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November 13, 1979

SUBJECT: Non-Spatial Project Paper, Proposed Project

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NON-SPATIAL PROJECT PAPER (NOSP)

I. General Identifying Information

Country: Somalia

Submission Date: November 11, 1979

Project Title: Seed Multiplication and Distribution

Project Number: 621-11-130-09

U.S. Obligation Span: FY 1979 through FY 1979

Grant Life of Project Financial Requirements:

U.S. Dollars: Total Grant funds \$1,909,000
Total Loan funds \$1,511,313 (proposed
Agriculture Sector Loan)

U.S. Grant Local Currency: None

Cooperating Country Cash Contribution: \$9,134,436

Other Donors: None

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APPROVED BY [Signature]	OFFICE AGE	PHONE NO. 205. 6, 1300	APPROVED BY DIR: Charles J. Nelson
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II. SUMMARY DESCRIPTION

This is the initial PROP for a new project designed to support the Ministry of Agriculture, Food and Cooperatives in its major role in Tanzania's Second Five-Year Development Plan. This Plan gives top priorities to agricultural/rural development, increased agricultural production and diversification, and self-sufficiency. There is a vital need for new and improved varieties of commonly grown crops and a wider range of crops in order to reach these priority goals. This project is designed to help meet that need by assisting the Ministry in implementing a seed multiplication and distribution program which will produce and make appropriate seeds available to Tanzania's farmers.

The project consists of three components: a seeds act and regulations, a seed multiplication program, and a seed company and distribution program.

This project will provide the services of ten OPEX technicians for six to ten years each, to assist the Ministry in planning, administration, management and implementation of the project.

A. Justification

This project proposal has been screened from thirty potential agriculture development enterprises which were identified by comprehensive field studies and selective analysis. It satisfies the criteria for self-contained agriculture production enterprises. Its potential impact on, and support for, agricultural development is tremendous.

The Tanzania Government requested AID assistance with agriculture planning and project implementation. This assistance was planned in three phases with the stipulation that proceeding to each succeeding phase would be contingent upon satisfactory performance and a determination of feasibility in the preceding phase.

The Phase I Agriculture Sector Reconnaissance, (an AID in-house team study), July-October 1967, identified, defined and formulated this project, and gathered the data to develop the scope-of-work for the detailed study conducted during Phase II.

The Phase II Study ^{1/} formulated a detailed, time-phased development plan for the project, confirmed the project's latent potential and technical feasibility, and confirmed that Tanzania's project input requirements are within its resources limitations.

Phase III proposes the physical implementation of the project as outlined in this PROP.

^{1/} AID/Experience Incorporated Ltd., Contract, Seed Multiplication and Distribution Study, March-July, 1969.

B. Project Goals

The overall project goal is to double cereals and food legumes production in Tanzania and go beyond self-sufficiency to surplus production for export during the ten year life of the project.

AID will assist the Ministry of Agriculture, Food and Cooperatives in meeting this goal by helping to: (a) prepare a seeds law, (b) implement a seed multiplication program, (c) establish a seed company and distribution program.

1. The Seeds Law

A draft Seeds Act and Regulations were prepared during the Phase II Study. Additional technical advice will be provided as required for the finalization of the Act before it becomes a law. This Act is essential to the successful establishment of a viable seed multiplication and distribution program, and will be administered by the Ministry of Agriculture, Food and Cooperatives.

2. Seed Multiplication Program

A new or improved variety of seed developed and released by research is classified as breeder seed. The breeder seed must then be increased through the successive stages or classifications of foundation, registered and certified seed. Seed when classified as certified seed is released or distributed to the farmers for wide scale production. The crop or harvest from certified seed is not eligible for inspection or certification for any classification and is for general utilization.

The seed multiplication program will consist of two phases: (1) The multiplication of the initial seed, usually small amounts of the new or improved varieties of seed, developed by research and requiring intensive care multiplication; and (2) the larger scale multiplication or bulking-up of these varieties. For identification purposes these seed multiplication farms will be referred to as (1) foundation farms, and (2) certified farms, respectively.

The first phase will be the intensive care multiplication of breeder seed through the successive classifications to registered seed. It will be essential that all seed multiplication work, particularly during the first phase, be carefully controlled and that the regulations for growing, testing, processing and certifying are absolutely adhered to.

The first phase multiplication will be carried out on foundation farms especially reserved by the Ministry for this purpose, and by the seed company. These farms will be at least 1000 acres in size to provide the necessary isolation for the various seed varieties and crops to be multiplied under controlled conditions.

One high altitude and one low altitude farm will be established initially. Additional farms will be established as required. The Ministry farms will be under the supervision of the Research, Training and Farmers' Education Division of the Ministry of Agriculture initially until managers and staff can be sufficiently trained to relieve this Division. It is estimated a maximum of three years will be required for this training.

The second phase will consist of multiplication of the registered seed to bulk-up adequate certified seed to satisfy farmer demands.

Five certified seed multiplication farms of approximately 1,000 acres of arable land each with seed processing and storage units will be established. Field tested proven varieties of registered seed will be multiplied on the certified seed farms and by the seed company to produce certified seed in quantities adequate for wide scale planting and large scale production by the farmers. Staff to manage and operate the farms will be trained through on-the-job and participant training. The certified farms will harvest, clean, and store the certified seed usually for short periods, while awaiting sale and onward shipment to the seed company.

Training will also be provided for individual farmers and Ujamaa villages to develop the necessary management and skills for seed multiplication. Those who demonstrate the capacity will be permitted to participate in the program as contract growers under contract with the seed company.

For the first few years, emphasis will be placed on sorghum, millet, maize, rice, wheat, and food legumes. Provisions are made for grasses, oil seeds, forage legumes, vegetable and tree crops to be included in the program later as demand dictates and project conditions permit.

Seed Distribution

A seed company to handle seeds and planting materials distribution will be established through a Tanzania Government/private business joint participation agreement to produce and to collect the improved seed from the seed farms (and eventually contract growers) and to clean, process, package and distribute it to the cooperative unions and societies or other market outlets for distribution to the farmers.

General Approach

The overall seed multiplication and distribution program will consist of a three-pronged effort between the Ministry of Agriculture, Food and Cooperatives, a private business to participate in the seed company, and eventually contract growers.

The Seed Act will provide the framework, guidelines and regulations under which the overall seed multiplication and distribution program will function. Its enforcement will assure that only genetically pure and disease and weed free seed and planting materials enter Tanzania, that proper standards of genetic and mechanical purity and germination of the seeds and planting materials distributed in Tanzania are maintained.

The Seed Act will be administered by the Ministry of Agriculture, Food and Cooperatives which will develop methods and procedures for carrying out the regulatory responsibilities and implementing the Act. The Ministry will be responsible for verifying the eligibility of planting stocks for certification and carrying out field and seed inspection services as required for seed certification. The Ministry will employ inspectors to assure that the seed multiplication farms, the seed company and contract growers abide by the regulations and guidelines of the Act. The Ministry may authorize the seed company to carry out day-to-day implementation of the Act with respect to its own multiplication and distribution work, the contract growers and the foundation and certified seed farms.

The foundation and certified seed multiplication farms, the seed company and contract growers will multiply proven varieties of seed from breeder seed through the certified seed classifications. The amounts in subsequent classifications will increase until the certified classification production will be in amounts adequate for distribution to the farmer for large scale production. This certified seed will be distributed to the farmers by the seed company.

The success of the project will depend on how well each of the above is carried out and also by: (1) the capacity of the research program to continually produce or obtain new and better varieties with disease resistance and acceptable taste appeal to the consumer; (2) the capacity of the plant protection service to identify dangerous plant diseases and insect pest outbreaks and initiate prompt steps to combat them; (3) the effectiveness of the agriculture extension service in encouraging farmers to use the improved seed in a package production program of proper culture practices and off-farm production inputs. (These inputs - farm tools, implements and equipment, fertilizers, pesticides, insecticides and applicators must be available in the right quantities, at the right time, and in the right place); (4) the efficiency of the seed and production input distribution program; (5) the availability of credit for the farmer and the seed farms; (6) the presence of adequate storage and transport facilities; (7) the existence of a market system capable of handling the increased production and providing a market for the products; (8) the existence of incentives for the farmer such as an equitable and stable marketing and pricing policy for the increased production to insure significant returns to the producers to gain and retain the farmers confidence for making the increased investment; and (9) a continuous supply of trained, competent manpower to satisfy all these manpower needs.

AID will help the Ministry strengthen these supporting institutions and activities by providing on-the-job training and participant training for Tanzanian personnel.

D. Input Summary - Life of Project Financial Breakdown

1. Host Country Input

The Tanzania Government will provide: (1) personnel to implement the Seeds Act and Regulations, to operate the seed multiplication farms, and to supervise the cooperative unions and societies through which the seed will be distributed and marketed; (2) salary and allowances for participants while they are in training; and (3) housing and basic furnishings, medical and dental care and travel and the basic salary for OPEX technicians.

Other costs will include capital expenditures for physical facilities, equipment and materials for the seed multiplication farms and the seed processing plants, loan repayments on a proposed AID loan for importation of fertilizers, insecticides, pesticides and other production inputs, and the operating and maintenance expenses for the farms and plants.

The foreign exchange portion of the project capital costs would be met by a proposed AID agriculture sector loan. The cost of seed farms and processing and storage units and the production in-puts (see table page 7) are shown as Host Country Inputs even though the funds will be provided initially through an AID agriculture sector loan, because the Host Country will have to repay the loan. These same funds are shown as a US AID input (see table page) since they are to be provided through a US AID agriculture sector loan.

Additional costs of supporting institutional services such as research, agriculture extension, cooperatives and other Ministry of Agriculture staff, credit, marketing and transport will be large, difficult to estimate, and are not included in these estimates.

HOST COUNTRY ANNUAL COST/INPUE

	FY 70	FY 71	FY 72	FY 73	FY 74	FY 75-79	TOTAL
	U.S.\$	U.S.\$	U.S.\$	U.S.\$	U.S.\$	U.S.\$	U.S. Dollar
<u>SEED FARMS</u> (See Annex A for details)							
Foundation Farms (two)							
Capital Cost 1/	137,234		137,234				374,586
Operating Costs 4/	57,570	57,570	115,140	115,140	115,140	575,700	1,036,260
Certified Farms (five)							
Capital Cost 1/	334,470	334,470	334,470	334,470	334,470		1,672,350
Operating Costs 4/	119,526	239,052	358,578	478,104	597,630	2,938,150	4,731,020
<u>PARTICIPANT TRAINING</u>							
(Twelve for 24 months each)		5,000	7,000	9,000	8,000	6,000	35,000
Salary Allowance, Local Travel 10 OPEX Technicians 2/							
	39,000	65,000	65,000	65,000	65,000	110,500	409,500
Regulatory Personnel - Seeds Law							
	23,575	23,575	23,575	23,575	28,575	142,875	285,750
Vehicle Operation, Maintenance (POL) USAID provided vehicles							
	4,000	4,000	4,000	4,000	4,000	20,000	40,000
Production Inputs (U.S. Loan) 3/							
		100,000	200,000	200,000			500,000
TOTAL	770,425	333,667	1,300,047	1,034,269	1,152,315	3,343,225	9,134,436

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1/ \$1,011,313 of the \$2,046,936 capital costs will be off-shore costs provided through a proposed agriculture Sector Loan and are shown as a host-country cost.

2/ Basic Tanzania salary \$3,000; quarters and furnishings \$2,450; medical and dental \$250; and local travel costs \$1,000.

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HOST COUNTRY ANNUAL COST/INPUT (Continued)

3/& 1/ Shown as Host Country Input even though provided through proposed USAID agriculture sector loan, because the loan repayment will be a Host Country Input.

4/ Production, processing and storage.

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2. AID Input

AID's major input will consist of technical assistance to carry out the recommendations in the Phase II study * for implementing the Seed Multiplication and Distribution Program, and to provide on-the-job training for Tanzanians. This will require ten technicians as follows: **

(1) Four professional agronomists with broad experience and capability in the technology and management of plant breeding and the seed industry - one for ten years beginning the first year - one for eight years beginning the first year and two for six years beginning the second year - to provide overall guidance on the project to the Ministry; implement new variety field trials; plan, layout and develop the foundations and certified seed farms; and assist the seed company to develop its multiplication activities and distribution system.

(2) Two practical agronomists with broad experience and capability as managers of seed multiplication farms and seed processing and storage units - for six years each, one beginning the first year and one the second year.

(3) One plant pathologist with experience in cereal grains and legume crops diseases - for six years beginning the second year - to develop a plant protection program.

(4) One entomologist with experience in cereals and legume crops insect pests - for six years beginning the second year - to develop a plant protection program.

(5) One researcher - for six years beginning the second year - to assist the Ministry Research Division to plan and conduct research activities in support of the project.

(6) One agriculture extension expert - for six years beginning the first year - to work with the Ministry Extension Service extending the results/benefits of the project to the farmers through the package production program approach.

* See footnote page 2

** See Appendix B

Grant commodities will consist of: (1) four 4-wheel drive vehicles for frequent official travel by project technicians to areas which one can reach only with 4-wheel drive; and (2) portable demonstration and training equipment and supplies such as seed production, cleaning, treating, processing, testing and weighing equipment; seeds laboratory equipment and supplies; maintenance tools; and new seeds and planting materials. These commodities are to be used directly by the OPEX technicians. By providing the vehicles, the USAID assures the project technicians of having a vehicle when they need it without losing time waiting for a vehicle to be made available or to be repaired through the TanGov motor pool.

Tanzania's Second Five-Year Development Plan extols self-help and emphasizes increased domestic resource mobilization at all levels. This plan vastly increases the emphasis on, and the share of the total budget for agricultural and rural development, from about 20 percent to 31 percent. This is a pronounced display of determination and self-help effort. In addition, Tanzania's capital investment and recurring costs, the direct technician (OPEX) support costs, and the loan repayment costs of this project are substantial. Therefore, USAID feels there is adequate justification for AID providing the above commodities.

Participant training will be provided for twelve Tanzanians as follows: one - plant pathology; one - entomology; six - agronomy seed production, distribution, certification and testing; two - marketing-cooperatives, and farm credit; and one - agriculture extension.

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	FY 1970	FY 1971	FY 1972	FY 1973	FY 1974	FY 1975 est. FY 1976	Total
Technicians (OPEX)	100,000	250,000	50,000	250,000	250,000	50,000	1,450,000
Commodities 1/	13,000	5,000	5,000	5,000	5,000	13,000	49,000
Participant Training (4 for 2 years) and 3 for 3 years)		35,000	49,000	56,000	49,000	35,000	221,000
Capital Investment - Seed Farms, Preparation, Processing, storage units (Loan) 2/ (not including land acquisition)	243,591	174,877	243,591	174,377	174,377		1,011,313
Production Input Loan 3/		100,000	200,000	200,000			500,000
Total Grant Funds	361,591	564,877	747,591	635,377	473,377	596,000	1,923,000
Total Loan Funds (proposed Agriculture Sector Loan)							1,511,313
Grand Total							3,434,313

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- 1/ \$16,000 for four 4-wheel drive vehicles in FY 70 plus \$500 per technician per year for demonstration commodities.
- 2/ To be financed as a part of the proposed \$3.5 million Agriculture Sector Loan of FY 1970; to be disbursed over a three year period (FY 70-72). The balance of requirements (FY 73-79) would be included in a second Agriculture Sector Loan. (See Appendix A for details of these commodities)
- 3/ To include farm tools and equipment, fertilizers, pesticides, etc. made available through the National Development Credit Agency, from funds to be provided by the proposed Agriculture Sector Loan.

III. SETTING

Tanzania encompasses an area of 364,900 square miles, including 22,800 square miles of inland water, and has a population of 12,280,000. Although there are marked differences of temperature and rainfall distribution and intensity, the climate and soil conditions are generally favorable for productive agriculture in the modern sense. Near future increases in agricultural production, given sound management of resources, are potentially substantial. This production potential supported by an efficient marketing system augurs well for the future overall economic and social development and well being of Tanzania. Developing this production potential and efficient marketing system, however, will require considerable manpower and resource input by Tanzania and assistance from external donors.

In Tanzania, capital resources are scarce and must be carefully allotted. The government wisely gives complex industrial enterprises a low priority. Principal economic efforts are concentrated in agricultural and rural development. Agriculture is Tanzania's greatest economic and natural resource and 90 per cent of the population earn their living by it. Thus, the nation's overall economic and social development largely depends upon developing a broad cash market agriculture sector. Tanzania must also diversify agricultural production if it is to reduce the cash market sector's extreme dependence upon the three crop economy of sisal, cotton and coffee - which are all vulnerable to the vagaries of the world market.

Small-holder subsistence production dominates the agriculture sector, and must be transformed into efficient and profitable market agriculture to underwrite and provide the catalyst for Tanzania's overall development. This will require Tanzanian farmers to apply improved technology and managerial skills. In these they must be trained.

Tanzania's agriculture is beset by the normal array of management, production and utilization practices which have been characterized as traditional or subsistence agriculture in developing nations, i.e., poor crop and animal husbandry and land use practices, and the resulting subsistence production; inefficient farm management and use of natural resources; a minimum of technological and managerial skills; inadequate marketing, distribution and transportation systems and storage facilities, and low demand at local markets; tight credit and a shortage of trained human resources to plan, invest and implement the required changes. Agricultural and rural development require concomitant concerted efforts to improve all these factors.

Tanzania began independence with only 77 nationals who were university trained, of which none were in agriculture. Although this number has been vastly increased since independence, particularly in agriculture, one of the major ingredients in the formula for successful agricultural and rural development in Tanzania is education. This includes all kinds of education: agriculture extension training for farmers, and formal education at all levels - elementary through university. This training needs to be directed toward all concerned with the agricultural

sector, from the farmer who may be inefficient and unproductive at the producer level to the Ministry official who may be just as inefficient at the professional agriculturalist level.

Tanzania began independence with ninety-five per cent of her population in the subsistence sector, with almost no industrial base, and with limited natural resources other than agricultural potential. Population distribution is highly influenced by the quality of agricultural land with most of the economic activity located on the periphery of the country. The better production areas consist of about 41 per cent of the land area and contain 73 per cent of the population at a density of 13 persons per square mile. The remaining 59 per cent of the land consists of the middle arid plateau, which has lower soil fertility and rainfall, and is relatively uninhabited. The wide dispersion of intensive agricultural production areas result in many distribution points being 400 - 600 miles from Dar es Salaam.

Within the agriculture sector, Tanzania has a dual farming economy. One sector is concerned with large-scale commercial farming and the other with peasant farming, primarily for subsistence. The large-scale commercial farm sector covers 7.5 million acres, about one per cent of the total land use. This sector in 1960 produced 49 per cent of the agricultural exports. By 1966, although total production increased, the commercial farm sector proportion dropped to 30 per cent. This was mainly due to a more rapid increase in small-holder production.

Changing attitudes are evident in that the peasant farmers marketed approximately 30 per cent of their crops during 1960-62, 49 per cent between 1963-66 and 60 per cent between 1967-68.

The increase in crop production was mainly due to expansion of the area cultivated with improved husbandry practices and production inputs playing a major role. With population pressures building up on the land, cultivation to new areas has increased. Although cultivated areas will be further expanded, emphasis is now given to improved husbandry practices and production inputs to increase the per unit output.

In the subsistence sector, the farmer's first aim is to be self-sufficient in foodstuffs, but the production of cash crops for sale has become progressively more important. This production-for-market trend in recent years is due to the peasant farmers' response to market opportunities, and to the government's efforts to assist them with agriculture extension services, better marketing facilities and other resources.

The agriculture sector has been, and for some time to come will be, the overwhelming mainstay of Tanzania's economy as a source of income and employment. The following table shows the percentage of the Gross Domestic Product generated by the agriculture sector by year from 1960 - 1968. The percentage has been decreasing due to advances made in other sectors, but it is still substantial and will continue to be so.

Agriculture Production as a Per Cent of the Gross Domestic Product in Tanzania

<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
(1	59	59.3	(1.3	58	54.2	53.4	51.7	50.0*

*Provisional.

It was envisaged in the first Five-Year Plan (1964-69) that the relative income originating from the agriculture sector would (in view of expansion of the other sectors of the economy) fall to 48 per cent of GDP by 1970 and to 37 per cent by 1980. Even if this projection becomes a reality the GDP generated by the agriculture sector will still be a very important part of the nation's economy.

The agriculture sector accounted for an estimated 90 per cent of the total employment and 40 per cent of the wage earners identified in the last census in Tanzania. In 1960, 1964 and 1967, the agriculture generated 85, 80 and 73 per cent respectively of the total export earnings.

The Arusha Declaration sets forth the government's awareness of the country's dependence upon agriculture for implementation of its economic and social development plans and of the disparity between the benefits derived by the farmer from his labor and the urban dweller from his, and the need to improve the farmer's comparative advantage vis-a-vis the urban dweller. It states, "That of our money is spent in the urban areas. We obtain loans to establish industries in towns; therefore, the largest proportion of the loans are spent in, or for, the urban areas, but the largest proportion of the repayment will be made through the efforts of the farmers."

Two of the four central themes in the Arusha Declaration are self-reliance and rural development through which the government aims to rectify the above disparity. Self-reliance adopts the thesis that Tanzanians themselves must be primarily concerned with, and only they are capable of achieving their own national development. This has promoted programs to secure increased domestic resource mobilization at all levels in those areas of development in which Tanzanian efforts can be most successful.

Rural development is essential to provide social and economic gains to the vast majority of Tanzania's people. The percentage of the total budget allocated to agricultural and rural development each year during the First Five-Year Plan is shown in the following table:

<u>Ministry</u>	<u>Percentage of Total Budget</u>				
	<u>1964/65</u>	<u>1965/66</u>	<u>1966/67</u>	<u>1967/68</u>	<u>1968/69</u>
Agriculture	11.6	10.5	10.5	9.9	10.9
Loans	17.3	14.9	19.0	19.0	16.0

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Other funds have been allocated on rural development during this period also by other Ministries such as Regional Administration and Rural Development, Education and others, but it is difficult to separate out the share of those respective budget outlays on rural development activities. This demonstrates the government's determination to translate these stated objectives into action programs. In addition, considerable funds were budgeted for (1) revision of education programs to serve the agriculture community better, (2) increased attention to rural health and water supplies, (3) the creation of the Rural Development Fund and re-organizing for a rural development bank, and (4) greater attention to teacher and improvement. Government policies and regulations insure that excessive tax increases do not re-distribute income from the poor rural areas to the less poor urban communities.

A central theme of the Second Five-Year Plan is increased attention to rural development including extension services and credit. The Second Plan, even more than the First, demonstrates the Government's determination to achieve a ruralized and rural development. The three Ministries involved in rural development and their 51 per cent share of the total Second-Five-Year Development Plan Budget are: Ministry of Agriculture, Food and Cooperatives - 23.1 per cent; Ministry of Regional Administration and Rural Development (Rural Development Division) - 2.9 per cent; and Ministry of Lands, Housing and Urban Development (Lands Division) - 2.7 per cent.

The main objective emphasizes the priority of agricultural development in later years the overall pattern and rate of social and economic development and change in the country. This priority is demonstrated by the fact that during 1971 the 22 year 4.2 per cent average with a record 11.2 per cent in 1966, and 7.2 per cent average for the period 1950-66. These variations started primarily due to adverse weather conditions affecting agriculture.

This contrast between the 1966 and 1967 overall economic growth shows that the Dominican economy is overwhelmingly dependent upon agricultural production, which is thus highly vulnerable to unfavorable weather and world market prices. The continued growth of the non-agricultural sectors is slowly reducing this dependence. Regardless, during the next decade any year with a slump in the agriculture sector is unlikely to show more than 2 - 3 per cent growth of GDP. Similarly, any year especially favorable in the agriculture sector is likely to record 7 - 8 per cent growth. However, improved planting materials and land use and production practices can in some degree offset the adverse effects of unfavorable weather on agricultural production.

Dominica has abundant natural resources for development in the agriculture sector. However, notwithstanding the projected development will require, in addition to the favorable policies and other governmental support, trained and motivated human resources to effectively plan and allocate the available internal and external resources, manage and utilize production, insure that appropriate incentives are provided to all involved, and formulate and implement the necessary overall administration, organization, planning and operating procedures.

In summation, Tanzania's agricultural/rural sector is predominantly producing on a subsistence level. Raising the level will require: training for the producers in improved technology and managerial skills and effective application of these, expanded and improved rural infrastructure, production, marketing, pricing and taxation policies favorable and equitable to the farmer, and any incentives which may be found to encourage the farmer to break with tradition and subsistence, to innovate, and to move into market economy agriculture. The Tanzanian Government is seriously attempting to provide the means for doing this.

IV. STRATEGY

A. U.S. Assistance Strategy

Substantial areas of Tanzania are ideally suited to the production of a wide range of cereals, legumes and other crops. The country has the potential of going beyond self-sufficiency to become a net exporter of these crops. Traditional subsistence crop husbandry practices and poor genetic quality of indigenous seed are responsible for the present low yields. The agricultural economy is further adversely affected by recurring, alternating periods of drought and favorable growing conditions. These result in corresponding periods of food shortages and surpluses. However, improved planting materials and land use and production practices can in some degree offset the adverse effects of unfavorable weather.

One of the main inputs needed to accomplish self-sufficiency is an adequate supply of improved seeds and planting materials readily accessible to the farmer. The introduction of improved, adapted seed, good crop husbandry practices, proper management, use of off-farm inputs, and the provision of adequate incentives to farmers could bring about very substantial increases in production. Experience in other areas clearly indicates that hybrid seed, an important yield increaser by itself, can be the "leading edge" for the introduction of the equally important production practices essential to increased yields. When improved seed is presented as an integral part of a production package program, farmers more willingly adopt the improved cultural practices which are tied to the new seed. This project will assist Tanzania's extension service to develop competence in presenting such a package program to farmers.

Tanzania's cereals and food legumes production can be increased rapidly and cheaply. Improved seeds for maize, and to a lesser extent for millet and sorghum, have been developed in Kenya and Uganda under the AID-financed Regional Major Cereals Project. These seeds are available for multiplication and distribution in Tanzania. Research in Tanzania, supported by research in neighboring countries, has proven that yields per acre of all cereals grown in the country can be substantially increased through planting improved varieties, better farm management and increased labor inputs. Maize yields have been increased 250 per cent on experimental plots merely by planting on time, using recommended planting rates and proper weeding. When capital inputs, improved

seed, fertilizers, insecticides, etc., are included, yield increases of up to 400 per cent have been obtained on experimental plots.

Tanzania does not have a seed multiplication and distribution system capable of getting the improved seeds to farmers in any significant amount. The purpose of this project is to assist the Ministry to develop a program that will accomplish this for Tanzania. This project is consistent with overall U.S. assistance strategy. The Ministry is emphasizing agricultural diversification away from the three crop economy of coffee, sisal and cotton, and planning assistance for food crop production. This effort is also in line with and directly influenced by the diversification stipulation in the International Coffee Agreement. This project will emphasize and encourage food production. The proposed AID-assisted Agriculture Marketing Project (to begin in FY 71) will support distribution and marketing to help assure self-sufficiency in line with U.S. policy and effort in the war on hunger. The proposed AID-assisted Agriculture Research Project will help Tanzania to develop its research competence in line with the requirements of this project. The proposed Agriculture Sector Loan (FY 1970) will provide foreign exchange for the off-shore costs portion of the capital development costs. With a moderate input we can assist Tanzania to develop a program which will have immense effect upon the future production of cereals and other food crops in Tanzania.

B. Host Country Development Emphasis

Tanzania's development emphasis is upon agricultural and rural development to assure that the rural population benefit equally with the urban population from economic development. The government is aware that Tanzania's economic and social development are dependent upon agriculture and that diversification and increased agricultural production are essential to support the nation's development and attain food and fibre self-sufficiency. The nation's emphasis on this is demonstrated by the fact that 31 per cent of the total budget for the Second Five-Year Development Plan is allocated to this purpose.

C. Cooperating Country Leadership

Tanzania's program of agricultural and rural development and self-sufficiency has a broad base of support ranging from top government officials down to the average citizen. There is a shortage of competent officers with skills to convert ministry plans into action programs in the field. However, the number of officers and their leadership and technical competence is expanding at an encouraging rate which when combined with the technical assistance and training under the project, will be adequate to implement this project.

D. Cross Relationship

The Swedish International Development Agency is completing a project proposal for constructing cereals grain storage for Tanzania. Discussions have been held with the SIDA team and will continue for maximum coordination because

of the joint benefits these two projects have for each other.

The Nordic Group is providing technical assistance to the Cooperatives Development Division, Ministry of Agriculture, Food and Cooperatives. At least one advisor will be posted in each region. The Nordic Group's efforts are aimed at improving the management, supervision and accounting of the cooperatives which will in turn benefit this project because the cooperatives unions and societies will be the main marketing outlets for the improved seed resulting from this project.

The USAID/MSU Agriculture Marketing Study is completed. The Mission proposes to initiate an Agriculture Marketing Project in FY 1971. These projects are closely related since increased production will demand a more effective and efficient marketing system and an improved marketing system will be the objective of the marketing project. These projects will be closely coordinated.

Throughout Phases I and II of this project there have been continual efforts to formulate the program so that maximum joint benefits will result between Tanzania's seed multiplication and distribution program and the Regional Major Cereals Project.

V. PROJECT ACTIVITIES

The overall objectives are the enactment of a seeds act and regulations, the implementation of a seed multiplication program, and the establishment of a seed company distribution program. This will require the supporting services of Agriculture Extension, the Cooperatives, the National Development Credit Agency, Research, policy makers and others.

A. Seeds Act and Regulations

Target: Enactment into law at the earliest possible date of a Seeds Act and Regulations.

Course of Action: A draft Seeds Act and Regulation were prepared during the Phase II Study for consideration by the Tanzania Government. This draft will be reviewed by the technical and legal staffs in the Ministry for an assessment of its compatibility with Tanzania's agricultural policy, regulations and objectives. Points within the draft Act which conflict with existing laws or policies, need modification for other reasons, or require clarification will be identified. The draft will then be forwarded, with the Ministry's comments, to the legal advisory section of the National Parliament and Attorney General's office for review and assessment of its compatibility with Tanzania's legal code, existing laws and national policy.

AID will provide advice, as necessary, for clarification or modification of the draft Act following these reviews.

The Seeds Act will be administered by the Ministry of Agriculture, Food and Cooperatives. The Ministry will provide inspectors for the overall nation-wide regulatory functions, inspection and enforcement of the Act. The seed company may be authorized by the Ministry to carry out the day-to-day functions and supervision of the Act with respect to seed production and distribution.

B. Seed Multiplication

The multiplication of improved seed must be carried out under maximum controlled conditions to assure the genetic purity of the seed through the successive classifications of breeder, foundation, registered and certified seed.

The breeder seed released by research is usually available only in very small amounts. The smaller the amount of the initial seed, the greater would be the resulting dilution of the genetic purity and standards of quality from biological or mechanical contamination. However, regardless of the quantity or the classification of the seed being multiplied, the very highest standards of quality control production practices must be adhered to. Such quality control will be more easily carried out if the intensive care multiplication is isolated from the larger scale multiplication and general production activities. Therefore, initial multiplication of breeder seed through the successive classifications of foundation and registered seed will be carried out on Ministry foundation seed farms and by the seed company. The multiplication of the registered seed to bulk-up adequate quantities of certified seed to satisfy farmer demands will be carried out on the certified seed farms and by the seed company and eventually contract growers.

Target No. 1: Establish one high-altitude and one low-altitude intensive care foundation seed multiplication farm for the first year of the project and establish additional farms as demands dictate in succeeding years.

Course of Action: The minimum essential seed requirements can be satisfied initially by one low-altitude and one high-altitude foundation seed farm. Additional foundation farms will be established as demands require expansion. These farms will be at least 1,000 acres in size, each with a processing storage unit and will be operated by the Ministry. The Ministry foundation farms will be under the supervision of their Research Division initially, until managers and staff can be trained under the project to relieve research of this production activity. The foundation farms will then be under the supervision of the Production Division. It is estimated a maximum of three years will be required to accomplish this training. The seed company will also be authorized to carry out intensive care seed

multiplication work on a foundation farm established by the company.

The physical facilities, machinery, equipment and materials outlined in the Phase II report for the Crop Improvement Association are basically the same as will be required for the foundation farms since the foundation farms and the seed company will perform the services recommended in the report to be carried out by the Crop Improvement Association. The foreign exchange portion of the capital costs is expected to be provided through a USAID agriculture sector loan.

Target No. 2: Establish five 1,000 acre certified seed multiplication farms, each with a seed processing and storage unit for the multiplication of hybrids and new or improved varieties of field proven seed and planting materials in quantities adequate for wide-scale distribution and subsequent large-scale production.

Course of Action: The country will be divided into five zones and a 1,000 acre seed multiplication farm and processing and storage unit established in each zone. The zones and the regions they will include are:

<u>Zone 1</u>	Arusha, Tanga, Dodoma and Singida
<u>Zone 2</u>	Mtwara and Ruvuma
<u>Zone 3</u>	Tabora, Mbeya and Kilimanjaro
<u>Zone 4</u>	Coast, Morogoro and Iringa
<u>Zone 5</u>	Mara, Mwanza, Shinyanga and West Lake

The crops/seeds to be multiplied in the overall program initially are millet, maize, food legumes, rice, sorghum and wheat. The crops/seeds to be multiplied on each seed farm/zone and the amounts for each crop projected for the ten-year period 1970-1979 are discussed in detail in the Phase II report.

The farms for the most part will be established on unimproved land and will require clearing and preparation for production. Personnel housing and other physical facilities will be constructed. The farm machinery and processing and storage equipment will be imported as required and installed at each farm as the project progresses.

A seed multiplication farm and processing and storage unit will be established in Zone II the first year. The balance of the farms will be established on the time schedule dictated by the speed with which the first farm is operating satisfactorily and its full seed output is being utilized. This will avoid two problems: over-extending available personnel for

implementation of the program, and producing improved seed surplus to farmer demand and rate of utilization. However, it is expected that one farm will be established each year during the first five years of the project.

C. Seed Distribution

Target No. 1: Develop a nation-wide seed distribution system.

Course of Action: A Tanzania Government/private business joint investment seed company will be formed with the primary responsibility for nation-wide seed distribution. Government participation can ensure that the program is not operated solely to earn a profit for the private capital investment and that some benefits of the program and profit from the government's investment in capital resources and personnel flow to the people. Private business can be effective in providing trained leadership, financial resources for implementing a program, and greater flexibility in decision making.

The seed company will have capital invested in the program and be involved in both the production and distribution of seed, and will develop procedures and methods for determining the quantities and varieties of seeds required to assure that the proper variety of seed for the area concerned is distributed to the market outlets accessible to the farmers. The majority of these seed outlets will be the cooperative unions and societies.

The seed company will obtain the bulk of its certified seed from the certified seed multiplication farms and eventually contract growers. It will clean, process, package and distribute it to the market outlets, primarily the cooperative unions and societies, where it will be readily accessible to the farmers for wide-scale production.

The cooperative unions and societies will serve as the marketing outlet in the seed distribution system. However, they are burdened with many other responsibilities and are continually faced with a shortage of trained competent staff. The staff requires training in management, bookkeeping, and accounting, and supervisory techniques, etc., to assure an efficient, low-cost operation. The Ministry is providing this training to the extent of its capabilities and will continue to do so. The Nordic Group is presently providing at least one cooperative advisor to each region to upgrade the cooperative program. Should additional assistance to cooperatives be deemed essential to the successful implementation of the project as it progresses, USAID may modify the project to provide appropriate assistance.

D. Other Seed Company Activities

The seed company will have other functions in the program besides developing and implementing an effective seed distribution system:

- a. Multiply intensive care of breeder, foundation, registered and certified seed.
- b. Insure that seed growers and handlers, foundation and certified seed multiplication farms, the seed company, contract growers and the cooperatives abide by the terms of the Seeds Act for growing, processing, testing, certifying, handling and distributing seeds and planting materials.
- c. Develop regulations and standards for the growing, processing, testing and certification of seeds and for uniform nomenclature, distinguishing tags, emblems or marks for all classes of certified seeds.
- d. Verify eligibility of planting stocks, conduct field and seed inspection services for seed certification, and issue evidences of certification.
- e. Introduce and distribute improved varieties of field crop seeds.
- f. Collect and disseminate information concerning the growing, harvesting, processing, storing and handling of superior field crop seeds and other information of value. (This will be a minor activity and will not in any way be considered an extension program. The information will be provided to the Agriculture Extension Service for subsequent distribution to the farmers by the Extension Service.)

The seed company may be authorized by the Ministry to carry out day-to-day routine regulatory responsibilities of the Seed Act; however, the company's own seed multiplication work as well as its regulatory activities will be subject to inspection by the Ministry's Seed Act inspectors.

The seed company will employ field inspectors for inspection, certification and regulatory activities of seed multiplication and distribution under the Seeds Act. The seed farms and contract growers will comply with the regulations and be subject to unlimited and unscheduled inspection visits by the seed company field men.

The seed company and the foundation farms will perform a vital service as the link between the research and the seed multiplication activities. The lapse of time between obtaining a new seed variety from research and distributing it to the farmers for large-scale production will depend upon the growth/maturity time requirements of the crop.

The success of the seed multiplication and distribution program, the ultimate crop yields realized by the farmers, and the agricultural produce in the national granary will be directly influenced by the genetic purity of the breeder seed and subsequent plantings and classifications. It is, therefore, imperative that the genetic purity of the seed be insured. The seed company and the foundation farms will be charged with the essential

task of increasing and maintaining genetically pure seed stocks up through registered seed.

BENCHMARKS FOR MEASURING PROJECT PROGRESS

The timetable or benchmarks for accomplishments under this project are as follows:

1. The two foundation seed farms will be established one each the first and third year of the project.
2. The five certified seed farms will be established one each year during the first five years of the project.
3. The seed company will be established and the distribution system initiated during the first year of the project.
4. Cereals grain and food legume production will be doubled during the ten year life of the project.

Tanzania's total cereal grains and food legumes production (subsistence and commercial market) for 1968 was:

CEREALS AND LEGUMES PRODUCTION 1968

	TOTAL HARVEST 1968 Tons	TOTAL MARKETED 1968 Tons	PURCHASED BY NATIONAL AGRICULTURE PRODUCTS BOARD 1968/1969 Tons
Maize	713,200	137,785	125,000
Sorghum	145,570	23,100	22,000
Millet	105,995	21,900	16,000
Wheat	35,000	27,550	13,000
Paddy	126,425	58,720	44,500
Mixed Bean	127,980	21,850	21,000
Cow Peas	5,300	1,600	12,000
Chick Peas	4,000	2,300	
Pigeon Peas	12,000	4,000	
Dried Beans	7,700	840	

Estimates from the Regional Agricultural Offices
Unclassified

Tanzania's exports and imports of cereal grains and food legumes for 1963 were:

EXPORTS AND IMPORTS - 1963

	EXPORT (CENTALS)		IMPORT (CENTALS)	
	Outside E.A.	Within E.A.	Outside E.A.	Within E.A.
Wheat	-	-	106,177	627,773
Rice	1,191		331,351	1,240
Maize	684,495	10,036	35,201	10,973
Maize Meal	-	2,000	45,905	2,000
Millet & Sorghum	14,359	45,905	10,479	12,000
Wheat Flour	-	-	136,400	10,000
Barley	•	6,576	-	191
Beans, Peas, Lentils	201,000	125,500	6,114	2,210
Salt	-	-	46,217	-

APPENDIX A

**SEED FARMS AND PROCESSING AND STORAGE UNITS CAPITAL COSTS
(LOCAL CURRENCY AND FOREIGN EXCHANGE) AND OPERATING AND
MAINTENANCE COSTS**

Approximately Shs. 7 = \$1.00

	LOCAL COSTS		OFF-SHORE COSTS	
	SHILLINGS	U.S. DOLLAR EQUIVALENT	SHILLINGS	U.S. DOLLAR EQUIVALENT
SEED FARMS				
I. CAPITAL INVESTMENT 1/				
Foundation Farms:				
Production				
Land Clearing	50,000	7,143		
Buildings	200,000	28,971		
Generating Plant	35,000	12,142	15,000	2,143
Equipment			300,000	42,857
Transport and Equipment			50,000	7,143
Processing/Storage/Certification				
buildings (certification/ housing)	490,000	70,000		
Office & Seed lab. eqpt.	5,000	714	41,000	5,857
Transportation			75,000	10,714
Total one farm	<u>330,000</u>	<u>113,370</u>	<u>431,000</u>	<u>60,714</u>
Total two farms	<u>1,660,000</u>	<u>227,140</u>	<u>862,000</u>	<u>121,428</u>
Certified Farms				
Production:				
Land Clearing	200,000	28,971		
Building	310,000	44,286		
Generating Plant	135,150	19,736	22,000	3,143
Equipment			513,450	74,064
Transport Equipment			85,955	12,285
Processing/Storage				
Processing Unit	254,000	36,286		
Seed storage Building with office	215,000	30,714		
Generating Plant			533,700	83,385
Processing & Storage Equip.			14,000	2,000
Total one farm	<u>1,117,150</u>	<u>133,323</u>	<u>1,224,150</u>	<u>172,872</u>
Total two farms	<u>2,234,300</u>	<u>266,646</u>	<u>2,448,300</u>	<u>345,744</u>
Sub-total (7 farms capital investment)	<u>7,241,300</u>	<u>1,023,105</u>	<u>7,032,725</u>	<u>1,011,212</u>

Unclassified

1/ U.S. off-shore capital costs are to be provided through the normal A.S. Sector loan.

APPENDIX A (Continued)
SEED FIELDS AND PROCESSING AND STORAGE UNITS CAPITAL COSTS (LOCAL CURRENCY
AND FOREIGN EXCHANGE) AND OPERATING AND MAINTENANCE COSTS

	LOCAL COSTS		OFF-SHORE COSTS	
	SHILLINGS	U.S. DOLLAR EQUIVALENT	SHILLINGS	U.S. DOLLAR EQUIVALENT
II. OPERATION & MAINTENANCE:				
Production Farms				
Production:				
Farm	100,000	14,235		
Annual lease	1,000	143		
Labor for farm & processing	90,000	11,428		
Fertilizer	50,000	7,143		
Processing/Storage/Certification				
Seed	30,000	4,236		
Certification	7,000	1,000		
Seed Packaging	10,000	1,428		
Fuel for post-processing	121,000	17,327		
Total one farm	401,000	57,173		
Total two farms	802,000	114,346		
Certified Farms				
Production:				
Farm	114,337	16,405		
Annual lease	1,000	143		
Labor for farm & processing	100,000	14,614		
Annual (expenditure)	229,275	32,839		
Fertilizer	100,000	14,182		
Processing/Storage/Certification				
Seed Production Costs	63,000	9,000		
Certification	11,000	1,707		
Seed Packaging	40,000	5,690		
Fuel for processing & farm operation	116,000	16,736		
Total one farm	444,337	63,682		
Total five farms	2,221,685	318,411		
Sub-total (own farm operation & maintenance) 4,323,432 712,778				
III. OTHER				
Production Inputs				
Costs for fertilizers, insecticides, pesticides and agrochemicals, tools and equipment will be covered through the National Development Credit Agency from funds granted to NDC through Agric. Sector loan				
Sub-total			3,366,000	500,000
Unclassified				

APPENDIX A (Continued)

SEED FIELDS AND PROCESSING AND STORAGE UNITS CAPITAL COSTS (LOCAL CURRENCY AND FOREIGN EXCHANGE) AND OPERATING AND MAINTENANCE COSTS

	LOCAL COSTS		OFF-SHORE COSTS	
	SHILLINGS	U.S. DOLLAR EQUIVALENT	SHILLINGS	U.S. DOLLAR EQUIVALENT
GRAND TOTAL (Seven farms capital investment, maintenance and operation and other costs)	12,235,235	1,747,375	10,536,750	1,512,313

ANNEX B

LIFE OF PROJECT U.S. MANPOWER NEEDS (By FY)

	70	71	72	73	74	75	76	77	78	79	
Administrative	2	4	4	4	4	4	4	2	1	1	
Seed Farm											
Managers	1	2	2	2	2	2	1				
Plant Methods Unit		1	1	1	1	1	1				
Plant Production Unit		1	1	1	1	1	1				
Researcher		1	1	1	1	1	1				
Technical Advisor	1	1	1	1	1	1					
	—	—	—	—	—	—	—	—	—	—	
Total Man Years	4	10	10	10	10	10	8	2	1	1	(C Man Years
	—	—	—	—	—	—	—	—	—	—	
Cost (\$/Man Yr)											
1970 to 1971	100	200	250	250	250	250	200	50	25	25	\$1,050

AGENCY FOR INTERNATIONAL DEVELOPMENT (A.I.D.)

Proj. No. 6210092

PROJECT AUTHORIZATION

Refo
No

1. PROJECT NUMBER 621-11-130-092	3. COUNTRY Tanzania	4. AUTHORIZATION NUMBER 0014
2. PROJECT TITLE Seed Multiplication and Distribution		5. AUTHORIZATION DATE 1/27/70
		6. PROP DATED November 13, 1969

a. Number of Years of Funding: 10
Starting FY 1970; Terminal FY 1979

b. Estimated Duration of Physical Work
After Last Year of Funding (in Months): 12 mos.

FUNDING BY FISCAL YEAR (in U.S. \$ or \$ equivalent)	DOLLARS		P.L. 480 CCC + FREIGHT	LOCAL CURRENCY			
	GRANT	LOAN		Exchange Rate: \$1 =		HOST COUNTRY	
				U.S. OWNED		JOINTLY PROGRAMMED	OTHER
Prior through Actual FY							
Operational FY	118	(243)					527
Budget FY	290	(275)					559
B + 1 FY	304	(443)					856
B + 2 FY	311	(375)					859
B + 3 FY	304	(175)					978
All Subsequent FY's	596	-					3,843
TOTAL	1,923	(1,511)	1/				7,622

9. DESCRIBE SPECIAL FUNDING CONDITIONS OR RECOMMENDATIONS FOR IMPLEMENTATION, AND LIST KINDS AND QUANTITIES OF ANY P.L. 480 COMMODITIES

1/ Agriculture Project Support Loan scheduled for authorization in FY 1970.

10. CONDITIONS OF APPROVAL OF PROJECT

Section II-B, page 3 of the PROP is deleted and the following inserted in its place:

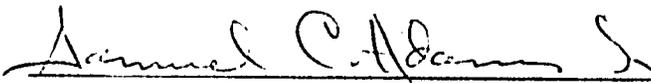
"Tanzania's second Five Year Plan goal is to increase substantially production of cereals and edible legumes, both to meet Tanzanian consumption requirements and to produce exportable surpluses.

"In quantitative terms, the USAID considers that a fifty percent increase in production over the life of the project is an appropriate goal. Attainment of this goal will depend on successful execution of this project and upon substantial progress in a number of other areas listed at the bottom of page 5. In turn, progress in these areas will depend upon the performance of the economy, (continued) (Use continuation sheet if necessary)

11. Approved in substance for the life of the project as described in the PROP, subject to the conditions cited in Block 10 above, and the availability of funds. Detailed planning with cooperating country and drafting of implementation documents is authorized.

This authorization is contingent upon timely completion of the self-help and other conditions listed in the PROP or attached thereto.

This authorization will be reviewed at such time as the objectives, scope and nature of the project and/or the magnitudes and scheduling of any inputs or outputs deviate so significantly from the project as originally authorized as to warrant submission of a new or revised PROP.

A.I.D. APPROVAL	CLEARANCES	DATE
 Assistant Administrator AA for Africa TITLE	AFR/ESA, JKnoll <i>JK</i>	1/13/70
	AFR/ID, RLRupard <i>RL</i>	1/13/70
	AFR/DP, DShear <i>DS</i>	1/17/70
	A/CONT <i>PB</i> AA/AFR, PBinbaum	1/20/70

PROJECT AUTHORIZATION (continued)

**Tanzania
623-11-130-092
Seed Multiplication and Distribution**

the Tanzanian government and external donors.

"The specific objectives of this project are to assist the Ministry of Agriculture, Food and Cooperatives to:

- a. Prepare a new Seeds Law for enactment;
- b. Implement a seed multiplication program; and
- c. Establish a seed company to handle distribution of seeds and planting material."

AID financed technicians for the project will be limited to four until the first foundation seed farm has been established.