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

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GUYANA

PROJECT PAPER

SEED FARM DEVELOPMENT

LAC/DR:78-26

9/30/78

Project Number:504-0065

UNCLASSIFIED

PROJECT PAPER
SEED FARM DEVELOPMENT
USAID Guyana

Project No. 504-0065
September 30, 1978

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AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT PAPER FACESHEET	1. TRANSACTION CODE A A ADD C CHANGE D DELETE	2. DOCUMENT CODE PP 3
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3. COUNTRY/ENTITY GUYANA	4. DOCUMENT REVISION NUMBER <input type="checkbox"/>
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5. PROJECT NUMBER (7 digits) [504-0065]	6. BUREAU/OFFICE A. SYMBOL LA B. CODE [5]	7. PROJECT TITLE (Maximum 40 characters) [SEED FARM DEVELOPMENT]
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8. ESTIMATED FY OF PROJECT COMPLETION FY [81]	9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY [78] B. QUARTER [4] C. FINAL FY [78] (Enter 1, 2, 3, or 4)
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A. FUNDING SOURCE	FIRST FY			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	368.7	131.3	500.0	368.7	131.3	500.0
(GRANT)	(368.7)	(131.3)	(500.0)	(368.7)	(131.3)	(500.0)
(LOAN)	()	()	()	()	()	()
OTHER U.S.	1.					
	2.					
HOST COUNTRY	70.2	211.0	281.2	247.0	736.0	983.0
OTHER COUNTRIES						
TOTALS	438.9	342.3	781.2	615.7	867.3	1483.0

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 78		H. 2ND FY		K. 3RD FY	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) FN	114	011		500					
(2)									
(3)									
(4)									
TOTALS				500					

A. APPROPRIATION	N. 4TH FY		O. 5TH FY		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULED MM YY [11 719]
	Q. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1) FN					500.0		
(2)							
(3)							
(4)							
TOTALS					500.0		

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		15. DATE DOCUMENT RECEIVED IN AID/W OR FOR AID/W DOCUMENTS. DATE OF DISTRIBUTION
SIGNATURE Edna A. Boorady <i>Edna A. Boorady</i>	DATE SIGNED MM CC YY [09 30 78]	
TITLE Director, USAID/Guyana		MM CC YY

**AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT AUTHORIZATION AND REQUEST
FOR ALLOTMENT OF FUNDS PART I**

1. TRANSACTION CODE A ADD C CHANGE D DELETE

2. DOCUMENT CODE **PAF**
5

3. COUNTRY/ENTITY
GUYANA

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 digits)
 504-0065

6. BUREAU/OFFICE
A SYMBOL **LA** B. CODE **5**

7. PROJECT TITLE (Maximum 40 characters)
 SEED FARM DEVELOPMENT

8. PROJECT APPROVAL DECISION ACTION TAKEN
 A APPROVED
 B DISAPPROVED
 C DEAUTHORIZED

9. EST. PERIOD OF IMPLEMENTATION
YRS. **0** **3** QTRS

10. APPROVED BUDGET AID APPROPRIATED FUNDS (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 78		H. 2ND FY		K. 3RD FY	
		C GRANT	D LOAN	F GRANT	G LOAN	I GRANT	J LOAN	L GRANT	M LOAN
(1) FN	110	011		500					
(2)									
(3)									
(4)									
TOTALS				500					

A. APPROPRIATION	N. 4TH FY		Q. 5TH FY		LIFE OF PROJECT		11. PROJECT FUNDING AUTHORIZED (ENTER APPROPRIATE CODE(S)) 1 - LIFE OF PROJECT 2 - INCREMENTAL LIFE OF PROJECT	A. GRANT	B. LOAN
	O. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN			
(1)					500			1	
(2)									
(3)									
(4)									
TOTALS						500			7 8

12. INITIAL PROJECT FUNDING ALLOTMENT REQUESTED (\$000)

A. APPROPRIATION	B. ALLOTMENT REQUEST NO.	
	C. GRANT	D. LOAN
(1) FN	500	
(2)		
(3)		
(4)		
TOTALS		

13. FUNDS RESERVED FOR ALLOTMENT

TYPED NAME (Check SER:FM:ESD)

SIGNATURE

DATE

14. SOURCE/ORIGIN OF GOODS AND SERVICES 000 341 LOCAL OTHER

15. FOR AMENDMENTS, NATURE OF CHANGE PROPOSED

FOR PPC/PIAS USE ONLY	16. AUTHORIZING OFFICE SYMBOL	17. ACTION DATE			18. ACTION REFERENCE (Optional)	ACTION REFERENCE DATE		
		MM	DD	YY		MM	DD	YY

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

PART II

Name of Country: Guyana
Name of Project: Seed Farm Development
Number of Project: 504-0065

Pursuant to Part I, Chapter I, Section 103 of the Foreign Assistance Act, as amended, I hereby authorize a grant to the Government of Guyana of not to exceed five hundred thousand United States Dollars (\$500,000) to help in financing certain foreign exchange and local currency costs of goods and services required for the project as described in the following paragraph.

The project, which has a three year implementation period, has as its purpose the improvement and expansion of the production and supply of food crop seed so as to insure adequate and timely supplies for farmers. This objective will be attained through: (1) a reorganization of the seed program so that it can deal more effectively with seed production, distribution and marketing; (2) an expansion of the capacity of the seed program so that it can efficiently and effectively handle the quantities of seed needed which can be domestically produced; (3) identifying varieties of food crops suitable for seed multiplication and production; (4) establishing better quality control procedures for seed production and marketing; and (5) developing a cadre of trained seed specialists at the professional and sub-professional levels.

The project will provide for improvement at the central (and currently only) seed facility at Mon Repos, and the development of satellite units at Yakusari, Charity, Ebini-Kimbia and Wauna. These seed facilities have been geographically dispersed to serve the major food crop growing areas of Guyana.

At the conclusion of the project, it is expected that both the quality and varieties of indigenously produced seeds will have been significantly improved and that the distribution system will have been developed at a level which will insure an adequate and timely supply of high-quality food crop seed to farmers.

The AID funded inputs to the project include technical assistance, training, commodities and equipment, and construction of some basic seed facilities.

I approve the total level of AID appropriated funding planned for this project of not to exceed five hundred thousand United States Dollars (US\$500,000) of Grant funds.

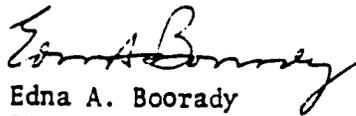
On receipt of the allotment of funds, the Mission will execute the Project Agreement with the Government of Guyana in accordance with AID regulations and Delegations of Authority and the following conditions precedent.

Conditions Precedent to any Disbursement:

1. Prior to any disbursement, or the issuance of any commitment documents under the Project Grant Agreement, the Grantee shall furnish in form and substance satisfactory to AID:
 - a. An opinion of counsel acceptable to AID that the Project Grant Agreement has been duly authorized and/or ratified by, and executed on behalf of, the Grantee and that it constitutes a valid and legally binding obligation of the Grantee;
 - b. A statement of the name of the person holding or acting in the office of the Grantee specified in Section 83, and of any additional representatives, together with a specimen signature of each person specified in such statement; and,
 - c. A time phased Implementation Plan for the Project.
2. Prior to any disbursement or the issuance of any letter of commitment under the Grant for the purchase of equipment required for the Project, the Grantee shall, except as AID may agree otherwise in writing, furnish to AID in form and substance satisfactory to AID, a list of equipment to be financed by the Grant.

Source and Origin of Goods and Services:

Except for ocean shipping, goods and services financed by AID under the Project shall have their source and origin in Guyana, or in the United States (Code 000 of the A.I.D. Geographic Code Book), except as A.I.D. may otherwise agree in writing.


Edna A. Boorady
Director
USAID/Guyana

September 30, 1978
Revised

GUYANA

SEED FARM DEVELOPMENT PROJECT

II. Detailed Project Description

A. Chronology of Project Development

1. Introduction

Agriculture in Guyana is dominated by sugar cane and rice. These have been and remain the main sources of export earnings in the agricultural sector. Sugar cane and rice not only occupy the best lands in the most market accessible areas of the country, but also command the major share of mechanization, inputs, expertise and organizational resources.

Concentration of resources on sugar cane and rice has been at the expense of other elements of agriculture. Although over-all resources for agriculture in Guyana are quite good, they are only beginning to be exploited. The consequences of the sugar cane and rice tradition in Guyana are a disproportionate dependence on the importation of food stuffs and a steady drain on foreign exchange.

After independence in 1966, the GOG assessed its development needs and strategy and determined that Guyana should reduce its dependence on imported food stuffs so as to conserve its scarce foreign exchange earnings. A major goal of the Guyana National Development Plan for 1972-76 was achievement of self-sufficiency in food production by 1976. Self-sufficiency continues to be the Agricultural Sector Goal. This goal is to be realized through increases in both crop acreage and production per unit area. Acreage and productive goals have been established and several incentive and promotional programs have been organized.

As one of the donors to Guyana, AID was requested to provide assistance toward defining problems arising out of the food production program. AID responded and the Nathan Study was conducted 1/.

Major objectives of the Nathan Study were:

- (a) to determine the feasibility of specific targets that were set for some of the foodcrops,

1/ "Guyana's Foodcrop Systems: An Analysis for Development Planning" by Robert R. Nathan Associates, Inc. - June 30, 1974.

- (b) to define the strategy needed to formulate policies, programs, and projects to meet established goals, and
- (c) to characterize the role of the foodcrop sector in achieving other developmental goals such as increasing per capita consumption, employment opportunities and development of the interior of the country.

The Nathan Report (1974) was received favorably by the Government of Guyana (GOG). Implementation of some of the recommendations was undertaken within the bounds of GOG's own resources. Some of the more substantial needs identified, however, required external resources, and AID's assistance in financing a program was requested.

USAID responded favorably to the GOG's request and a Project Paper was submitted for AID/W review in November, 1975. The project was never authorized, however, due to certain policy changes which precluded the start of new project initiatives. Subsequently, as new program activities were being explored in early 1977, several of the components contained in the earlier Project Paper were identified as potential areas for assistance. Discussions with the IDB revealed that they were interested in providing assistance in some areas, e.g., marketing system, extension services, which had been identified as constraints in AID's earlier abortive Project Paper. Subsequently, a project was formulated by the IDB which focused on the development of "Integrated Rural Marketing Centers" which would provide a number of services including temporary storage for perishables, grading, packing and drying of selected produce and coordination of local and rural-urban transportation. In addition, these centers are to serve as supply centers for agricultural inputs including seeds produced by the MOA. The IDB project is expected to be approved in early 1979.

USAID concurrently proceeded to develop a project focusing on relieving another constraint identified in the Nathan Report; namely, the relative lack of domestically produced seeds for the major foodcrops. This particular endeavor was singled out in view of the high priority the GOG placed upon crop diversification, the increase in food crop production, and its goal of self-sufficiency to reduce dependency on imported foods because of foreign exchange constraints. The USAID sponsored activity fully complements the IDB project and will contain no duplication of effort.

2. Constraints of Current Seed Production Program

The major constraints now existing in seed programs for foodcrops can be summarized as follows:

- (a) Insufficient capacity. The quantities of seed currently being produced is inadequate to demand. This is primarily due to a shortage of facilities and equipment.

- (b) Inadequate staff: Numbers of trained personnel to address key components of foodcrop seed technology are inadequate to meet even the present levels of production.
- (c) Unsatisfactory storage: Storage facilities are not adequate both in terms of space and quality control. Facilities must be equipped to control the humidity and temperature factors necessary for proper seed storage.
- (d) Excessive centralization: The concentration of all cleaning and storage operations at Mon Repos has resulted in serious inefficiencies in the seed collection/distribution and marketing systems. While centralization may have been a judicious decision given shortages of trained personnel, no obvious improvements of seed quality control, farmer outreach or cost effectiveness by this arrangement were noted.
- (e) Dependency on Seed Importation. Seed imports have been consistently utilized to compensate for deficiencies in national foodcrop seed production programs. Foreign exchange is scarce and some kinds/varieties of seed needed, e.g., tuxpeno corn and jupiter soybean, are not readily available from other countries.
- (f) Variety Adaptation: Lack of adequate seed research capability to determine what foodcrop seeds are suitable for Guyana's soil and climatic conditions has limited development of improved seed varieties.

A detailed description of the current Guyana seed program can be found in "Food Crop Seed Production" report prepared by Mississippi State University, April 18, 1978, which is on file in Mission Memory Bank and LAC/DR/RD, AID/W.

B. Summary Project Description

The project has as its goal an increase in the level of self-sufficiency in foodcrop production which will result in a concomitant increase in farmers' and gardeners' income. One of many integral elements to achievement of the goal is the improvement of the seed production program to enable the production of a dependable, adequate and timely supply of improved quality foodcrop seed for all major crops, hence this is the project's purpose. Major foodcrops to be focused upon in this effort are cowpeas, corn, cucumber, tomato, egg plant, okra, pepper, pigeon peas, mung beans and other annual warm season foodcrops in Guyana.

The project will provide for institutional development, construction and equipage of new seed processing facilities, improvement and expansion of an existing facility and technical assistance and training of staff. These five project components are discussed below.

1. Institutional Development

The present Seed Processing Office is to be upgraded to a section, thus placing it closer to the decision-making level in the Ministry. This move manifests the MOA's recognition of the vital linkage which exists between an indigenous seed production capability and increased foodcrop production. The section's responsibilities would be expanded to include operation and administration of seed stations, establishment of a quality control system for the production, processing, marketing and distribution of seed, and to act as the principal source of advice to the Minister of Agriculture on the need for imported seeds.

Additionally, a "Seed and Planting Materials Sub-Committee" will be established to formulate broad policies related to seed production and supply. This sub-committee will consider matters relating to seed importation; quality control system and standards; involvement of state agencies and commodity corporations in seed production; annual priorities and seed production goals; coordination of other input supplies including agriculture credit; crop research priorities and varietal release and approval procedures. The membership of the sub-committee will be constituted so as to include representatives from agricultural research, extension, credit, GUYSUCO, GRB, GMC and the seed program.

2. Expansion of Central Research Station

The project will finance certain improvements, principally equipment, at the Central Research Station at Mon Repos. The Station already has adequate buildings, space, basic seed cleaning and storage space, plus land available for production of foundation and commercial seed, i.e., seed to be distributed to farmers. What is required is a portable irrigation system for use during the dry season and certain other implements necessary for handling of the increased quantities and types of the seed to be produced under the project.

3. Development of Satellite Units

The project will finance the development of four satellite units to be located at Yakusari, Charity, Ebini-Kimbia and Wauna. At Yakusari and Charity, the project will provide for the construction of a building including office space, a quality control laboratory, insulated seed storage area, and processing and general storage areas. In addition, each of the four units will have the basic equipment required for producing, testing, drying, processing and storing the seed produced in the surrounding area.

4. Technical Assistance

A total of thirty person months of assistance from a tropical horticultural specialist will be provided to assist the MOA seed officers with technical and managerial functions associated with expansion of the program. The horticulturalist, with experience in seed production, will serve as the counterpart to the chief of the Seed Production and Processing Section.

5. Training

The project will finance a total of four participants for long and short-term training in the U.S. in tropical seed production and processing. An in-country training course of three weeks will also be sponsored under the project.

6. Summary of Project Costs (US\$)

<u>A.I.D.</u>	<u>US\$</u>
(1) Technical Assistance (30 months)	186,000
(2) Training	51,000
(3) Equipment	134,595
(4) Construction	<u>128,405</u>
AID Total	\$500,000
<u>GOG</u>	
(1) Personnel and Labor	\$557,840
(2) Training	29,453
(3) Land and Buildings	138,580
(4) Technical Assistance	10,000
(5) Equipment/Commodities	30,079
(6) Expendable and Operations	<u>217,223</u>
GOG Total	983,175
Project Total	\$1,483,175

III. Project Analysis

A. Technical Analysis

The project has been designed to respond to the needs of the GOG in its development program to increase foodcrop production. It addresses one of the main constraints to the GOG's stated goal of achieving self-sufficiency in food supply, viz., the local availability of an adequate and timely supply of improved quality food seed. The project builds on the on-going seed program in Guyana. The program will be up-graded administratively to facilitate decision making; improved in terms of facilities, and expanded in terms of quality and kinds of seed produced. Satellite units will be developed to place production, processing and distribution within the major seed consuming areas. Technical assistance (30 months) will be provided to assist the MOA seed officers with technical and managerial problems associated with the expansion in capacity and the inclusion of additional seed kinds in the program which require somewhat different isolation, extraction, and drying procedures.

Lack of trained personnel is a constraint to development of the seed program in Guyana. The project will provide for four levels of training: (1) Two selected agricultural graduates (B.S. graduates) will be programmed for M.S. degree training in seed technology (24 months study programs). This level of training is available at Mississippi State University and Oregon State University. One participant will be sent to each of these institutions. On completion of their training programs, the two M.S. graduates should have the capability to establish a sound seed training program in Guyana, possibly within the framework of the Guyana School of Agriculture. (2) Two 3-month training programs will also be provided. These will be in the U.S., most likely through enrollment in the Seed Improvement Training Course held annually at Mississippi State University (June-August). (3) A 3-week in-country training course will also be provided with instructors from Mississippi State University financed under an AID centrally funded contract with the University. In-country training of this type conducted in the context of local existing conditions, facilities, crops, etc., has been very effective. The training will be practical and directly relevant to the objectives of the seed program in Guyana. (4) The technical assistance advisor will assist in the near-continuous process of the in-service or on-the-job training.

The goal of near self-sufficiency in food production is attainable. Guyana has adequate land and water resources. The purpose of improving and expanding seed supplies is also attainable except for seed of a few crops such as cabbage, onion, carrot, which for climatic reasons cannot be successfully produced in Guyana. The advantages and benefits of domestic production of seed over-reliance on importation were discussed earlier.

The facilities and equipment proposed are of the low-capacity type in keeping with the rather modest quantities of foodcrop seed needed in Guyana as compared to other countries with larger populations and more extensive areas required for cultivation. Despite the rather small quantities of seed involved, there are minimums in terms of both facilities and equipment for seed below which quality suffers.

The project provides for adequate drying capacity, since drying is a critical step in the production of quality seed. Sufficient cleaning capacity is also provided. Storage under the high temperature -- high humidity environment in Guyana is another critical phase in terms of quality, and conditioning of the environment in the store rooms to more moderate levels is required. Therefore, an adequate amount of conditioned storage space is being provided.

The project proposes only minimal handling for peanut seed. First, the quantities of peanut seed required are insufficient to justify the large investment that would be required to mechanize threshing, pre-cleaning, shelling, etc. Secondly, shelling of peanut seed invariably causes mechanical injuries to the seed which results in very rapid deterioration in quality. In the U.S. peanut seed are shelled just before planting, then stored in very cold and carefully controlled humidity conditions. For the peanut seed required in Guyana for the next 4-5 years, traditional methods of handling seed peanuts combined with artificial drying would be adequate. Peanuts would be handled and distributed in the shell. The farmers would shell the seed before planting or plant in the shell.

There are no technical obstacles to implementation of the project.

B. Economic Analysis

The methodology used for the economic analysis of this project is the traditional benefit cost and internal economic rate of return analysis. A shadow exchange rate of G\$3.00 to U.S.\$1.00 was adopted, against the official rate of G\$2.55, for purposes of valuing the benefits. The opportunity cost of capital is assumed to be 10 percent 1/.

1. Benefits of the Project

The primary benefits of the project are the increases in production at the farm level due to the improved seed, better germination, more timely availability, etc., and the value of the seed produced with the facilities and other inputs being provided by the project. These are the only benefits which are quantifiable and which are included in the

1/ IBRD calculates this cost and these are the same assumptions made in the Black Bush and Rice Modernization PP's.

calculation of the Benefit/Cost ratio and the Internal Economic Rate of Return.

The Mississippi State University team estimated that improved seed would increase farmer returns by 10 percent with no additional production/costs. The direct farmer benefits included in Table III.1 are based on a 10 percent increase in the value of production for those crops for which data are available 1/. It was assumed that this benefit would begin to flow in 1980 and reach full potential in 1981 continuing during the estimated life of the equipment being provided. These potential returns to farmers are significant and the estimates are considered conservative since they do not include all of the crops that will be included nor do they include any planned expansion in the area cultivated.

The value of seed which is expected to be produced in the project facilities was estimated by pricing the expected quantities at their fair market value 2/. The stream of benefits expected from this project are presented in Table III.1 which follows.

1/ Includes blackeye peas, corn, peanuts, tomatoes, cabbage, and pumpkin.

2/ In practice, the GOG will sell the seed at subsidized prices. However, the benefit is more accurately reflected by market price. The subsidy simply alters the recipient of the benefit.

TABLE III.1

FOOD CROP SEED PRODUCTION PROJECT BENEFIT COST ANALYSIS

	PROJECT COSTS							PROJECT BENEFITS			
	Fixed Assets	Technical Assistance & Training	Operation Production & Maintenance	Total Costs	Discount Factor 10%	Present Value of Costs	Direct Farmer Benefit	Value of Seed Produced	Total Benefits	Discount Factor 10%	Present Value of Benefits
1979	89.1	93.4	230.6	413.1	1.000	413.1	-	95.0	95.0	1.000	95.0
1980	177.5	104.9	283.1	565.5	.909	514.0	180	115.0	295.0	.909	268.2
1981	-	48.7	331.0	379.7	.826	313.6	360	115.0	475.0	.826	392.4
-	-	-	-	-	-	-	-	-	-	-	-
1988	-	-	331.0	331.0	4.023	1331.6	360	125.0	485.0	4.023	1951.2
Totals	266.6	247.0	3161.7	3675.3	6.758	2572.4	3060	1200.0	4260.0	6.758	2706.7

Present Value of Benefits 2706.7
 Present Value of Cost 2572.4 = 1.05 using 10% discount rate

	PROJECT COSTS							PROJECT BENEFITS			
	Fixed Assets	Technical Assistance & Training	Operation Production & Maintenance	Total Costs	Discount Factor 15%	Present Value of Costs	Direct Farmer Benefit	Value of Seed Produced	Total Benefits	Discount Factor 15%	Present Value of Benefits
1979	89.1	93.4	230.6	413.1	1.000	413.1	-	95.0	95.0	1.000	95.0
1980	177.5	104.9	283.1	565.5	.870	492.0	180	115.0	295.0	.870	257.0
1981	-	48.7	331.0	379.7	.756	287.0	360	115.0	475.0	.756	359.1
-	-	-	-	-	-	-	-	-	-	-	-
1988	-	-	331.0	331.0	3.146	1041.3	360	125.0	488.0	3.146	1525.8
Totals	266.6	247.0	3161.7	3675.3	5.772	2233.4	3060	1200.0	4260.0	5.772	2236.6

Present Value of Benefits 2236.6
 Present Value of Costs 2233.4 = 1.00 using 15% discount rate
 Internal Economic Rate of Return = 15%

2. Costs of the Project

The costs of the project were estimated in the usual manner. The operation, production and maintenance account for all costs of running the facilities including the purchase of seed for processing from private farmers and other government corporations. It is assumed that with proper maintenance, the equipment will last for ten years. The buildings and storage areas will last even longer, but the benefit/cost flows were only calculated for ten years.

3. Benefit/Cost Ratio

Using the IBRD suggested discount rate of 10 percent, the benefit/cost ratio is 1.05, and the internal economic rate of return is 15 percent. This is sufficiently high as to justify the project, especially when coupled with that fact that there are some additional unquantifiable benefits. These benefits include the foreign exchange savings, the increased employment in both the seed and food sectors and a greater selection and quantity of food available to consumers. The project committee finds the project economically feasible.

C. Social Soundness Analysis

1. Identification of the Target Group

The vast majority of the Guyanese population live within a narrow coastal belt which stretches along the Atlantic Ocean for approximately 160 miles from the Pomeroon River in the west to the Corentyne River in the east. This belt averages 6 miles in width and is intensively cultivated in both rice and sugar and provides much of the basic agricultural income of the economy. The rice growing area spans this coastal land and accounts for approximately 45,000 farm families. Most rice farmers produce food crops on 1-3 acres of their land. Since rice growing farm families account for approximately 90 percent of all farms, they will be the major beneficiaries of this project. The majority of the non-rice growing farmers also produce foodcrops. Sugar is produced almost 100 percent on state-owned and managed plantations. The target group for this project is, essentially, all of the 50,000 farm families in Guyana.

2. Ethnicity and the Target Population

Essentially, two distinct ethnic groups are found within the rural areas of Guyana: East Indians (Indo-Guyanese) and Negroes (Afro-Guyanese). The former group account for over 80% of the total rural population and probably number closer to 95% of the population engaged in rice farming. Consequently, our analysis of the target group will focus primarily on the East Indian population.

a. Household Composition

Typically, households contain a nuclear family of mother, father, and offspring. However, on occasion, the residents may be extended to include grand-children (most commonly, these children would be the offspring of unmarried/divorced/separated daughters). Also, following Indian tradition, the household may be extended to include the wives of married sons. It is, however, more common for married sons to establish separate households near the son's father by the time the first child is born. Although numbers may vary considerably, on the average, 10 persons reside in each house.

b. The Descent System

Due to the British influence, the East Indians practice a cognatic descent system wherein descent is traced through both the male and the female lines, at least, this is stated to be the legal situation. In fact, however, the population has a strong patrilineal orientation/preference in their descent system, and this preference is crucial for such things as marriage and residence patterns, and for the inheritance of the largest and most important items, such as land, houses and tractors.

Unlike traditional India, marriages need not be strictly "arranged" between respective fathers. However, for the marriage to occur, in most instances, the fathers must give their approval. This is so because of the cost involved in the marriage itself (a figure of G\$2,000 would not be unusual).

It is because of these costs that the patrilineal descent lines assume their importance. While it is true that a couple could simply marry without the consent of their fathers, the marriage itself would not be "up to code" and the couple would receive little help in starting their married life. The importance of this should be obvious since few young men can financially underwrite the costs of marriage (even excluding the cost of a large ceremony). It should also be noted here that young men, before marriage, are obligated to share whatever financial earnings they may have with the head of their household, i.e., their father. The significance of this latter point is that it is almost impossible for a young man to save enough money to finance his own wedding.

In the case of inheritance patterns among Indo-Guyanese, the patrilineal descent line again assumes the predominant significance in terms of the dispersal of the most valuable parts of an estate, i.e., houses, a shop, land, tractors. That is, for these items, there is a strong preference for inheritance by a son, usually, but not necessarily the first-born son (i.e., "primogeniture").

3. Quality of Life Indicators

a. Housing Conditions

Throughout the rural areas of the coastal belt of Guyana, the housing is essentially of two varieties. First, there is a two-room wooden structure about 20 by 14 feet. These houses, as well as the other type, are built on posts or concrete blocks because of periodic flooding and as a precaution against vermin, snakes or other pests.

Wooden steps lead to the front and perhaps the back door. The area beneath the house is used as a "living room" during the day and perhaps as sleeping quarters at night. Roofs for these small houses are commonly made from corrugated iron (called pieces of "zinc") or wooden shingles.

These houses are for the most part, unpainted. Kitchens tend to be below the house or to the side of the house. Few, if any, have electricity or refrigerators, and most such households cook with firewood. Indoor or outdoor lavatories are unusual although their presence is apparently required by law.

b. Education

Contemporary primary education is offered in government schools and in private institutions. Secondary education is provided in a limited number of public institutions and on a far broader scale in private institutions, all of which are now free.

Primary education has been legally compulsory since 1876, but its enforcement, particularly among the Indo-Guyanese, was lax until 1933. (Planters and bureaucrats were effective in hampering the education of East Indian indentured laborers by reinforcing their resistance to the education of their children at missionary schools and their opinions that boys should be in the fields, not in school houses.) In 1933, the East Indian Leadership was successful in having withdrawn the circular which allowed this and thereafter increases in enrollments of East Indian children reflected the change in parental attitudes.

While this practice no longer seriously hampers school attendance (school-aged children, particularly male offspring, may be required to help with farm chores during peak periods of activity, but, with increased mechanization particularly of rice farming, the incidence of this practice is decreasing); it was in existence during that period of time that today's farmer was school aged. However, only about 6 percent of the adult male population in the coastal areas has had no education and is functionally illiterate.

Population census statistics also reveal that 65-70 percent of the rural population, both male and female, have taken advantage of free primary education.

Secondary schools are more selective and ability to pass the entrance examination remains a significant factor in attendance. In rural areas only two to ten percent of the adult population has had the opportunity for a secondary school education, and there still remains a severe shortage of places in government secondary schools.

Some farmers increasingly view farming with a negative connotation as an occupation suitable only for the illiterate, unskilled lower state of society. Education is seen as the vehicle for upward social and economic mobility and the only avenue open to children to escape from the frustrations and insecurities of tenant farming (particularly when they have no land to leave their children). Farmers do not want their children to be farmers and although many living on subsistence farming cannot afford a higher education for their children, they will sacrifice what they can to achieve this goal. They feel that their children should turn to agriculture only as a last resort if they cannot obtain wage or salaried employment.

Children of poorer families are educated in village grade schools while the more prosperous village farmers will send their children to Georgetown or New Amsterdam. An increase in the small farmer's income therefore, can be viewed as a step toward achieving the goal of a better education for his children, and in time providing for a better educated target population with more employment mobility.

c. Health Status

The selected indicators shown in Table III.2 suggest that health conditions in Guyana are clearly inferior to those in more industrialized nations, somewhat worse than those in some other Caribbean countries, but better than those prevailing in most of Asia, Africa, and Latin America.

TABLE III.2 Selected Health Indicators of Various Caribbean Countries and Geographic Regions - 1975

<u>Country/Region</u>	<u>Life Expectancy (at birth)</u>	<u>Infant Mortality (per 1000)</u>	<u>Crude Death Rate (per 1000)</u>
Africa	44.5	150.8	21.3
Asia	52.0	104.0	15.4
Latin America	58.9	57.1	10.7
Cuba	72.3	28.0	5.9
Guyana	67.9	38.0	6.9
Jamaica	69.5	27.0	7.1
Trinidad & Tobago	69.5	35.0	5.9
United States	71.3	19.0	9.4

Source: Ministry of Health, Guyana, and Health Sector Policy Paper World Bank (1975).

The figures in Table III.2 are, of course, mostly crude approximations of the actual health status of the populations of the respective countries. In Guyana, data required to provide a more refined and comprehensive picture of the national health status does not exist. Mortality data is not readily available for any year since 1970. And the only 1970 mortality data available is for communicable diseases and childhood mortality. No data are available by region, rural-urban, race, sex, or age (beyond 5 years).

4. Role of Women

The preferred position of the rural Indo-Guyanese women is in the home, fully engaged in the domestic duties of bearing and caring for the children, cooking, cleaning, etc. Historically, wives of farmers, particularly on the smaller farms, assisted in the tasks of transplanting ('patching'), handweeding, and reaping in the field, and occasionally, performed the light tasks. The majority of these housewives either worked on their own family farm or participated in exchange work on the lands of friends and kin. In certain areas of the country, women were paid for their labor (in a range of G\$1.50 - G\$2.50 per day), but this practice was not the norm.

During these periods of farm employment, serious limitations were imposed on the amount of time women spent in the fields because of their domestic duties. Even at peak periods of women's tasks, they returned home early in the afternoon to prepare the food. With the advent of more mechanized farming particularly in rice, women's participation in farm work has largely been eliminated. They also do not engage in domestic service or taking in wash, partly because of prevailing patterns of family life and paternal authority and partly because such occupations are traditionally degrading among the Indo-Guyanese.

The majority of rural Guyanese households cultivate at least a small garden plot. Both Indo-Guyanese and Afro-Guyanese women have traditionally been responsible for marketing any surplus ground provisions at both local rural markets and the urban markets in New Amsterdam and Georgetown. This practice generally continues and some rural women have permanent stalls and conduct a full-time business in this manner.

Throughout Guyana very few women work (83% do not). As expected, a higher percentage of the women in urban areas are employed, particularly those in the 15-25 age group (it is also this age group which evidences the greatest unemployment among women). Those working tend to list employment in services (55%), with a few engaged in commerce (16%), agriculture (13%), or manufacturing (11%).

Women in the target group are expected to benefit through increased farm incomes accruing to the family as a whole which will allow for the purchase of time and labor-saving devices (such as the purchase of a stove or refrigerator); through an improved lifestyle with more comforts and greater leisure time as a result of the decreased demand for adult female labor on the farm.

D. Administrative Analysis

1. Leadership and Organizational Structure

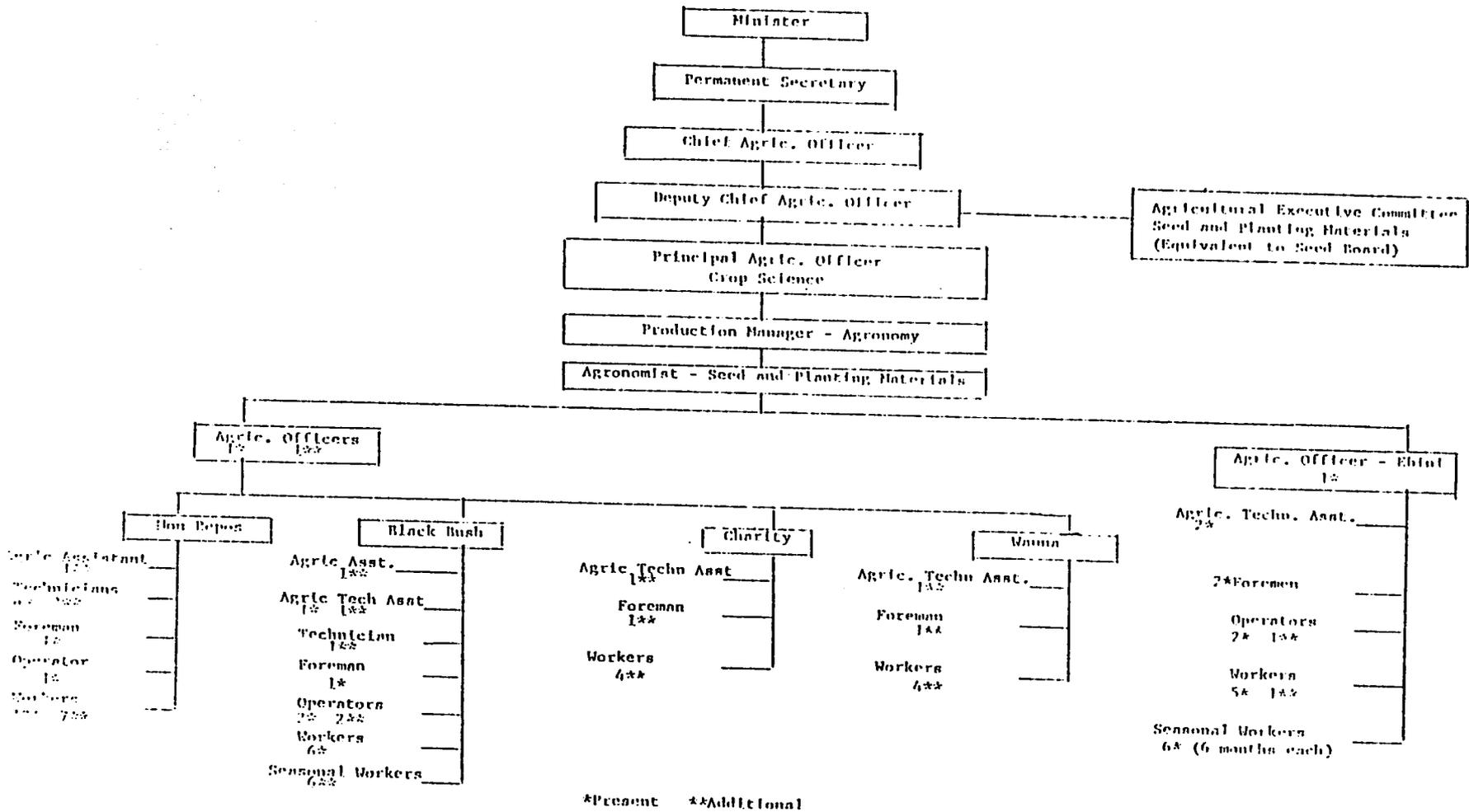
Foodcrop seed production is coordinated by the Seed Processing Office, Agronomy Unit of the Crop Sciences Section of the Central Research

Station at Mon Repos. The Organizational Chart on the following page shows the structure within the Ministry of Agriculture as well as the present and planned staffing pattern. Mon Repos and Ebini areas are currently producing seed and under the project, production will be expanded to Black Bush, Charity and Wauna. Due to this expansion the program will require fourteen additional professional staff members and 28 laborers including seasonal help. While the present staff are quite experienced in seed production and processing with the planned expansion of both facilities as well as staff, technical assistance and training will be an integral part of the project.

As a result of the project development activity, the Ministry has agreed to establish the "Agricultural Executive Committee/Seed and Planting Materials" shown on the organizational chart. The function of this committee will be to provide overall policy guidance in the area of seed importations, quality control and standards, seed production goals, participation of state corporations in seed production, varietal release and approvals, coordination of other inputs, i.e., credit, fertilizer, etc., and research priorities.

Once the committee and the expanded seed production facilities become operational, the Seed Production Unit will be upgraded to a section equivalent to the Crop Sciences and Crop Protection sections. The responsibilities of the Seed Production Section are: (a) to arrange and/or contract for production of the kinds and quantities of seed as established by the Executive Committee; (b) to dry, process, treat, test, store and distribute seed produced to market outlets in accord with projected demand; (c) to multiply, process, store and supply foundation seed to the selected seed producers; (d) to establish and implement a quality control system for the production, processing, distribution and marketing of seed and (e) to advise the Executive Committee on the kinds of quantities of seed that need to be imported as well as reliable sources of procurement.

USAID/GUYANA
SEED FARM PROJECT
ORGANIZATIONAL CHART - MINISTRY OF AGRICULTURE



2. Role and Commitment

The role of the Seed Production and Processing Section is just that -- seed production and processing. This project will enable them to expand current seed production, increase the number of foodcrops for which they produce seed, to serve new areas of the country and to improve the efficiency and quality of production.

The commitment of the GOG is evidenced by their large contribution to the program of 65 percent of total project costs as well as the substantial increase in the staffing required by the project. The Mission has received the assurances of the Minister of Agriculture that the project is among the highest priorities because of its direct link with the overall GOG policy of self-sufficiency in food production.

3. Resources

The Seed Production and Processing Section has the base on which the expanded program can be built in both physical facilities as well as human resources. The financial plan has been developed so as to provide adequate funding for transportation, salaries, operation and maintenance as well as the expanded physical facilities necessary for the program. The Financial Analysis outlines the magnitude of the GOG resource requirements for the project.

E. Environmental Assessment

An Initial Environmental Examination was prepared on the project by the Mission Engineer. The IEE resulted in a finding of no significant impact leading to a recommendation of a negative determination. The AA/LAC concurred with this determination. IEE is attached as Annex 7.

IV. Financial Plan

The following tables provide the financial plan for the project. Table IV.1 lays out the foreign exchange and local currency cost elements for both the AID as well as the GOG inputs. Table IV.2 presents the financial data by year of expenditure. A more detailed breakdown of the construction and equipment costs may be found in Annex 8.

Table IV.3 presents the cost data in the output by input format. From this table the project committee has determined that the inputs are adequate to achieve the project outputs. The committee considers that the cost estimates have been carefully made and that the project is financially sound.

TABLE IV. 1

USAID/GUYANA

SEED FARM PROJECT

SUMMARY COST ESTIMATE AND FINANCIAL PLAN
(US\$000)

	AID		Host Country		Total	
	FX	LC	FX	LC	FX	LC
1. Technical Assistance	166	20		10	166	30
2. Commodities/Equipment	135		30		165	
3. Facilities - Construction		128		139		267
4. Training	48	3		29	48	32
5. Personnel and Labor				558		558
6. Expendable Supplies			217		217	
	<u>349</u>	<u>151</u>	<u>247</u>	<u>736</u>	<u>596</u>	<u>887</u>

TABLE IV.2

	SEED FARM PROJECT							
	PLANNED EXPENDITURE (U.S.\$)							
	1979		1980		1981		Total	
	AID	GOG	AID	GOG	AID	GOG	AID	GOG
1. Technical Assistance	<u>74,400</u>	<u>3,000</u>	<u>74,400</u>	<u>3,500</u>	<u>37,200</u>	<u>3,500</u>	<u>186,000</u>	<u>10,000</u>
2. Commodities/Equipment	<u>134,595</u>	<u>6,016</u>		<u>24,063</u>			<u>134,595</u>	<u>30,079</u>
Non Repos	61,020	6,016					61,020	6,016
Black Bush Polder	18,225						18,225	
Ebini	31,185						31,185	
Charity	24,165						24,165	
				6,875				6,875
				17,188				17,188
3. Facilities	<u>50,005</u>	<u>41,614</u>	<u>78,400</u>	<u>96,966</u>			<u>128,405</u>	<u>138,580</u>
Black Bush Polder	23,560	26,426	20,000	26,426			43,560	52,852
Ebini	2,600	14,108	13,372	70,540			15,972	84,648
Charity	11,445	864	40,475				51,920	864
Koma	6,900	216	4,553				11,453	216
Non Repos	5,500						5,500	
4. Training	<u>16,000</u>	<u>11,367</u>	<u>27,000</u>	<u>14,082</u>	<u>8,000</u>	<u>4,004</u>	<u>51,000</u>	<u>29,453</u>
5. Personnel & Labor		<u>164,200</u>		<u>189,411</u>		<u>204,229</u>		<u>557,840</u>
Non Repos		71,223		73,254		80,930		225,407
Black Bush Polder		39,881		44,953		46,782		131,616
Ebini		41,950		41,251		45,739		128,940
Charity		14,146		12,178		15,389		27,567
Koma				14,775		15,389		44,310

SEED FARM PROJECT - PLANNED EXPENDITURE (cont'd)
(U.S.\$.)

	1979		1980		1981		Total	
	<u>AID</u>	<u>GOG</u>	<u>AID</u>	<u>GOG</u>	<u>AID</u>	<u>GOG</u>	<u>AID</u>	<u>GOG</u>
6. Expendable Supplies		<u>51,992</u>		<u>72,618</u>		<u>92,613</u>		<u>217,223</u>
Mon Repos		23,633		29,219		35,019		87,871
Black Bush Polder		9,023		12,891		17,188		39,102
Ibinj		15,254		19,121		25,152		59,527
Charity				5,586		7,734		13,320
Kaama		<u>4,082</u>		<u>5,801</u>		<u>7,520</u>		<u>17,403</u>
Tot Is	<u>275,000</u>	<u>278,189</u>	<u>179,800</u>	<u>400,640</u>	<u>45,200</u>	<u>304,346</u>	<u>500,000</u>	<u>983,175</u>

TABLE IV.3

COSTING OF PROJECT OUTPUT/INPUTS
(In Thousands of Dollars)

Project 504-0065 - Seed Farm Development

PROJECT INPUTS	PROJECT OUTPUTS				Total
	Reorganization of Seed Program	Mon Repos Station Operating	Four Satellite Stations Operating	Seed Program Personnel Trained	
AID					
1. Technical Assistance	65.0	20.0	61.0	40.0	186.0
2. Training	-	-	-	51.0	51.0
3. Comm/Equip.	-	61.0	73.6	-	134.6
4. Facilities Construction	-	5.5	122.9	-	128.4
Sub-total AID	65.0	86.5	257.5	91.0	500.0
GGG					
1. Technical Assistance	10.0	-	-	-	10.0
2. Training	-	-	-	29.5	29.5
3. Comm/Equip.	-	10.0	20.1	-	30.1
4. Facilities	-	-	138.6	-	138.6
5. Personnel & Labor	-	225.4	332.4	-	557.8
6. Expendable Supplies	-	87.9	129.5	-	217.4
Sub-total GGG	10.0	323.3	620.6	29.5	983.4
Project Total	75.0	409.8	878.1	120.5	1,483.4

V. Implementation Plan

A. Administrative Arrangements

1. Implementation Responsibility

The Ministry of Agriculture will be the executing agency for the project and will have responsibility for project implementation. The Ministry will designate a project manager from the Seed Production Unit. The project manager will coordinate all project activities and will work closely with the USAID staff to ensure the smooth and timely implementation of the project.

2. Monitoring Responsibility

The USAID Rural Development Officer will have primary responsibility for monitoring and assisting the GOG with implementation of the project. The Rural Development Officer will maintain close contact with the GOG project manager and other Ministry personnel. The USAID Program Officer will assist in monitoring the provisions of the grant agreement and in procurement of equipment and services. The Mission Engineer will monitor the construction elements of the project. The Controller's office will assist in establishing disbursement procedures and reviewing contracts and other financial documents to ensure conformity with AID regulations.

B. Implementation Schedule

(See following chart)

VI. Evaluation Plan

The project's initial evaluation, to be conducted in November 1979, will be primarily directed at assessing progress in achieving major outputs. To be evaluated will be the following:

- (a) Reorganization of the seed program system.
- (b) Status of construction at the five sites.
- (c) Functioning of the seed distribution system.
- (d) Training of personnel.

A corollary aspect of the initial evaluation will be to identify shortfalls, up to that point in time, in attainment of outputs, vis-a-vis, those planned in the project's implementation plan. Based on the findings of the evaluation, redesign (where applicable) of the project, and appropriate action (s) to remedy the situation will be taken.

The second evaluation, in addition to evaluating the above, will evaluate:

- (a) The operations and effectiveness of the seed distribution system.
- (b) Quality and varieties of seed crop produced.
- (c) Production, in quantifiable terms, of seed.

The final evaluation will be the most comprehensive of the three, and will include outside, (i.e., beyond GOG, AID), participants and will evaluate success in attaining EOPS conditions, benefits to target population and quantity and varieties of foodcrop production directly attributable to improved quantity/varieties of seed.

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project:
From FY 78 to FY 80
Total U. S. Funding 500,000
Date Prepared: September 22, 1978

Project Title: SEED FARM DEVELOPMENT

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																																																
<p>Program or Sector Goal: The broader objective to which this project contributes:</p> <p>To increase the level of self-sufficiency in foodcrop production with corresponding increase in farmers and gardeners' income.</p>	<p>Measures of Goal Achievement:</p> <ol style="list-style-type: none"> Greater quantity and variety of foods available to consumer. Increased income for farmers growing the selected foodcrop. Decreased importation of foodcrop seed. 	<ol style="list-style-type: none"> Before-after comparison of foods available at different times of the year from production statistics. Survey of foodcrop producers. Import-export statistics. 	<p>Assumptions for achieving goal targets:</p> <ol style="list-style-type: none"> Favorable weather conditions prevail. 																																																
<p>Project Purpose:</p> <p>To improve and expand the capacity and capabilities of the seed program to assure an adequate and timely supply of foodcrop seed.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <ol style="list-style-type: none"> Improved quality of foodcrop seed produced. Increased supply of seed being produced (300% over 1977 level) Adequate and timely supply of foodcrop seed reaching the producer. 	<ol style="list-style-type: none"> Before-after germination tests of seed produced. MAG records. Survey of farms in growing areas and observation. 	<p>Assumptions for achieving purpose:</p> <ol style="list-style-type: none"> Adequate GOG Budgetary support will be provided. IDB's Marketing Centers will be constructed and operating as planned. 																																																
<p>Outputs:</p> <ol style="list-style-type: none"> Re-organization of seed program system. Mon Repos station fully equipped. Satellite seed facilities completed and operating. "Seed and Production Processing Section" personnel trained. 	<p>Magnitude of Outputs:</p> <ol style="list-style-type: none"> National seed sub-committee established; satellite seed units operating; present seed management office upgraded. Conditioning system; testing; drying; processing. Flour. 2 LT academic, 2 ST U.S., minimum of 12 locally trained. 	<ol style="list-style-type: none"> Visual records. Visual confirmation. Visual confirmation. Project records PIO/PIS. 	<p>Assumptions for providing outputs:</p> <ol style="list-style-type: none"> Inputs arrive in a timely fashion. An adequate number of personnel can be recruited and hired for expanded seed program. 																																																
<p>Inputs:</p> <p>AID:</p> <table border="0"> <tr> <td>1. Technical Assistance (30 per mo.)</td> <td></td> </tr> <tr> <td>2. Commodities/Equipment</td> <td></td> </tr> <tr> <td>3. Facilities construction</td> <td></td> </tr> <tr> <td>4. Training</td> <td></td> </tr> <tr> <td>Total</td> <td></td> </tr> </table> <p>GOG:</p> <table border="0"> <tr> <td>1. Personnel & Labor</td> <td></td> </tr> <tr> <td>2. Facilities & Equipment</td> <td></td> </tr> <tr> <td>3. Expendable supplies</td> <td></td> </tr> <tr> <td>Total</td> <td></td> </tr> </table>	1. Technical Assistance (30 per mo.)		2. Commodities/Equipment		3. Facilities construction		4. Training		Total		1. Personnel & Labor		2. Facilities & Equipment		3. Expendable supplies		Total		<p>Implementation Target (Type and Quantity)</p> <table border="1"> <thead> <tr> <th></th> <th>FY 78 (000)</th> <th>FY 79 (000)</th> <th>FY 80 (000)</th> <th>TOTAL (000)</th> </tr> </thead> <tbody> <tr> <td>1. Technical Assistance (30 per mo.)</td> <td>74.4</td> <td>74.4</td> <td>37.2</td> <td>186.0</td> </tr> <tr> <td>2. Commodities/Equipment</td> <td>134.6</td> <td>-</td> <td>-</td> <td>134.6</td> </tr> <tr> <td>3. Facilities construction</td> <td>50.0</td> <td>78.4</td> <td>-</td> <td>128.4</td> </tr> <tr> <td>4. Training</td> <td>16.0</td> <td>30.0</td> <td>5.0</td> <td>51.0</td> </tr> <tr> <td>Total</td> <td>275.0</td> <td>182.8</td> <td>42.2</td> <td>500.0</td> </tr> </tbody> </table>		FY 78 (000)	FY 79 (000)	FY 80 (000)	TOTAL (000)	1. Technical Assistance (30 per mo.)	74.4	74.4	37.2	186.0	2. Commodities/Equipment	134.6	-	-	134.6	3. Facilities construction	50.0	78.4	-	128.4	4. Training	16.0	30.0	5.0	51.0	Total	275.0	182.8	42.2	500.0	<p>USAID Controller's records.</p> <p>MOA records.</p>	<p>Assumptions for providing inputs:</p>
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I. Project Goal

The goal of the project is to increase the level of self-sufficiency in foodcrop production with a corresponding increase in farmers and gardners' incomes.

II. Project Purpose

The purpose of the project is to improve and expand the capacity and capabilities of the foodcrop seed production program to assure an adequate and timely supply of improved quality foodcrop seed to small farmers.

III. Project Outputs

A. Reorganization of the seed program system

- (i) A Seed and Planting Materials sub-committee under the National Agricultural Committee will be established to formulate and implement broad policies related to seed production and supply such as: seed importations; quality control system and standards; involvement of state agencies and commodity corporations in seed production; annual priorities and seed production goals; coordination of other input supplies including agricultural credit with seed supplies; crop research priorities; and varietal release and approval procedures. The membership of the subcommittee will be constituted so as to include representatives from agricultural research, agricultural extension, agricultural credit, GAIL, GRB, GMC and the seed program.
- (ii) The present Seed Processing Office of the Agronomy Unit, Crop Sciences Section, MOA, will be up-graded to a section equivalent to the Crop Sciences and Crop Protection Sections. This will place the seed program closer to the decision making level in the MOA and greatly facilitate its actions and reactions in the sphere of seed production and supply. The new Seed Production and Processing Section would have the following responsibilities: to arrange and/or contract for production of the kinds and quantities of seed as laid down by the Seed and Planting Materials sub-committee to dry, process, treat, test, store and distribute the seed produced to market outlets in accord with projected and/or actual demand; to multiply, process, store, and supply foundation seed to the selected seed producers; to establish and implement a quality control system for the production, processing, distribution and marketing of seed; and to advise th MOA on the kinds and quantities of seed that need to be imported, and on reliable sources for same.

- (iii) Seed marketing will be the responsibility of the coordinating board of the proposed Integrated Rural Marketing Service Centers, and the input sections of the regional and district agricultural offices.
- (iv) The Crop Sciences Section, MOA, will be responsible for identification of varieties suitable for multiplication (seed production), maintenance of the varieties, and production/supply of breeder seed to the Seed Production and Processing Section.

B. Facilities and Equipment

The project will provide for improvements in the central seed facility at Mon Repos, and the development of satellite units at Yakusari in the Black Bush Polder area, Charity in the Essequibo Coast, Ebini-Kimbia in the intermediate savannahs and Wauna in the Northwest Region.

- (i) Mon Repos. The seed facilities at Mon Repos are quite good in terms of buildings, space available, basic cleaning, storage space, and land available for production of foundation and "commercial" seed, i.e., seed to be distributed to farmers. Certain items of equipment and implements, however, will be required to improve the efficiency and effectiveness of the operations and to permit handling of the increased quantities and types of seed to be produced under the project. There are four storage rooms for seed in the seed processing facilities at Mon Repos which are quite well constructed with insulated walls (sawdust insulation), concrete floors with vapor barrier, and a tight-fitting door. They are also located on the first floor of a two story building which reduces the heat load from roof-ceiling. Presently, two of the rooms are conditioned with through-the-wall self-contained air conditioners ("window type") which are in poor condition and need replacing. The other rooms are not conditioned. The air conditioners are not as effective in dehumidification as needed, thus, the moisture content of the seed equilibrates at too high a level for good storage. Proper conditioning of these rooms for seed storage (about 60-65°F, and 55-69% relative humidity) is required. Some equipment will be provided to improve the capability and capacity of the seed testing laboratory at Mon Repos. Three seed dryers (Japanese) with portable drying beds and kerosene-fired heater fan units are available. These hold about 4,000 lbs. of seed each. They will be transferred to the satellite seed units proposed and replaced with a bag-dryer unit at Mon Repos which would be more suitable for handling of both foundation and commercial seed of many kinds and varieties (less chance of mixtures in bag dryer).

Processing/cleaning equipment and facilities are adequate except for a few minor items being provided by the project. Over 100 acres are available at the Central Research Station at Mon Repos for production of foundation and "commercial" seed (and breeder seed). The main deficiency is lack of a portable irrigation system (water is available in canals bordering fields) for use during droughts. Adequate water is especially important for production of foundation seed. The necessary irrigation equipment will need to be provided.

- (ii) Black Bush Polder (Yakusari) Satellite Unit. Some of the best quality blackeye seed are produced in the Black Bush Polder area under arrangements with GRB. This area also produces a large quantity of vegetables and other foodcrops on the 2.5 acre plots generally associated with rice farms. This type of foodcrop production takes advantage of periodic surpluses in family labor and water, and generates substantial extra farm income. Presently, seed produced in the Black Bush Polder area are trucked to Mon Repos for processing and storage. A substantial portion is then trucked back to Black Bush for use in the area. These procedures are inefficient, costly, and adversely affect both seed quality and the timeliness of seed supplies. Under the project, a satellite seed unit will be established at Yakusari. MOA controlled land is available for the facility, as well as some land for production in addition to other land at Lesbeholden. Land available to GRB, and land in the hands of private farmers will also be used for contract production of seed. Transportation within the Black Bush area is reasonably good and electric power is available at Yakusari. Cowpeas (blackeye and brown crowder), pigeon pea and mung bean will be the major kinds of seed produced, in terms of quantity. Okra, curcurbit and tomato seed will also be produced. Facilities and equipment needed are described and costed in Annex 8.
- (iii) Essequibo Coast (Charity) Satellite Unit. The Essequibo coastal area is noted for foodcrop production. Some corn is produced including some of the corn seed for the seed program around Charity. Electric power is available and transport within the area is reasonably good. One of the proposed Integrated Rural Service Centers will also be located at Charity. The Charity Satellite Unit will produce seeds of corn and cowpea in quantity, and smaller lots of cucurbits, egg plant, tomato, okra, etc. Facilities and equipment needed are described and costed in Annex 8.

- (iv) Ebini-Kimbia Satellite Seed Unit. A new building for processing seed was constructed at Ebini a few years ago. It has about 3,000 square feet of space. There is, however, no electric power to run cleaning equipment, shellers, and other electric powered equipment. Ebini has adequate land for seed production and is located near the Government National Service Camp at Kimbia which has a large acreage under cultivation, good equipment and maintenance facilities, and electric power. In view of the proximity of Kimbia, the seed storeroom which requires a constant supply of power for conditioning may be located there. A diesel driven 25 KVA generator will be installed at the seed building at Ebini to power cleaners, dryers, conveyors, threshers, shellers, etc. It would be used only at such times as power is required, i.e., work hours during processing season. It is possible that the power problem at Ebini may be resolved in which case the storeroom would be located there. Seed produced at Ebini-Kimbia would be primarily cowpeas, corn, peanuts, and possibly red kidney beans.
- (v) Wauna Satellite Seed Unit. The Wauna area in the Northwest Region is relatively inaccessible. However, the GOG is anxious to increase peanut production in the area in connection with establishment of African oil palm plantations. The satellite seed unit proposed for Wauna will be minimal and primarily for peanut seed. The acreages of peanuts proposed will not require enough seed to justify investments in very expensive and highly specialized peanut digging, threshing, shelling and cleaning equipment. Furthermore, shelling peanuts for seed causes mechanical damage to the kernels and the seed die rapidly unless kept in very cold storage. For these reasons, peanut seed would be dug and threshed, by traditional methods, dried by heated air and handled in the shell. Farm families planting peanuts have sufficient labor to shell the 50-200 lb. needed for their planting. Alternatively, the seed could be planted in the shell.

C. Production Arrangements

Seed will be produced on lands available to the MOA on research stations, land controlled by GAIL and GRB, and land of private farmers. The Seed Production and Processing Section will contract for the production needed with the entities mentioned above. The contracts will specify acreage to be planted, maximum quantity of seed to be produced (accepted), minimum quality standards, responsibilities of producers, and the responsibility of the Seed Production and Processing Section for inspection, roguing, etc., as well as the price to be paid for the seed.

D. Distribution/Marketing

Distribution and marketing of the seed produced will be carried out cooperatively by the Seed Production and Processing Section, the Integrated Rural Market Service Centers to be constructed under the IDB loan, and the input sales office of the district agricultural offices. These activities would be coordinated, and cooperation assured, by the National Seed Sub Committee. The Seed Production and Processing Section would be primarily responsible for delivering the seed to market outlets.

IV. Project Inputs(a) Technical Assistance

Thirty (30) person months of technical assistance will be provided. A horticultural crops specialist with some experience in seed production will be recruited. He will serve as the counterpart of the Chief, Seed Production and Processing Section. His major responsibilities will include:

- (1) Technical advice on best locations for production of different kinds of seed, especially seed of the "pure" vegetables.
- (2) Technical advice and assistance on the identification of varieties of foodcrops suitable for seed multiplication.
- (3) Technical advice on control of pollination, extraction, and drying of vegetable seed.
- (4) Advice on the management of the Seed Production and Processing Section as a "seed enterprise."
- (5) Assistance in in-service training of personnel.
- (6) Advice on management of contract seed producers.

Est. Cost U.S. \$

Technical Assistance

30 man months @ 6,200/person month	<u>186,000</u>
Technical Assistance Total	186,000

(b) Equipment and facilities inputs for a total of \$263,000 will be provided. For a detailed list of equipment and facilities, see Annex 8.

(c) Training

Lack of trained people is a serious constraint to improvement of the seed program in Guyana. The project would provide for training opportunities in addition to the in-service training associated with technical assistance.

	<u>Est. Cost U.S. \$</u>
Two (24) month participant training programs for M.S. degree training in U.S. @ \$10,000/year	\$40,000
Two 3-month participant training fellowships for intensive seed training course in U.S. (such a course is held every summer at Mississippi State University under sponsorship of AID and USDA) @ \$4,000/fellowship	\$ 8,000
One 3-week in-country training course utilizing services available under the MSU/AID centrally funded contract.	<u>\$ 3,000</u>
Training Total	\$51,000

(d) GOG Contribution

The MOA, GOG, contribution to the Project will include:

	<u>Est. Cost U.S. \$</u>
(1) Personnel and labor	557,840
(2) Training	29,453
(3) Land and facilities for seed production	158,580
(4) Transportation	30,079
(5) Technical Assistance	10,000
(6) Expendable suppliers such as fuel for drying, sacks, other packaging materials, seed treatment chemicals, insect control chemicals (for storage insects)	<u>217,423</u>
Total	983,375

(e) Personnel Requirements

Improvement and expansion of the seed program will require a substantial increase of personnel in the Seed Production and Processing Section.

- Mon Repos. Chief, Deputy Chief for Production, Deputy Chief for Processing, a Seed Testing Officer, six agricultural assistants, and labor as required.
- Yakusari. Head of Satellite Unit and two agricultural assistants, plus laborers.
- Chairty. Head of Satellite Unit, agricultural assistant, plus laborers.
- Ebini-Kimbia. Head of Satellite Unit, one agricultural assistant, plus laborers.
- Wauna. Head of Unit (part-time), part-time agricultural assistant, plus laborers.

ANNEX II

50(2) - PROJECT CHECKLIST

Listed below are, first, statutory criteria applicable generally to projects with FAA funds, and then project criteria applicable to individual fund sources: Development Assistance (with a sub-category for criteria applicable only to loans); and Security Supporting Assistance funds.

CROSS REFERENCES: IS COUNTRY CHECKLIST UP TO DATE? IDENTIFY. HAS STANDARD ITEM CHECKLIST BEEN REVIEWED FOR THIS PROJECT?

Country check-list is up-to-date. See Small Farm Development/Black Bush Region PP. The standard item check-list has been reviewed.

A. GENERAL CRITERIA FOR PROJECT.

1. App. Unnumbered; FAA Sec. 653(b); Sec. 671

(a) Describe how Committees or Appropriations of Senate and House have been or will be notified concerning the project;
(b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure

This Project was not originally contemplated for funding in FY 78. A special advice of program change has been sent to each of the Committee advising them of the Project.

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 reasonably firm estimate of the cost to the U.S. of the assistance?

Preliminary financial, engineering and other planning has been done and a reasonably firm cost estimate has been made.

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

No further legislative action is needed; with the exception of ratification of the Agreement by the Parliament.

4. FAA Sec. 611(b); App. Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per the *Principles and Standards for Planning Water and Related Land Resources* dated October 25, 1973?

Not applicable.

5. FAA Sec. 611(e). If project is capital assistance e.g., construction, and all U.S. assistance for it will exceed \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?

Not applicable.

6. FAA Sec. 209, 619. Is project susceptible of execution as part of regional or multi-lateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. If assistance is for newly independent country, is it furnished through multi-lateral organizations or plans to the maximum extent appropriate?

This Project is complementary to an IDB Project for Food-crop production and marketing and was not included within that Project because of funding constraints.

7. FAA Sec. 601(a); (and Sec. 201(f) for development loans). 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.

The Project through the production and utilization of improved seeds by small farmers will result in increased food production and increased income for the rural poor. It will foster private initiative and competition among small farmers and will improve farming techniques.

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).

The Grant will provide for the purchase of equipment, supplies, and technical services from U.S. suppliers and will also provide for the training of Guyanese personnel in the U.S. at U.S. institutions.

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.

The GOG has agreed to provide more than 50% of the financing for this Project. There are no foreign currencies currently owned by the United States in Guyana.

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

No.

11. ISA 14. Are any FAA funds for FY 78 being used in this Project to construct, operate, maintain, or supply fuel for, any nuclear powerplant under an agreement for cooperation between the United States and any other country?

No.

2. FUNDING CRITERIA FOR PROJECT

Development Assistance Project Criteria

a. FAA Sec. 102(c); Sec. 111; Sec. 291a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production, spreading investment out from cities to small towns and rural areas; and (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?

It is anticipated that the rural poor will participate in and benefit from this Project. The Project will provide small farmers with improved seed with which to plant food crops. These food crops can then be sold by the farmers thus generating additional income for them. The Project will expand the amount of food available to consumers, rural and urban, and improve their diets. It will also increase labor intensive production and stimulate cooperative efforts.

d. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: [include only applicable paragraph -- e.g., a, b, etc. -- which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.]

(1) [103] for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; [103A] if for agricultural research, is full account taken of needs of small farmers;

This Project will improve the quantity, quality and variety of seeds available for agricultural production. Thus the Project is designed specifically to increase productivity and the income of the rural farmer.

(2) [104] for population planning or health; if so, extent to which activity extends low-cost, integrated delivery systems to provide health and family planning services, especially to rural areas and poor;

Not applicable.

(3) [105] for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development;

Not applicable.

(4) [106] for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:

Not applicable.

(a) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;

(b) to help alleviate energy problem;

(c) research into, and evaluation of, economic development processes and techniques;

(d) reconstruction after natural or manmade disaster;

(e) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;

(f) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

(5) [107] by grants for coordinated private effort to develop and disseminate intermediate technologies appropriate for developing countries.

Not applicable.

c. FAA Sec. 110(a); Sec. 208(e). Is the recipient country willing to contribute funds to the project, and in what manner has or will it provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?

Guyana will contribute over \$400,000 (U.S.) in excess of the amount of the A.I.D. Grant.

d. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing, *or is the recipient country "relatively least developed"*?

No.

e. FAA Sec. 207; Sec. 113. Extent to which assistance reflects appropriate emphasis on; (1) encouraging development of democratic, economic, political, and social institutions; (2) self-help in meeting the country's food needs; (3) improving availability of trained worker-power in the country; (4) programs designed to meet the country's health needs; (5) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (6) integrating women into the recipient country's national economy.

U.S. assistance in Guyana encourages development of trained personnel in agriculture, rural health and nutrition. Women will receive benefits from the program, especially in assisting in income generation for the family and reducing the amount of manual farm labor. The Project will encourage self-help in meeting the food needs of Guyana and in so doing will be supportive of the Government's policy to increase productivity and to encourage self-help in reaching that goal.

f. FAA Sec. 291(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

The Project will support the GOG effort to diversify production and increase productivity in order to be self-sufficient in food crops. This is directly in support of the Government's goal to encourage self-help. Also the Project provides technical assistance and training in skills required for effective implementation of the Project.

g. FAA Sec. 201(b)(2)-(4) and -(8); Sec. 201(e); Sec. 211(a)(1)-(3) and -(8). 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; or of educational or other institutions directed toward social progress? Is it related to and consistent with other development activities, and will it contribute to realizable long-range objectives? And does project paper provide information and conclusion on an activity's economic and technical soundness?

This Project is expected to give incentive and provide inputs and support services for increased productivity and income and facilitate the growth of social progress in rural and urban areas. See PP Section III.

h. FAA Sec. 201(b)(5); Sec. 211(a)(5), (6). Information and conclusion on possible effects of the assistance on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving or safeguarding the U.S. balance-of-payments position.

There will be procurement of equipment and supplies, technical assistance and training in the United States. Thus the effects of the assistance on the U.S. economy will be positive.

Development Assistance Project Criteria (Loans only)

a. FAA Sec. 201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within U.S.

Not applicable.

b. FAA Sec. 201(b)(2); 201(d). Information and conclusion on (1) capacity of the country to repay the loan, including reasonableness of repayment prospects, and (2) reasonableness and legality (under laws of country and U.S.) of lending and relending terms of the loan.

Not applicable.

c. FAA Sec. 201(e). If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to AID an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

Not applicable.

d. FAA Sec. 201(f). Does project paper describe how project will promote the country's economic development taking into account the country's human and material resources requirements and relationship between ultimate objectives of the project and overall economic development?

Not applicable.

- e. FAA Sec. 202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources? **Not applicable.**
- f. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan? **Not applicable.**
3. Project Criteria Solely for Security Supporting Assistance **Not applicable.**
- a. FAA Sec. 53i. How will this assistance support promote economic or political stability?
- c. FAA Sec. 533(c)(1). *Will assistance under the Southern African Special Requirements Fund be used for military, guerrilla, or paramilitary activities?*
4. Additional Criteria for Alliance for Progress **Not applicable.**
- [Note: Alliance for Progress projects should add the following two items to a project checklist.]
- a. FAA Sec. 251(b)(1)-(8). Does assistance take into account principles of the Act of Bogota and the Charter of Punta del Este; and to what extent will the activity contribute to the economic or political integration of Latin America? **Not applicable.**
- b. FAA Sec. 251(b)(9); 251(n). For loans, has there been taken into account the effort made by recipient nation to repatriate capital invested in other countries by their own citizens? Is loan consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress (now "CEPCIES," the Permanent Executive Committee of the OAS) in its annual review of national development activities? **Not applicable.**

MINISTRY OF AGRICULTURE

Office of the Minister

ANNEX 3

Cable Address: "MINFLAM"

Phone: Minister 67993.

Ref. No. MC

P.O. Box 1001,

Georgetown,

Guyana,

South America

5th July, 1978

Dear Miss Boorady,

Food Crop Seed Production Project

As you are aware the need for the improvement of the facilities and technology for the production of seed for food crops had been identified during the Food Crop Study by Robert Nathan Associates. This was followed recently by a more intensive study by a team from the Mississippi State University assisted by personnel from my Ministry. The result of this latter study has been the development of a project to improve the seed production capacity of Guyana. This project is acceptable to the Ministry, as indicated in the letter of 27th June from the Chief Agricultural Officer to your Rural Development Officer.

I now wish to formally request your organisation to fund, on a grant basis, a Food Crop Seed Production Project to the value of approximately US\$500,000 (Five hundred thousand dollars).

With best regards,

Yours co-operatively,

G.S. Kennard
Minister.

cc: Min. Econ. Dev.

Miss Edna Boorady,
Director - U.S.A.I.D.,
65 Main Street,
GEORGETOWN.

ACTION TAKEN

TYPE: *Letter*

BY: *ES* - *7/18/78*

FILED: *AGK - Dec 7/11/78*

	Action	Info	File
Director:		/	
A/Director:			
Exec. Off.			
Controller			
Program off.			
Engineer:			
Agriculture:	/		
Capital Dev.			
Land Tech. Off.			
Seed Safety Off.			
Plant Prod. Res.			
Ext. Serv.			
Library			

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

PART II

Name of Country: Guyana
Name of Project: Seed Farm Development
Number of Project: 504-0065

Pursuant to Part I, Chapter I, Section 103 of the Foreign Assistance Act, as amended, I hereby authorize a grant to the Government of Guyana of not to exceed five hundred thousand United States Dollars (\$500,000) to help in financing certain foreign exchange and local currency costs of goods and services required for the project as described in the following paragraph.

The project, which has a three year implementation period, has as its purpose the improvement and expansion of the production and supply of food crop seed so as to insure adequate and timely supplies for farmers. This objective will be attained through: (1) a reorganization of the seed program so that it can deal more effectively with seed production, distribution and marketing; (2) an expansion of the capacity of the seed program so that it can efficiently and effectively handle the quantities of seed needed which can be domestically produced; (3) identifying varieties of food crops suitable for seed multiplication and production; (4) establishing better quality control procedures for seed production and marketing; and (5) developing a cadre of trained seed specialists at the professional and sub-professional levels.

The project will provide for improvement at the central (and currently only) seed facility at Mon Repos, and the development of satellite units at Yakusari, Charity, Ebini-Kimbia and Wauna. These seed facilities have been geographically dispersed to serve the major food crop growing areas of Guyana.

At the conclusion of the project, it is expected that both the quality and varieties of indigenously produced seeds will have been significantly improved and that the distribution system will have been developed at a level which will insure an adequate and timely supply of high-quality food crop seed to farmers.

The AID funded inputs to the project include technical assistance, training, commodities and equipment, and construction of some basic seed facilities.

I approve the total level of AID appropriated funding planned for this project of not to exceed five hundred thousand United States Dollars (US\$500,000) of Grant funds.

On receipt of the allotment of funds, the Mission will execute the Project Agreement with the Government of Guyana in accordance with AID regulations and Delegations of Authority and the following conditions precedent.

Conditions Precedent to any Disbursement:

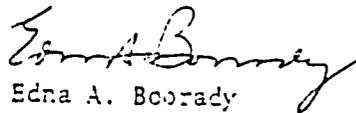
1. Prior to any disbursement, or the issuance of any commitment documents under the Project Grant Agreement, the Grantee shall furnish in form and substance satisfactory to AID:

- a. An opinion of counsel acceptable to AID that the Project Grant Agreement has been duly authorized and/or ratified by, and executed on behalf of, the Grantee and that it constitutes a valid and legally binding obligation of the Grantee;
- b. A statement of the name of the person holding or acting in the office of the Grantee specified in Section 83, and of any additional representatives, together with a specimen signature of each person specified in such statement; and,
- c. A time phased Implementation Plan for the Project.

2. Prior to any disbursement or the issuance of any letter of commitment under the Grant for the purchase of equipment required for the Project, the Grantee shall, except as AID may agree otherwise in writing, furnish to AID in form and substance satisfactory to AID, a list of equipment to be financed by the Grant.

Source and Origin of Goods and Services:

Except for ocean shipping, goods and services financed by AID under the Project shall have their source and origin in Guyana, or in the United States (Code 000 of the A.I.D. Geographic Code Book), except as A.I.D. may otherwise agree in writing.



Edna A. Boorady
Director
USAID/Guyana

September 30, 1973
Revised

ANNEX 5

AMEMBASSY GEORGETOWN
UNCLASSIFIED

335

NNNNVV 25A735BRAS74
RR RUESON
DE RUEHC 9746 230054S
ZNR UUUUU ZZH
R 172521Z AUG 72
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TO AMEMBASSY GEORGETOWN 3171
BT
UNCLAS STATE 229746

STATE 209746
REC'D: 18 AUG 8:57AM

AID

Division	Initial	Final	File
Director:			
Asst. Dir.:			
Adm. Off.:			
Ext. Affairs:			
Gen. Inv.:			
Ident. & Insp.:			
Intell. Div.:			
Lab. & Tech. Serv.:			
Legal Coun.:			
Plan. & Insp.:			
Rec. Mgmt. Div.:			
Spec. Inv.:			
Training:			
Off. of Cong. & Public Affairs:			
Telephone Rm.:			
Director's Sec'y:			
Chief Clerk:			

572

NAV E
101 8/21
AUG 2-1
Aug 8/23/72

INFO

AIDAC

AMB

E.O. 11652: N/A

CHARGE

TAGS:

ECON

SUBJECT: SEED FARM DEVELOPMENT PROJECT, NO. 524-0065

CERON

REF: (A) GEORGETOWN 2319 (B) STATE 229021

1. SUBJECT PROJECT WAS REVIEWED IN AID/W AND APPROVED FOR FINAL PROJECT DEVELOPMENT. THE MISSION IS REQUESTED, HOWEVER, TO CONSIDER THE FOLLOWING POINTS IN DEVELOPING THE PP.

----- A. TECHNICAL ASSISTANCE: ALTHOUGH TA SUPPORT AS OUTLINED IN MSU REPORT APPEARS ADEQUATE FOR THE CURRENT PROPOSED DESIGN, SUGGEST ALLOCATION OF ADDITIONAL FUNDS IN PROJECT TO MEET SHORT-TERM AND OTHER SPECIAL TA NEEDS WHICH ARE LIKELY TO EMERGE DURING PROJECT IMPLEMENTATION - FOR EXAMPLE, FOR SEED EQUIPMENT USE AND MANAGEMENT, SEED CERTIFICATION PROCEDURES, AND SEED STORAGE PROBLEMS.

----- B. RELATIONSHIP TO IDB PROJECT. MISSION AND GOG WANT TO ASSURE THEMSELVES IDB FOOD CROP PROJECT ADEQUATELY ADDRESSES EXTENSION DEVELOPMENT ASPECT. IN OUR JUDGMENT THIS INPUT NECESSARY FOR IMPROVING OUTREACH CAPABILITIES NEEDED FOR SUCCESSFUL IMPLEMENTATION OF AID SEED PROJECT. IN OTHER WORDS, WE VIEW THE TWO PROJECTS AS BEING COMPLIMENTARY AND REQUIRING COORDINATION. ALSO, PP SHOULD DEMONSTRATE INPUT NEEDS (E.G., FERTILIZER, CREDIT) OF PARTICIPATING FARMERS WILL BE IN PLACE.

2. EXPIRATION OF THE WAITING PERIOD FOR THE CONGRESSIONAL NOTIFICATION IS AUGUST 28. VANCE

BT
9746

1

AGENCY FOR INTERNATIONAL DEVELOPMENT
PROJECT IDENTIFICATION DOCUMENT FACESHEET
 TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE
 A A = ADD
 C = CHANGE
 D = DELETE

PID
 2. DOCUMENT CODE
 1

3. COUNTRY/ENTITY
 GUYANA

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 DIGITS)
 504-000

6. BUREAU/OFFICE
 A. SYMBOL LA B. CODE 3

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS)
 SEED FARM DEVELOPMENT

8. PROPOSED NEXT DOCUMENT
 A. 2 = PRP 3 = PP
 B. DATE 12 / 7 / 7

10. ESTIMATED COSTS (5000 OR EQUIVALENT, \$) =

FUNDING SOURCE		445525
A. AID APPROPRIATED		470
B. OTHER	1.	
	U.S. 2.	
C. HOST COUNTRY		125
D. OTHER DONOR(S)		
TOTAL		595

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION
 a. INITIAL FY 7 / 8 b. FINAL FY 7 / 9

11. PROPOSED BUDGET AID APPROPRIATED FUNDS (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. FIRST FY 78		LIFE OF PROJECT	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	H. GRANT	I. LOAN
(1) F&N	210	070		310		470	
(2)							
(3)							
(4)							
TOTAL				310		470	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)
 ES

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)
 To decrease the cost of producing foodcrops and increase the income of a substantial portion of Guyana's 50,000 farm families.

16. PROJECT PURPOSE (MAXIMUM 400 CHARACTERS)
 To create in Guyana self-sufficiency in domestically produced seeds for all major foodcrops.

7. PLANNING RESOURCE REQUIREMENTS (staff/funds)
 Up to 4 Man/Months of TDY services by AID/W staff or a qualified contractor.

18. ORIGINATING OFFICE CLEARANCE

Signature: *[Signature]*
 Title: Acting Director, USAID/Guyana
 Date Signed: 05 / 24 / 77

19. DATE DOCUMENT RECEIVED
 - AID/W; OR FOR AID/W DOCUMENTS
 - DATE OF DISTRIBUTION

I. SUMMARY OF THE PROBLEM

It is Guyana's major economic development goal to maximize agricultural production, achieve complete self-sufficiency in food production, and provide food exports to the CARICOM countries. High priority is being placed on the expansion and diversification of domestic foodcrop production and the introduction of new crops, thus eventually precluding the import of virtually all foodcrops and alleviating the foreign exchange drain.

At present, seeds for virtually all food crops other than rice are still being imported. Moreover, frequently seeds from foreign sources arrive in Guyana after considerable shipping delays in a spoiled and useless state. Shipping and packing methods often do not provide for proper environmental control to maintain viability of the seeds. With a drop in the germination rate from high temperatures and from the presence of moisture, such seeds become worthless. Furthermore, seeds that are grown in the temperate zone are seldom adapted to tropical growing conditions.

The existence in Guyana of a system to provide the small farmer, the primary producer of vegetable and other food crops, with good seed would significantly contribute to expanded production and to the increase in his income. Without adequate quantities of good, viable, disease-free seeds, farmers continue to experience crop failures; accompanied by severe economic losses. This is particularly serious since until the recent drive towards complete self-sufficiency in food production, the Guyanese foodcrop farmer, except for the rice producer, was largely neglected. His income is below that of the rice farmer who comprises 25 percent of the country's population and operates a farm averaging 8 acres in size.

Since the cost of seed is one of the most inexpensive items relative to importance in a total production budget, it is appropriate for the Government of Guyana to provide for this basic need of farmers. A system of seed production and storage for those seeds that can be easily produced in Guyana has high priority since it would lead to reducing the country's dependence on foreign sources of seed (exacerbated during the current severe foreign exchange crisis), and assure that high quality seeds adapted to the local environment will be readily available where and when needed. In this connection, the Guyana Ministry of Agriculture has already identified a number of crops for the purpose of foundation seed activity which include: cowpeas, beans, mung beans, tomatoes, pigeon peas, watermelon, radishes, onions, squash, melons, peppers, cucumbers, lettuce, Chinese cabbage, potatoes; and others yet to be determined.

II. PROPOSED RESPONSE TO THE PROBLEM

The Ministry of Agriculture has shown initiative in identifying three potential sites for seed farms, bearing in mind that not all seeds of food crops grown in Guyana can be reproduced under tropical conditions because of environmental and technological limitations. Of the three sites thus far identified, two are located in the interior (Mazaruni—20 acres; Ebini—50 acres) and one is 10 miles outside the capital, Georgetown, attached to the Mon Repos Ministry of Agriculture Experimental Station. All sites are strategically located in Guyana's principal production areas, readily accessible to foodcrop farmers. Further criteria applied in the selection of these sites were availability of transportation, irrigation, drainage, and electricity for operating seed cleaners and seed storage facilities. Each seed farm is expected to assume the task of multiplication of foundation seed, employing good agronomic practices to produce good quality seed appropriate for use by farmers.

The Ministry of Agriculture's plans for upgrading and expanding existing facilities are well advanced. Guyana's current economic crisis, causing severe budgetary restraints and cut-backs for all ministries including Agriculture, has prevented implementation of this project which potentially has a key impact on Guyana's drive toward self-sufficiency in the production of all foodstuffs.

It is recommended that AID contribute to solving this problem through a grant project, involving technical assistance and equipment to make the three proposed seed farms operational in a relatively short time. A two-year project is envisioned for approximately 24 man-months of technical advisory services, together with specialized equipment for seed production, irrigation, and drying. In-country training of Ministry of Agriculture personnel would be an integral part of the project. It appears feasible that the project could be implemented during the latter part of FY 1978.

III. FINANCIAL REQUIREMENTS

The estimate of technical advisory services which would include in-country training is \$120,000 over the project's two-year period. Equipment costs are estimated at \$350,000, involving at least six special row crop vegetable tractors with specialized attachments as well as spare parts; tillage equipment; irrigation equipment including pumps; and seed drying and processing commodities. The Government of Guyana's contribution would consist of seed storage buildings and facilities, as well as the salaries of staff detailed to the project.

IV. DEVELOPMENT OF THE PROJECT

1. An USAID-funded study of Guyana's foodcrop systems, prepared in 1974 by Robert R. Nathan Associates, is a reservoir of still valid information on Guyana's foodcrop potential. The study led in 1975 to a PP for a Foodcrops Production and Marketing Loan, which was never authorized due to deteriorating U.S.-Guyana bilateral relations in 1975 and 1976. The IDS expects to authorize a loan in early CY 1978, primarily designed to build ten foodcrops marketing and distribution centers in Guyana's interior.

2. Prior to implementation of the present AID project, a total of 4 man-months of advisory services are recommended to assess the potential of the selected seed-farm sites and assist in FRP and PP preparation.

3. (a) Completion of FRP: 12/30/77
(b) Completion of PP: 5/31/78.

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

LAC/DR-IEE-78-30

ENVIRONMENTAL THRESHOLD DECISION

Location : Guyana
 Project Title : Seed Farm Development, 504-0065
 Funding : FY '78 \$273,000 Grant; FY '79 \$182,000 Grant
 FY '80 \$45,000 Grant
 Life of Project: Three Years

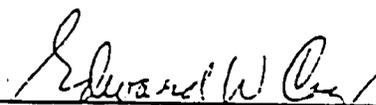
Mission Recommendation:

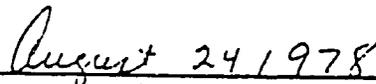
Based on the Initial Environmental Examination, the Mission has concluded that the project will not have a significant effect on the human environment and therefore recommends a Negative Determination.

The Latin America and the Caribbean Bureau's Development Assistance Executive Committee has reviewed the Initial Environmental Examination for this project and concurs in the Mission's recommendation for a Negative Determination.

AA/LAC Decision:

Pursuant to the authority vested in the Assistant Administrator for Latin America and the Caribbean under Title 22, Part 216.4a, Environmental Procedures, and based upon the above recommendation, I hereby determine that the proposed project is not an action which will have a significant effect on the human environment, and therefore, is not an action for which an Environmental Impact Statement or an Environmental Assessment will be required.


 Assistant Administrator for
 Latin America and the Caribbean


 Date

Clearances:

DAEC Chairman: MBrown 
 LAC Environmental Advisor: ROtto 

INITIAL ENVIRONMENTAL EXAMINATION

Project Location:

Guyana

Project Title:

Seed Farm Development

Funding:

FY '78	\$273,000	Grant
FY '79	\$182,000	Grant
FY '80	\$ 45,000	Grant

Life of Project:

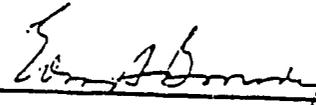
Three Years

IEE Prepared By:


Dan F. Miller, Jr.
Chief Engineer, USAID/Georgetown.
July 21, 1978

Environmental Action Recommended:

Based on the Initial Environmental Examination (See Page 3 of IEE), the Mission has concluded that the project will not have a significant effect on the human environment and recommends a Negative Determination.



Edna A. Boorady
Director

Date: July 24, 1978

Clearances:

RDO:DSteen (in draft)
PRM:NMariani (in draft)

INITIAL ENVIRONMENTAL EXAMINATION (IEE)

Seed Farm Development
Project No. 504-0065

I. Examination of Nature, Scope and Magnitude of Environmental Impact.

Description of Project:

Purpose: To develop a reliable source of viable agriculture seed that is readily available to the farmer in all areas of the country and can be purchased at reasonable prices.

Background: Expansion and diversification of domestic food crop production is essential if Guyana is to be reasonably self-sufficient in food and the policy of saving foreign exchange is to be successfully carried out. The present inadequate system of supplying farmers with good seeds and other input essentials must be improved and expanded. Many seeds will not grow because of poor harvesting, storage, packaging and distribution practices on the part of the present seed supply system.

This project is complementary to and an expanded part of the present Legume Production Program currently being carried out by GOG agriculture staff, with assistance of the Inter-American Institute of Agricultural Sciences (IICA).

A.I.D. will finance under the three year life of this project modest technical assistance (\$186,000), training (\$51,000), and improvements at the (presently only) existing seed facility (\$65,000) at Mon Repos. In addition, four satellite units at Yakusari (Black Bush Polder), Charity (Essequibo Coast), Ebini-Kimbia (Intermediate Savannahs) and Wauna (Northwest Region), will be developed (\$198,000). (See Location Map). All facilities will be located in presently cultivated lands, therefore no land will be converted from other than present cropping

Identification and Evaluation of Environmental Impacts.
(Also see Impact Identification and Evaluation Form Attached)

1. General Discussion

Construction activities required under the project are primarily improvements and/or replacement of equipment at the existing facility at Mon Repos and the converting and equipping of present cropping land for seed production use. There are some minor simple buildings and simple water distribution systems from existing canals to be built at the new facilities.

The physical impacts to the environment will therefore be minimal and will occur for a short time only during the construction/equipping stage. This will consist of very minor impact to surface water, the atmosphere and noise increase.

The socio-economic impacts will be considerable and all beneficial. (See Project Paper discussion).

2. Detail Examination and Comments on Items of Impact Identification and Evaluation Form.
(See Attached Form).

A. Land Use

There is little or no impact from the project in this area. As noted, the only change in land use will be converting present cropping lands for specific seed production use.

B. Water Quality

Impact will be minimal and of short duration during construction activities.

C. Atmospheric

Impacts will be minimal and of short duration during construction activities.

D. Natural Resources

None.

E. Cultural

None.

F. Socio-economic

There are considerable impacts but these are beneficial.

G. Health

None.

H. General

None.

II. Recommendation for Environmental Action

Since adverse environmental impacts are very minimal and of short duration during the modest construction/equipping stage of the project and there are considerable long range beneficial impacts in the socio-economic area, the Mission therefore recommends a Negative Determination of Environmental Impact.

IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Identification
and Evaluation 2/

Impact Areas and Sub-areas^{1/}

A. LAND USE

1. Changing the character of the land through:
 - a. Increasing the population _____ N
 - b. Extracting natural resources _____ N
 - c. Land clearing _____ N
 - d. Changing soil character _____ N
2. Altering natural defenses _____ N
3. Foreclosing important uses _____ N
4. Jeopardizing man or his works _____ N
5. Other factors

B. WATER QUALITY

1. Physical state of water _____ N
2. Chemical and biological states _____ N
3. Ecological balance _____ N
4. Other factors

1/ See Explanatory Notes for this form.

2/ Use the following symbols: N - No environmental impact
L - Little environmental impact
M - Moderate environmental impact
H - High environmental impact
U - Unknown environmental impact.

IMPACT IDENTIFICATION AND EVALUATION FORM

C. ATMOSPHERIC

- | | | |
|--------------------------|-------|---|
| 1. Air additives _____ | _____ | L |
| 2. Air pollution _____ | _____ | L |
| 3. Noise pollution _____ | _____ | L |
| 4. Other factors _____ | _____ | |
| _____ | _____ | |
| _____ | _____ | |

D. NATURAL RESOURCES

- | | | |
|--|-------|---|
| 1. Diversion, altered use of water _____ | _____ | N |
| 2. Irreversible, inefficient commitments _____ | _____ | N |
| 3. Other factors _____ | _____ | |
| _____ | _____ | |
| _____ | _____ | |

E. CULTURAL

- | | | |
|--|-------|---|
| 1. Altering physical symbols _____ | _____ | N |
| 2. Dilution of cultural traditions _____ | _____ | N |
| 3. Other factors _____ | _____ | |
| _____ | _____ | |
| _____ | _____ | |

F. SOCIO-ECONOMIC

- | | | |
|--|-------|---|
| 1. Changes in economic/employment patterns _____ | _____ | N |
| 2. Changes in population _____ | _____ | N |
| 3. Changes in cultural patterns _____ | _____ | N |
| 4. Long range increased individual income _____ | _____ | H |
| 5. _____ | _____ | |

IMPACT IDENTIFICATION AND EVALUATION FORM

G. HEALTH

- | | |
|---|-------|
| 1. Changing a natural environment _____ | N |
| 2. Eliminating an ecosystem element _____ | N |
| 3. Other factors | |
| _____ | _____ |
| _____ | _____ |

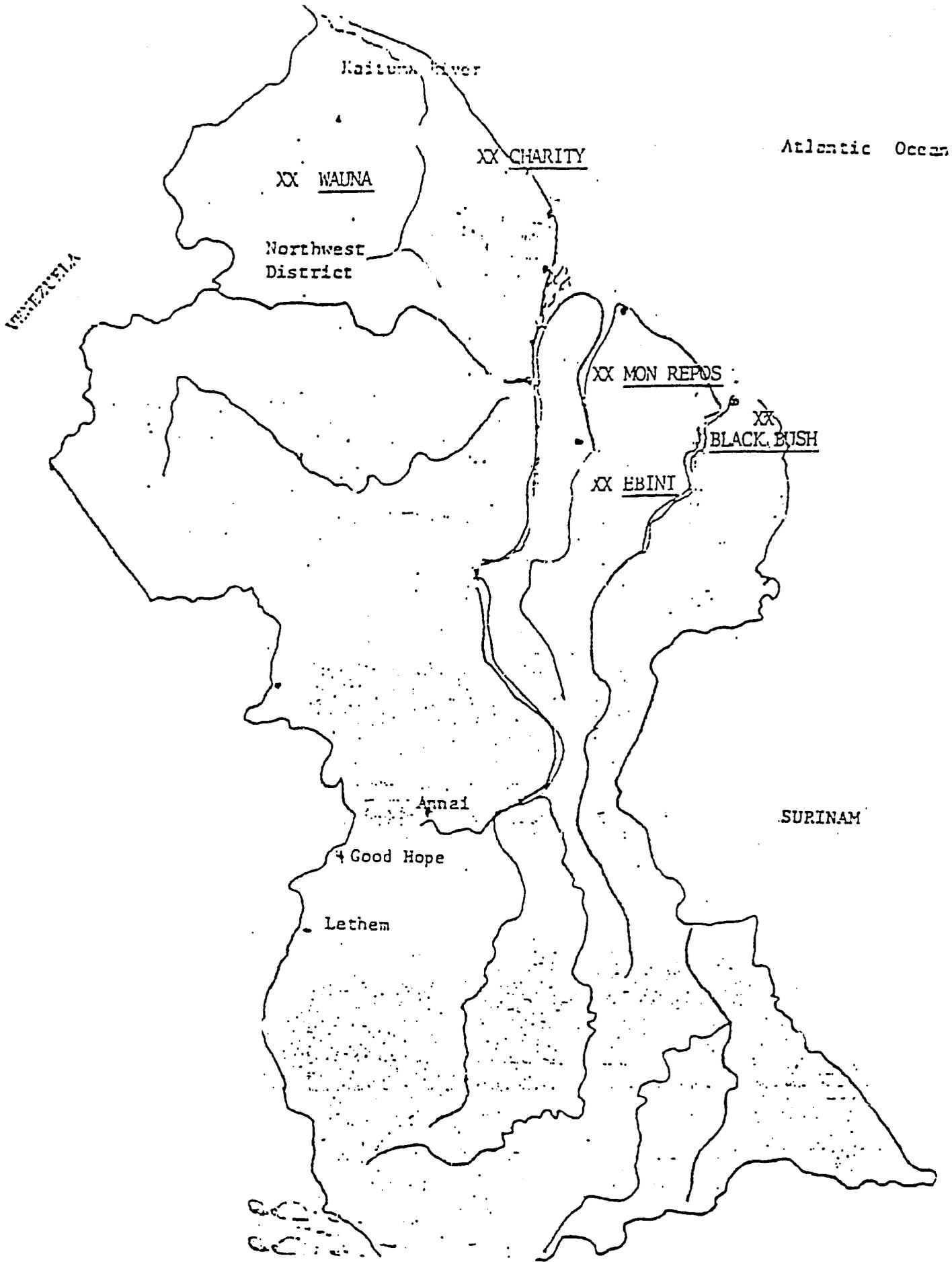
H. GENERAL

- | | |
|---------------------------------|-------|
| 1. International impacts _____ | N |
| 2. Controversial impacts _____ | N |
| 3. Larger program impacts _____ | N |
| 4. Other factors | |
| _____ | _____ |
| _____ | _____ |

I. OTHER POSSIBLE IMPACTS (not listed above)

_____	_____
_____	_____
_____	_____

See attached Discussion of Impacts.



Kaituma River

Atlantic Ocean

XX WALUNA

XX CHARITY

Northwest District

FRENCH GUIANA

XX MON REPOS

XX BLACK BUSH

XX EBINI

Annai

SURINAM

Good Hope

Lethem

Annex 8: Equipment List for Seed Farm Project

Mon Repos

Quantity	Item & Description	Price
		\$
8	14,000 - 16,000 BTU Air Conditioners @ \$400 each	3,200
4	Industrial Condensation type Dehumidifiers, 2 h.p. Compressor (Singer D-20 or equivalent) @ \$800 each	3,200
8	Seed Sampling Probes (18 in., $\frac{1}{4}$ in. OD) @ \$25 each	200
1	Electric Seed Moisture Meter (battery or power cord)	800
1	Heated Air Oven for Moisture Tests of Seed kinds that cannot be determined with electric moisture meters	300
1	Germinator, with lights, heating and cooling; automatic alternation of temperature; suitable for testing all kinds of seed	3,500
2	Gram Scales, 0.1 g. sensitivity; 610 g. capacity @ \$100 each	200
2	Torsion Balances; sensitivity 0.01 g.; capacity 120 g. @ \$350, with set of standard weights @ \$50	800
	Miscellaneous Testing Items (Magnifiers, Fine Forceps, Sample Pans, etc.)	200
	Heater-fan Unit (fuel-oil) fired sized for bag dryer	3,000

Quantity	Item & Description	Price
	Small Drying Unit for drying vegetable seed in small quantities. Consisting of: Drying Fan (\$400), Heater Unit (fuel oil fired of approx. 100,000 BTU) (\$500), and components for local fabrication of drying bed and frame (\$500)	\$ 1,400
2	Portable Bag Closers (heavy-duty sewing machine) with set of spare parts); with ceiling mounted suspension system, @ \$500 each	1,000
	Vacuum Cleaner, heavy-duty (for clean up of equipment between varieties); with attachments	500
	Belt Conveyor for conveying seed in bags for stacking, 12 to 14 ft. in length, w/electric motor, and under carriage on wheels.	1,200
2	Platform Bag Trucks, 4-wheel rubber tyres; 1.5 ton capacity @ \$300 each	600
2	Bag Trucks; 2-wheel, rubber tyres; hard-wood frame; steel strap up handles; 10 in. nose @ \$150 each	300
2	Heat Sealers for sealing small plastic film packages of seed @ \$250 each	500
	Blower, portable, electric, for cleaning seed equipment; w/spray attachment for space spraying for insect control	300
	Pneumatic seed cleaner; for cleaning seed; two-column type	2,000
	Miscellaneous spare parts for equipment on hand	2,000
	Irrigation system. Sized for 10 acres; portable; sprinkler type, aluminum piping - 4 in. mains and 2 in. laterals; w/sprinkler heads capable of 1/2 in. water/hr.; with centrifugal pump (diesel driven) and tube for ditch intake sized for system	20,000

Slack Dush (Yakusari)

Quantity	Item & Description	Price
		\$
	Cleaning/Processing equipment: cleaner with elevators; platform scale; bag hand trucks; bag conveyor; heat sealer; miscellaneous	10,000
	Conditioning equipment for Storeroom; 2-12,000 BTU Air Conditioners; 2 small basement type Dehumidifiers	1,200
	Dryers (one portable 4000 lb. capacity dryer available; one to be transferred from Mon Repos to Yakusari)	Available
	Quality control equipment (moisture testers, hand screens, gram scales, miscellaneous)	1,500
	Special equipment for extraction of vegetable seed from fleshy fruits such as tomatoes; to be constructed locally	800

Charity

<u>Quantity</u>	<u>Item & Description</u>	<u>Price</u>
		\$
	Air Conditioner for 400 ft. ² store- room, 18,000 - 20,000 BTU	400
2	Dehumidifiers, small basement condensation types @ \$200 each	400
	Heater-fan Unit sized for three corn drying bins (fuel-oil fired)	3,000
	Dryer for vegetable seed; transferred from Mon Repos	Available
	Corn Sheller, electric, 50 bu/hr	1,000 .
	Processing/Cleaning equipment; two (2) small cleaners w/elevator and bagging auger; bag closer; platform scale; vacuum cleaner; bag hand trucks; bag conveyor; heat sealer; miscellaneous	10,000
	Quality control equipment (moisture tester, hand screens, scales, miscellaneous)	1,500
	Special equipmt for extraction of vegetable seed from fleshy fruits (e.g. tomatoes); to be fabricated locally	800
	Perforated Steel Floors for drying bins	800

Ebini - Kimbia

Quantity	Item & Description	Price
		\$
	Air Conditioner for store room, 18,000 - 30,000 BTU	400
	Maize Sheller, 50 bu/hr. capacity	1,000
2	Small basement condensation Dehumidifiers @ \$200 each (for store room)	400
	Heater-fan unit sized for three drying bins (fuel-oil fired)	3,000
	Processing/Cleaning equipment: seed cleaner; bag conveyor; bag hand trucks; vacuum cleaner; bag closer; platform scale; miscellaneous; plus, one of new cleaners transferred from Mon Repos to Ebini	10,000
	Quality Control equipment (moisture tester, gram scales, hand screens, etc.)	1,500
	Perforated Steel Floors for drying bins	800
	Electric Generator, diesel driven, w/controls, 25 KVA	6,000
	SUB TOTAL	99,700
	CONTINGENCIES 10 %	9,970
	SHIPPING 25 %	<u>24,925</u>
	TOTAL	<u>\$134,595</u>

Construction Cost Estimates for Seed Farm

U.S. DOLLARS

Mon Repos

64 bag (75 - 100 lb. bags) dryer on concrete pad with roof (no side walls) for all weather operation (approx. 500 sq. ft. of space) @ \$10/sq. ft. 5,000

Black Bush

Building approximately 2200 sq. ft with office (200 sq. ft.) processing area (800 sq. ft.), insulated seed storage space (600 sq. ft.), miscellaneous and general storage (200 sq. ft.) and small quality control laboratory (400 sq. ft.) @ \$17/sq. ft. 35,700

Shed for Dryer (no side walls) on concrete pad (350 sq. ft.) @ \$6/sq. ft. 2,100

Concrete Drying Floor 600 sq. ft. @ \$3/sq. ft. 1,800

Charity

Building of approximately 2,000 sq. ft. with office (200 sq. ft.), small quality control laboratory (120 sq. ft.), insulated storage space (400 sq. ft.) processing area (800 sq. ft.) general storage and miscellaneous (480 sq. ft.) @ \$20/sq. ft. 40,000

Drying bins for ear corn, 3 bins of approximately 512 cubic ft. each under roof (without side walls) on concrete pad with false perforated floor and plenum chambers for air flow (perforated floor will be imported - see equipment list) 400 sq. ft of construction @ \$15/sq. ft. 6,000

Drying Floor concrete 400 sq. ft. @ \$3/sq. ft. 1,200

U.S. DOLLARS

Ebini - Kimbia

Drying bins for corn, peanuts and cowpeas,
3 bins of approximately 512 cubic ft. each
under roof (without sidewalls) on concrete
pad with false perforated floor and plenum
chamber for air flow (perforated floor
will be imported - see equipment list)
400 sq. ft. @ \$15/sq. ft. 6,000

Storeroom, insulated construction with tight
fitting door, 400 sq. ft. @ \$21.30/sq. ft. 8,520

Wauna

Shed built on concrete pad (without sidewalls
except for ventilated storeroom of 400 sq. ft.).
Total area 850 sq. ft. @ \$12.25/sq. ft. 10,412

SUMMARY

Mon Repos	5,000
Black Bush	39,600
Charity	47,200
Ebini - Kimbia	14,520
Wauna	10,412
	<hr/>
SUB TOTAL	116,732
CONTINGENCIES 10 %	11,673
	<hr/>
TOTAL	\$128,405
	<hr/>