] FOR AFR/DR (ROBERTS AND FUGLEY) AND AFR/CA (KERR AND LABRACHER) FROM MARTIN AND VERMEERE

[redacted] FOR [redacted]/EA

REF: [redacted] 22560

THIS CABLE ANSWERS QUESTIONS CONCERNING AGRONOMIC RESEARCH AND SOILS RAISED DURING PP REVIEW OF THE BASIC FOOD CROPS PROJECT IN WASHINGTON.

1. [redacted]/EA SENIOR AGRICULTURAL ADVISOR MARTIN VERMEERE VISITED SEED FARM ON 18 OCTOBER. [redacted] AGRICULTURAL OFFICIALS AND USAID AND [redacted] AGRICULTURAL PERSONNEL REPRESENTATIVES [redacted] THE [redacted] SITE AS WELL AS HOLDING CONSULTATIONS WITH [redacted] OF [redacted] AND SCIENCES AGRONOMIQUES AU [redacted] (ISRA) FOOD CROPS SCIENTISTS.

DRAFTED BY:	DRAFTING DATE	TEL. EXT.	CONTENTS AND CLASSIFICATION APPROVED BY:
[redacted]	10/22/79		[redacted]

CLEARANCES:
AO:HFisher

[redacted]
CLASSIFICATION

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(Formerly FS-413)
January 1975
Dept. of State

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2. ISABU SOIL AND AGRONOMIC SCIENTISTS EXPLAINED THAT SOILS AT ALTITUDES ABOVE 1,500 METERS THROUGHOUT THE COUNTRY ARE IN THE P.H. 4.5 TO 6.0 RANGE. SOIL TEST DATA AT LUVUMBURA AND BUTARE EXPERIMENT STATIONS (BOTH LESS THAN EIGHT KMS FROM PROJECT SITE) INDICATE A PH P.H. OF 4.7 TO 5.3. THE SOIL AT THE KAYONZI FARM APPEARS TO BE VERY COMPARABLE TO THAT OF LUVUMBURA AND BUTARE. WHILE SCIENTISTS POINT OUT THE EXISTENCE OF AN ALUMINUM TOXICITY PROBLEM, EXPERIMENTS WITH CULTIVARS OF WHEAT, MAIZE AND BEANS FROM INTERNATIONAL ORGANIZATION CENTERS ARE SHOWING REMARKABLE TOLERANCES.

3. GOR MINISTRY OF AGRICULTURAL OFFICIALS INFORMED US THAT THE FARM TOPOGRAPHY MAP WILL BE COMPLETED BY ABOUT 10 NOVEMBER. WE PLAN TO COMMENCE DETAILED SOIL PROFILE ANALYSIS AS SOON AS FEASIBLE, TENTATIVELY SCHEDULING WORK TO START LATE DECEMBER 1979 OR EARLY JANUARY 1980. GIVEN INFORMATION AVAILABLE TO DATE ON SOILS QUESTION, WE BELIEVE PROJECT SHOULD BE APPROVED AT THIS TIME (I.E. NOVEMBER 1979).

4. WE WISH TO REPORT THAT FOUR CROP VARIETY SCREENING, FERTILIZER AND YIELD TEST TRIALS HAVE BEEN CONDUCTED BY ISABU DATING BACK TO 1974. THESE TRIALS ARE CONDUCTED COLLABORATIVELY WITH CIMMYT/EAST AFRICA, CIAT, IRRI,

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KENYA, INTECOY AND ITFA. RESEARCH WORK HAS RESULTED IN IDENTIFICATION OF SPECIFIC VARIETIES OF WHEAT, MAIZE, BEANS, POTATOES AND PEAS BASED ON THEIR TESTED TOLERANCE TO SOIL CONDITIONS. SOME OF THE SELECTED VARIETIES ARE NOW BEING TESTED ON FARMERS' FIELDS. AS AN EXAMPLE DURING PAST 5 YEARS ISAKU WHEAT VARIETY TESTING PROGRAM HAS TESTED OVER 170 DIFFERENT WHEAT CULTIVARS AND 21 CULTIVARS OF MAIZE. TESTS HAVE BEEN CONDUCTED AT A NUMBER OF ALTITUDE LEVELS, SOIL TYPES AND PLANTING DATES. THE FOUNDATION SEED TO BE INCREASED ON THE KAJONDI SEED FARM WILL BE SUPPLIED FROM ISAKU RESEARCH FARMS LOCATED IN THE COUNTRY.

5. ISAKU WHEAT SCIENTIST REPORTED THAT THERE IS CURRENTLY 3000 KILOS OF "ROSARY" WHEAT SEED AVAILABLE AT SIKOKI FARM FOR SEED MULTIPLICATION PLANTING AT KAJONDI DURING THE MARCH/APRIL 1980 PLANTING SEASON. THIS VARIETY HAS DEMONSTRATED EXCELLENT TOLERANCE TO ALUMINUM TOXICITY AND AN ADAPTABILITY TO ACID SOILS FOUND IN WHEAT GROWING REGIONS.

6. MR. ALI REPORTED THAT CURRENTLY THERE ARE ABOUT 15 ISAKU AND 25 BURUNDIAN SCIENTISTS WORKING FULL TIME ON FOOD CROP RESEARCH. THIS RESEARCH STAFF WILL PROVIDE THE KNOWLEDGE AND TECHNOLOGY NEEDED TO BACKSTOP SEED FARM ACTIVITIES.

DOCUMENTS

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7. LASTLY, OUR GENERAL OBSERVATION ON FIELD VISITS IS THAT THERE EXISTS CONSIDERABLE FARMER KNOWLEDGE AS TO ¢ CULTURAL PRACTICES REQUIRED TO GROW FOOD CROPS ON ACID SOILS. THE INTERPLANTING OF VARIOUS FOOD CROPS, SPACING, TIME OF PLANTING AND USE OF ORGANIC FERTILIZER MATERIALS DEMONSTRATES A VERY PRACTICAL KNOWLEDGE OF CULTURAL AND HUSBANDRY PRACTICES NEEDED TO GROW FOOD CROPS.

8. PF REVISIONS UNDER WAY TO ANSWER QUESTIONS RAISED REPTEL.

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COUNTRY CHECKLIST

A. General Criteria for Country Eligibility

1. FAA Sec. 116 - Can it be demonstrated that contemplated assistance will directly benefit the needy?

Yes, through the distribution of seed the farmers located in the project's target areas will be the direct beneficiaries of the project.

2. FAA Sec. 481 - Has it been determined that the government of recipient country has failed to take adequate steps to prevent narcotics, drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?

No, there is no evidence that the GRB has been negligent in this area.

3. FAA Sec. 620 (b) - If assistance is to a government, has the Secretary of State determined that it is not controlled by the international communist movement?

Yes

4. FAA Sec. 620 (c) - If assistance is to a government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?

(a) No
(b) No

5. FAA Sec. 620 (e) (i) - If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?

No.

6. FAA Sec. 620 (a), 620 (f); FY 79 App. Act Sec. 108, 114 and 606 - Is recipient country a Communist country?

No.

Will assistance be provided to the Socialist Republic of Vietnam, Cambodia, Laos, Cuba, Uganda, Mozambigue or Angola?

No.

7. FAA Sec. 620 (i) - Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression?

(a) No
(b) No

8. FAA Sec. 620 (j) - Has the country permitted or failed to take adequate measures to prevent the damage or destruction by mob action of U.S. property?

No

9. FAA Sec. 620 (l) - If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason?

No

10. FAA Sec. 620 (o); Fishermen's Protective Act of 1967, as amended, Sec. 5 - If country has seized or imposed any penalty or sanction against any U.S. fishing activities in international waters.

N/A

11. FAA Sec. 620; FY 79 App. Act Sec. 603 - (a) Is the government of the recipient country in default for more than six months on interest or principal of any AID loan to the country? (b) Is country in default exceeding one year on interest or principal on U.S. loan under program for which App. Act appropriates funds?

(a) No
(b) No

12. FAA Sec. 620 (s) - If contemplated assistance is development loan or from Economic Support.

N/A

13. FAA Sec. 620 (t) - Has the country severed diplomatic relations with the United States?

No

14. FAA Sec. 620 (u) - What is the payment status of the country's U.N. obligations?

Up-to-date

15. FAA Sec. 620A, FY 79 App. Act, Sec. 607 - Has the country granted sanctuary from prosecution to any individual or group which has committed an act of international terrorism?

No

16. FAA Sec. 666 - Does the country object, on basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. there to carry out economic development program under FAA,

No

17. FAA Sec. 669, 670 - (a) Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials or technology, without specified arrangements or safeguards? (b) Has it detonated a nuclear device after August 3, 1977, although not a "nuclear-weapon State" under the nonproliferation treaty?

(a) No
(b) No

B. <u>Funding Criteria for Country Eligibility</u>

1. Development Assistance Country Criteria

a. FAA Sec. 102 (b) (4) - Have criteria been established and taken into account to assess commitment progress of country in effectively involving the poor in development on such indexes as: (1) increase in agricultural productivity through small-farm labor intensive agriculture, (2) reduced infant mortality, (3) control of population growth, (4) equality of income distribution, (5) reduction of unemployment, and (6) increased literacy?

(1) The GRB gives high priority to agricultural development with emphasis on food crop production. This is evidenced by the following government sponsored activities: the Western Plains Settlement Scheme; Vegetable Production Project in Bugarama and Muramvya Provinces; Production and distribution of improved seed throughout the nation; Fertilizer procurement and promotion activities; Agricultural Research; and food crop production components of coffee and tea production projects.

(2) Yes, this GRB priority is evidenced by its expanded program of immunization.

(3) Although the Ministry of Social Affairs has sponsored a conference on the spacing of births which was addressed by physicians of the Ministry of Health, the idea of family planning is not yet a GRB priority.

(4) Although income distribution is unequal and the GRB has not made a services effort in this area, it should be noted that it is a maldistribution of small amounts of money with the vast majority considered poor.

(5) Through settlement schemes in the low lands the GRB is trying to curtail unemployment. Other efforts in this area are evidenced in the GRB's campaign to develop the tea and coffee industry, its encouragement of food for work activities and the nation-wide road maintenance project.

(6) The rural education program is based on an agriculturally - oriented curriculum which is targeted to reach all primary school age children. Most significant in this program is the proposed project for the development of 100 Centers de Formation throughout the country. These centers are conceived to reach the poorest stratum of the population, providing 27,000 new student places. Literacy, arithmatic and agricultural skills will be taught at the centers which ultimately will provide a base for continuing rural adult education.

b. FAA Sec. 104 (d)(1) - If appropriate, is this development (including Sahel) program designed to build motivation for smaller families through modification of economic and social conditions supportive of the desire for large families in activities such as education in and out of school, nutrition, disease control, maternal and child health services, agricultural production, rural development, and assistance to urban poor?

This program has been designed to help the growing numbers of rural poor cope with a declining food production system and a deteriorating environment. The target areas selected include improving Government capabilities to plan rural development programs; increasing the production of basic food crops; improving nutrition; implementing soil conservation, land use and resource analysis programs; and increasing the ability to use alternative energy sources. It will be expanded to include strengthening the abilities of the line organizations in the agriculture sector to implement programs; improving the crop storage and marketing systems; and eventually, rural health programs. Eventually the program will concentrate on geographic area development with an emphasis on agricultural production and non-formal adult education programs.

PROJECT CHECKLIST

Standard Item Checklist has been reviewed for this project

A. General Criteria for Project

1. FY 79 App. Act Unnumbered; FAA Sec. 653 (b); Sec. 634 A - (a) Described how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) Is assistance within (OYB) country or international organization allocation reported to Congress (or not more than $1 million over that figure)

(a) Congressional Presentation and Congressional Notification will be submitted for changes since FY 1979 CP.

(b) Yes

2. FAA Sec. 611 (a) (1) - Prior to obligation in excess of $100,000, will there be (a) engineering, financial and other plans necessary to carry out the assistance and (b) a reasonable firm estimate of the cost to the U.S. of the assistance?

(a) Yes (b) Yes. See Engineering Annex

3. FAA Sec. 611 (a) (2) - If further legislative action is required within recipient country..

No additional legislative action required.

4. FAA Sec. 611(b); FY 79 App. Act Sec. 101 - If for water or water related land resource construction..

N/A

5. FAA Sec. 611 (e) - If project is capital assistance (e.g., construction) and all U.S. assistance for it will exceed $1 million..

N/A

6. FAA Sec. 209 - Is project susceptible of execution as part of regional or multilateral project?

The Basic Food Crops Project although a bilateral project is a component of a larger food production program to which the European Development Fund will provide financing. The Belgians also provide assistance to a related agricultural research activity.

7. FAA Sec. 601 (a) - Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce; and (f) strengthen free labor unions.

(a) Increased wheat production brought about through this project will reduce the level of wheat importation.

(b) The small farm family will be encouraged to use improved seed varieties and production techniques which could result in greater farm outputs. Hence, the farmer's initiative and willingness to compete will be fostered by this project.

(c) A component of the FED extension project will be establishing cooperatives and credit unions. Therefore, this project will only provide indirect assistance through increasing food production for marketing.

(d) The project will have no effect on monopolistic practices.

(e) The project, with the assistance of the other Program donors, will help Burundi in improving the technical efficiency of agriculture.

(f) There will be no effect upon Burundi's efforts to strengthen free labor unions.

8. FAA Sec. 601 (b) - Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).

This project will neither encourage nor discourage U.S. private trade or investment abroad. If a private firm is awarded the contract for technical assistance, it will, to that extent encourage the services of private enterprise in assistance programs.

9. FAA Sec. 612(b); Sec.636(h) - Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

See financial analysis and implementation arrangeuents sections of the project paper.

10. FAA Sec. 612 (d) - Does the U.S. own excess foreign currency of the country and, if so what arrangements have been made for its release?

No.

11. FAA Sec. 601 (e) - Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?

Yes

12. FY 79 App. Act Sec. 608 - If assistance is for the production of any commodity for export..

N/A

B. Funding Criteria for Project

1. FAA Sec. 102 (b) ; 111; 113; 281 a - Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology spreading investment out

from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions; (c) support the self-help efforts of developing countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?

(a) The project is designed to help the rural poor directly by producing improved seeds/plant materials and improved agronomic techniques, thus resulting increased food and income among small farmers in one of the world's least developed countries.

(b) The combined efforts of this project and the FED project will assist in the development of cooperatives in the four rural project areas.

(c) The basis for the project is to provide improved seed varieties and production techniques so that rural farmers may improve their own nutritional status and economic well-being.

(d) As extension will be handled by the FED, this project will encourage, through liaison between the AID project manager and the FED sociologist, greater participation by the women in the project areas who are the major food producers and often head of households.

(e) This project neither encourages nor discourage regional cooperation between developing countries.

2. FAA Sec. 103 - Is assistance being made available for agriculture, rural development or nutrition: if so, extent to which activity is specifically designed to increase productivity and income of rual poor?

By the provision of improved seed varieties and farm production techniques, the rural poor in the four project areas will be able to increase and diversity the farm production which will, in turn, enable them to improve their nutritional status and, by selling food, excess to their needs, improve their economic well-being. See project description and Beneficiaries (Section II of PP) for additional information.

3. (107) Is appropriate effort placed on use of appropriate technology?

Yes, the improved farm production techniques will emphasize the use of appropriate technology.

4. FAA Sec. 110 (a) - Will the recipient country provide at least 25% of the costs of the program, project, or activity?

The GRB will provide about 30 percent of the costs of the Seed Multiplication Farm.

5. FAA Sec. 110 (b) - Will grant capital assistance be disbursed for project over more than three years?

No.

6. FAA Sec. 281 (b) - Describe extent to which program recognizes the particular needs, desires, and capacities of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civil education and training in skills required for effective participation in governmental and political processes essential to self-government.

The multi-donor food production program will provide technical and material assistance to people in the project areas, but need improved seed varieties and assistance in extension and marketing assistance. Through this, these people may create more institutions which serve and utilize their needs and capabilities which, in turn, will enable them to participate to a greater extent in self-government.

7. FAA Sec. 122 (b) - Does the activity give reasonable promise of contributing to the development of economic resources, or to the increase of productive capacities and self-sustaining economic growth?

Yes.

ANNEX E

Initial Environmental Examination

Engineering Analysis

611(e) certification

Initial Environmental Examination

Project Location:	Burundi
Project Title:	Basic Food Crops
Funding:	FY 1980 - $ 2,370,000
Life of Project:	FY 1980-85 - $ 5,458,000
IEE Prepared BY:	Winton L. Fuglie, REDSO/EA Date: March, June 1979
Environmental Action Recommended:	Negative Determination
Concurrence:	Terry L. Lambacher AID Affairs Officer 12 Nov 79

Bureau for Africa Decision:

Approved: _____

Disapproved: _____

Date: _____

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Department of State

INCOMING TELEGRAM

PAGE 01 BUJUMB 00037 080852Z 5297

ACTION AID-35

AFR

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TO SECSTATE WASHDC IMMEDIATE 9119
AMEMBASSY NAIROBI

UNCLAS BUJUMBURA 0037

AIDAC

AID/W FOR AFR/DR, NAIROBI FOR REDSO/EA

E.O. 12065: N/A
SUBJ: BASIC FOOD CROPS PESTICIDE STORAGE

REF: (A) 79 STATE 329618, (B) 79 BUJUMBURA 2655, (C) NAIROBI 0182

1. PROPOSED MANAGEMENT OF AGRICULTUREAL CHEMICALS AND STORAGE UNDER SUBJECT PROJECT INCLUDES FOLLOWING:

(A) AS STATED IN PP. PESTICIDES AND FERTILIZER WILL BE STORED IN A SEPARATE BUILDING. ALL SEED STORAGE AND PROCESSING WILL BE DONE IN SEPARATE BUILDINGS (REF B). ALL PROJECT FARM PERSONNEL WILL WEAR APPROPRIATE GLOVES AND SAFETY CLOTHING WHEN HANDLING PESTICIDES. PROJECT MANAGER/AGRONOMIST WILL TRAIN LOCAL EMPLOYEES AND PROVIDE SAFETY INSTRUCTION, GUIDANCE AND SUPERVISION BEDORE AND DURING CONTACT AND AFTERWARD DURING CLEAN UP.

(B) MANUFACTURES PRECAUTIONS/RECOMMENDATIONS WILL BE TRANSLATED INTO FRENCH AND KIRUNDI (REF C). DISPOSAL OF SHIPPING CONTAINERS WILL BE ACCORDING TO EPA RECOMMENDATIONS.

(C) NO PESTICIDE OR TREATED SEED IS TO BE DISTRIBUTED TO LOCAL FARMERS. WE BELIEVE THESE PRECAUTIONS SHOULD MINIMIZE ANY POSSIBLE HARMFUL ENVIRONMENTAL EFFECTS.

2. IN ALL INSTANCES CONCERNING EMPLOYMENT OF CHENICAL AGENTS, ACCEPTED EPA CHEMICALS STORAGE/HANDLING AND DESTRUCTION PRODE-DURES WILL BE STRICTLY ADHERED TO.

3. REDSO/EA PROVIDED US WITH NO ADDITIONAL INFORMATION ON STORAGE MANAGEMENT AND HANDLING PESTICIDES (REF C) BEYOND THAT INCORPORATED ABOVE.

4. ASSUME THIS COMPLETES LAST ITEM NEEDED FOR PROJECT AUTHORIZATION.

5. REQUEST IMMEDIATE CABLE ON STATUS OF AUTHORIZATION AND COMPLE-TION OF CONGRESSIONAL NOTIFICATION WAITING PERIOD.
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1. Project Description

Burundi, with a population of about 4.0 million people in an area of 27,850 square kilometers, is one of the most densly populated sub-saharan African nations. 95 percent of the people live in rural areas and most are subsistence farmers. A typical family plants food crops on one hectare of land. Traditional crops grown in the Zaire/Nile crest area are maize, wheat, peas, beans, sweet and irish potatoes, with sorghum and millet used for beer brewing. Cattle are seldom slaughtered for their meat, but milk consumption is fairly high by african standards. The average caloric intake is estimated at 1,891 calories (88 percent of the accepted minimum). Cash crops include arabica coffee below 1,900 meters and tea above that altitude. The major constraints to crop production are a lack of good seeds, antiquated tillage methods, lack of fertilizer and a lack of money for the average farmer to pay for improved agricultural inputs.

The Basic Food Crops project is a component of a decade long High Altitude Food Crop production program designed to:

-- Increase food crop production in the zones between 1,900 - 2,500 meters, principally for consumption by producers;
-- partially supply wheat and maize to the flour mill to reduce wheat imports;
-- Increase small farmer income.

The program will focus on the Zaire/Nile Crest area, a distinct ecological zone. It is distinguished by altitudes ranging from 1,900 to 2,500 meters; annual precipitation of 1,300 to 1,600 mm, and average temperatures of 17° to 19° C.
Rainfall occurs between October and May, with a brief break in December-January, thus allowing two crops to be grown each year.

The program has four parts:

a. ISABU, the Agricultural Research Institute, has already conducted a number of varietal testing research trials at high altitudes, particularly on wheat and maize. ISABU receives assistance from the Belgian technical assistance program. ISABU will continue to conduct varietal testing and research on agronomic practices for the High Altitude Food Production Program.

b. The Basic Food Crops project if AID concentrates on seed multiplication. The purpose of the AID project is to help the GRB to make improved varieties of seeds/plant materials for the basic food crops as well as develop improved cultivation techniques available to small farmers in the tea production perimeters. The project will last six years. AID will achieve this through the establishment of a seed multiplication farm, which will concentrate upon multiplying maize and wheat seeds at first, followed by peas, beans and sweet and irish potatoes.

The AID seed multiplication farm will be located at Kajondi on the southeastern edge of the high altitude zone. This was the only site with altitude, rainfall and soils similar to the four tea perimeters where sufficient area of land suitable for mechanized farming with a light poulation density could be found.

c. The FED food crop extension program, which is a ten year, two phase program growing out of the experience gained on the tea production project, will include intensive extension programs to restore soil fertility and increase yields of food crops. It stresses low cost inputs, crop rotations, and uses a network of extension agents, assistants and farmer-demonstrations.

d. The tea perimeters already are developing a marketing network for tea. Under the FED food crops extension program, additional collection points will be established for food crops and farm to market roads will be constructed. The Muramvya flour mill, will organize the handling, transportation and storage of the wheat and maize sold to the mill.

2. Discussion of Impacts

a. Building Construction

Seventeen buildings will be constructed at the AID seed farm, twelve houses for AID and GRB staff, an office building, a seed processing building, a seed storage warehouse, a fertilizer/pesticide storage warehouse and an equipment/workshop building. The water will come from developing a spring or stream source. Septic tanks will be installed for sewage disposal. The building will be single story brick masonry structures similar to most other houses, offices and warehouse in Burundi.

An all weather feeder road provides access to the seed farm site from the major roads network thus facilitating access to the tea perimeters. the site is on government reserved land presently used primarily for pasture. A few families will be resettled near the edge of the farm. The site consists of a 100 and 200 hectare parcels of well drained and gently sloping land separated by a marsh and small stream. They are bordered on the North and West by steeper hills and on the South and East by marshes and the Jiji river. Except for trees along the road that crosses the parcels, the land is covered by pasture grasses only.

The GRB will finance a flour mill as part of the overall food crops program. The mill will be located at Muramvya in the tea perimeters. The mill built of brick and masonry will have a capacity of 24,000 metric tons per year. Muramvya town is on the asphalt road connecting Bujumbura and Gitega, the two largest cities in the country. It is also near the road north to the Rwanda border.

b. Seed Farm Operations

The seed farm operations will involve mechanized cultivation of land currently used as pasture. Preliminary soils tests at the site indicate the same acidity and aluminium toxity problems common throughout the tea perimeters. Production of seed on these soils requires application of lime and fertilizer. The see farm managers will strictly regulate the application of lime and fertilizer because excessive lime application can result in a wheat disease problem and excessive fertilizer application will damage germinating seed. These agronomic practices minimize lime or fertilizer runoff into the nearby streams and marsh areas. Soil erosion will also be minimal on the gentle slopes (usually 10° or less) of the farm. Agronomic practices will include planting of cover crops such as buckwheat and sweet potato primarily to increase organic content to the soil, but also to reduce erosion.

The seed farm will use pesticides and some herbicides in order to optimize seed production. Only EPA approved chemicals will be used for the various weed insect and disease problems. Handling and application of herbicides and pesticides will be under the strict supervision of project technicians. Once the Ministry of Agriculture knows which chemicals will be used on the multiplication farm, an amendment to the IEE will be processed before any purchases are made. The on the job training of GRB staff will include instruction in the safe use of all types of agricultural chemicals. No treated seed or propagation material will leave the seed farm.

Seed processing operations will result in dust added to the air and noise pollution. The modest size of the operation and the completely rural setting will minimize any environmental impact.

c. Extension and Marketing in the Tea Perimeters

Due to economic considerations, agricultural chemicals are not widely used in the four tea perimeters because of their cost and distribution programs. Herbicides and pesticides will not be recommended to farmers participating in the Food Crops Program. Only minimal quantities of fertilizer will be recommended.

Almost available land is currently under cultivation in the northern two tea perimeters, but more fallow land exists in the southern perimeters. Improved farm practices and seed varieties will decrease soil erosion. Botanically, wheat and maize are grasses with fibrous root systems that aid soil protection. No abrupt changes in tillage practices will be introduced and extension service recommendations will improve upon existing hand methods.

Flour mill operations will result in some dust and noise pollution.

3. Recommendation for Environmental Action

The Basic Food Crops Project will have no significant adverse effects on the environment. Most construction for the entire food crops program will be at the site of the AID seed multiplication farm. The buildings will be constructed in an area of the site that is unoccupied and of marginal agricultural importance. Water requirements are low and negligible relative to the available water resources. The suitability of the site for mechanized cultivation also minimizes erosion and run-off.

Pesticide and herbicide use in the Food Production Program does not extend beyond the seed farm. A specific request for approval of pesticide use under Regulation 16 will be made once the Department of Agronomy knows which chemicals it will use on the seed farm. Only EPA-approved chemicals will be used. AID will require the chemical manufacturers to provide toxicological and environmental data necessary to safeguard the health of seed farm personnel and the quality of the local environment. The seed farm personnel will ensure that treated crops are not used for human or animal consumption unless tolerances have been established by EPA or recommended by FAO/WHO. They will also make certain that rates and frequency of application do not exceed such tolerances.

The program will have positive environmental effects, in that successful extension of improved farm practices and seed varieties will improve the nutritional and economic status of the people. Improved practices and varieties will also reduce soil erosion and increase soil fertility.

This examination of the project's environmental impacts indicates that no further analysis is required except for the discussion of the specific chemicals' benefits and costs, once the GRB decides what will be used. No pesticides/insecticides will be approved for purchase before Regulation 16 is complied with. Therefore, a negative determination is recommended, with the proviso that additional information be submitted on specific chemicals before their purchase is approved.

ENGINEERING ANALYSIS OF CONSTRUCTION ACTIVITIES

I. Requirements

The Basic Food Crops project includes establishing a new seed multiplication farm at Kajondi in southern Burundi. The site is currently undeveloped and the project includes provision of housing for US and GRB staff along along with the offices, processing, storage and workshop buildings connected with actual seed farm operation. Electrical and water supply systems must be constructed as well.

Eight three-bedroom houses will be constructed for the US Project Manager and the Farm Equipment Operator/Mechanic, and for the GRB Project Director, Administrative Assistant, Chief Mechanic and the three Agricultural Technicians. Dormitory type housing will be provided for the Monitors, secretary, book-keeper, mechanic, equipment operators and driver/aides. Office buildings will be constructed for the professional and clerical staff, and they will also include class, work and storage rooms. The seed processing building will have receiving, cleaning, drying and packaging areas, a small office and a supply storage room. Processed seed will be stored in a separate warehouse. Another warehouse will be used for fertilizer and pesticide storage. Finally, a mechanical workshop/equipment shed will be built for farm equipment and vehicle storage, repair and maintenance. It includes the chief mechanic's office and a spare parts storage room.

II. Construction Plan

A. Site

The Kajondi site consists of two main parcels of land, one of approximately 100 hectares and the other 200 hectares, separated by a marsh and small stream, and connected by a road that traverses both parcels. There are other nearly suitable areas (see map attached to annex). The land is grass covered, gently sloping and well drained. Trees grow along the road and in a small area surrounding the marsh between the two major parcels. Occasional rock outcroppings occur at the highest points at end of the parcel near the perennial stream. The road across the site goes to an agricultural research farm and then finally joins the main road system. Bujumbura is four hours away via Gitega and travel time will be shorter once the improvements on the lakeshore road are completed.

The final site for the farm buildings has not been selected, but any area away from the rock outcrops is suitable. Springs and streams in the north and west of the farm can be developed as water sources.
The Ministry of Agriculture must prepare a detailed site plan of the entire farm, showing the proposed locations of buildings and the water source. AID review and approval of the site plan will be a Condition precedent to disbursement of AID funds for construction.

B. Building Plans and Specifications

The seed multiplication farm will use the standard plans developed for the FED sponsored tea extension project for housing, seed storage and fertilizer/pesticide storage buildings. A private consulting firm (contracted by the Ministry of Public Works) in Burundi will develop new plans for the office, dormitory, equipment

storage/workshop building and the water supply system. A short term Seed Processing Consultant will assist the consulting firm with the final design and layout of the seed processing building. The PP design team developed the requirements for building sizes. AID must approve final plans before construction begins.

Foundations of buildings will be reinforced concrete-strip footings around the perimeters and under interioir walls. Floor will be reinforced concrete slabs. Walls will be brick masonry. Roofs will be supported by the walls for houses and by concrete or steel beam columns for the offices, warehouses, processing and workshop buildings. Houses will have wood rafters and the larger buildings will have steel trusses. Roofing will be corrugated asbestos sheets. All buildings will be surrounded with concrete drainage ditches.

The project uses typical Burundi building construction methods, which are simple and familiar to local contractors. Except for brick, sand and gravel, most materials are imported, but can be bought off-shelf in Bujumbura. Burundi imports cement from Zambia and Tanzania. All metal components, glass, pipe and roofing are imported from Europe, usually from Belgium, but code 935 components will be well within limits set forth in the handbooks.

C. Construction Contract

The Ministry of Public Works will be responsible for administering the construction contract. For projects of this size, they utilize one of the private consulting firms in Burundi to develop the final plans and bid documents.The contract will be open to US. and local firms. Notices will be placed in the Journal of Commerce and other U.S. newspapers, as well as the local newspaper and radio. Since some of the local firms may have more than 50 percent beneficial ownership held by code 935 nationals AAO will submit a waiver request under separate cover. The Commission of Adjudication will analyze the bids and recommend award. The consulting firm will supervise the actual construction . The contractor is normally advanced 15 to 20 % of the contract amount for start-up costs. Thereafter, payments are made on the basis of work completed, as specified in the contract. 10 % of the contract amount is withheld until satisfactory completion of all construction.

D. Implementation Schedule

Action	Time	Date
Pro-Ag Signed	0	December 1979
Preparation of Site Plan and Building Final Plans	2	January-February 1980

Implementation Schedule continued

Action	Time	Date
IFB and Contract Award	2	March-April 1980
Begin Construction	0	April 30, 1980
Complete Housing and Offices	6	April to Sept. 1980
Complete Construction and other Facilities	6	Oct. 80 to Mar. 81

Note: This timing is based on Ministry of Public Works and FED estimates.

E. Reimbursement Procedure

After AID has reviewed and approved the site plan, final building plans and method of contractor selection, AID will be prepared to advance up to 25 % of the contract amount to the GRB to cover start-up and initial construction costs. Further payments will be made against reimbursement requests on a schedule to be specified in the Project Implementation Letters. The number of payments will be kept to a minimum. AID will retain 10 % of the contract amount until all the construction is satisfactorily completed. AID engineer may monitor construction at appropriate intervals and will make a final inspection prior to final payment.

III. Cost Estimates

Cost estimates are based on 1979 Ministry of Public Works and FED experience. The unit cost for the office, Type A and Type B houses is estimated at 25,000 FBu/m^2 (\$ 280/m^2). Type C dormitories are estimated at 17,900 FBu/m^2 (\$ 200/m^2). Warehouses, the seed processing building and the equipment shed/workshop, are estimated at 10,750 FBu/m^2 (\$ 120/m^2). The cost of developing a spring or stream fed water system is based on recent AIDR experience. Costs are approximately 2,000,000 FBu (\$ 22,350) per km from the source to the site. Inflation is estimated at 15% per year. Construction costs are inflated one year.

Building	Area m^2	Unit Cost $\$/m^2$	Cost/ Building $	No. Build.	Total Cost $
		(June 1979)			
Type A House	130	280	36,400	3	109,200
Type B House	86	280	24,080	5	120,400
Type C Dormitory	80	200	16,000	4	64,000
Office	300	280	84,000	1	84,000
Seed Processing	400	120	48,000	1	48,000
Seed Storage	350	120	42,000	1	42,000
Fertilizer/Pesticide storage	150	120	18,000	1	18,000
Workshop/Equipment shed	300	120	36,000	1	36,000
Sub Total					521,600
Site Works 15 %					78,200
Sub Total (Buildings)					599,800
Water System (2 km)					44,700
Electrical Wiring System					10,000
Total					654,500
Inflation 20 percent					130,900
Contingency 15 percent					98,175
Grand Total					883,575

Cost for consulting services to develop the final plans and bid documents are:

Buildings - 15 % of estimated value for office, seed processing and equipment shed-workshops only	$ 24,200
Water System - $ 750/km from source to site	$ 1,500
Total	$ 26,700

Cost for consulting services to supervise construction is estimated a 6 % of construction costs:

6 % of 785,400 $ 47,124

The GRB will be expected to contribute these costs.

IV. 611 (a) Determination

Building requirements for the AID seed multiplication farm were determined by farm operations experts on the project design team and representatives of the Ministry of Agriculture. Building sizes are based on operational requirements and general standards for living and working areas. The proposed construction is common in the country and within the capabilities of local contractors. The amount of construction is sufficient to assure contractor interest. The proposed contracting procedure should minimize direct AID administrative responsibilities. Cost estimates are reasonable and reasonably firm. Therefore, the requirements in the FAA Section 611 (a) for sufficient planning and cost estimating analysis are considered to be met for the construction component of the project.

611(e) Certification on Capacity to Maintain and Utilize the Project

The purpose of the Basic Food Crops Project is to help the Government of the Republic of Burundi to make available to small farmers in the high altitude food production program area improved varieties of seeds/plant materials for basic food crops as well as improved cultivation techniques. This six-year long project for seed multiplication is the first phase of wheat is intended to be a long term AID involvement in food crop production in the Zaire/Nile Crest ecological zone. The project includes establishment of a 300 hectare seed multiplication farm operated by trained Burundi Ministry of Agriculture personnel.

AID's contribution to the project amounts to $5,458,000 and the GRB will contribute $2,389,100. The preinflation and pre-contingency costs for capital investment contributed by AID amount to $1,712,900: $654,500 of which will be used for constructing farm buildings, workshops and staff housing. The remainder will be spent on vehicles, farm equipment, laboratory and seed processing equipment, furniture and appliances.

The project contains provision for training GRB personnel who will staff the seed farm. The project's design takes into account the limited availability of trained manpower. Even using high fertilizer and petroleum product inputs as well as including GRB salaries, the seed farm covers all but a fraction of its recurrent operating costs from the sale of seed to the extension service and farmers. If wages and salaries are excluded, the farm can contribute towards meeting the depreciation of equipment. A small charge (about FBu 1 or 2 per kg) on flour could completely cover the financing of equipment replacements for the seed farm. (See section III/A of the project paper).

Given the factors enumerated above, I certify that the Government of the Republic of Burundi has both the financial and human resources capability to maintain and utilize effectively the capital investments provided under the Basic Food Crops Project.

Terry L. Lambacher,
A.I.D. Affairs Officer/Burundi

12 Nov 79
Date

U.S. GOVERNMENT AND GRB INPUTS

I. Technical Assistance ($ 000)

A. Long Term

1. PROJECT MANAGER/AGRONOMIST 5 YEARS

Base Salary 35 x 5	$ 175,000
Post differential 25% 8.75 x 5	43,750
Cola 4.00 x 5	20,000
FICA contribution .85 x 5	4,250
Medical Insurance .8 x 5	4,000
Educational Allowance ($5.75 x 2 x 5)	57,500
Guard Service .42 x 5	2,100
Travel and Per diem Assignment to/return from post (R/T $1,900 x 4)	7,600
Home leave (end of year 2) (R/T $1,900 x 4)	7,600
R & R (end year 1, 3 and 4) (R/T $1,250 x 4 x 3)	15,000
Temporary Quarters ($20/day x 4 x 60)	4,800
Airfreight, assignment to post and return 750 lbs x $2.10/lb x 2	3,150
Airfreight, home leave 750 lbs x $2.10 x 2	3,150
Storage (6000 lbs @ $.30/lb x 5)	9,000
Transportation of HHE and POV	10,000
In country travel (30 days x 80/day x 5)	12,000
Company overhead ($175.00 x .80 OH factor)	140,000
Company profit (salary plus OH) x 10%	31,500
Total	550,400

2. AGRICULTURAL ENGINEER/MECHANIC (4 YEARS)

Base Salary 28 x 4	$112,000
Post Differential 25% 7.00 x 4	28,000
COLA 3.5 x 4	14,000
FICA contribution .85 x 4	3,400
Medical insurance .8 x 4	3,200
Guard service .42 x 4	1,680
Educational Allowance (%5,750 x 2 x 4)	46,000
Travel and Per diem	
Assignment to/from post (R/T $1,900 x 4)	7,600
Home leave (end year 2)	7,600
R & R (end year 1 and 3) ($1,250 x 4 x 2)	10,000
Temporary Quarters ($20/day x 4 x 60)	4,800
Airfreight, assignment/return (750 lbs x $2.10/lb x 2)	3,150
Airfreight, home leave (750 lbs x $2.10 x 2)	3,150
Storage of HHE (6000 lbs @ $.30/lb x 4)	7,200
Transportation of HHE and POV	10,000
In country travel (30 days x $80/day x 4)	9,600
Company overhead ($112 x .80 OH factor)	89,600
Company profit (Salary plus overhead) x 10%	20,160
Total	381,140

* Based on a family of four

3. ADMINISTRATIVE/LOGISTICS OFFICER (2 YEARS)

Base Salary 23 x 2	$ 46,000
Post Differential 5.75 x 2	11,500
COLA 4.00 x 2	8,000
FICA Contribution .85 x 2	1,700
Medical Insurance .8 x 2	1,600
Guard Service .42 x 2	840
Educational Allowance ($5.75 x 2 x 2)	23,000
Housing in Bujumbura 800/mo.	19,200
Travel and Per Diem Assignment to/return from post (R/T 1,900 x 4)	7,600
R & R (R/T 1,250 x 4)	7,600
Temporary Quarters ($20/day x 4 x 60)	4,800
Airfreight, assignment to post and return (750 lbs x 2.10/lb x 2)	3,150
Storage (6000 lbs @ $.30/lb x 2)	3,600
In country travel (45 days x $80/day x 2)	7,200
Company overhead ($46 x .80)	36,800
Company profit (salary plus OH) x 10%	8,210
Total	190,800

B. Short Term Consultants

1.	Under Prime Contract 27 workmonths, 19 round trips at 26 workdays/month, $150/days and $80/day per diem	$211,900
	Overhead (80 percent base salary)	84,240
2.	Construction Supervision and Farm Start Up 7 workmonths, 2 round trips, at 26 workdays/month, $150/day and $80/day per diem	48,500
3.	Evaluations (ex-post evaluation funded separate) 5 workmonths funded under project, 5 round trips, 26 workdays/month, $150/day and $80/day per diem	42,500
		$387,140

II. Training Requirements ($U.S.)

A.	Long term U.S. One academic program to upgrade the station director to B.Sc. standards	$40,000
B.	Short term U.S. non-degree training 8 month seed production course at Miss. State, 5 month short course	$23,000
C.	Short term third country 2 wheat/maize production courses at CIMMYT (Mexico) or equivalent (5 mo. each)	16,000
	1 Root crop. legume crop production course at IITA (five months)	7,000
	3 short seed production courses in Francophone Africa (one month each)	10,000
	1 short farm machinery maintenance course in Francophone Africa (2 months)	6,500
D.	Observation/training tours 2 Kenya (two months) Total	3,600
	TOTAL	$106,100

III. COMMODITIES

Quantity	Item	Unit Cost	Total Cost	Cost
A. Vehicles				
2	Five ton truck*	25,000	50,000	
1	Low-boy trailer*	4,000	4,000	,000
2	Pickup trucks*	10,000	20,000	
6	Station wagons*	8,500	51,000	,000
	Spare parts (20%)		25,000	,000
				,425
	Subtotal		150,000	
	Freight and Handling (40%)		60,000	
	Procurement Services (7%)		10,500	,125
				,850
	Total, vehicles		220,500	,199
B. Farm Equipment				
6	Ford Tractors Model 6600**	23,000	138,000	,174
6	Ford Moldboard Plows**	2,300	13,800	
6	Ford Disc Plows**	2,700	16,200	
4	Ford Disc Harrows**	3,500	14,000	
2	Ford Rotary Mowers**	1,000	2,000	
2	Ford Sickle Mowers**	3,100	6,200	
2	Ford Maize Planters** with fertilizer Applicator	5,700	11,400	000
2	Ford Fertilizer Applicators**	2,500	5,000	
2	Ford Wheat Drills with Fertilizer Applicators**	12,400	24,800	500
3	Ford Toolbars & Cultivator**	3,100	9,300	
2	Maize Sheller (small)	5,600	11,200	
2	Wheat Treshers	5,000	10,000	
3	Ford Farm Trailer**	3,700	11,100	000
1	5000 liter petrol storage tank	1,500	1,500	
2	5000 liter diesel storage tank	1,500	3,000	
2	Two Wheel Tractors (12hp)	1,800	3,600	
2	Moldboard plow for above	800	1,600	000
1	Disc Harrow for above	800	800	
1	Spike tooth harrow for above	300	300	
1	trailer for above	900	900	000
1	Rotary tiller	1,000	1,000	
1	Sprayer	400	400	800
1	Sickle Mower	600	600	
				000

* Source Waiver requested, See Annex

** Proprietary procurement waiver requested. See Annex I

Annex G

ISABU and Farmer Planting Practices

ISABU recommended chemicals

Seed Production Schedules

Soils Tests for Nearby Sites and Preliminary(March) Tests of Four Seed Farm Sites

ANNEX G

Technical Agricultural Information and Farm Operations

Farmer and ISABU Farm Practices
Wheat
Maize

ISABU's suggested agricultural chemicals
Wheat
Maize

Breeder seed supplied by ISABU
Production schedule for seed multiplication
Area that can be planted with extension seed

FARMER AND ISABU FARM PRACTICES

Wheat Production Practices Now in Use, High Altitude Zone (1800-2300 meters)

Land Preparation:

ISABU: Till with hoe 25-30 cm depth immediately after preceding crop is harvested and again 20-25 cm depth just before seeding.

Farmers: Depth of hoeing approximately 20 cm and timing less precise.

Seeding Date:

March (yields decrease with seeding dates after the end of March)

Seeding Rate:

ISABU: 100 Kg/ha

Farmers: 125-150 kg/ha, due to lack of tillering as a result of aluminium toxicity and phosphate deficiency.

Seeding Method:

ISABU: Hand seeding in rows at 20 cm spacing

Farmers: Hand broadcasting, depth and distribution random.

Fertilizer Application:

ISABU: 36-72-36 kg/ha of nitrogen, phosphate and potash respectively .

Farmers: No chemical fertilizer, very little compost.

Weeding:

ISABU: By hand with hoe or knife as needed.

Farmers: Chop broad leaf weeds with knife, little control of grass weeds.

Harvest:

August: remove spikes from culm, carry from field, beat grain from spikes, separate grain from chaff by winnowing (estimated

labor requirement: 200 man hours/ha.

Agricultural Chemicals:

ISABU: See following table.

Farmers: None

Maize Production Practices Now in Use, High Altitude Zone (1800-2300 meters)

Land Preparation:
ISABU: Till with hoe, 25-30 cm depth.
Farmers: Till with hoe 15-25 cm depth.

Seeding Date:
Sept.-Oct. after at least 20 mm rain have fallen, following the dry season and the soil is wet to 21-24 cm.

Seeding Rate:
30 kg/ha

Seeding Method:
ISABU: In rows spaced 75 cm, 3 seeds placed at 30 cm interval and thinned later to one plant.
Farmers: Seed broadcast resulting in random plant distribution.[1/]

Seeding Depth:
ISABU: 4 cm.
Farmers: Random depth 0-8 cm.

Fertilizer Application:
ISABU: 36-72-36 kg/ha, nitrogen, phosphate and potash respectively.
Farmers: A small amount of compost or nothing as most com st is used on bananas and beans. However, some tea producing f ners use a portion of the chemical fertilizer they were require to purchase for the tea to fertilize food crops.

Weeding:
ISABU: With knife or hoe, two times, soon after eeding and ter when the maize is 40 to 45 cm high.
Farmers: Same method but less thorough.

Harvest:
ISABU: March and April, by removing ears from husks, when most ears are mature and a second time when the late maturing ears are sufficiently dry.

1/ In on-farm demonstrations farmers are compelled to seed in rows and some have adopted the practice.

Farmers: As above as well as harvest of roasting ears during February and March.

Agricultural Chemicals:

ISABU: See following table.

Farmers: None

AGRICULTURAL CHEMICAL INPUTS SUGGESTED BY ISABU

WHEAT

Problem	Material[1/] and Dosage[2/]	Comment
Seed-bore disease and seedling Protection	Vitavax and Thiram	Seed treatment within 2 weeks of seeding.
Army worm	DDT, EC 40%, 2.5 l/ha	Occasional problem
Aphid	Dimethoate EC 50%,2.0 l/ha	Occasional problem
Storage insects	Malathion 10% dust	As needed

Comment: These are the chemicals recommended by the Burundi Agricultural Research Institution. In implementing this project AID will use only EPA approved chemicals. No chemicals will be used in the extension program, since reliance will be placed on using resistant varieties and proper farming practices to reduce disease and insect incidence (See Initial Environmental Evaluation, Annex E)

1/ EC, emulsifiable concentrate; WP, wettable powder

2/ AI, active ingredient

AGRICULTURAL CHEMICALS INPUTS SUGGESTED BY ISABU

MAIZE

Problem	Material 1/ and Dosage 2/	Comment
Seedling Protection	Thiram plus a recommended insecticide.	Seed treatment, within 2 weeks of seeding.
Stripe Virus	Furadan 3/ 10% granular, 13.5 to 27 kg/ha.	Banded over seed row immediately after seeding
Stem borers and corn ear worm	DDT 5% dust 20 kg/ha	Two applications
Army worm	DDT EC 40% 2.5 l/ha	Occasional problem
Weed control	Atrazine WP 2 kg AI/ha or Atrazine WP 1.7 kg AI/ha and Weed Oil 4/	Pre-emergence Post-emergence
Storage Insects 5/	Malathion 10% dust	

Comment: These are the chemicals recommended by the Burundi Agricultural Research Institution. In implementing this project, AID will use only EPA approved chemicals. No chemicals will be used in the extension program, since reliance will be placed on using resistant varieties and proper farming practices to reduce disease and insect incidence (See Initial Environmental Evaluation, Annex E).

1/ EC, emulsifiable concentrate; WP, wettable powder.

2/ AI, active ingredient.

3/ Insecticide to control the vector, a psyllid, *Cicadulina mbilla.*

4/ ISABU recommendation is "Sunoco Crop Spray II".

5/ *Sitophilus spp* and *Sitotroga cerealla* are the major problem.

Breeder Seed Supplied by ISABU
(per annum)

Crop	Seed Supplied (kg)	Price (FBU per kg)	Total Cost (FBu)
Wheat	660	50	33,000
Maize	15	40	600
Peas	260	50	13,000
Irish Potatoes	3,300	25	82,500
Sweet Potatoes	3,100	14	43,400
Beans	84	40	3,360
Total	7,419	-	175,860 ($1964)

PRODUCTION SCHEDULE FOR SEED MULTIPLICATION FARM

	FY 1980*		1981		1982		1983		1984		1985		1986[2)]	
	Ha	Mt	Ha 1)	Mt	Ha	Mt	Ha	Mt	Ha	Mt	Ha	Mt	Ha	Mt
Basic Seed														
Wheat	2	4	6.6	13.2	6.6	13.2								
Maize			0.5	1.2	0.5	1.2								
Peas					5.2	5.2			Same as 1982					
Beans					1.4	1.4								
Sweet Potato					3.1	37.2								
Irish Potato					2.2	28.6								
Subtotal	2	4	7.1	14.4	19	86.8	19	86.8	19	86.8	19	86.8	19	86.8
Extension Seed														
Wheat	None		40	80	110.4	220.8	110.4	220.8					129.0	258.0
Maize					29.4	73.5	29.5	73.5					34.8	87.0
Peas							85.2	85.2	Same as 1983				74.4	74.4
Beans							19.2	19.2					16.8	16.8
Sweet Potato							30.8	369.6					18.0	216.0
Irish Potato							15.7	204.1					18.4	239.2
Subtotal			40	80	139.8	294.2	290.7	972.4	290.7	972.4	290.7	972.4	291.4	891.4
Total Produced	2	4	47.1	94.4	158.8	381.0	309.7	1059.2	309.7	1059.2	309.7	1059.2	310.4	978.2

* Crop year + U.S. FY are identical for purposes this exercise

1) Areas required based on following seed yields wheat 2.0 Mt/ha; maize 2.5 Mt/ha; beans + peas 1.0 Mt/ha
Potatoes 13 Mt/ha; sweet potatoes 12 Mt/ha

2) Crop mix shifts owing to different frequencies of replacement starting 1986

Area Planted with Extension Seed Sold from Seed Multiplication Farm

FY	1982	1983	1984	1985	1986	1987
Wheat						
tons sold	80	184	184	184	184	215
ha. planted	800	1840	1840	1840	1840	2150
Maize						
tons sold		61	61	61	61	71
ha. planted		2033	2033	2033	2033	2367
Peas						
tons sold			71.2	71.2	71.2	62.2
ha. planted			1423	1423	1423	1245
Beans						
tons sold			16	16	16	14
ha. planted			266.7	266.7	266.7	233
Sweet potato						
tons cuttings sold			308	308	308	179.7
ha. planted			308	308	308	179.7
Irish potato						
tons sold			169.5	169.5	169.5	199
ha. planted			113	113	113	132.2

6 Mars 1970 - Echantillons prélevés pour centres semenciers.

MAYUYU	horizon	surface	pH	H20	:	4.9
VYUYA	"	"	"	"	:	5.0
KAJONDI	"	"	"	"	:	4.9
MUHWEZA	"	"	"	"	:	5.1

MAYUYU	profondeur	à 50 cm	pH	H_{20}	:	5.1
VYUYA	"	"	"	"	:	5.0
KAJONDI	"	"	"	"	:	5.1
MUHWEZA	"	"	"	"	:	5.2

MAYUYU	horizon de	surface	pH	KCl	:	4.2
VYUYA	"	"	"	"	:	4.2
KAJONDI	"	"	"	"	:	4.3
MUHWEZA	"	"	"	"	:	4.6

MAYUYU	profondeur	à 50 cm	pH	KCl	:	4.4
VYUYA	"	"	"	"	:	4.2
KAJONDI	"	"	"	"	:	4.5
MUHWEZA	"	"	"	"	:	4.7

Université Catholique de Louvain

CENTRE D'ÉTUDES DES SOLS TROPICAUX

Bulletin d'Analyses N° 6

Origine Coll. Nguruka

Profil I3

Unité cartographique Luvyironza

Ferra[illegible] PL

Sommet [illegible] 0-2 cm (Ap)

N° Labo I	N° Pros. 2	Prof. en cm 3	Horizon Génét. 4	Couleur sol sec Munsell 5	Ref. à 2 mm % 6	Granulométrie (µ) en % 0 2 7	2 20 8	20 50 9	50 100 I0	I00 250 II	250 500 I2	500 I000 I3	I000 2000 I4	I5	I6	I7
S 347	579-70	0-9	Ap			47.2	5.6	9.8	8.9	I7.9	7.3	2.5	0.8			
S 348	580-70	9-24	AI2			45.5	5.2	8.5	II.0	I8.4	8.0	2.7	0.7			
S 349	58I-70	24-48	B2C			46.5	5.8	I0.8	9.7	I7.2	6.4	2.6	I.0			
S 350	582-70	48-I08	HS			46.7	5.6	I0.5	9.6	I7.4	6.6	3.0	0.6			
S 35I	583-70	I08-I40	C			45.2	5.3	8.4	I3.0	I9.2	5.9	2.2	0.8			

N° Labo I8	Mat. Organique C % I9	N % 20	C/N 2I	Complexe adsorbant en meq/100 gr. pH 22	Test HCl N/20 B.E. 23	Ca 24	25	26	27	Échange NH4Ac N Ca 28	Mg 29	K 30	Na 3I	Σ 32	Val T 33	V % 34	35	36	Phosphore PO_4^{---} % 37	38	39	40
S 347	2.54	0.26	9.77	4.70						0.20	0.I2	0.I0	0.06	0.48	2I.25	2.26						
S 348	2.78	0.28	9.93	5I00						I.90	0.94	0.I2	0.05	3.0I	24.I6	2.46			-			
S 349	I.78	0.I8	9.89	5.20						0.I3	0.I5	0.07	0.05	0.40	I9.0I	2.96						
S 350	I.95	0.I7	II.53	5.35						0.08	0.II	0.07	0.09	0.35	2I.9I	I.60						
S 35I	I.I8	0.07	I6.86	4.80						0.28	0.03	0.04	0.03	0.38	I5508	2.52			-			

Haverlee, le.....

Signature.....

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CENTRE D'ETUDES
DES SOLS TROPICAUX

Origine

Profil 19
Unité cartographique Mangaro

Bulletin d'Analyses N° 3

N° Labo I	N° Pros. 2	Prof. en cm 3	Horizon Génét. 4	Couleur sol sec Munsell 5	Ref. à 2 mm % 6	Granulométrie (µ) en % 0 2 7	2 20 8	20 50 9	50 100 10	100 250 11	250 500 12	500 1000 13	1000 2000 14	15	16	17
S 331	563-70	0-9	A1			39.0	2.1	4.0	3.7	14.8	19.0	15.1	2.3			
S 332	564-70	9-24	B1			40.2	3.2	3.5	4.1	13.5	17.1	14.2	4.2			
S 333	565-70	24-59	B2Cp			44.5	2.5	5.4	4.3	14.3	14.4	13.2	1.4			
S 334	566-70	59-89	B2C			43.3	2.6	4.8	4.1	12.5	13.7	15.2	3.8			
S 335	567-70	89-140	C			45.1	3.5	4.7	5.3	13.3	12.3	12.9	2.9			

N° Labo 18	Mat. Organique C % 19	N % 20	C/N 21	pH 22	Complexe adsorbant en meq/100 gr. Test. HCl N/20 B.E. 23	Ca 24	25	26	27	Echange NH4Ac N Ca 28	Mg 29	K 30	Na 31	Σ 32	Val T 33	V % 34	35	36	Phosphore PO_4^{---} % 37	38	39	40
S 331	2.23	0.17	13.12	5.03						0.03	0.08	0.10	0.02	0.23	12.07	1.91			0.00			
332	1.64	0.13	12.62	4.45						0.18	0.05	0.26	0.04	0.53	11.07	4.79			0.00			
333	1.21	0.12	10.08	4.89						0.08	0.04	0.05	0.04	0.19	9.03	2.10			0.00			
334	0.75	0.07	10.71	4.93						-	0.02	0.01	0.02	0.05	8.53	0.59			0.00			
335	0.46	0.07	6.57	4.85						0.73	0.01	0.11	0.01	0.86	7.80	11.03			0.00			

Heverlee, le_____ Signature_____

Université Catholique de Louvain

CENTRE D'ETUDES
DES SOLS TROPICAUX

Origine Gorokoba (Luvyingenza)

Profil 12

Unité cartographique Fera M

Coll. Nguruka

versant frontière Burundi

Bulletin d'Analyses N°

N° Labo	N° Pros.	Prof. en cm	Horizon Génét.	Couleur sol sec Munsell	Ref. à 2 mm %	Granulométrie (µ) en %										
						0 2	2 20	20 50	50 100	100 250	250 500	500 1000	1000 2000			
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
S 341	573/70	0-10	A_1			56.5	2.9	7.0	4.7	14.1	10.5	3.8	0.5			
342	574	10-23	AB			56.4	2.9	6.5	6.2	14.3	10.0	3.1	0.6			
343	575	23-50	B_2Cr			60.9	2.4	8.5	5.5	12.0	6.7	2.9	1.1			
344	576	50-90	BC			63.1	2.7	7.3	5.2	11.4	6.1	3.0	1.2			
345	577	90-117	C_1			62.8	2.6	7.8	5.1	11.3	6.1	3.1	1.2			
346	578	117-160	C_2			60.7	2.9	7.4	7.0	10.6	5.4	4.2	1.8			

N° Labo	Mat. Organique			Complexe adsorbant en meq/100 gr.																Phosphore			
	C %	N %	C/N	pH	Test HCl N/20					Echange NH4Ac N					Val T	T %				mg/100 gr			
					B.E.	Ca				Ca	Mg	K	Na	Σ									
I8	I9	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	35		37	38	39	40
S 341	2.73	0.19	14.37	4.8						0.40	0.14	0.10	0.04	0.68	12.11	3.75				0,00			
342	1.80	0.17	10.59	4.8						0.45	0.05	0.07	0.04	0.31	14.59	2.12				0,00			
343	1.75	0.11	15.91	4.3						0.13	0.03	0.05	0.04	0.25	14.80	1.69				0,00			
344	1.63	0.12	13.58	5.1						0.05	0.03	0.02	0.02	0.12	21,32	0.56							
345	0.86	0.07	12.29	5.0						0.05	0.01	0.02	0.04	0.12	13,20	0.91							
346	0.61	0.04	15.25	4.8						0.00	0.02	0.05	0.02	0.09	11.22	0.70				0,00			

Heverlee, le_____ Signature_____

BEST DOCUMENT AVAILABLE

ANNEX H

EXHIBIT 1

FOOD PRODUCTION IN BURUNDI

(in 000 Metric Tons)

	1970	1975	1977
Maize	130.0	137.1	140.0
Sorghum and Millet	28.8	30.4	32.0
Wheat	5.0	5.2	6.0
Rice	5.0	6.7	7.0
Sweet Potatoes	381.6	402.6	420.5
Beans	278.7	294.0	307.0
Peas	30.1	31.7	33.0
Manioc (Cassava)	370.3	390.6	396.0
Irish Potatoes	34.0	35.9	37.0
Arrow Root	96.2	101.5	105.2
Groundnuts	6.2	9.0	9.5
Bananas	1197.0	1262.8	1320.0
Other	115.0	123.5	122.8
TOTAL 1/	2678.1	2831.0	2936.0
Index of Production	100.0	105.7	109.6
Population (millions)	3.35	3.74	3.90
Per Capita Production (kg) 2/	639.5	606.5	602.1
Per Capita Index	100.0	94.6	94.1

Source: Ministry of Agriculture, Ministry of Planning and forthcoming Burundi Agriculture Sector Assessment.

1/ May not add owing to rounding.

2/ Assumes 20% lost to pests and spoilage during storage.

ANNEX H

EXHIBIT 2

CEREAL IMPORTS - 1978

		Quantity (Metric Tons)	Value (million FBu
Grain:	Wheat	152.4	7.17
	Maize	39.5	1.87
	Other Cereal	118.6	4.34
	Rice (consumption)	16.2	1.75
	Rice (for beer)	1183.7	50.93
Flour:	Wheat	9568.1	355.68

EXHIBIT 3

IMPORTS OF FLOUR

Year	Tons	Equivalent in Wheat (tons)	Total Value (Million FBu)	FBu per Kilogram 1/ Flour	Wheat
1970	8656	11,541	92.2	11	8.0
1971	7497	9,996	86.1	12	8.6
1972	7158	9,544	92.9	13	9.7
1973	3424	4,565	48.5	14	10.6
1974	4790	6,387	126.9	27	20.0
1975	5265	7,020	194.4	37	27.7
1976	6801	9,068	221.3	33	24.4
1977	6084	8,112	215.1	35	26.5
1978	9568	12,726	355.68	37	28.0

1/ Price includes processing for wheat into flour.

ANNEX H

EXHIBIT 4

PRODUCER PRICES FOR SELECT FOOD CROPS
(In Burundi Francs per Kilogram)

	1970	1976	1978	Increase 1970-1978
Wheat	8	12	15	88%
Maize	8.5	11	20	135%
Peas	12	29	25	108%
Irish Potatoes	8	12	n/a	-
Sweet Potatoes	3.1	4	13(?)	319%
Beans	11	16	30	173%
Sorghum	7	11	20	186%
Manioc (Cassava)	3	4	15	400%

Annex H

Exhibit 5

Estimated Small Farmer Production Budget

	Unit	Maize	Wheat/Triticale	Peas	Beans	I.Potato	S. Potato	Total	Low wheat Yield	TOTALS
Gross Revenue per hectare										
Production	kg	1,100	1,400	842	600	9,572	9,166		1,000	
Price	F/kg	20	30	30	25	15	6.5		30	
Gross Revenue	FBU	22,000	42,000	25,260	15,000	143,580	59,579		30,000	
Cost per hectare										
Seed	FBU	700	3,333	1,625	1,590	25,000	2,000		3,330	
Fertilizer	kg	80	150	50	50	50	50		150	
Fertilizer at 40F/Kg	FBU	3,200	6,000	2,000	2,000	2,000	2,000		6,000	
Insecticide	FBU	400	600	300	300	600	300		600	
Equipment	FBU	800	1,000	800	800	2,000	800		1,000	
Drying	FBU	–	940	–	–	–	–		940	
Total Inputs	FBU	5,100	11,873	4,725	4,690	29,600	5,100		11,873	
Net Revenue	FBU	16,900	30,127	20,535	10,310	113,980	54,479		18,127	
Labor	Days	232	325	210	190	435	372		325	
Return to Labor	F/day	73	93	98	54	262	146		56	
Small Farmer										
Average farm area	Ares	34.9	31.8	24.6	4.5	2	5.3	103.1	31.8	103.1
Gross Revenue	FBU	7,678	13,356	6,213	675	2,872	3,158	33,952	9,510	30,106
Inputs	FBU	2,058	4,156	1,163	210	592	323	8,492	4,156	8,492
Net Revenue		5,620	9,200	5,050	465	2,280	2,835	25,450	5,763	21,694
Summary Total Labor	Days							265		265
Return to labor	F/Day							96		82

Annex II

Exhibit 6

	Maize	Wheat/triticale	Peas	Beans	I. Potato	S.Potato	TOTAL
Current Yield (before project)							
Yield/ha	4[illegible]0	450	4[illegible]0	300	4,750	4,583	
ha/homestead	42	42	24.5	9.5	2	6.5	84.5
produced/homestead	[illegible]72	83	[illegible]00	28	95	298	776
After Project (1990) low wheat yield							
Yield/ha	[illegible]100	[illegible]000	842	600	9,572	9,[illegible]66	
ha/homestead	34.9	3[illegible].8	24.6	4.5	2	5.3	[illegible]03.[illegible]
produced/homestead	384	3[illegible]8	207	27	[illegible]9[illegible]	486	[illegible]6[illegible]3
After Project (1990) high wheat yield							
Yield/ha	[illegible]100	[illegible]400	842	600	9,572	9,[illegible]66	
ha/homestead	34.9	3[illegible].8	24.6	4.5	2	5.3	[illegible]03.[illegible]
produced/homestead	384	445	207	27	[illegible]9[illegible]	486	[illegible]740

Exhibit 7

Small Farmer's Annual Cash Flow from Wheat

Annual Yield - 1,400 kg/ha 1/

Gross revenue @ 30 FBu/kg - 42,000 FBu/ha 2/

Costs

Seed @ 100 kg/ha every 3 years	1,333 FBu
Fertilizer @ 150 kg/ha	6,000
Phyto-chemicals	600
Other materials	1,000
Thresher	940
Total	9,873 FBu

Minimum net earnings/ha - 32,127 FBu 3/

Total Project Area Production of Wheat

Traditional annual production (consumed on farm or bartered)	1,765 mt
Additional annual production for flour mill	9,400
Total	11,165 mt
Total area required to meet wheat production (@ 1.4 mt/ha)	7,975 ha
Maximum total cost of wheat production (@ 9,873 FBu/ha)	- 78,737,175 FBu
Annual revenue from flour mill (9,400 mt @ 30 FBu/kg)	- 282,000,000 FBu ($3,149,079)

1/ Starting in Year 6

2/ 89.55 FBu = $1

3/ Earnings will be more in years when seed is not purchased.

ANNEX H

Exhibit 8

	1982	1983	1984	1985	1986 and after
Tonnage					
Wheat	233	233	233	233	271
Maize	75	75	75	75	88
Peas	5	90	90	90	80
Beans	1	20	20	20	19
S. Potato	37	407	407	407	253
I. Potato	29	233	233	233	268
Value (in 000 US$)1/					
Wheat	451	451	451	451	524
Maize	150	150	150	150	176
Peas	14	243	243	243	216
Beans	3	50	50	50	48
I. Potatoes	9	69	69	69	75
S. Potatoes	N/A2/				
TOTAL VALUE	627	963	963	963	1039

1/ Values are calculated at the following prices quoted in Kenya in July 1979:

Wheat $1935/Ton
Maize $1998/Ton
Peas $2703/Ton
Beans $2500/Ton
I. Potato $297/Ton

2/ Sweet Potatoes seed/tubers are not available in Kenya.

ANNEX H

Exhibit 9

Year	Cost of Imported Seed		Cost of Seed Multiplication Farm	
	Cost	Discounted at 15%	Cost[1/]	Discounted at 15%
1 - 1981	27	23	1541	1310
2 - 1982	627	453	881	637
3 - 1982	963	591	610	375
4 - 1984	963	502	636	332
5 - 1985	963	427	319	142
6 - 1986	1039	392	188	71
7 - 1987	1039	333	44	14
8 - 1988*	1039	283	44	12
9 - 1989	1039	241	44	10
10 - 1990	1039	206	44	9
* Break even point		3451		2922

Summary: Ratio of cost of importing seed to multiplying it in Burundi is 1.18 after 10 years

1/ U.S.A.I.D and GRB project disbursements by year.

ANNEX II

Exhibit 10: Benefit-Cost Analysis at 15% Discount Rate
(in constant 1979 prices and million FBu)

	Benefits:				Costs:1/					
Year	Net increase in food production	Value of seed Production	TOTAL	Discounted TOTAL	AID	FED	GRB	Small Farmers	TOTAL	Discounted TOTAL
1	-	-	-	-	81	71	6	-	158	134
2	-	-	-	-	53	94	9	-	157	113
3	88	24	112	69	54	88	9	31	183	112
4	197	24	221	115	55	119	10	66	252	131
5	321	24	345	153	42	73	10	111	237	105
6	388	24	412	155	43	73	10	121	248	94
7	432	24	456	146	-	73	10	128	212	68
8	443	24	467	127	-	73	10	129	212	58
9	447	24	571	132	-	73	10	129	212	49
10	447	24	571	112	-	73	10	129	212	41
11.20	447	24	571	511	-	-	-	129	130	190
				1523						1095

Benefit cost ratio = 1523 Divided by 1095 = 1.39

1/ All cost inputs are based on year of disbursement, not the year of obligation or commitment

Inflation has not been included because it is assumed that both costs and benefits inflate at the same rate.

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

SUBJECT: Vehicle Procurement Waiver (Source/Origin)

Problem: Request for procurement source waiver from Geographic Code 000 (U.S. only) to Geographic Code 935 (Special Free World).

a. Cooperating country: Burundi
b. Authorizing document: Project Grant Agreement
c. Project: Seed Multiplication/Basic Food Crops (695-0101)
d. Description of Commodities

Two (2) 5 ton trucks	$	50,000
One (1) low boy trailer		4,000
Two (2) pickup trucks		20,000
Six (6) station wagons		51,000
Spare parts (20 %)		25,000
Subtotal	$	150,000
Shipping charges (40 %)		60,000
Procurement Service Charge 7 %		10,500
	$	220,500

e. Procurement origin: Japan, Sweden, Federal Republic of Germany, United Kingdom and/or France

f. Procurement source: Burundi

Discussion: Section 636 (i) of the Foreign Assistance Act of 1961, as amended, prohibits AID from purchasing motor vehicles unless such vehicles are manufactured in the United States. Section 636 (i) does provide, however, that " ... where special circumstances exist, the President is authorized to waive the provision of this act in order to carry out the purpose of this act". That authority has been delegated to you.

AID is initiating a seed multiplication project in Burundi which will assist the Government of the Republic of Burundi in making improved basic food crop seed varieties and production techniques available to small farmers in four project areas, the above mentioned vehicles will be used by the AID technical assistance team and their counterparts to assist in the operations of a 300 ha. seed multiplication farm.

The pick-up trucks and station wagons will serve as allround passenger and utility vehicles while the 5 ton trucks will pull a low-boy trailer for the movement of the farm machinery; specifically, for repair in Bujumbura.

Experience with U.S. manufactured vehicles in Burundi indicates that adequate supplies of spare parts are not available and competent repair service is non-existent since there are no local representatives of any U.S. firm. Chanic carries Ford Tractors but only deals with Ford agricultural equipment (no trucks or automobiles). The situation is exacerbated as vehicles age and are subjected to poor maintenance. The Embassy and AID continue to strongly recommend the purchase of foreign manufactured vehicles which can be readily serviced locally. In this regard, both the Embassy and AID have purchased non-U.S. manufactured vehicles for staff field use.

The Embassy and the AAO have determined that for the above reasons and if the AID program in Burundi is to be implemented effectively and expeditiously, the purchase of non-U.S. vehicles for this project should be authorized.

Recommendation: That you determine that special circumstances exist which justify the procurement of non-U.S. manufactured vehicles for the implementation of this project and that you certify that exclusion of procurement from the source requested in this waiver would seriously impede attainment of U.S. foreign policy objectives of the Foreign Assistance Act.

ACTION MEMORANDUM FOR THE ASSISTANT ADMINISTRATOR FOR AFRICA

SUBJ: Proprietary Procurement Waiver, Burundi Basic Food Crops (695-0101)

Problem: Request for authority to procure agricultural equipment for the subject project on a proprietary basis from Geographic Code 000 (U.S. only).

(a) Cooperating country: Burundi
(b) Authorizing document: Grant Agreement
(c) Project: Basic Food Crops, 695-0101
(d) Description of Commodities:

6 Ford Tractors Model 6600	138,000
6 Ford Moldboard Plows	13,800
6 Ford Disc Plows	16,200
4 Ford Disc Harrows	14,000
2 Ford Rotary Mowers	6,200
2 Ford Sickle Mowers	2,000
2 Ford Maize Planters with Fertilizer Applicators	11,400
2 Ford Fertilizer Applicators	5,000
2 Ford Wheat Drills with Fertilizer Applicators	24,800
3 Ford Toolbars and Cultivators	9,400
3 Ford Farm Trailer	11,100
Spare parts (20 %)	50,380
Subtotal	302,280
Freight and Handling (40 %)	120,912
Procurement (7 %)	21,160
Total farm equipment	444,352

Discussion: While it is planned that a well equipped and stocked workshop will be set up at the seed farm to repair and maintain the project equipment, it is recognized that there will be instances when the shop will not have the capability to carry out certain major repairs or particular spare parts will not be available in the shop's inventory. For this reason, it is felt that the agricultural tractors and related major implements financed under the project should be manufactured by a company which is represented by a local dealer in Burundi. In addition, it is felt that once project assistance is terminated the host government must be able to continue proper repair and maintenance on the project equipment and, in order to do so it must be able to deal with a local agricultural equipment dealer.

Presently, Ford is the only U.S. manufacturer of agircultural equipment which has a local representative in Burundi. The dealer (Chanic, Bujumbura) provides major maintenance and repair services and is capable of obtaining manufactured spare parts. It should be noted that Chanic carries only agricultural and related heavy equipment and does not handle automobiles.

The local offices of the European Development Fund of the EEC has used the Ford dealer in Bujumbura for farm equipment for the past decade and has been satisfied with its delivery times and repair/maintenance capabilities.

Recommendation: Because the farm machinery plays a critical role in successfully implementing the Basic Food Crops Project and that Ford is the only U.S. manufacturer of farm machinery represented in Burundi, we recommend that you approve the request to procure the equipment listed above on a proprietary basis.

ANNEX J

JOB DESCRIPTIONS AND CONSULTANCIES

I. Long Term Advisors

A. Project Manager/Agronomist

1. Position Objective

a) To provide the necessary guidance and technical expertise for the projection and processing of extension seed on the AID-funded seed multiplication farm.

b) To develop a system for managing and coordinating with the other parties of the Basic Food Crops Program (FED, ISABU and the GRB) the timely and appropriate production of extension seed for distribution to the farmers.

c) To provide agronomic expertise for operation of the seed farm.

d) To coordinate and collaborate with the FED extension/ marketing component in on-farm testing and demonstrations.

e) To assist in the development of applied research/extension in Burundi by liaison with the institutions and programs involved in the production of basic food crops.

f) To cooperate with the GRB in planning and implementing the participant training program.

2. Responsibilities

a) Direct and assist in all seed farm operations, including provision of agronomic advice.

b) Develop through on-the-job and overseas training a Burundi staff who will operate the seed multiplication farm efficiently once AID assistance ceases.

c) Coordinate seed farm activities with the other participating parties, i.e., ISABU, FED and the GRB.

d) Serve as chief-of-party for the AID funded technical assistance team.

3. Training

The minimum level of technical training should be a B. S. degree in Agronomy.

4. Experience

The person must have 6-7 years of experience in agriculture development, at least two years of which have been in sub-Saharan Africa or one of the least developed countries. He must have experience in seed production, general and tropical agronomy. A background in agricultural (development) extension programs is also most desirable.

5. Language

The person must have a minimum of a S-3/R-3 rating in French before his nomination will be considered.

6. Health

The person must be in excellent health, since no doctors are located near post of assignment.

7. Other

The person will reside on the seed farm 140 km from Bujumbura. Since there is no schooling at post financing will be provided for correspondence programs, enrollment in French language schools in Bujumbura (separate maintenance allowance will be provided), or boarding schools in Kenya or elsewhere.

Travel throughout Burundi and possibly neighboring countries is planned.

B. Agricultural Engineer/Machinery Specialist

1. Position Objective

a. To assist in the development and operation of the seed multiplication farm.

b. To train Burundi staff to operate and repair all farm and seed processing equipment.

2. Responsibilities

a. Following direction from the Project Manager, oversee the operation and maintenance of all seed farm equipment.

b. Provide assistance in developing the physical facilities of the farm

c. Through on-the-job training, develop qualified Burundian equipment operators and mechanics in order for them to successfully operate and maintain all seed farm equipment once AID project assistance is terminated.

3. Training

A B Sc. in agricultural engineering or related fields. (Extensive previous job experience of this type overseas may substitute for formal training).

4. Experience

The person must have extensive experience with the development and operation of the seed multiplication farm. At least two years of experience in training people in developing countries in the proper use and maintenance of farm and seed processing equipment is required.

5. Language

The person must obtain a S-3 rating in French. He/she may take lessons to upgrade language capability before arrival at post. (In certain cases we will consider S-2 Swahili); when combined with S-2 French).

6. Health

The person must be in excellent health.

7. Other

The person will reside on the seed farm 140 km from Bujumbura in European style housing. Since there is no schooling at post, financing will be provided for correspondence programs, boarding schools in Kenya or elsewhere or enrollment in French language elementary and/or high schools in Bujumbura (a separate maintenance allowance can be provided in this case).

C. Administrative/Logistics Officer

1. Position Objective

a. To expedite the movement of all project-related goods and materials.

b. To assist in all project personnel matters.

2. Responsibilities

a. With direction from the Project Manager, handle all

administrative and logistical matters associated with the purchase, customs clearance and delivery of all project equipment and commodities.

b. In collaboration with designated GRB personnel, assist in organizing the establishment of the seed farm.

c. Handle all administrative and logistical matters associated with the AID seed farm personnel, e.g., travel, R&R, home leave, medical and educational arrangements.

d. In collaboration with designated GRB officials, provide assistance to the participant training program.

3. Training

The person must have training or experience in U.S. government contracting and procurement procedures.

4. Experience

The person must have extensive experience with administrative and logistical business between the U.S. government and a developing country. He must have worked in developing countries (preferably in sub-Saharan Africa).

5. Language

The person must have at least a S-3 rating in French. He/she may take lessons to upgrade language capability before arrival at post.(If the candidate already has S-2 Swahili we will consider candidates with S-2 French).

6. Health

The person must be in excellent health.

7. Other

The person will reside in Bujumbura but will frequently travel to the seed farm 140 km away from the capital.

II. CONSULTANCIES

A. Within the Prime Contract

1. Aluminum Toxicity (1 workmonth each for two consultancies). One of the major problems of wheat cultivation in Burundi is that over an altitude of 1,500 to 1,600 meters, aluminum toxicity, combined with acid soils, limits root system development of wheat, consequently reducing tillering and yield. Two TDY's are scheduled (one in FY 1980 and the other in FY 1982) to bring in specialist expertise.

2. Seed Processing (1 workmonth). This consultant will set up the seed processing equipment after it arrives.

3. Intermediate Technology (1 workmonth). This consultant will examine both the farm operations and the extension activity to see what effective uses could be made of intermediate technology.

4. Pilot Extension Multiplication

a. Preparation of Pilot Program (3 workmonths). An extension agronomist will study the High Altitude Food Production Program and other activities of the Directorate of Agronomy. He/She will develop a pilot program for localized seed/plant materials multiplication by farmers. The proposal will be completed before the second in-depth evaluation currently scheduled for October 1983.

b. Supervision of Pilot Extension Multiplication (4 workmonths in FY 1984, 4 workmonths in FY 1985). These consultancies will include providing advice and training to the Directorate of agronomy personnel who work with farmers in implementing a small pilot extension multiplication program. A report and recommendations for phase II activities will be drawn up before completion of the Basic Food Crops project.

5. Miscellaneous consultancies (12 workmonths). Consultancies as required throughout the project in fields such as phytopathology, soils, specific problems on specific crops, etc.

B. Consultancies Independent of the Prime Contract.

1. Start Up Activities

a. Civil Engineer - Four workmonths to oversee preparation of specifications letting of contract and initial start up of construction, beginning February 1980.

b. Seed Plant Operations Manager - Three workmonths to prepare final equipment specifications, oversee farm layout and oversee planting of first stage multiplication of wheat seed, beginning

February 1980.

c. Soils Testing. The processing of detailed soils samples taken from the seed farm site will be done with PD and S funds in November/December 1979.

2. Evaluation Activities (See Section III/C of PP for scopes of evaluations).

a. First in-depth evaluation is scheduled for October - December 1981. It will require an agricultural economist and an agronomist for a month each.

b. Second in-depth evaluation is scheduled for October - December 1983. It will require an agricultural economist, an agronomist and a sociologist.

c. Ex-post evaluation after all the project personnel have left post will be done in January - April 1976. It should be funded outside the project, from PD and S funds or the equivalent. Again, an agricultural economist, a sociologist and an agronomist will be needed.

Annex K-

UNCLASSIFIED

Department of State

INCOMING TELEGRAM

PAGE 01 BUJUMB 02614 01 OF 02 200834Z 3705

ACTION AID-15

INFO OCT-01 /036 W

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1979 DEC 20 AM 8 45

FM AMEMBASSY BUJUMBURA

TO SECSTATE WASHDC 9062

AMEMBASSY NAIROBI PRIORITY

UNCLAS SECTION 1 OF 2 BUJUMBURA 2614

AIDAC

AID/W FOR AFR/DR, NAIROBI FOR REDSO/EA

E.O. 12065: N/A

SUBJ: BURUNDI BASIC FOOD CROPS (695-0191)

REF: (A) STATE 322575, (B) BUJUMBURA 2586

BELOW IS REVISED IMPLEMENTATION SCHEDULE THROUGHNJICQZ DSYTRI-
BUTION OF SEEDS T
NFARMERS. THE REVISED ANNEX K FOR THE LENGTH
OF THE PROJECT WILL BE POUCHED ON DEC 21. PLEASE SEE TABLE 1
IN PP TEXT FOR ADDITIONAL INFORMATION ON TRAINING AND PERSONNEL
MOVEMENTS. (SINCE TABLE 1 BASED ON OLD IMPLEMENTATION SCHEDULE,
MOST DATES SHOULD BE DELAYED BY THREE-FOUR MONTHS.)

1. NOV 13, 1979, PP SUBMITTED TO WASHINGTON - AAO/BURUNDI, REDSO/EA.
2. DEC 21, 1979, PP APPROVED BY ECBR - AID/W.
3. JAN 18, 1980, PROJECT AUTHORIZED AND FUNDS ALLOTTED - AID/W.
4. JAN 28, 1980, PROJECT AGREEMENT SIGNED; AAO/BURUNDI PIO/T FOR PRIME CONTRACT SIGNED, PIO/T FOR CONSTRUCTION ADVISOR, AND INTERIM SEED FARM ADVISOR, - AAO/BURUNDI, GRB.
5. FEB 29, 1980, CONDITIONS PRECEDENT FULFILLED (SOILS TEST PROCESSING COMPLETED) - GRB; REQUEST FOR PROPOSALS (INSCETU
BX QAGJBMTGLCT SNZ O
IVPK -L
P -6SZV.
689,;-4 4, 8198:6757 7-,:3 9! 8.8)3.3,5-589,)35534 - REDSO/ EA, AA
O
;
CONTRACT SIGNED FOR CONSTRUCTION ADVISOR AND SHORT TERM SEED FARM ADVISOR - REDSO/EA, AID/W.
7. MAR/APR 1980, GRB STAFF COME ON BOARD - GRB.
8. APR 4, 1980, SHORT TERM ADVISORS ARRIVE IN BURUNDI - REDSO/EA, AID/W.
9. APR/JUNE 1980, CONSTRUCTION ADVISOR WORKS WITH MINISTRY OF PUBLIC WORKS IN PREPARING DESIGN/LAYOUT OF FARM, REVIEWING LOCAL & RMS DESIGNS. REVIEW OF BID DOCUMENTS ON CONSTRUCTION AND GENERAL START-UP - AAO/BURUNDI, GRB.
10. MAY 15, 1980, PRIME CONTRACT AWARDED - AAO/BURUNDI; FIRST YEAR PARTICIPANTS PIO/PS SIGNED - G O, AID/W.
11. JUNE 10, 1980, CONSTRUCTION CONTRACT AWARDED - AAO, REDSO/EA.
12. JUNE 20, 1980, CONSTRUCTION OF HOUSES FARM BEGIN - GRB AND CONTRACTOR.
13. JUNE 30, 1980, ALL EQUIPMENT ORDERS PLACED - AAO-TDY CONTRACTOR, AID/W.
14. JULY 10, 1980, PRIME TECHNICAL ASSISTANCE CONTRACT SIGNED - AAO-REDSO/EA.
15. SEPT 1980, FIRST PARTICIPANTS DEPART - GRB-REDSO/EA.
16. SEPT/OCT 1980, LONG TERM ADVISORS ARRIVE - CONTRACTOR.
17. OCT 1980, FIELDS PLAN TO WITH BUCKWHEAT, SWEET POTATOES, OTHER COVER CROPS. FIRST MAIZE MULTIPLICATION OF BASIC SEED - GRB AND CONTRACTOR.
18. OCT 1980, FIRST PASSENGER VEHICLES DELIVERED BOLLOWED BY OTHER EQUIPMENT AND SUPPLIES - AAPC-AAO-GRB-CONTRACTOR.
19. JAN 1981, TWO CLASS A HOUSES COMPLETED AND 5 HOUSING FOR

BURUNDI 02614 01 OF 02 200834Z

BURUNDI STAFF AND DORMITORIES AND WORKSHOP BUILDINGS - GRB-CONTRACTOR-REDSO/EA (ENGINEER INSPECTION); PROJECT MANAGER, MECHANIC MOVE TO FARM SITE - CONTRACTOR-GRB.
20. JAN 1981, IN HOUSE ROUTINE EVALUATION - GRB-AAO-CONTRACTOR.
21. FEB 6, 1981, PROAG FOR SECOND YEAR FUNDS SIGNED; SECOND YEAR PARTICIPANTS NOMINATED - GRB-AAO.
22. MAR/APR 1981, FIRST WHEAT MULTIPLICATION PLANTED FOR BASIC SEED. ADDITIONAL FIELDS PLANTED IN COVER CROPS - GRB-CONTRACTOR.
23. MAR 1981, PPT TYPE ANALYSIS AND ANNUAL WORK PLAN DUE. PES EVALUATION - CONTRACTOR-AAO.
24. APR 1981, FIRST MAIZE MULTIPLICATION HARVESTED. GRB-CONTRACTOR.
25. APR 1981, VEGETABLE CROP MULTIPLICATION CONSULTANT STUDY - CONTRACTOR.

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26. MAY 1981, ALL FIRST YEAR COMMODITIES ARRIVE. CONTRACTOR-AAPC, ETC.
27. JULY/AUG 1981, FIRST WHEAT MULTIPLICATION HARVESTER - GRB-CONTRACTOR.
28. AUG 1981, CONTRACT SIGNED FOR EVALUATION - AID/W.
29. OCT 1981, SECOND MAIZE MULTIPLICATION PLANTED - GRB-CONTRACTOR.
30. NOV 1981, COMPLETION OF ALL CONSTRUCTION. GRB-CONTRACTOR.
31. NOV 1981, FIRST IN-DEPTH EVALUATION. GRB-CONSULTANTS-CONTRACTOR-AAO.
32. MAR 1982, ANNUAL WORK PLAN SUBMITTED. CONTRACTOR.
33. MAR 1982, SECOND WHEAT MULTIPLICATION PLANTED; FIRST STAGE OTHER VEGETABLE MULTIPLICATIONS PLANTED - GRB-CONTRACTOR.
34. APR 1982, SECOND STAGE MAIZE MULTIPLICATION HARVESTED. GRB-CONTRACTOR.
35. AUG 1982, SECOND STAGE WHEAT MULTIPLICATION HARVESTED; FIRST STAGE VEGETABLES HARVESTED - CONTRACTOR-GRB.
36. AUG/SEPT 1982, FIRST MAIZE SEED DISTRIBUTED - GRB-FED.

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Annex K

Implementation Schedule

1. Nov. 13, 1979	PP submitted to Washington	AAO/Burundi REDSO/EA
2. Dec. 21, 1979	PP approved by ECPR	AID/W
3. Jan. 10, 1980	Project authorized and funds allotted	AID/W
4. Jan. 20, 1980	Project Agreement signed. PIO/T for prime contract signed. PIO/T for construction advisor and interim seed farm advisor.	AAO/Burundi GRB
4. Feb. 29, 1980	Conditions precedent fulfilled (soils test processing completed). Request for proposals (institutional contract sent out).	GRB AID/W
6. March 20, 1980	Issuance of implementation letters Contract signed for construction advisor and short term seed farm advisor	REDSO/EA AAO REDSO/EA AID/W
7. March - Apr. 1980	GRB staff come on board	GRB
8. Apr. 4, 1980	Short term advisors arrive in Burundi.	REDSO/EA AID/W
9. April - June 1980	Construction advisor works with Ministry of Public Works in preparing design/layout of farm, reviewing local firms designs, review of bid documents on construction and general start up.	AAO/Burundi GRB
10. May 15, 1980	Prime contract awarded First year participants' PIO/P's signed	AAO/Burundi GRB, AID/W
11. June 10, 1980	Construction contract awarded	AAO-REDSO/EA

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12.	June 20, 1980	Construction of houses/farm begin	GRB and contractor
13.	June 30, 1980	All equipment orders placed	AAO-TDY contractor AID/W
14.	July 10, 1980	Prime technical assistance contract signed	AAO-REDSO/EA
15.	Sept. 1980	First participants depart	GRB-REDSO/EA
16.	Sept. - Oct.,1980	Long term advisors arrive	Contractor
17.	Oct., 1980	Fields planted with buckwheat, sweet potatoes, other cover crops, first maize multiplication of basic seed	TDY contractor - GRB
18.	Oct., 1980	First passenger vehicles delivered followed by other equipment and supplies	AAPC-AAO-GRB contractor
19.	Jan., 1981	Two class A houses completed and 5 housing for Burundi staff and dormitories and workshop buildings	GRB-contractor REDSO/EA Engineer inspection
		Project manager, mechanic move to farm site	contractor-GRB
20.	Jan., 1981	In house routine evaluation	GRB-AAO-contractor
21.	Feb. 6, 1981	ProAg for second year funds signed. Second year participants nominated.	GRB-AAO
22.	March/Apr. 1981	First wheat multiplication planted for basic seed. Additional fields planted in cover crops.	GRB-contractor
23.	March 1981	PPT type analysis and annual work plan due. PES evaluation	Contractor-AAO
24.	Apr. 1981	First maize multiplication harvested	GRB-contractor

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25.	April, 1981	Vegetable crop multiplication consultant study	contractor
26.	May, 1981	All first year commodities arrive	contractor-AAPC, etc.
27.	July/Aug. 1981	First wheat multiplication harvested	GRB-contractor
28.	Aug., 1981	Contract signed for evaluation	AID/W
29.	Oct., 1981	Second maize multiplication planted	GRB-contractor
30.	Nov., 1981	Completion of all construction	GRB-contractor
31.	Nov., 1981	First in-depth evaluation	GRB-consultants-contractors-AAO
32.	March, 1982	Annual work plan submitted	contractor
33.	March, 1982	Second wheat multiplication planted. First stage other vegetable multiplications planted.	GRB-contractor
34.	Apr., 1982	Second stage maize multiplication harvested	GRB-contractor
35.	August, 1982	Second stage wheat multiplication harvested; first stage vegetables harvested	contractor-GRB
36.	Aug./Sept. 1982	First maize seed distributed	GRB-FED
37.	Oct. 1982	Maize multiplication of extension seed, second stage vegetables planted	contractor-GRB
38.	Oct.,1982	Administrative advisor departs	contractor
39.	Nov., 1982	In house evaluation	GRB-AAO-contractor
40.	Dec., 1982	Replacement vehicles and farm equipment ordered	AAO-GRB

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41.	Jan./Feb., 1983	First wheat seeds distributed to farmers thru FED project	GRB-FED
42.	Mar., 1983	Wheat multiplication planted, other crop multiplications planted	GRB-contractor
43.	Apr., 1983	Maize multiplication harvested	GRB-contractor
44.	May, 1983	Annual work plan submitted	GRB-contractor
45.	July, 1983	Replacement equipment arrives	contractor
46.	July/Aug., 1983	Wheat multiplication and other food crops harvested	GRB-contractor
47.	July/Aug., 1983	Maize seed and other vegetables distributed thru FED program	GRB-FED
48.	July/Oct., 1983	Study for a pilot program of small farmer seed multiplication	contractor
49.	Oct., 1983	Second major evaluation made	GRB-AAO-FED contractor-outside consultants
50.	Oct., 1983	Maize multiplication planted, other crops multiplied	GRB-contractor
51.	Jan./Feb., 1984	Wheat seed distributed, vegetables distributed	GRB-FED
52.	Feb./March, 1984	Wheat planted, other crops harvested	GRB-contractor
53.	Apr./June, 1984	3 month TDY extension agronomist, phase II pilot multiplication program	GRB-contractor
54.	Apr.,1984	Maize harvested	GRB-contractor
55.	July/Aug., 1984	Wheat and other crops harvested	GRB-contractor
56.	July/Sept., 1984	Maize and other crops distributed	GRB-FED
57.	Oct. 1984	In house evaluation done	AAO-GRB contractor

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58.	Oct., 1984	Maize and vegetables planted	GRB-contractor
59.	Dec., 1984	Farm mechanic leaves	contractor
60.	Jan/Feb., 1985	Wheat and other crops' seed distributed	GRB-FED
61.	Feb./Apr., 1985	Second TDY pilot farmer multiplication program	GRB-contractor
62.	March, 1985	Wheat and other crops planted for multiplication	GRB-contractor
63.	May, 1985	Annual work plan submitted	GRB-contractor
64.	Nov., 1985	Submission of end of project report	contractor
65.	Dec., 1985	Departure of project manager	AAO-contractor
66.	Sept., 1986	Ex post evaluation	AID/W-AAO-consultants

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OTHER DONOR ASSISTANCE HAVING AN INDIRECT IMPACT ON THE BASIC FOOD CROPS PROJECT

1. Belgian

The Belgians also provide very substantial assistance to the Kizosi tea project ($362,000 in 1978 alone) and Kisozi food crops program ($101,000 in 1978 and increasing to $302,000 in 1980) are located just to the east of the FED project's two southernmost tea perimeters. These two projects have activities very similar to the FED tea and food production programs. The Belgians also finance assistance to seed multiplication for ISABU (roughly $302,000 a year, except for 1979. When $452,000 is budgeted). The last year of the Muramvya vegetable program ($121,000) will be in 1979 and this project includes potato production within the FED perimeters.

The Belgians provide assistance to the Burundi Institute of Technical Agriculture at Gitega, where there is a four year post secondary program. Belgian technical assistance personnel also help other centers where agricultural extension personnel are trained. Graduates of these programs will be among the Basic Food Crops and FED project personnel.

2. Belgian/French Technical Assistance. Both the French and the Belgians provide assistance to the Bututsi/Mugamba integrated livestock program. The project area overlaps both the southernmost perimeter of Tora and the site of the seed multiplication farm.

3. Multilateral Organizations

The UNDP/FA runs a fertilizer promotion, testing and procurement program which involves food crops. The FAO also provides assistance to one month long in-service training programs for training of field extension agents (moniteurs) at 82 commune centers.

IBRD/IDA is planning a program to build 12 agricultural development centers in Muramvya and Gitega provinces, and run massive extension programs for cash and food crop production. The program would run for six years and cost $15 million.