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For: Mr. Jerry Knoll, AFR/ESA

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REFERENCE - **IEG Shashemene Agricultural Development Project Application, dtd Jan 1970**

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NON-CAPITAL PROJECT PAPER (PROP)

ACONT

Country: **Ethiopia** Project No. **663-55-130-150**

ITAD

Submission Date: **February, 1970** Original: **X** Revision No. _____

CIT

Project Title: **Shashemene Agricultural Development Project**

ENGR

U.S. Obligation Span: **FY 1970 through FY 1975**

OAS

Physical Implementation Span: **FY 1971 through FY 1976**

Gross life-of-project financial requirements:

U.S. Dollars ----- **\$4.081 million**

Grant ----- **\$1.088 million**

Loan ----- **\$2.093 million**

U.S.-owned local currency -----

Cooperating country cash contribution

(Ex. rate: **ESP.48125 = \$1.00**) ----- **\$0.484 million**

Other donor -----

Totals \$4.565 million

CIA

NSC

STATE

TRSY

XMB

AGR

TUA

DT

DOD

Attachment to AFR 2/20/70

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A. SUMMARY

Because 90 percent of the Ethiopian people live and work in agriculture and agriculturally-oriented activities, the rural sector is and will continue to be the dominant factor in Ethiopia in terms of both the economic and socio-political development of the country. Sixty percent of the GDP and 90 percent of all exports come from the countryside, with coffee (58 percent) dominating the scene.^{1/} Moreover, the recent growth rate in the agricultural sector has been only about 2.4 percent.^{1/} The Third Five Year Development Plan recognizes these facts and places great emphasis on stimulating commercial agriculture to increase productivity and output, both for export and to improve nutritional standards at home. There is mounting evidence in a number of areas in the country of spontaneous developments towards commercial activity taking place. Setit-Rumera in the northwest of the country on the Sudan border is probably the best known, however, a recent study by the Ministry of Agriculture of the distribution of tractors receiving permits for duty-free fuel indicate many more areas, including the proposed project area where 61 tractors are now operating.

The Shashomene area was chosen partly because it was rated highly by the SRI Agro-Industrial Sector Study,^{2/} which has this to say about the area: "Of all the areas observed, this one (Shashomene) would rank in top priority for an area in which to develop diversified agriculture". It was also chosen because it has good communications and because its inhabitants have given

^{1/} IEG Agricultural Sector Loan Application, Oct, 1969.

^{2/} Miller, Clarence J., et al, "Production of Grains and Pulses in Ethiopia", Report No. 10 - Stanford Research Institute, Jan., 1969, p. 89

signs of spontaneous, commercial agricultural development. Another factor which entered the decision of selecting the area is the existing favorable land tenure picture. A sample survey of the Project area, which is believed to be representative, revealed that nearly 35 percent of the farms were wholly-owned by the farmers, nearly 35 percent were partly-owned and partly rented and just over 30 percent of the farmers were tenants renting their farms. Only 10 percent of the total cultivatable land in the area is farmed by tenants. This degree of land ownership is much higher than elsewhere in Ethiopia.

Approach and Plan of Action - The Project essentially is one of intensive supervised agricultural credit and as such is the first of its kind in Ethiopia. The Shashemene area is propitious for a supervised credit program because there is already a healthy development of modern commercial farming and there are many fairly large owner-operated farms. The Project will provide packages of short and medium-term credit for the purchase of both current inputs and equipment and farm buildings along with intensive services to advise on their use. This Project will reveal what can be done in a systematic, focused way in one region to develop certain kinds of commercial farming, in this case farms of 20 hectares and above, largely of mechanized operations. The essence of this Project is the installations on about 140 farms, in an area suitable for the development of modern commercial farming systems, fully utilizing equipment, improved seed, fertilizers, pest control, and improved agronomic practices. To effect this transformation, both short and medium-term credit are essential,

and the Project will have a heavy and full complement of staff to work closely with selected farmers so that virtually all the practices can be financed and initiated quickly. The complement of equipment is deliberately set to be comprehensive so that proper seed bed preparation, weed control and timeliness of operations will enable the full effect of better seeds and fertilizers to be realized.

In the face of inadequately tested theories applicable to Ethiopian conditions, medium to large-scale farms were chosen as the most advantageous approach to achieve Project goals. This decision was based on consideration that: The Third Five Year Plan placed great emphasis on commercial agriculture; other development projects in the area are placing emphasis on small-scale farms; USAID/E has under consideration another area project that involves only small-scale farms in another area of the country; and advantages of concentration of scarce manpower and capital. Nine U.S. technicians will provide the required technical assistance for the first five years of the Project's life. One of the U.S. technicians will be the Project Director. Eighteen professional-level Ethiopians will be involved in the Project, ten of which will receive training in the U.S. It is proposed that a Ministerial Committee be formed for the Project, consisting of the Ministers of Agriculture (Chairman), Land Reform, Community Development, and Finance and the Minister of State for Planning, to provide general control, coordination and evaluation. The Minister of Agriculture will be responsible for Project implementation. The 140 participating medium and large-scale farms will enter the Project over a

three-year period: First year - 40 farms (2,800 ha.); the second year increasing to 84 farms (5,760 ha.); and the third year leveling off at 140 farms (9,800 ha.).

Production Change Due to Project^{3/} - Initially, concentration will be on four crops (maize, wheat, teff, and beans), with the crop mixes changing slightly from the existing pattern.^{4/} With the Project the production of maize increases from 11,200 metric tons the first year to 11,520 metric tons the fifth year as compared with production without the Project increasing from 9,720 metric tons to 10,520 metric tons for the same period. Production of wheat without the Project rises from 860 metric tons the first year to 940 metric tons the fifth year, while with the Project wheat production increases from 1,240 metric tons to 6,000 metric tons during the same period. The production of teff and beans increases during the five-year period from 1,080 MT to 1,170 MT and 380 MT to 620 MT, respectively, without the Project, while with the Project production increases from 1,350 MT to 4,300 MT and 830 MT to 3,260 MT, respectively.

Project Finances - The estimated total initial investment in the Project is ~~US\$4.5~~^{4.5} million (ES11.1 million), but over the estimated life of the Project - 25 years - there will be replacement investment to the extent of about US\$3.4 million (ES8.3 million). Of the total initial investment, off-shore procurement (loan funds) of machinery, fertilizers, chemicals, seeds, vehicles and seed processing equipment will amount to about

^{3/} Shashemene Application, p. 14, Table 12.

^{4/} Shashemene Application, p. 11, Table 8.

US\$2.1 million (E\$5.3 million). In addition, the cost of U.S. contract personnel together with the cost of participant training and the procurement of commodities, is estimated at US\$2.0 million (E\$4.9 million). Local recurrent cost for the five-year period is estimated to be US\$502,800 (E\$1.247 million).

Summary - Total Project Costs - Five years

Total cost	US\$4.987 million ^{5/}
Contributions	
IEG (loan, U.S.)-----	US\$2.093 million ^{6/}
Farm machinery and equipment	
Vehicles	
Central grain storage	
Seed processing equipment	
Fertilizers	
Seeds	
Chemicals	
IEG local currency-----	US\$0.484 million ^{7/}
Office building	
Office furniture and equipment	
Grain bins	
Recurrent operating cost ^{8/}	
Machine sheds	
Internal transport of off-shore commodities	
Seeds	
U.S. Grant-----	US\$1.990 million ^{9/}
U.S. personnel services	
Participant training	
Demonstration commodities	

^{5/} For explanation of difference between total cost and total contributions, see Shashemene Application, pp. 28-29, par. 60, and Appendix B, Table 5.

^{6/} Shashemene Application, p. 27, Table 14 and p. 30, Table 15.

^{7/} Shashemene Application, Appendix B, Table 5; 50% of IEG contribution per year for first three years from AID Agricultural Sector Loan

^{8/} Partial cost for first three years only.

^{9/} Shashemene Application, p. 27, Table 14, and p. 28, par. 58.

B. SETTING^{10/}

Less than half the world's potentially arable land is cropped. An estimated four billion acres of arable land, representing more than half the world's total, lies within tropical latitudes. About 1.6 billion acres, or 40 percent is in Africa and it is estimated that not more than 0.6 is cultivated in Africa in any particular year. A large percentage of the world's ill-fed people live in the tropics. Diets are generally inadequate in quality and particularly low in quantity. Protein deficiencies are widespread and serious.

Ethiopia is at an earlier stage of development than many African countries, and encounters several obstacles to rapid development. For example, only 5 % of the population is estimated to be literate, only 9% of elementary and secondary school-age children are in school; there is one physician for 70,000 people compared with one for 18,000 in Africa as a whole; agriculture accounts for about 60% of GDP and the subsistence sector still accounts for about 45% of the GNP. Modern manufacturing in Ethiopia still accounts for less than 4% of the GNP.

The economy of Ethiopia is so predominantly agricultural that little national progress can be made unless low agricultural productivity is attacked directly. Out of a total estimated population of 24 million people, 22 million are farm people. Eighty-seven percent of the nation's manpower is engaged directly in agricultural production. Notwithstanding this predominance of agriculture, little priority was given to development

^{10/} IEG Agricultural Sector Loan Application, October, 1963, is the source of all data on the economic background of Ethiopia.

of the agricultural sector until promulgation of the current Third Five Year Plan (1969-73). During the Second Five Year Plan period, only 3% of government revenues, on the average, were devoted to the agricultural sector. Average growth in the sector through 1966 was only 2.1%. The sector's growth rate improved to 2.8% in 1967 and 1968, due primarily to unusually good weather, to increased production of lowland areas cleared for the first time from malaria, and spontaneous expansion of Ethiopian commercial farming.

The potential for agricultural development is high. Sixty-six percent of Ethiopia's land is ~~arable~~ agricultural, compared with an average of 28% agricultural for the rest of Africa, and only about 11% of the ~~arable~~ land is presently under cultivation. There are additional vast areas of underutilized land.

The Sciencora Research Institute (SRI) ^{11/} and the IBRD ^{12/} reports note that commercial agriculture can be developed in a reasonably short time in the Awash Valley, particularly in the middle valley area. These and other priority areas, including the Shashemene area, for development have been identified by the SRI study.

Despite these areas of medium-term promise, especially for the development of commercial agriculture, it is recognized that serious institutional and social impediments nevertheless exist to increasing agricultural productivity. If population growth accelerates as expected (current rate 2% increasing to 2.5% in 1980, doubling the population in 35 years at 2% or at least 50 million population in the year 2000), Ethiopia may be headed for serious problems with respect to food production and foreign exchange generation. As in many LDC's,

^{11/} SRI Report - Development of Agriculture and Agro-Industry in Ethiopia, April, 1969.

^{12/} IBRD Report - Development in Ethiopia, August, 1967.

Ethiopia has a young population (more than 50% estimated to be under 20 years of age) with a large growth potential. Consequently, if past rates of farm production increase do not rise above the Second Five Year Plan period rate of 2.1%, the present modest daily food intake may decline. It is estimated that to achieve an average 2,300 calorie food intake by 1972 would require a 4% annual increase in food production.

The Third Five Year Plan emphasizes that national progress depends on major emphasis being placed on agricultural development, and allocates about 11% of total planned investment to agriculture. The Plan also recognizes and frankly discusses many of the structural and institutional reforms needed, and gives top priority to development of commercial farming, targeting a 12.6% average annual growth rate for this sub-sector as opposed to a 2.9% growth rate for the agricultural sector overall.

The Shashemene Agricultural Development Project focuses on the overall objectives of the IFG in the agriculture sector and recognizes the obstacles that obstruct movement toward set goals. The establishment of commercial-size farms is in direct keeping with country objectives of increasing food production at least in pace with population growth and to accelerate the growth rate of the agricultural sector. The mechanization component of the Project plan will enhance productivity of existing arable land and will increase utilization of underutilized areas. The introduction of the "production package" (improved seeds, fertilizers, chemicals, etc.) will increase unit yields of staple crops and at the same time increase per capita income. The establishment of an agricultural credit system will provide a much needed institution for overall agricultural development.

C. STRATEGY

The goals of this Project are to promote the development of commercial agriculture on fairly large units of land, using machine power, proper crop cultural practices, improved varieties of seeds, pest control, credit and marketing as essential for efficient agricultural production to increase production of staple crops; to establish institutions essential for agriculture development, to promote the movement of products from commercialized farms into the market economy, contribute to increases in agricultural exports and to significant increases in income opportunities of farms in the area; and to demonstrate commercialized farming by individual Ethiopian farmers which will serve as an example for the extension of improved techniques to other farms and centers. These objectives will be achieved through a U.S. loan of about US\$2.1 million and an annual grant to the IEG over a five-year period, subject to availability of funds and satisfactory annual substantive and budgetary reviews, in order to insure that the executing agency will give the necessary priority to this aspect of its activities.

The objectives of the Project are closely aligned with the USAID programs for Ethiopia and in keeping with the IEG targets for growth. The proposed Project is an integral and essential component in the package of assistance proposed by the USAID to assist the Imperial Ethiopian Government (1) approach the investment and growth targets of its Third Five Year Plan (FY 1963-73); (2) re-orient its priorities; (3) devote greater emphasis to development of the all-important agricultural

sector. As such, the grant and loan assistance proposed herein is an essential complement to planned project assistance by both the U.S. and other donors.

Establishment of mechanization on commercial-size farms operated by individual Ethiopian farmers, exclusive of plantation-type schemes, is the first attempt in Ethiopia. However, the objectives of the Project are regional in nature. Vast areas of similar soil and climatic conditions extend generally across Ethiopia, as well as other countries of East Africa. Experience gained, and research information and data developed in this Project will support and complement other A.I.D. agricultural projects throughout Ethiopia and other parts of Africa. A.I.D. agricultural guidelines for Africa emphasize the package approach as a means of increasing production of individual crops. The same approach may well apply to overall agricultural development. To be effective, the "package" must include all major factors: physical inputs, economic, organizational, cultural and motivational, and knowledge. The loan and grant funds requested, along with an IEG direct contribution, are to provide all inputs required to achieve objectives, and will serve to stimulate establishment of organizations and institutions essential for agricultural development.

Alternative Approaches - The advantages from large-scale farms versus small-scale farms was a topic of considerable interest and discussion of the joint planning committee. In the face of inadequately tested theories applicable to Ethiopian conditions, medium to large-scale farms were chosen as the most advantageous approach to achieve Project goals, based on the following considerations:

1. The Third Five Year Plan places great emphasis on stimulating "commercial agriculture."
2. Other agricultural development projects in the area now being implemented or planned (i.e., CADU, Wolamo-Sodo, Awassa) are directed primarily at the small farmer.
3. The USG has also agreed to finance an area development project in the Ada District for small-scale farmers. A preliminary project proposal has been prepared and is under consideration by an Inter-Ministerial Committee, headed by the Planning Commission.
4. Project planners took under advisement, an observation made by the SRI Study group: 13/ "Short Run gains in agricultural exports, and increased food and fiber supplies, will come most easily through the encouragement of land development in areas where land is available for medium-scale and large-scale commercial farm enterprises."
5. Since both development funds and qualified manpower are scarce in Ethiopia, the planners felt that it is extremely important that the efforts of the technically qualified people available be concentrated, and that the limited domestic and foreign exchange funds could be used more efficiently by the selected approach.
6. Working initially with medium and large-scale farmers will require less technical assistance than the small-scale farm approach.
7. After the Shashemene Project has been implemented for a few years and is a financially sound operation, it can be expanded to include small-scale farmers in the area.

13/ SRI Report - Development of Agriculture and Agro-Industry in Ethiopia, April, 1969, p. 6.

Alternative approaches to achieve projected objectives in the designated area are limited. However, alternative approaches have been considered for many individual aspects of the Project. For example, at the outset it appeared desirable to have an Ethiopian as the Project Director rather than an American. A determination of the qualifications of the Project Director lead the Project planners to conclude that it will be very difficult, if not impossible, to recruit an Ethiopian with the required training and experience in this type of management to fill the position during the initial stages of the Project. Available Ethiopians for the position of Project Director would probably be more qualified to handle traditional government functions than the business management tasks involved in the proposed project. During the preliminary stages of planning the Project, an alternative organization was considered: The Farm Development Authority, a semi-autonomous IEG agency. This concept was discarded in favor of an organization within the Ministry of Agriculture but with an Inter-Ministerial Committee to provide general control, coordination, and evaluation of progress of the Project. This approach follows a pattern emerging in Ethiopia of organization and administration for package projects. This overall organization and management pattern is based on the experience of the Chilo Agricultural Development Unit, which has been operating two years and which is financed by the Swedish Government, and the Wolamo-Sodo Agricultural Development Project, which is being financed by the World Bank and is just commencing. Other projects in the pipeline will also roughly follow this pattern.

It would have been preferable to have channeled the short-term credit through a marketing organization which could deduct the credit repayments from the proceeds of product sales, but it is considered that there is no marketing organization as yet in existence strong and experienced enough to handle credit operations. As an alternative to what is preferable, but not available at present, short-term credit will be handled by the Project staff acting through the Commercial Bank of Ethiopia which will receive and disburse funds. The Commercial Bank is wholly owned by the Government, having been separated from the National Bank (Ethiopia's Central Bank) in 1963, and is reasonably efficient and profitable. Most short-term credit will be granted in kind, i.e., the farmer will be supplied by the private enterprise complex or Procurement Division ^{14/} with fertilizers, insecticides, improved seeds, etc., entirely in kind, financed with AID funds (loan) channeled through the Commercial Bank, a branch of which is located in Shashemene city. Future plans call for a subsidiary of the proposed Ethiopian Development Corporation (a merger of the Development Bank of Ethiopia and the Ethiopian Investment Corporation) - Ceres S.C. - to handle the marketing of the crops, tied in with short-term financing from the Ethiopian Development Corporation itself.

Cross Relationships - There are three other agricultural development projects in the same general geographical area with similar objectives. The Awassa Rural Development Project, being planned by the Ministry of Community Development and to be supported with French aid, is located

14/ In the event that plans for U.S. private enterprise participation do not materialize, the Procurement Division will provide all necessary physical inputs - fertilizers, insecticides, improved seeds, etc.

in the same geographical area as the Shashemene Project. Its emphasis will be on grain crop research and assisting small farm operators in increasing productivity. The French technical assistance organization, called SATEC, has proposed to the Ministry of Community Development the possibility of establishing within the area facilities for processing maize for industrial purposes. The research activities and proposed facilities of the Awassa Project will serve to complement the objectives of the Shashemene Project. The Welamo-Sodo Agricultural Project, supported by the World Bank and just recently started, is being developed southwest of Shashemene city, but outside the Shashemene Project area. The Welamo-Sodo Project, with the Ministry of Agriculture as executing agency, comprises a regional "package program" to improve both yields and quality of crops in the highlands and to resettle farmers in the lowlands. The World Bank support will involve an amount in various currencies equivalent to US\$3.5 million. The Chilalo Agricultural Development Unit (CADU) located in Arussi Province adjacent to Shoa Province and northeast of the Shashemene Project area, was established in September 1967 by the Swedish International Development Authority and the IEG. Efforts are centered on small farm operators. Activities include experimentation, extension, credit, seed production, marketing, etc. Both crop and livestock production are included in the program. The Welamo-Sodo, CADU, and Awassa Projects are considered complementary to the Shashemene Project.

D. PLANNED TARGETS, RESULTS, AND OUTPUTS

✓ Targets - The essence of this Project is the installation on about 140 farms, in an area suitable for the development of modern commercial

farming fully utilizing equipment, improved seed, fertilizers, pest control and prescribed agronomic practices. The first year's project operations will be limited to 40 farmers; six averaging 200 hectares each, six averaging 80 hectares each and 28 averaging 40 hectares each. During the second Project year the number of participating farmers will increase to 12 averaging 200 hectares each, 12 averaging 80 hectares each and 60 averaging 40 hectares each. The Project will level off during the third year to 20 averaging 200 hectares, 20 averaging 80 hectares and 100 averaging 40 hectares. Because of inadequate animal power, these farms at present have under cultivation fewer hectares than the amount under their control.

On-farm and central storage facilities will be constructed and/or installed during the first three years of Project operation. Central grain storage equipment will be procured off-shore, while on-farm corn cribs and grain bins will be constructed of local materials by participating farmers.

Table No. 1 gives a description of farm machinery and equipment and number of each item to be procured off-shore. All farm machinery and equipment will be procured during the first three years of the Project. Procurement of machinery by years is targeted to correspond with the number of farmers entering the Project: First year - 40 farmers and an estimated 11,000 million for off-shore procurement of machinery and equipment. During the second and third Project years, 44 and 56 farmers respectively will enter the Project, and 12,000 million and 12,000 million for Project years 2 and 3 respectively will be disbursed for off-shore procurement of machinery and equipment.

TABLE NO. 1 FARM EQUIPMENT - OFF-SHORE PROCUREMENT**SHASHEMENE DEVELOPMENT PROJECT**

<u>Type of Equipment</u>	<u>Size or Capacity</u>	<u>Number</u>
Tractor	60 h.p.	60
Tractor	45 h.p.	100
Disc Plow	3 furrow	160
Disc Harrow	12 ft.	140
Harrow	4 sec. 12'	140
Planter	2 row	120
Planter	4 row	20
Tool Bar	-	160
Cultivator	2 row	160
Sprayer	12 ft.	40
Trailer	3 tons	160
Corn Sheller	P.T.O.	20
Combine	12 ft.	20
Grain Drill	12 ft.	40
Small Tools	Misc. Set	120

For the first three years, the principal source of improved seeds will be off-shore (one-half of required amounts) and local seed-producing stations or centers - experiment stations, CADU, Awassa Farm, etc. Following extensive experimentation with many varieties of the crop mix, as well as additional high value crops, during the first two crop seasons, it is planned that seed multiplication will be contracted with farmers in the Project area.

It is anticipated that the application of chemical fertilizer will make the greatest impact on increased yields of the four crops included in the crop mix. Procurement of fertilizers and chemicals is scheduled in such a way that they will be available in advance of each planting season. Fertilizer analyses recommended in the initial years are as follows: maize and teff (18-46-0), wheat (20-20-0) and beans (0-45-0).

The production targets of crops included in the mix are shown in Table No. 2. The yield increases projected - due to the application of fertilizers, use of improved seeds and recommended practices - are considered to be conservative in light of the increases already obtained from the addition of fertilizers alone.

TABLE NO. 2ASSUMED YIELDS: QUINTALS/HA.

Crop	<u>Y E A R S</u>					
	0	1	2	3	4	5
Maize	15	28	30	33	37	40
Wheat	9	13	18	21	24	25
Teff	9	14	15	16	18	20
Beans	6	10	13	15	16	17

Eight U.S. technicians and 12 Ethiopian professional-level technicians are targeted for the first year of the Project. One U.S. technician and four Ethiopian professional-level technicians will be added at the beginning of Project year 2. Phase-out of U.S. technicians will begin at the end of Project year 3. By the end of five years all U.S. personnel will have departed because the Ethiopian staff will have been trained. The question then arises: for how long will the Project need what is a fairly high

manning ratio? This cannot be answered precisely at this time and will depend upon experience and circumstances, but the following are possible eventualities:

- (a) The Project, being successful, is expanded to include additional farmers;
- (b) Some of the credit/extension officers will be transferred to other projects;
- (c) Some of the credit/extension officers are transferred to a Credit Unit in the proposed new Ethiopian Development Corporation;
- (d) The credit/extension officers are folded into the Ministry of Agriculture's general extension service.

Objectives of the Project may be summarized as:

1. To promote the development of commercial agriculture on medium and large farm units.
2. To increase production of certain essential crops.
3. To initiate an efficient short and medium-term agricultural credit system.
4. To increase farm incomes and rural living standards.
5. To lower food costs through increases in productivity.
6. To improve Ethiopia's balance of payments situation.

Results - Tables 6 through 11, Appendix B, Shashemene Application show details of farm production costs and farm budget and repayment capacity for each size farm - 40 hectare, 80 hectare and 200 hectare. The following table (Table No. 3) gives a summary of net returns by farm size and Project year.

TABLE NO. 3

NET RETURNS - FARM SIZE, PROJECT YEAR
 (Eth.S - Ex. Rate ES2.48125 = US\$1.00)

Years	40 Ha.		80 Ha.		200 Ha.	
	No. Farmers	Net Returns	No. Farmers	Net Returns	No. Farmers	Net Returns
1	28	2,717	6	6,589	6	20,780
2	60	4,415	12	10,192	12	31,196
3	100	6,208	20	13,704	20	40,946
4	100	7,050	20	16,327	20	48,225
5	100	7,491	20	17,511	20	52,465

Table No. 7 in the section on "Financing Arrangements and Costs" indicates the availability and timing of inputs: equipment, goods and services. The arrival in the Project area of these inputs is scheduled in keeping with phase-in of participating farmers and number of hectares put into cultivation for the respective years.

Benefits - The internal rate of return on Project investment is 21.3 percent. ^{16/}

This is a good rate, and is a particularly good rate for an agricultural development project of this nature, where there is a heavy involvement of U.S. technical personnel with a large education/training function. This in turn has been necessitated by the scarcity of trained and experienced extension/credit workers in Ethiopia.

Of the four crops included in the Project, most of the increased production of beans, 3,260 tons valued at ES\$1.4 million in year 5 and afterwards will be exported. Much of the increased production of teff and wheat will be exported from the Project area to grain importing regions

^{15/} Net returns per farm (gross sales less cash costs of operation, depreciation, interest on loans, and living expenses), exclusive of payments on buildings and equipment.

^{16/} Calculations shown on p. 34, Table 10, Shashemene Application.

of Ethiopia to help feed the increasing population, which is likely to increase at a faster rate than in the past due to a falling death rate and a constant birth rate. With regard to possible new crops, the bulk of all these crops is likely to be exported. Initially, of course, because of the cost of capital goods imports, the net foreign exchange balance for the Project will be negative, but as productivity increases and as the new crops - all exports are introduced the balance would be positive.

The net effect on Government revenue over the life of the Project should be favorable, as after the initial years the Project will have no call on the Government's current budget and the considerably higher incomes generated should yield higher revenues from taxes.^{17/}

Other benefits from the Project would include:

Success in the area will be invaluable in developing procedures and structures for the rapid modernization of farming in many other areas where conditions are roughly similar.

2. Activities of the Project should encourage bringing the rural population into the national economy and simultaneously fostering some elementary participation in the local, provincial, and central levels of government.

3. The Project will make for institutional development at each level of participation and will improve public administration by promoting cooperation and coordination between existing Government organizations.

^{17/} See Appendix B, Table 5, Shashemene Application

E. COURSE OF ACTION

To establish 140 operating commercial farms, involving 9,600 hectares, an adequate organization is needed, personnel must be recruited and trained, storage facilities constructed or installed, administrative facilities provided, machinery and equipment must be procured, short and medium-term credit made available, and supporting research and extension education must be provided.

Details of the organization and administration of the Project are given in the Project Application, pages 20 and 21. For overall policy decisions, guidance, control, coordination and evaluation, an Inter-Ministerial Committee will be formed, prior to initiation of the Project, consisting of the Ministers of Agriculture (Chairman), Land Reform, Community Development, Finance and the Minister of State for Planning. Operation and management will be handled by a director and four department heads. The Project management will be directly responsible to the Ministry of Agriculture.

Nine U.S. technicians will provide technical support for the Project, eight of which will be on board prior to initiation of Project operations. The ninth technician will be on board the second year of Project operations.

The Project will involve 18 professional-level Ethiopians, ten of which will receive one year each training in the U.S. Additional training will be given on-the-job. All U.S.-trained Ethiopian personnel will return to the Project not later than during the fourth year of Project operation.

Fourteen Ethiopian personnel will be recruited prior to start of Project operations. As U.S. contract personnel phase out Ethiopian personnel will fill the respective positions. Ethiopian personnel to work with U.S.

technicians, and to eventually take over the management and operation beginning during the fourth year of the Project, will be recruited from within the Ministry of Agriculture, the College of Agriculture, and from other IEG and private agencies. In addition to in-country and European-trained agricultural personnel, during the period 1951 to 1969, a total of 137 Ethiopians were trained in the U.S. in the areas of crop and livestock production, agricultural education, extension and research, land and water resources, agricultural economics, agricultural co-ops, marketing and processing. During the same period, USAID-sponsored training programs in agriculture for another 101 Ethiopians in third countries.

Table No. 4 shows IEG Project operations cost for professional level personnel.

TABLE NO. 4

IEG PROJECT OPERATIONS COST FOR PROFESSIONAL-LEVEL PERSONNEL (MILL.)

Y E A R S

Item	1	2	3	4	5	6 & Subsequent
1 Asst. Project Director						
Salary @ 10,560 ^{a/}	10,670	10,600	10,600	10,600	10,600	10,600
Per Diem	2,000	2,000	2,000	2,000	2,000	2,000
Vehicle Maintenance ^{b/}	4,000	5,000	6,000	7,000	8,000	8,000
Petrol, etc.	8,000	8,000	8,000	8,000	8,000	8,000
Sub-total	24,600	25,600	26,600	27,600	28,600	31,000
4 Asst. Dept. Heads						
Salaries @ 7,920 ^{a/}	31,700	31,700	31,700	31,700	31,700	
Per Diem	2,000	2,000	2,000	2,000	2,000	
Vehicle Maintenance	2,000	2,500	3,000	3,500	4,000	
Petrol, etc.	4,000	4,000	4,000	4,000	4,000	
Sub-total	39,700	40,200	40,700	41,200	41,700	41,700
1 Ext. Credit Training						
Salary @ 7,920 ^{a/}	7,900	7,900	7,900	7,900	7,900	
Per Diem	1,000	1,000	1,000	1,000	1,000	
Vehicle Maintenance	2,000	2,500	3,000	3,500	4,000	
Petrol, etc.	3,000	3,000	3,000	3,000	3,000	
Sub-total	13,900	14,400	14,900	15,400	15,900	15,900
12 Ext. Credit Officers						
Salary @ 6,600 ^{a/}	52,800 (8)	79,200 (12)	79,200	79,200	79,200	
Per Diem	8,000	12,000	12,000	12,000	12,000	
Vehicle Maintenance	4,800	7,500	8,000	8,600	9,400	
Petrol, etc.	16,000	24,000	24,000	24,000	24,000	
Sub-total	81,600	122,700	123,200	123,800	124,600	124,600
TOTAL	159,800	202,900	205,400	206,600	210,800	

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^{a/} Includes 10% for housing
^{b/} Includes U.S. Project Director Expense

U.S. contract personnel will include the Project Director, an extension-credit advisor, accounting advisor, procurement advisor, marketing and sales advisor, three credit supervisors, and one extension-credit training advisor. Advisors for accounting and procurement will be phased-out at the end of the third Project year. The three extension credit supervisors will be phased out at the end of the fourth Project year, and all other U.S. contract personnel will be phased out at the end of the fifth Project year. Table No. 5 shows titles of U.S. contract personnel, Project years funded by U.S. grant aid, and indicates the phase out of each U.S. technician.

TABLE NO. 5

U.S. GRANT FUNDS - PERSONNEL COSTS (Dollars)

Item	YEARS				
	1	2	3	4	5
Project Director	125,000	125,000	125,000	125,000	125,000
Head Extension Credit	125,000	125,000	125,000	125,000	125,000
Head Accounting	125,000	125,000	125,000		
Head Procurement	125,000	125,000	125,000		
Head Marketing & Sales	125,000	125,000	125,000	125,000	125,000
Ext. Credit Supervisor	250,000(2)	375,000(3)	375,000	375,000	
Ext. Credit Training	<u>125,000</u>	<u>125,000</u>	<u>125,000</u>	<u>125,000</u>	<u>125,000</u>
TOTAL	1,000,000	1,125,000	1,125,000	375,000	300,000

The provision of short-term seasonal credit for fertilizers, insecticides and improved seeds will be handled by the Project staff through the Commercial Bank of Ethiopia. Such credit to Project area farmers will only be provided on the recommendation of the Production, Credit and Extension Department. Most short-term credit will be granted in kind, i.e., the farmer will be

supplied by the private enterprise complex or Procurement Division with fertilizers, insecticides and improved seeds etc. virtually in kind, financed with AID funds channeled through the Commercial Bank. The total amount of revolving credit is estimated to rise from ES274 thousand the first year to ES600 thousand in the third year and revolve thereafter at about this level.

The provision of medium-term credit for tractors and implements, farm buildings, storage, fencing, water facilities, etc. will be handled by the Project staff, until such time as they can sub-contract this work out to the Agricultural Department of the new development corporation to be formed by a merger of the Ethiopian Investment Corporation and the Development Bank of Ethiopia. This new corporation may not be in full operation by the time the Project is ready to go, but it should be shortly afterwards. The amount of the medium-term credit required rises from ES1.2 million in the first year to ES1.7 in the third year. Overall the total medium-term credit provided will be ES4.5 million. ^{13/}

It is planned that all 300 hectare size farms will be completely mechanized with two 60 h.p. tractors and adequate accompanying equipment for grain crop farming. Eighty and 40 hectare size farms will be equipped with one 60 h.p. and one 45 h.p. tractor, respectively, plus accompanying equipment. Two hundred hectare operators will provide some custom work to both 80 and 40 hectare size operators. See the Shashemene Project Application for details on farm equipment and buildings by farm size. Through the Project, acreage under cultivation among participating farmers will rise from 2,000 hectares ^{13/} Shashemene Application, Appendix 3, Table 1.

the first Project year to 9,600 hectares the third Project year. The crop mix for the first crop year will generally follow the existing cropping pattern in the Project area, including maize, wheat, beans and teff with respective percentages of 55, 15, 15, and 15. Projected crop mixes beyond the first year, which represent overall patterns for all participating farms - not for any single farm, allow for a de-emphasis on maize - the crop most likely to be overproduced - and a gradual increase in acreage devoted to wheat, teff, and beans.

As indicated, maize will be de-emphasized, because of its potential for overproduction. There should be no problem marketing the added supply of wheat and teff since the annual production increase of these crops is less than the estimated annual increase in demand of Addis Ababa alone. Beans are targeted for the export market, and varieties will be chosen for their export potential.

- As indicated above, the Project has been worked out on the basis of existing crops for which there is sufficient information, experience of farmers in the area and projected market (domestic and foreign) demands, but it is intended to experiment with such crops as chillies, pulses, and oil seeds for which there are known good export markets. These high value crops have not been included in the Project analysis because too little is known at this time about yields and costs. Research is not a direct component of the Project; however, it is recognized as an essential function. Prior to the first Project crop year, and to continue for at least three years, a U.S. agronomist -- working in cooperation with the Institute of Agricultural Research, the Ministry of Agriculture and the Awassa Research Station --

will provide guidance in the following lines of field investigations and testing:

1. Demonstrating and testing complete packages of improved practices;
2. Varietal introduction and testing at fixed sites and on individual farms of teff, maize, wheat and beans;
3. Introduce and test new high value crops;
4. Test for optimum kinds and rates of fertilizer on primary crops;
5. Test alternate planting dates and seeding rates for all crops;
6. Demonstrate and test row-planting and improved weed control.

The agronomist will be funded from the Agricultural Advisory Services Project No. 603-11-110-111. He will work initially in the Shashemene area and later expand his research activities to the proposed Ada District Project, and other agricultural development project areas.

The following schedule indicates targets for essential elements of the Project:

Loan Authorization signed ----- April 1970
 Loan Agreement signed ----- June 1970
 First Tranche of Loan released (US\$676,000) ----- September 1970
 U.S. Private Company (Supplier) Contracted ----- October 1970
 First Off-Shore Procurement ^{19/} ----- October 1970
 Eight Contract Personnel (Grant Aid) on board ----- January 1971
 Second Tranche Release (US\$628,000) ----- August 1971
 Second Off-Shore Procurement ^{20/} ----- September 1971
 Nine Contract Personnel (Grant Aid) on board ----- January 1972
 Third Tranche Release (US\$789,000) ----- August 1972
 Third Off-Shore Procurement ^{21/} ----- September 1972
 Terminal Date for Disbursement ----- February 1973
 Two Contract Personnel Phase Out ----- March 1974
 One Contract Personnel Phase Out ----- March 1975
 All Contract Personnel Phase Out ----- March 1976

The estimated total ^{22/} initial investment in the Project is ES\$11.1 million (US\$4.5 million) but over the estimated life of the Project -- 25 years -- there will be replacement investment to the extent of about ES\$5.5 million (US\$3.4 million). Of the total initial investment, off-shore procurement will amount to about ES\$5.3 million (US\$2.1 million). In addition, the cost of U.S. contract personnel together with the cost of participant training and the

^{19/} See Table No. 6.

^{20/} See Table No. 6.

^{21/} See Table No. 6.

^{22/} Totals do not include IEG recurrent costs.

(funded by grant)
procurement of commodities, is estimated at E\$4.9 million (US\$2.0 million). The summary of the investment expenditures is given in Table No. 6, which also shows targeted completion periods for procurement of equipment, materials and services.

TABLE NO. 6

SUMMARY OF INVESTMENT
(E \$ Thousand)
YEARS

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>TOTAL</u>
<u>Form-Investment</u>						
Machinery & Equipment <u>a/</u>	1,137	1,219	1,571	-	-	3,928
Grain Mill <u>b/</u>	67	71	91	-	-	230
Machine Sheds <u>b/</u>	21	23	29	-	-	72
Corn Cribs <u>b/</u>	46	50	64	-	-	160
Fertilizers <u>a/</u>	167	179	231	-	-	577
Seeds <u>c/</u>	68	73	94	-	-	235
Chemicals <u>a/</u>	22	24	31	-	-	77
Internal Transport <u>b/</u>	98	104	135	-	-	377
Sub-Total	<u>1,626</u>	<u>1,743</u>	<u>2,246</u>	-	-	<u>5,616</u>
<u>Project Investment</u>						
Vehicles <u>a/</u>	100	50	-	-	-	150
Seed Processing Equipment <u>a/</u>	111	-	-	-	-	111
Central Grain Storage <u>a/</u>	67	71	92	-	-	230
Office Building <u>b/</u>	40	-	-	-	-	40
Office Furniture Eqpt <u>b/</u>	12	-	-	-	-	12
Internal Transport <u>b/</u>	20	7	6	-	-	33
Sub-Total	<u>373</u>	<u>106</u>	<u>98</u>	-	-	<u>577</u>
<u>U.S. Contract Services</u>						
Personnel Services <u>a/</u>	1,000	1,125	1,125	875	500	4,625
Participant Training <u>a/</u>	33	62	63	-	-	158
Commodities <u>a/</u>	62	63	25	-	-	150
Sub-Total	<u>1,095</u>	<u>1,250</u>	<u>1,213</u>	<u>875</u>	<u>500</u>	<u>4,933</u>
Grand Total	<u>3,094</u>	<u>3,101</u>	<u>3,557</u>	<u>875</u>	<u>500</u>	<u>11,123</u>

a/ Direct Foreign Exchange Cost

b/ Local Costs

c/ Part Foreign Exchange and Part Local Costs

FINANCING ARRANGEMENTS AND COSTS

The total initial capital costs are estimated to amount to \$2,497,000 (E \$6,196,000) spread over three years. The direct foreign exchange element in this is \$2,140,000 (E \$5,311,000). It is proposed that the direct foreign exchange cost of off-shore procurement will be financed by a U.S. Development Loan. The cost of U.S. personnel, together with participant training and commodities used in demonstrations by U.S. personnel amounting to \$1,936,000 (E \$4,933,000) should be financed by a grant. The USAID share of the development costs is as follows:

TABLE No. 7

USAID SHARE OF DEVELOPMENT COSTS
(US \$ Thousand)
YEARS

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>TOTAL</u>
Off-shore Procurement-Loan <u>23/</u> (E Equivalent)	676 (1,678)	628 (1,599)	789 (1,957)	- (-)	- (-)	2,093 (5,194)
Contract Personnel-Grant <u>24/</u> (E Equivalent)	441 (1,093)	504 (1,250)	483 (1,212)	353 (875)	202 (500)	1,983 (4,933)
Total Contribution (E Equivalent)	1,117 (2,773)	1,132 (2,809)	1,277 (3,169)	353 (875)	202 (500)	4,081 (10,127)

The initial local capital costs of the project are estimated at \$1,000 thousand (U.S. \$425 thousand) spread out over the first three years of the project life as follows:

23/ See Table C, page 32

24/ See Table C, page 32

TABLE NO. 3

LOCAL SHARE OF CAPITAL COSTS
(US \$ Thousand)

	<u>YEARS</u>			TOTAL
	1	2	3	
Farm Buildings (F \$ Equivalent)	54.0 (134.0)	58.0 (144.0)	74.6 (185.0)	186.6 (462.0)
Seed Credit (F \$ Equivalent)	6.8 (16.9)	15.1 (37.4)	25.1 (62.4)	47.0 (116.7)
Office Equipment (F \$ Equivalent)	4.8 (12.0)	- (-)	- (-)	4.8 (12.0)
Office Building (F \$ Equivalent)	16.1 (40.0)	- (-)	- (-)	16.1 (40.0)
Internal Transport Cost of U.S. Procurement (F \$ Equivalent)	47.6 (118.0)	44.7 (111.0)	56.8 (141.0)	149.2 (370.0)
TOTAL LOCAL CAPITAL COSTS (F \$ Equivalent)	131.3 (320.0)	117.8 (292.4)	156.5 (398.4)	403.7 (1,000.7)

Of the total local contribution of F \$1,007 thousand (US \$ 403 thousand) F \$402 thousand will be farm investment on buildings purchased with credit. The local capital and recurrent costs by years is given in Table No. 9.

It is proposed that the local capital and recurrent development costs (see Table No. 10.) be met partly by IFG contribution from its revenue funds - F \$200,000 in each of the first three years - partly by using part of the U.S. Agricultural Sector Loan - also F \$200,000 in each of the first three years - partly by a contribution over the first three years of F \$467,000 from participating farmers by way of down payments on 15% medium-term loans, and partly by the difference between the interest rates, grace and maturity periods for the credit given to the farmers and the Project's obligations to the IFG Ministry of Finance. (See Project Cash Flow Projection in Table No. 10).

TABLE NO. 9.

LOCAL CAPITAL AND RECURRENT COSTS BY YEARS
(US \$ Thousand) (E \$ Thousand)

	YEARS					TOTAL
	1	2	3	4	5	
Local Capital Cost	129.5 (320.9)	117.7 (292.4)	150.5 (388.4)	- -	- -	403.7 (1,001.7)
Local Recurrent Cost	85.7 (212.0)	102.7 (254.9)	103.7 (257.4)	104.8 (260.0)	105.9 (262.9)	502.8 (1,227.1)
TOTAL	215.0 (532.9)	220.4 (547.3)	254.2 (645.8)	209.8 (520.0)	211.8 (525.8)	1,106.5 (2,828.6)

The estimates for local recurrent costs covers the current cost of salaries, per diem allowance, vehicles maintenance and petrol allowance (see Table No. 6), 4 Assistant Departmental Heads, the Assistant Extension/Credit Training Officer and 12 Extension/Credit Officers, together with the costs of 10 clerks, two guards and the office running costs and depreciation on the office building and equipment. The cash flow projection (Table No. 10) shows the project's current costs remaining roughly constant after the first year, but in fact the high staff manning ratio required in the early years of the project is unlikely to be needed after the seventh year. Consequently, the project's current costs are likely to tail off unless the project is expanded.

Full details of the farmers recurrent costs are given in the application by IFG to TOAID. On an incremental basis, the total rises from \$13 thousand (E 32 thousand) in the first year to \$107 thousand (E 263 thousand) in the fifth year and remains constant on average thereafter. Taking into account existing operations, excluding interest, recurrent costs are likely to rise from \$139 thousand (E 346 thousand) in year 1 to \$539 thousand (E 1,399 thousand) in year 5.

The borrower will be the Imperial Ethiopian Government (IFG) through its Ministry of Finance. Loan funds will be made available to the project by the Ministry of Finance, and the entire loan will be disbursed for procurement of U.S. equipment and commodities. The IFG will retain the obligation to service and repay the loan. In view of the uncertain long-term Ethiopian balance of payment outlook, the most favorable repayment terms available are proposed: repayment in no more than forty (40) years after the first disbursement, including a grace period of not to exceed ten (10) years; interest payment of two percent (2%) per annum on the outstanding balance of the loan during the grace period, and three percent (3%) on the outstanding balance after the expiration of the grace period, with all repayment in U.S. dollars. Both short- and medium-term credit will be available to farmers at an annual charge of ten percent (10%). The short-term credit will be given in kind, to be repaid within one year (at the time of harvest). The medium-term credit will be granted with ten percent down (10%) and a maturity of six years, including a two year grace period. The project will have to repay the U.S. Development Loan to the IFG Ministry of Finance with the following terms: Interest at 5 percent, a five year grace period, and a ten year repayment period.

Attachment:

Table 74: Project Cash Flow Projection