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CAPITAL ASSISTANCE PAPERS

Proposal and Recommendations
For the Review of the
Development Loan Committee

5190165

EL SALVADOR - GRAIN MARKETING

AID-DLC/P-1098

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

UNCLASSIFIED

AID-DLC/P-1098

June 15, 1973

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: El Salvador - Grain Marketing

Attached for your review are the recommendations for authorization of a loan in an amount not to exceed $6,500,000 to the Government of El Salvador to assist in financing the United States Dollar and local currency costs of their program to establish a basic grain marketing program within the Republic of El Salvador.

This loan proposal is scheduled for consideration by the Development Loan Staff Committee at a meeting on Wednesday, June 20, 1973.

Development Loan Committee
Office of Development
Program Review

Attachments:
Summary and Recommendations
Project Analysis
ANNEXES I - VI

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CAPITAL ASSISTANCE PAPER
AGRICULTURAL DEVELOPMENT LOAN PHASE II: MARKETING

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PART ONE: SUMMARY AND RECOMMENDATIONS

1) BORROWER: The Borrower will be the Government of El Salvador. Signatories of the loan will be the Ministry of Agriculture, the Ministry of Finance, the National Planning Council (CONAPLAN), and the Central Bank. The Ministry of Agriculture will have the overall responsibility for the administration of the program in coordination with the Central Bank and the Instituto Regulador de Abastecimiento (IRA: The National Price Stabilization Institute). The IRA was established in 1950 and is a semi-autonomous agency of the Ministry of Agriculture and Livestock.

2) LOAN

a) Amount: Not to exceed US$6,500,000

b) Terms: Minimum statutory terms: amortization over a period of forty (40) years including a grace period of ten (10) years, with an interest rate of two per cent (2%) per annum during the grace period and three percent (3%) per annum thereafter.

c) Local Cost Component: Approximately $4.5 million or about 69 per cent of the loan will be used for local currency expenditures.

3) BACKGROUND: Due to the poor harvests in 1967 and 1968 and a significant decline in the prices of major export crops, the GOES decided to revise the Five Year Plan (1968-72) with a view towards initiating new programs which would stimulate the laggard agricultural economy. USAID assistance was requested and provided through a contract with the R. Nathan Associates for a major sectoral analysis. The Nathan analysis completed in 1970 identified income and employment as the major rural problems and recommended an action program addressed to these issues. Ministry re-organization, the development and introduction of new technologies, credit, marketing changes, and land reform were indicated as actions required to alleviate the problems. Unable to undertake this comprehensive strategy immediately the Ministry of Agriculture adopted a multi-phase, multi-year strategy. USAID committed itself to assist in its implementation, particularly that part dealing with small and medium sized commercial operators.

The first phase of this development program was designed to improve the organization and operations of the Ministry of Agriculture and simultaenously expand and improve the National Center for Agricultural Technology (CENTA) to produce a small farm technology relevant to the labor-abundant, land-scarce conditions of El Salvador. An A.I.D. loan for $4.0 million was authorized in FY 1972 to assist

U.S. $1.00 = ₡2.50

in financing this first phase program. In view of the development of CENTA and its ability to undertake loan financed assistance, the focus of USAID technical assistance to that institution was appropriately shifted from one of broadly gauged institution building to the development of in-depth research related to small farmer enterprises.

Since the initiation of the first phase program in 1972, the GOES has completed its overall Five Year Plan for the period 1973-77 and initiated the development of the second phase of the program to be undertaken with external financial assistance. The analysis of the sector contained in the Plan focuses on the causes of the lagging growth rate in the farm sector, the reasons for high unemployment and under-employment and the bottlenecks in the system which inhibit the development of small farmer operations. The GOES objectives are clearly set forth: to raise agricultural income and improve its distribution; to generate new employment; to promote more balanced development; to improve social development and mobility; and to conserve and improve the natural resource base. A five year investment program of $283 million is called for of which 40 percent or $114 million, is proposed for public sector financing. Approximately 35 percent of this amount or $40 million is to be financed from external sources. The emphasis of the plan is on credit, marketing, research, irrigation and administrative reforms within the Ministry of Agriculture. The Plan is not intended to be a full-blown sectoral analysis, but rather a policy statement, outlining reforms and providing an investment guide.

In addition to the economic motives justifying the expanded GOES efforts in agriculture, political developments over the past four years in the region have forced El Salvador to reexamine and modify its approach to agricultural development. Disrupted relationships within the CACM and especially between El Salvador and Honduras have had the effect of curtailing trade between these countries. One important consequence has been the total cessation of Honduras basic grain exports to El Salvador. As basic grains represented the major food items of the large lower income group, El Salvador could not afford large changes in supply and prices of the commodities which would have considerable economic and political consequences. To avoid such problems the GOES has naturally tended toward a policy of self-sufficiency in the production of basic grains, a policy which is not likely to be relaxed substantially. One of the beneficial effects of this policy has been increased productivity and lower production cost. Today, El Salvador is one of the lowest cost producers of corn, rice, and sorghum in Central America.

The GOES is cognizant of the fact that the major part of the basic grain produced in El Salvador is raised by the small and medium farmer; over 86 percent of corn and beans, 94 percent of sorghum, and

60 percent of rice production comes from farms of less than 50 hectares. Consistent with their objective to raise the income of these farmers, it was recognized that expanded production without effective price stabilization to reduce grain price fluctuations would not achieve the desired income effect. Consequently, to transform the Plan into workable programs, additional studies were undertaken by the GOES with USAID and IDB collaboration to identify the necessary components of a grain stabilization program, to identify other investments in the small farm sector and to complete the details of the various project implementation plans. From these studies, the GOES concluded that it would proceed with the development of two major components of the program, specifically, credit and marketing/price stabilization. In November, 1972 the GOES, acting through CONAPLAN and the Ministry of Agriculture, formally requested the IDB and USAID to participate jointly in financing the credit and marketing/price stabilization programs.

Work on the detailed preparation of the grain marketing program began in early November, 1972 with the Mission supplying TDY technical assistance in price policy, storage facility size and locations and storage design to complement the GOES-USAID Marketing work group. The IDB field team was re-scheduled from January to later in the year and unfortunately the opportunity to coordinate the preparation of the credit and marketing programs was lost.

During the CIAP meetings in Washington in late February, 1973, GOES officials discussed with the IDB the possibility of the IDB concentrating entirely on the agricultural credit program with the new agricultural development bank to be formed and USAID taking the lead with development of the marketing program. In early March, CONAPLAN and the Ministry of Agriculture requested the USAID to concentrate on the marketing component of the development program and informed the Mission that the IDB was being requested to finance agricultural credit. The Bank is presently planning to field their project analysis teams on the credit program in late 1973. In April, 1973, the National Assembly approved the creation of the Agricultural Development Bank which incorporates the existing supervised credit agency (Administración de Bienestar Campesino) and two separate agricultural development funds formerly managed by the Central Bank (livestock: MEGA and soil conservation: META).

The IRR for the proposed capital assistance program was prepared and submitted for review in late March. Prior to consideration of the technical merits of the program, AID/W referred the IRR to the Central American Mission Directors Coordinating Council (MDCC) for clarification of the regional and national grain policies and programs and sought the Council's recommendations on the USAID

development strategy in this sector, as well as, on the subject IRR. The MDCC, which met in early May, 1973, discussed the regional and national aspects of grain price policies and programs in Central America and advised upon the consistency of the IRR with the development of regional grain policies and programs. The MDCC concluded that effective national marketing programs are required by each country in Central America and that these national achievements are necessary for a successful regional marketing system. It was recommended that USAID/El Salvador be given authority to proceed with the Intensive Review to develop a grain marketing program. It also recommended appropriate coordination with other CACM institutions to assure consistency between regional objectives and national developments. Finally, it was recommended that the USAID examine ways of packaging the loan program so as to maximize incentives toward the development of regional programs and GOES support for such programs.

The IRR was resubmitted to AID/W in May and approved May 18, 1973.

4) DESCRIPTION OF THE PROGRAM: The proposed loan will assist in financing: a) the construction and equipping of grain storage and handling facilities at 13 regional locations throughout the grain producing regions of El Salvador; b) the purchase of a limited number of grain transport vehicles for the IRA; c) the redesign and upgrading of existing grain storage units; d) the creation of an IRA administered working capital fund to be used by IRA for direct commodity purchases in the grain price stabilization program; e) a component of IRA's manpower training requirements; and (f) the technical assistance needs of IRA for price policy development and implementation and for the final design and construction supervision of the storage facilities.

5) PURPOSE AND OBJECTIVES OF THE PROGRAM: El Salvador's recently completed Five-Year Plan (1973-77) has as its major objectives in the rural sector improved income distribution and the reduction of unemployment. The Plan presents in detail the GOES commitment to (a) undertake significant reforms of agricultural policy, (b) achieve basic structural changes in the agricultural economy, (c) promote a balanced growth within the sector and (d) strengthen the regulatory and operational capabilities of GOES institutions working in agriculture. Based on the policy guidelines of the plan, the GOES has developed a second phase agricultural development program which complements the initial program in agricultural research (CENTA) and which is centered on the creation of an effective marketing and price stabilization program and expansion of the farm credit system. This multi-project agricultural program is to be undertaken with the financial and technical assistance of USAID and other international agencies. The rationale of USAID technical and capital assistance in support of

this sectoral effort by the GOES was detailed in the Agricultural PROP approved by AID/W in January, 1973.

In the marketing sub-sector, the price stabilization program supported by this loan is heavily oriented toward the income objective. It will: (a) assist in the development of the administrative capabilities and operational outreach of the national marketing institute (IRA), (b) provide a network of storage facilities, (c) provide working capital for the grain inventory system and (d) assist in the development of a marketing price policy. The combination of these factors will not only increase income opportunities, but will also reduce annual production risks and encourage new farm investments.

6) LOAN FINANCIAL PLAN: 1974-77 (In thousands of dollars or equivalent)

Purpose of Financing	Sources of Financing and Amount		
	Total	GOES	USAID
1) Land Acquisition	$ 248.0	$ 248.0	---
2) Physical Facilities (Total)	2,842.0	815.0	2,027.0
a. Upgrade Existing Facilities	(247.0)	(9.0)	(238.0)
b. New Facilities (Initial 27,730 M.T.)	(2,176.0)	(650.0)	(1,526.0)
c. New Facilities (final 7,920 M.T.)	(419.0)	(156.0)	(263.0)
3) Working Capital	7,500.0	4,000.0	3,500.0
4) Technical Assistance, Training, and other items	715.0	---	715.0
5) Additional Administrative and Operating Costs	1,691.0	1,691.0	---
TOTAL	12,996.0	6,754.0	6,242.0

It is anticipated that the loan will be fully disbursed over a four year period. A preliminary disbursement schedule of GOES contribution/loan disbursement is shown in Part Three, Section IV.

The financial plan has been developed on the basis of the program implementation schedule presented in Part Five and reflects the best estimate of the timing of all engineering and other technical components of the program. The capitalization of the working capital fund has been programmed in accordance with the actual needs of IRA at the outset of the program (1974) and IRA's needs as the new facilities financed in part by this loan become operational (1975

and 1977). In accordance with the MDCC recommendations, the financial plan has been designed to place greater responsibility on the GOES for the counterpart financing (from national or regional sources) for the working capital fund as the new facilities are completed.

7) OTHER SOURCES OF FINANCING: The Export-Import Bank, the IBRD, and the IDB indicated that they were not interested in financing the proposed project. The Borrower has also indicated to the Mission that financing was not available from CABEI, the Central American Regional Development Bank. Due to the nature of the project, other U.S. or free world sources of financing are not available.

8) STATUTORY CRITERIA: All statutory criteria for this loan have been met. Annex II contains the Statutory Criteria checklist.

9) VIEWS OF COUNTRY TEAM: In the CASP the Country Team identified the development of the agricultural sector as essential to the furtherance of long-range U.S. interests in El Salvador. The development of an effective grain price stabilization program by the Instituto Regulador de Abastecimientos (IRA) is viewed by both the Country Team and the Government of El Salvador as a crucial step in the modernization of Salvadoran agriculture. The program priorities which have been set by the GOES for IRA are in complete harmony with U.S objectives in the agricultural sector: the creation of additional income for small and medium farmers and the reduction of rural unemployment.

The GOES has given highest priority to IRA and has requested U.S. assistance in developing the institution. The GOES has also stated its intention to complement this program with a series of policy and institutional reforms in related areas and is proceeding with CENTA and the new Agricultural Development Bank. The Country Team, therefore, supports this project based on its own merits and as another crucial step in a longer-term, comprehensive agricultural sector program.

10. RECOMMENDATIONS: On the basis of the conclusions of the Capital Assistance Committee that the program is technically, economically and financially justified, it is recommended that a loan to the Government of El Salvador for an amount not to exceed $6.5 million be authorized subject to the following terms and conditions:

A. A.I.D. loan funds will be used to meet the United States dollar (Code 941) and local costs of financing: the training of IRA personnel; technical assistance to IRA; the equipment, materials and engineering services related to the expansion and upgrading of IRA grain storage facilities; and the creation of a working capital fund in the Central Bank for IRA's commodity purchases under the price stabilization program.

1) Up to $100,000 of the loan may be used to finance training of IRA personnel.

2) Up to $200,000 of the loan may be used to finance technical assistance to IRA

3) Up to $100,000 may be used to finance technical assistance to the Ministry of Agriculture.

4) Up to $200,000 of the loan may be used to finance engineering design and supervision services to IRA.

5) Up to $3,500,000 of the loan may be used to finance working capital needs of IRA's grain purchase program.

B. The Borrower shall repay the loan to the Agency for International Development (A.I.D.) in United States dollars within forty (40) years from the first disbursement under the loan, including a grace period of not to exceed ten (10) years. The Borrower shall pay to A.I.D. in United States dollars on the disbursed balance of the loan interest of two percent (2%) per annum during the grace period and three percent (3%) per annum thereafter.

C. Other Terms and Conditions.

1) Conditions Prior to Initial Disbursement.

Prior to the first disbursement under the loan the Borrower will submit to AID for AID review and approval:

a) a detailed implementation plan for the entire program including the upgrading of existing facilities.

b) a complete financial plan for the program including the timing and amounts of the loan and the Borrower counterpart financing of working capital, infrastructure investments and other related program costs.

c) evidence of the establishment within the Central Bank of a separate revolving working capital fund to function and be used in a manner satisfactory to AID.

2) Conditions Prior to Disbursement for Other than Technical Assistance and Training Costs.

Prior to disbursement of loan funds for other than technical assistance and training, the Borrower shall submit in form and substance satisfactory to A.I.D.:

a) evidence that a comprehensive technical assistance program for improvement of the entire IRA grains operation has been initiated.

b) evidence that IRA has established a cost accounting system satisfactory to A.I.D.

3) Conditions Prior to Specific Disbrusement

a) prior to disbursement for personnel training, the Ministry of Agriculture and IRA will submit a satisfactory training plan including cost estimates.

b) prior to the procurement of vehicles under the loan, the Ministry of Agriculture and IRA will submit a plan for vehicle maintenance and replacement.

c) prior to disbursement for technical services to IRA and the Ministry of Agriculture, the Ministry of Agriculture and IRA will submit an implementation plan for the utilization of technical advisors, as well as satisfactory scopes of work for the individual services.

d) prior to disbursement for engineering services, the Ministry of Agriculture and IRA will submit a satisfactory contract for construction design and supervision services.

e) prior to disbursement for the materials and equipment to be used in upgrading existing facilities, IRA will submit satisfactory final plans, specifications and bidding documents.

f) prior to the advertising of bids for the construction of IRA facilities, IRA will submit a detailed schedule for all construction work and satisfactory final plans, specifications and bidding documents. Also, the Borrower will provide evidence, satisfactory to AID, that the additional working capital needs for the IRA to cover its operations with the future expansion of facilities will be made available to the grain purchase working capital fund through a direct GOES budgetary allotment or GOES resources secured from other national or regional sources. GOES contributions to the working capital fund and loan financed portions of the working capital fund will be channelled to the working capital fund in accordance with the financial plan for the program and, unless AID otherwise agrees in writing, will be retained in the fund for the life of the program.

D. Covenants

In addition to the standard covenants, the Loan Agreement shall contain covenants to the effect that, unless AID otherwise agrees in writing:

1) With the completion of the first phase of the construction program (27,730 MT), and throughout the life of the program, IRA will purchase grains (corn, sorghum, beans and rice) at their established minimum price from any producer who desires to sell to IRA. In addition to purchases from producers, IRA will also determine whether it wishes to buy grains from other sources (i.e. truckers and wholesalers).

2) During the life of this program, the Borrower agrees to announce minimum buying prices for grains (corn, sorghum, beans and rice) in advance of the major planting season. Exact dates will be determined in the implementation plan.

3) The Borrower will maintain the real and full value of the working capital fund (both AID and Borrower financed portions) for the life of the program. Such annual losses as may occur from IRA's commodity purchase and sales operations which reduce the working capital fund as constituted under this program, will be replaced by the Borrower from additional budgetary resources or Borrower resources from other national or regional sources at the end of each annual purchase/sales cycle to be designated in accordance with the implementation plan. To the extent that these losses are replaced by borrowed funds, the Borrower will warrant and covenant that repayment will be for the account of the Borrower (GOES) and not the IRA. Such capital surpluses accruing from IRA's commodity purchases and sales operations will be retained in the working capital fund and will be used as necessary for the IRA commodity purchase/sales program.

4) The Borrower will consult with the Central American Coordinating Commission on Marketing and Price Stabilization (CCMEP) on its price stabilization levels and extra-regional trade for the production year in which it plans to use the capital financed by the loan. Evidence of consultation with the CCMEP will be the official minutes of the regular CCMEP meeting at which an El Salvador IRA representative was in attendance.

5) The Borrower agrees that during the life of the program, the AID financed working capital will be utilized solely for IRA's purchase of basic grains (rice, corn, beans and sorghum) for the price stabilization program.

11. CAPITAL ASSISTANCE COMMITTEE

Food and Agricultural Officer	: H. Davis
Agricultural Economist	: D. Weisenborn
Capital Development Officer	: R. Bloom
Agricultural Economist	: K. Laurent
Assistant Food and Agricultural Officer	
Grain Marketing Consultant	: J. Morris
Consulting Engineer	: J. Lemley
Consulting Agricultural Economist	: H. Stryker
Financial Analyst	: L. Herrmann
Financial Analyst	: T. Bebout
Agricultural Economist	: R. Vasquez
Program Officer	: P. Hildebrand
Regional Legal Advisor	: R. Nicholson
	: J. Kahle

Approved: E. A. Anderson,
Assistant Director
USAID/El Salvador

J. P. Derum
Director
USAID/El Salvador

"Real growth does not pertain only to the increase of production or of services, to industrialization or technical know-how or, even, to full employment. Real growth principally has a political, ideological and spiritual facet. It means broader horizons for the people and increased potencialities for the individual. It means that poverty, disease, and ignorance can be positively combated without depriving man of his liberty and all individuals of their dignity. It means that not only material crisis may be overcome with common effort and with the free participation of all but that equal opportunities for all may be established through broad and perhaps universal cooperation. It finally means that the mature mind may prevail over instinct and that co-operation, compromise and mutual understanding make up the world of free peoples."

- George Daskalakis in NATO Letter -

BASIC ECONOMIC AND SOCIAL DATA

I. General

Area (square kilometers)	21,000
Population (1971)	3.55 million
Population Growth Rate (1960-70)	3.6%
Rural Population	2.15 million
	or 60% of total
GNP (1971)	$ 1,062 million
GNP Per Capita	$ 302
Rural Per Capita GNP	About 1/3 of Country Average
GNP Generated by Agriculture (1971)	26.6%
Central Government Agricultural Expenditures as Per cent of GNP (1971)	0.8%

II. Annual Changes

GNP at current market prices (1968-71)	4.9% Average
Exports (f.o.b.) (1971)	0.3% Decrease
Imports (c.i.f.) (1971)	16.1% Increase
Consumer Prices Index (1971)	0.1%

III. Social Indicators

Per cent of Income in lowest quintile	3.5%
Per cent of Income in highest quintile	63.5%
Birth rate per 1000 inhabitants (1971)	42.2
Death rate per 1000 inhabitants (1971)	7.9
Doctors per 10,000 people (1971)	2.5
Population per hospital bed	480

Fifty-eight per cent literacy - lower in countryside

Eighty per cent of total land in hands of 10 per cent of all owners

IV. Rate of Exchange

US $1.00 = Colones ¢2.50

Colones ¢1.00 = U.S.$.40

Sources: Census of El Salvador 1961 and 1971
BCR Review Dec/72
El Salvador en Gráficas 1971
Informe Complementario Constitucional 1971

Part Two - THE ECONOMIC SETTING

I. Economic Trends and Government Policies - The Last Decade

A. Financial Developments

During the 10 years ending with 1971, the Government of El Salvador (GOES) implemented two five-year development plans. In carrying out these plans the GOES adhered to prudent overall financial policies with no severe fiscal or balance of payments problems and there was a virtual absence of inflation. The government consistently ran a current account surplus in its consolidated budget. After accounting for capital expenditures there was a small manageable deficit, which was financed by a small amount of foreign and domestic borrowing as well as Central Bank expansion in amounts consistent with price stability.

In its foreign economic relations the country has been experiencing a small trade and service deficit but capital inflows have been more than sufficient to finance these deficits. As a result, net foreign reserves rose from $16 million (about 2 months of imports) in December 1961, to $52 million (about 2 1/2 months of imports) in December 1971 (See Appendix IV, Exhibit A). (Largely because of high coffee prices in 1972, net reserves rose to about $73 million by end of 1972, to almost 3 months of imports.) This overall surplus, combined with the Central Bank public sector financing noted above, has brought an almost stable price level; over the decade (1961-1971) consumer prices rose at an annual average rate of just over 1 per cent. All of this points to a well controlled and coordinated monetary and fiscal program consistent with price stability.

B. Growth and Employment

Contrasted with this apparent sound financial situation, and contrary to stated aims of the two five-year plans, it is the degree of economic stagnation which has characterized the Salvadorean economy over the period under review. With the introduction of the CACM and the first five year plan there was a sharp rise in economic growth, but this was followed by a sharp decline in the second half of the 1960s which brought real per capita growth almost to zero. Similarly, favorable trends in the employment situation during the early 1960s ended in 1971 with unemployment levels which quadrupled the 1961 pre-plan levels. Underemployment levels appear to have risen even more rapidly. The economic growth which did take place was largely in the capital intensive areas, under the high tariff protection of the

Central American Common Market (CACM). Imports also rose to provide capital and intermediary goods required especially for the newly expanded industrial sector. Little conscious action was taken to expand the use of domestic raw materials or labor.

C. Wage and Tax Policy

While there are undoubtedly a number of factors which have contributed toward the developments noted above, one must conclude that GOES policies played a major role in these trends. This reflects in large part upon the government's wage and tax policies. First, there is the combination of social security costs and a fixed minimum wage for labor (which traditionally is more effectively controlled in the urban than in the rural area) relative to a low or zero tariff on capital good imports. These measures tend to reduce the demand for labor in favor of more sophisticated capital equipment to replace labor. Second, is the relatively high tariff set on manufactured imports from the non-CACM (tariffs within the CACM were almost eliminated) which encouraged internal (CACM) production to meet the needs of the common market countries. This incentive was reinforced by tax forgiveness for investment and production for export. Third, the tariff on intermediate goods (goods needed to produce the manufactured goods) was set at very low or zero levels thus further encouraging production for the CACM area. Together, these measures could only be expected to lead toward some shift from labor to capital intensiveness per unit of investment, increased investment and production of manufactures for domestic needs and exports to the CACM, increased tendencies to concentrate on imported intermediate goods as against domestic intermediates and a rise in the import of capital goods.

During the ten-year period, from 1960 to 1970, exports rose by an impressive 96 per cent (See Appendix IV, Exhibit B) with the larger part of this increase going to the CACM area; CACM exports rose 495 per cent against a 48 per cent rise in non-CACM exports. Accordingly, of the $111.6 million increase in exports during the period, 55 per cent went to the CACM which enjoyed high protection. While 45 per cent of this export expansion went to the non-CACM area, if one eliminates two of the traditional exports to the outside world, coffee, sugar and cotton, non-CACM exports (the more non-traditional but including sugar) rose less than $5 million between 1961 and 1971 from $11.1 million to $16.3 million.

It should be noted also that these exports to non-CACM countries are almost entirely agricultural goods while those to the CACM are

dominated by manufactures. Moreover, about 50 per cent of these manufactures are derived from goods which appear to have little if any relationship to domestically produced resource availabilities; i.e. they seem to depend heavily upon intermediate good imports. Although consumer imports from all areas rose 57 per cent from 1962 to 1971, capital goods imports rose 96 per cent and intermediate goods grew by 143 per cent; 78 per cent of the import expansion was for capital and intermediate goods.

From all this it would appear that in the last decade, El Salvador has made little progress in producing in areas where it does not have the advantage of high tariff protection. By implication, greatest growth seems to have taken place in areas where the country probably has the least comparative advantage. There has been less concentration on utilizing agriculture and other domestic raw materials for processing and export, and there has been a trend to increase substantially imports of intermediate goods to meet production requirements. Finally, in new investment programs, there has been a shift in demand from labor to capital, while the prices of final consumer manufactures have been held up by the protective tariff. All of these have been to the detriment of El Salvador and contrary to its growth and development objectives.

D. Investment Trends

During the period under consideration, El Salvador's investment performance has been far from satisfactory, and what investment did take place was not labor absorptive. According to an 18 Latin American country comparison prepared by AID/W, El Salvador's investment performance, measured by the ratio of total investments to GNP, declined from a poor 11th place in 1961 to 17th place in 1971 when only Uruguay trailed. This poor showing reflected especially the public sector, where total fixed capital formation for the decade ending with 1971, barely exceeded 3 per cent of GNP, and private investments averaged about 10.7 per cent of GNP. (During the same period, per capita public sector consumption averaged about $25.40 annually but this reflects an increase from $23 in 1961 to $32.90 in 1971.)

The low level of public expenditures relative to other Latin American countries reflects on its inability to collect sufficient taxes. (By tradition, El Salvador has had a strong Central Bank which has precluded heavy GOES reliance upon Central Bank financing.) Tax collections during the period were low in relation to other LA countries. Based upon AID/W LA country comparisons, from 1961 to

1971, El Salvador's collection of Central Government domestic revenues rose 81 per cent; twelve other LA countries exceeded this rate of increase, and two other Central American countries increased collections 111 per cent and 101 per cent, respectively. Their tax collections as a per cent of GNP were shown as 13.5 per cent (only 10.7 per cent according to latest GOES estimates) in 1971, eighth place in all of LA and well below the high of 24.9 per cent as well as the 19.4 per cent average of the seven highest. The average for all Latin American countries was 14.6 per cent, about one percentage point above the El Salvador level.

In addition to relatively low tax collections, the tax revenue system would appear to be basically regressive with the heaviest burden falling on the lower income earners. During the four-year period, 1968-1971, direct tax collections (income, inheritance and property) averaged 28 per cent of total tax revenues. Another 14 per cent represents taxes on exports (coffee). The remaining 58 per cent represents taxes on goods consumed (import taxes and domestic transactions). The current tax program, therefore contributed little if anything toward the improvement of income distribution. Moreover, it is insufficient to permit the required increase in government investments.

As noted earlier, in addition to being relatively low compared with other Latin American countries, that investment which did take place seems not to have had any strong influence on employment and thus on income redistribution. A comparison of the 1961 and the 1971 census points to a rise in underemployment and unemployment. The latter rose from 5 per cent in 1961 to 20 per cent in 1971. There also appears to have been a sharp increase in the underemployed. According to the 1971 census, the economically active population (both sexes) over 10 years of age increased since 1961 by some 507 thousand, or 63 per cent. Of the 507 thousand increase, 48 per cent, or 244.4 thousand, fell in the category called "activities not well specified." Although no further definition is provided for this category, it probably includes those who have a variety of jobs, and this implies that the number of underemployed workers has increased; those who move from job to job, going to services one day and production another. The number of workers in this category rose sharply, from one per cent to 19 per cent of the work force.

The other important employment shifts affect agriculture and manufacturing. Agriculture showed a significant 127.6 thousand increase in employment while manufacturing showed a weak 4.4 thousand increase; during the decade, 25 per cent of the increased employment went to

agriculture while only one per cent went to manufacturing. Measured against total employment between 1961 and 1971, employment in agriculture fell from 60 per cent to 47 per cent of the total, and manufacturing declined from 13 per cent to 8 per cent. The increase in services accounted for most of the remaining employment increases, and their share of total employment increased slightly. Therefore, underemployment probably increased, employment in agriculture increased considerably, services improved somewhat and manufacturing showed poorly.

A comparison of gross investments over the same period shows the heaviest investments in the sectors where employment did least well and lower investment where employment climbed the most. For example, annual average gross private investment in agriculture for 1962-1969, amounted to $5.8 million, a mere 25 per cent of the $22.8 million invested in manufacturing; yet as noted earlier employment rose significantly in agriculture and barely increased in manufacturing. Transport investments (annual average) were also high, at $20 million, but employment increases were small and the percentage of total employment was unchanged. Construction investments also ran high but employment levels actually declined.

The implication of these developments, of course, is that investments in construction and manufacturing have been in labor saving equipment; they have been concentrated on the capital intensive areas consistent with GOES wage, tax, and tariff policies. This would also explain in part the increase in the "unspecified" category, reflecting workers taking odd jobs to avoid complete unemployment as the machines take over.

Of course, as would be expected, contributions to GDP by sector are consistent with the investment patterns. For example, from 1961 to 1970, agricultural production rose 39 per cent, the smallest sectoral increase during that period, and dropped as a per cent of GDP from 32 per cent to 26 per cent (it continued at this level through 1972). On the other hand, during the same period manufacturing output rose 100 per cent, from 15 per cent to 18 per cent of GDP, and rose to just over 19 per cent in 1972. Services also rose from 49 per cent to 51 per cent of GDP, and continued at that level through 1972.

E. Development Policy

Over the last decade little has been done to improve the wide distortion of income distribution in El Salvador. Action programs to modernize the health systems (outside of the construction of new facilities) or provide for equitable land distribution have had little or no

impact. However, much has been done to start to improve education facilities and opportunities to meet the needs of the society, and the USAID program is providing assistance to support this effort. Also, the GOES has taken steps to increase technology and credit availabilities for small and medium farmers, and the USAID is also assisting in this activity. Agriculture holds the key to increasing both employment and income and consequently a great deal more must be done to stimulate its development. (See Section II below.)

El Salvador has one of the highest population growth rates in the hemisphere. The population problem is difficult and complicated. While high rates of population growth tend to hold down per capita income, higher income levels tend to encourage control of family size; as the family gains confidence that it can better its lot it begins to examine measures to examine measures to accelerate this improvement. Improved and higher achievements in education also have been closely correlated with family size. It awakens an awareness of the benefits of small families and of alleviative measures. Yet high rates of population growth usually require sacrifices in education.

All of this seems to imply a continued need to tackle the development problem simultaneously on all fronts. However, it also implies that achieving downward movements in the rate of population growth will not be easy, and dramatic effects should not be expected in the short run, although they may and probably do show excellent possibilities over the longer run. Yet what can be affected rather quickly, is the rate of GNP growth. Economic, financial, and development policies must give the incentive for economic growth which will increase the demand for labor and significantly raise incomes especially for the have-nots. Simultaneously, steps must be taken to improve health, family planning and land distribution, and the GOES must increase its efforts to improve education and to provide credit, technology and marketing particularly for the small and medium size entrepreneur. The recently published Five Year Plan proposes changes in many of these areas.

F. The Five Year Plan (1973-1977)

The Plan projects an average annual GNP growth rate of 6.7 per cent over the five year period ending with 1977. The major part of this increase is attributable to industry and construction, which are expected to average annually 10.2 per cent and 10.7 per cent respectively, compared with 3.8 per cent and 3 per cent in the previous five years. Agriculture, on the other hand, will average 4.8 per cent compared

with its past record of 3.7 per cent. Accordingly, from 1972 to 1977, contribution to GDP will rise for both construction and industry (especially the latter) while for agriculture it will decline.

1. Investment Levels and GNP Growth Rates

The GOES has projected sharply increasing investment levels for both the public and the private sector. (It is interesting to note here that the GOES projects a declining percentage contribution to GDP by public administration.) If the projected investment levels are realized, it is difficult to determine the effectiveness that these investments will have, i.e. the value of output created by a unit of investment. For reasons not fully explained, the GOES projects rather sharply increasing returns from a unit of investment.

2. Exports

Despite disappointing past experience, the GOES expects a $99.6 million or a 40 per cent increase in total exports during the next five years. Of this, $59.4 million (almost 60 per cent) is to be in manufactures, of which $41.8 million is for the CACM, and $17.6 million, is for the rest of the world. During the nine years ending with 1971, manufactures exported to the non-CACM area rose only $7.2 million; during the last five years it has shown little change. It is therefore difficult to see how the next five years will bring a $17.6 million increase.

3. Income Distribution Effects of the GOES Fiscal Program

In general, the government's projected current and capital expenditure program shows a deliberate shift toward income redistribution. While the Plan expresses a desire to achieve through tax reform a lesser dependence on external trade taxes and regressive internal taxes, it does not provide a breakdown of the tax collections. Only a total tax projection is provided, and it shows a moderate 17.8 per cent growth, from 10.7 per cent to 12.6 per cent of GDP between 1972 and 1977. The CIAP review presents the only indication of the Government's tax "reform" plans. Here we find the explanation of how the Government plans to meet what would otherwise be a fiscal gap in the Five Year Plan amounting to $100.4 million. Among the proposed administrative reforms, which aggregate to $16.4 million, 35 per cent or $5.8 million represents an increase in the proceeds from the lotteries.

4. Population Growth Rates

The Plan has expressed concern, but throws little light on what

might be done vis-a-vis the population problem. Over the last five years, GNP growth is estimated to have averaged about 3.7 per cent. The 3.5 per cent average growth of population has just about eliminated any per capita gains. Increasing unemployment and underemployment over the period (the former reached 20 per cent in 1971), probably points further to a loss of ground during the last five years in terms of income distribution goals.

In the short run, of course, it seems less likely that population growth rates can be affected, and any major gains will depend upon GNP growth rates. However, over the longer run, population growth will have to be checked. This, in turn, requires immediate attention to matters affecting population growth.

The basic problems addressed in the Plan are income distribution and per capita GNP growth. The latter, of course, represents a combination of GNP growth and population growth considerations. It must be recognized that basic distributional problems stem from historical developments, especially in the areas of agriculture, education, and health. In agriculture, the distribution of land combined with the distorted availability of financial resources assured that the few rich would get richer, and the very poor would stay that way. Education facilities added further to the phenomenon. Education, as in most countries (including the developed world) was not directed toward maximizing returns on investments; rather, it depended upon family resources. Health, of course, is another area where income levels are important and where productivity is affected; it also has been neglected over the years. These are the three most important areas for concern.

Agriculture requires special emphasis. It is the key to increasing income and employment. The masses of rural people must be brought into the modern economic process; they need to produce more and buy more. This self-generating process in and of itself will improve the quality of life for the average Salvadorean and have a direct bearing on the population problem.

II. The Agricultural Economy-Development Trends and Policies

A. History

In the previous section, a number of problems were identified in GOES growth and development policy during the past decade. A major shortcoming was the serious neglect of a major part of the agricultural sector. The GOES provided heavy incentives for industrialization and promoted the traditional export commodities. The industrialization

program was actually begun in the middle 1950s with tax and investment incentive legislation and heavy supporting public sector investments in roads and power. Principle instruments to promote coffee, cotton and sugar exports were low taxation, ample credit supplies and maintenance of an abundant supply of cheap labor. Prices of the export crops held relatively strong during this period while the newly formed Central America Common Market provided a growing market for the nascent manufacting sector.

But agriculture, outside of the traditional export commodities, was almost completely ignored. The global public investment program of the GOES in 1965 was: $90.8 million of which only $1.2 million or about 2 per cent of the total went for agriculture. Although this record was improved during the last Five-Year Plan (1967-1971) still only 8.8 per cent of a $125 million investment budget or $11.2 million want for agriculture.

Labor productivity in the traditional farm sector was three to four times lower than it was in the rest of the economy. Moreover, yields of the basic staples were almost stagnant. For example, rice yields were 1.035 kilograms per hectare in 1952 and only 1,454 kilograms per hectare in 1965; bean yields had fallen from 854 to 580 kilograms per hectare during the same period and a similar trend was seen in corn output. Meanwhile population continued to expand resulting in a high demand for food and a greatly increased number of job seekers. Industry was unable to absorb them. New firms spawned by protection of the CACM were largely capital-intensive, labor-saving and oriented toward imported intermediate goods.

When in 1966 prices of the major exports (coffee and cotton) fell precipitously, a problem which was exacerbated by poor harvests, the classical economic reaction followed: lower prices discouraged suppliers, production declined as did values of the major exports. Domestic savings industrial and public investments all followed the same trend. Next, since this slump was shared by most other Central American countries, exports of manufacturers to the CACM fell and there was no internal market to take up the slack. Economic development was further thwarted by the "population war" of El Salvador with Honduras of 1969. Over $20 million of goods and services had been sent to that neighboring country in 1968 which amounted to 10 per cent of El Salvador's total exports. In short, the big push effort had been stalled.

Prices of export commodities began to rise slightly shortly thereafter which offset some of the damage. Still, growth in per capita GNP

which had been declining for three years in a row fell below zero in 1969. Per capita agriculture production dropped six percentage points off 1962 levels.

It was at this critical point that a decision was made by the GOES to pursue a more balanced growth strategy. Specifically, the Government decided to do something about traditional agriculture, to raise production of the basic staples and to increase the income of the masses of small farmers and rural workers for the purpose of expanding the internal market. One of the first steps in this process was to request AID's assistance in carrying out a comprehensive analysis of the agriculture sector and developing a new strategy upon which rural development policies could be built. The USAID contracted Robert R. Nathan Associates to make the study.

After examining several alternatives the Nathan group recommended that the government attempt to achieve a growth rate in agriculture of 4.8 to 5.5 per cent between 1970-90 while focusing on other complementary policies to realize the economy's overall growth potential of 5.7 to 6.9 per cent. If this scenario were followed, the report concluded

(1) Per capita income would be substantially improved -- the specific amount depending on population growth rates;

(2) Unemployment could decrease by up to 96,000 from 1965 levels or more pessimistically not increase substantially (again depending on the population growth rates); and

(3) Agricultural output would increase from 3 to 3.9 times over 1965 levels.

To achieve these targets, investment in agriculture would need to grow substantially. In crops and livestock, research and extension, marketing and other areas requirements were projected at $90.5 million during the 1970-74 period; $106 million during the 1975-79 period; and $140.8 million during the 1980-84 period.

A number of other conditions were specified to achieve the objectives plan including reorganization of public sector institutions concerned with agriculture; a large increase in foreign borrowing; improvement in land tenure conditions, adequate incentive policies and substantial improvements in the rural social infrastructure. Action programs were

recommended in technological development, extension, marketing, credit, irrigation, price stabilization, forestry, farm-to-market roads, agricultural diversification, and livestock development.

The Government took action on a number of recommendations and initiated studies on others. Plans were laid to reorganize the Ministry of Agriculture, to promulgate a new land reform law and program, and to put into operation a new integrated program of research, extension and education. But, ironically, rising prices of export commodities and better harvests took off some of the pressure for reform. The 1970 crop year was considerably better and the outlook in the foreseeable future was bright. The Government did not desist from efforts to reinvigorate agriculture, but it did set back the timetable. Public sector agricultural investment specified by the Nathan Group during the 1970-74 period was $90.8 million or about $18.2 million per year. However, only around half of this amount has been invested (although with the introduction of the new Five Year Plan beginning in 1973 there is promise of better performance). Ministry reorganization is taking place, but not as rapidly as projected. Credit and marketing reforms are in the process of being implemented, but there is still much to be done. Land reform although a subject of continual public debate seems to be far from reality.

All of this is not to suggest that agriculture is not a political priority; to the contrary, the Molina Administration considers the development of the rural sector as its number one objective. The new Five-Year Plan re-emphasizes the importance of agriculture. However, the Government has not yet been able to put together a program of the scope and dimension suggested by the Nathan Group. It can be said, therefore, that the study has been a model, but not the recipe of agricultural development policy. It is the judgement of the Mission that it will continue to play such a role. This role, however, is not to be understated. As a result of the analysis, the GOES has gained a clearer understanding of the critical importance of the rural sector to overall development as well as the need to execute a coordinated and integrated action program that intervenes at several critical points of the rural economy. Virtually for the first time in the history of the country, attention is being given to the small farmer and his role in overall economic development. The Nathan Study has been instrumental in promoting the concept of continued, in-depth sector analysis and evaluation within the Ministry of Agriculture.

B. GOES Agricultural Strategy

The analytic portion of the Five-Year Plan for agriculture views the 20-year (1950-70) growth trend in the sector of 3.1 per cent per year

as insufficient and cites what it believes to be the causes and effects of this slow growth. A major problem has been the lack of effective demand. The demand situation is a reflection of high unemployment and underemployment which in turn are attributable to the sluggish performance of the agricultural sector. The Plan sees the situation as deteriorating further with only 35 per cent of the rural labor force employed year round. The skewed distribution of income and wealth (in land) is also singled out as a contributor to both the problem of inadequate demand and underutilization of resources. The Plan identifies marketing and credit inadequacies as major bottlenecks affecting particularly the small operator. In one of the strongest statements made about previous government actions it charges that "past public sector policy has tended to consolidate the present structure rather than change it." The objectives of the new Five-Year Plan are identified as follows:

- Raise agricultural income;
- Improve its distribution;
- Establish new employment;
- Strengthen the external sector;
- Promote more balanced regional development;
- Improve social development and mobility; and,
- Conserve and improve the natural resource base.

To attain these objectives and boost annual growth in the sector to 5 per cent from the present 3.1 per cent the Plan identifies a total of 41 different programs which will be undertaken or expanded during the next five years. An investment plan of $132 million is projected for the sector divided between physical investments of $32.1 million (up $20.8 million over the previous five years) and $100.1 million in financial investments and transfers. Major investments are projected for irrigation, research and extension, marketing and reforestation. Current expenditures and transfers will go for the expanded staff and operations, in research and extension, marketing, and credit expansion. The focus of these programs is three fold; to develop multi-cropping and diversification on irrigated lands, develop technologically and economically sound alternatives to the basic grains and promote increased employment and income through basic grain production by

ensuring a sound marketing structure and adequate credit. The Mission believes the objectives of the Five-Year Plan are sound, however, we anticipate the GOES will encounter major impediments in their attainment.

C. Present Status

1. Administrative Reorganization

A national agricultural advisory council chaired by the Minister of Agriculture and composed of members of the private sector as well as the heads of the major public institutions concerned with agriculture has been established. This mechanism, if effective, could do much to ensure a concerted, long-term government policy toward the sector. To improve the planning and analysis capacity of the Ministry, the Planning Office budget has been greatly increased and its staff more than doubled. This important step is in part due to the successful role this office played in the elaboration of the Five-Year Plan and with USAID assistance, the preparation of the CENTA project. It is solid evidence that the long-term planning and analysis is now acceptable within the Ministry.

2. CENTA

In recent years the agricultural sector has benefitted greatly by the application of modern technology as evidenced by the increase in yields of virtually all crops. El Salvador now has among the highest grain yields in the Hemisphere, excluding the United States. This increased productivity has resulted in lower per unit production costs and also market prices. As the data in Table 1 show, El Salvador's corn, rice and sorghum prices are among the lowest in Central America. This indicates a degree of effectiveness in research and in getting the results of the research to the user-farmer. To meet the GOES employment, income and overall production objectives set forth in the Plan a much more intensive effort will be required. This will be focused on obtaining even higher yields and the use of multi-cropping on El Salvador's limited farm lands.

To meet this requirement, the GOES in 1972 established CENTA (The National Center for Agricultural Technology) incorporating into one body the research, education and extension functions. CENTA received a $4 million AID loan in late 1972 to finance research and education facilities at CENTA central headquarters and extension offices and research plots throughout the country-side. CENTA is also the focus of a major portion of USAID technical assistance as well as technical specialists provided by Spain, Great Britain, China, and the Netherlands.

TABLE 1

Annual Average

Comparison of Wholesale Prices for Corn, Rice and Sorghum,
Central American Capital Cities - 1969-72
(U.S. Dollars)

Country	Corn 1/			Rice 2/			Sorghum 3/			
	1969/70	1970/71	1971/72	1969/70	1970/71	1971/72	1969	1970	1971	1972
Guatemala	3.95	3.53	2.82	10.48	11.25	9.77	2.77	3.67	3.04	2.74
El Salvador	3.54	3.36	2.76	8.98	9.41	8.05	2.62	3.19	2.75	2.71
Honduras	3.60	3.18	3.33	11.95	15.19	13.93	2.51	3.52	3.27	3.29
Nicaragua	3.85	4.40	3.89	10.31	11.05	9.90	1.87	3.04	3.70	3.10
Costa Rica	4.68	5.34	4.99	11.26	12.49	13.57	-	-	-	-

1/ Agricultural Year - September through August

2/ Agricultural Year - November through October

3/ Calendar Year

Source: "Granos Básicos: Precios medios al por mayor en las capitales de los países de Central América" SIECA/CCMEP - XII/D. 1.3, Guatemala, 5 de Marzo de 1973.

It is obviously much too early to judge how successful the CENTA program will be in creating the new technology and putting it into packages the farmers can and will use. Indeed parts of the organization are still on paper and the new physical facilities will not be completed or fully staffed until 1976.

A CENTA Advisory Council has been appointed by the Minister of Agriculture. The eleven member board has representatives from MAG, CENTA, agricultural cooperatives, IRA, the colonization agency (ICR), the agricultural professional society and the University of El Salvador. The council will establish program priorities in research, extension and education, review implementation plans, do evaluations, review expenditures and approve annual budgets. This council lacks the private sector representation necessary for coordinating an institutional response to sector needs and therefore falls short of the ideal.

The research program is being completely revised to emphasize more promising fruits and vegetables and the basic grains. As progress is made on these crops and as additional trained manpower becomes available research will be shifted to stress other high value, labor intensive crops.

The Extension Service in the past year has named specialists for animal husbandry, horticulture crops, basic crops, fruits, communications, and youth clubs. Emphasis is shifting to basic crops in program planning designed to reach the target group.

The livestock work of the MAG is not well coordinated with emphasis on veterinary medicine and not in animal husbandry. The private sector initiatives in this sector are reasonably strong in developing pastures, in irrigation and in breeding. The government has sought USAID participation in livestock production and marketing but we have declined preferring to concentrate on the basic crops and vegetables. UN-FAO has offered MAG assistance in this area but the offer was refused because the MAG does not feel FAO has the experience needed.

The two major problem areas which must still be overcome if CENTA is to be effective are the lack of trained manpower and inadequate salaries. USAID is providing grant-financed technical advisors who provide on-the-job training to their counterparts as they jointly carry out the CENTA research programs. Training abroad is being financed from USAID grant and loan funds, by the "other donors" and from the GOES budget. At present there are over 25 long-term trainees abroad and this number is expected to increase over the next several years. The problem of low salaries however is one which external assistance can

do little to resolve. The Ministry recognizes that higher salaries are required to attract and retain qualified personnel and has pledged itself to seek a general pay increase for CENTA personnel.

3. Marketing

Low farm income, high rates of unemployment and underemployment and low nutritional levels are all in part results of the instability in prices of basic grains which constitute the major cash crop of 75-85 per cent of the small and medium size farms. Problems include the lack of reliable outlets at harvest times, lack of facilities to enable the farmer to store his product, the lack of grades and standards and the lack of timely and accurate market information. High unemployment rates are also due to the lack of alternate job opportunities (processing plant employment); under-development of more intensive crops (e.g. fruits and vegetables); and the almost total lack of programs to identify and penetrate external markets for non-traditional crops.

The preliminary targets for the GOES marketing program are to:

a) Raise and stabilize income of basic grain producers by improving market access, reducing losses and dampening price fluctuations. IRA, the national marketing agency, will be equipped with the capability to control the market through better storage facilities and sufficient working capital to buy grain in a timely manner.

b) Improve the domestic marketing structure for fruits and vegetables. This will mean that IRA will have to become a marketing "institute" to identify and take the leadership in resolving marketing disincentives to domestic production of these higher value, more labor intensive crops. It will mean the development of expertise and information in IRA which it, in turn, can make available to producer and marketing groups to enable them to complete effectively in this more sophisticated field.

c) Expand external markets for non-traditional exports. IRA will be called upon to help identify appropriate external markets, help producers and marketing groups to organize and to move into those markets and enforce grades and standards to ensure continued market acceptance.

d) Analyze input marketing to determine and implement programs to insure that modern inputs and technologies will be available to the target group farmers.

4. Credit

The income and employment problems of traditional agriculture are also, in part, a function of insufficient credit and poor access to credit sources. There is practically no credit available to the target group for medium and long-term capital improvement loans and to finance the purchase of additional land. The supervised credit agency, ABC, recently absorbed by the new Agricultural Bank, is now only reaching 8,000-12,000 of the farmers in the target group and FEDECACES, a newcomer to this type of lending is reaching an additional 2,500 farmers through loans to agricultural cooperatives and credit unions. The Cajas de Crédito have a small loan portfolio to small and medium size farmers. Thus, it is estimated that less than 20 per cent of the target group farmers are receiving financing through these three institutions.

A credit analysis has been made by the GOES and new legislation has been passed creating a new Agricultural Bank. The new credit program will focus on:

a) Increasing the availability of and access to short-term operational credit to permit the borrowers to adopt the new technology "packages" developed by CENTA.

b) Increasing access to medium and long-term credit for capital investment (e.g., irrigation equipment, on-farm storage; and processing).

c) Providing land purchase credit and/or a guaranty mechanism for land purchase which will allow existing producers to expand their operations.

It appears at this time that the IDB will be the major lender for the agricultural bank. A FY 1975 IDB agricultural credit loan is anticipated which would include the necessary technical assistance and training required to expand banking operations in the above areas. There may be need for an additional line of credit through the Central Bank to finance agricultural cooperatives and credit unions.

5. Irrigation

It has been estimated that irrigation can increase the effective land area for cultivation in El Salvador by a factor of almost two thirds. Given the scarcity of land relative to labor and other resources, the need for irrigation is obvious. The GOES Zapotitán

irrigation project, in operation since 1969, has entered its second phase which is the on-the-farm irrigation system as contrasted with the infrastructure building. The project includes drainage, distributing water in canals, water distribution (under pressure) in pipes, and developing under ground water using pumps and artesian flows. A second project, Atiocoyo, of 3.4 thousand hectares with financing by IDB has begun. Two additional projects are projected for later in the period of the Plan as well as a 10,000 hectare drainage program along the eastern coast of the country.

There is an acute need for knowledge about the most profitable crops and practices that can be achieved under intensified irrigated agriculture. This knowledge, derived from carefully planned and executed irrigation research, will stimulate interest in private sector irrigation investment and provide in the future an additional basis for public sector agricultural plans and projects. The University of Utah under a TAB contract is working with CENTA and the irrigation department of the MAG to evaluate the Zapotitan project and do site evaluations in the new irrigation zone.

6. Land Reform

The Nathan Analysis in its evaluation of the land tenure situation estimated the numbers of families on small farms at over 200,000 or 90 percent of the Salvadoran farm population in 1962. These small "farms" of one hectare or less are economically unviable and thus their owners are heavily dependent upon outside employment on larger holdings and on seasonal employment (coffee, sugar and cotton). They have little or no net savings, poor nutrition and extremely poor living conditions. They are not reached by technological advances, have practically no access to credit and when they do manage to produce a small surplus, are unable to market their product effectively.

Although the Five-Year Plan signals the need for "land reform" to bring the utilization of natural resources more in accord with their potential to raise production and employment, it does not detail how this will be accomplished. The Administration has stated on numerous occasions that it is preparing "agrarian reform" legislation, but the details of this proposal are not yet known.

Meanwhile, the government has taken some steps toward gradual land reform utilizing drainage and irrigation districts mentioned previously, reforestation programs, opening new resettlement areas, curbing increases in land rents and enforcing land taxes. They are considering a new government agency to plan these projects, organize

the farmers and coordinate implementation. Implementation will be the responsibility of the concerned technical agencies, (e.g., soil, water and ecological research will be carried out by CENTA, extension work by the Extension Service, irrigation and drainage infrastructure by that department of the Ministry of Agriculture, credit by the new agricultural bank and FEDECACES, and marketing by IRA).

As presently planned the USAID program will not directly attack the problem of land reform and land redistribution; it will, however, help to ensure that when such a reform does take place it will result in real gains for those it is designed to benefit. The AID program is assisting the GOES to reform and modernize the policies and institutions which in the longer run are needed to raise standard of living of rural Salvadorans. The new technological packages developed and extended by CENTA will be labor intensive -- they will be designed to attain the maximum concentration and value of production from a fixed area. Multi-cropping techniques will enable more efficient utilization of land and dampen seasonal unemployment. This technology will raise yield potential significantly and thus increase overall availability of foodstuffs. The marketing program will be designed to ensure that the farmer receives a better return on his commercial sales and at the same time stabilize market prices to the consumer -- including the subsistence farmer/laborer. Lastly new crop lines and higher overall production should ultimately raise overall nutritional levels.

D. AID Strategy and Programs

The USAID strategy and program for the agricultural sector was detailed in the Agricultural PROP approved by AID/W in January 1973 (see PROP dated 11/10/72 and TOAID A-306 of 12/22/72). In summary, this strategy is a multi-year, multi-project approach to the income and employment problems of the small and medium size commercial farmer. This strategy and target group focus was jointly developed with the Government of El Salvador and is completely consonant with the objectives of the GOES Five-Year Plan.

USAID-MAG research to date indicates that this group, comprised of 90,000 to 100,000 families with 1-50 hectare farms, offers the greatest potential for rapid growth in the sector and in meeting the employment and income objectives of the GOES. Appendix IV, Exhibit F shows the number of farms and average farm size by size category in El Salvador. Although the one to 50 category totals some 135,000 farms, we have excluded those producers who are, on the one hand, purely subsistence and, on the other, those who can obtain resources

(such as credit and new technology) from the private sector. The producers in the target group differ from those in the non-commercial, subsistence class in that they have the basic resource base and sufficient experience to respond to new programs, technologies and incentives. At the moment, however, they lack adequate credit, access to markets and knowledge of new technology. These are the shortcomings which the GOES with the help of AID and other assistance sources intends to remedy.

The first phase in the USAID strategy program has been the establishment of CENTA to provide the technical information, manpower and organizational structure required to reach the small farmer. The second phase is a detailed analysis of the basic grains marketing system and concurrently, a broader sub-sector study aimed at determining new agricultural enterprises that maximize income and employment.

The analysis of basic grains production and marketing systems and preliminary data from our sub-sector analysis have confirmed earlier hypotheses that a rational orderly market for basic grains is critical to our short and long-term income and employment objectives for the target group. As illustrated in Table 2 approximately 67 per cent of the corn and beans, 70 per cent of the sorghum and 55 per cent of the rice produced in El Salvador are grown on farms of one to 50 hectares. When the size category of less than one hectare is included, it can be seen that an additional 20 per cent of the production of corn and beans; and an additional 23 per cent of the total sorghum production is accounted for. Clearly, most of the total grain production in El Salvador is produced by the small operator. A recent field survey by IRA-USAID personnel shows that the small cereal producer has an average of 6.9 people in his family. Another 0.6 persons lived on the farm and derived their living from it, making a total of 7.5 persons per farm. Consumption of corn alone for human food was 300 pounds per person per year. Income levels were low; nutrition inadequate and unemployment high. The marketing program supported by this loan will have a direct impact on these problems. It will ensure a just price to both the small producer and the small urban consumer.

The sub-sector analysis now underway is based on a linear programming model to help ascertain probable responses of the small and medium farm sector to various political and economic stimuli and to aid policy makers to understand the implications of alternative policies. In accord with the GOES policies of increasing farm income and increasing rural employment, three objective functions are used. One is return to management, the second is return to management and labor, and the third

TABLE 2

El Salvador - Area and Production of Basic Grains in Agricultural Year 1970-71

Farm Size (Ha.)	CORN					BEANS				
	Area Ha.	%	Production MT	%		Area Ha.	%	Production MT	%	
Less than 1.0	53,680	21.26	86,505	19.59		8,876	19.57	8,880	20.17	
1 - 1.99	56,219	22.27	87,750	19.87		10,423	22.98	8,813	22.00	
2 - 4.99	60,818	24.09	102,348	23.18		10,443	23.02	8,824	22.02	
5 - 9.99	26,780	10.61	46,918	10.63	66.58%	5,105	11.25	4,198	10.48	67.02%
10 - 19.99	17,364	6.88	31,198	7.07		3,310	7.30	2,753	6.87	
20 - 49.99	13,959	5.53	25,747	5.83		2,622	5.78	2,263	5.65	
50 - 99.99	7,360	2.91	15,992	3.62		1,870	4.12	1,290	3.22	
100 - 199.99	5,415	2.15	13,176	2.98		881	1.94	892	2.23	
200 - 499.99	5,178	2.05	14,350	3.25		645	1.42	817	2.04	
500 - 999.99	2,659	1.05	7,841	1.78		513	1.13	925	2.30	
1000 & more	3,014	1.19	9,696	2.20		677	1.49	1,211	3.02	
TOTAL	252,446	100	441,521	100		45,365	100	40,066	100	

Source: Directorate General of Statistics and Census
III Agriculture and Cattle Census, 1971.
Table 17.

Continued ----
following page

TABLE 2 (Cont.)

El Salvador - Area and Production of Basic Grains in Agricultural Year 1970-71

Farm Size (Ha.)	RICE				SORGHUM			
	Area Ha.	%	Production (Oro) MT	%	Area Ha.	%	Production MT	%
Less than 1.0	660	4.82	1,253	4.61	26,002	21.15	30,651	22.92
1 - 1.99	1,465	10.69	2,605	9.58	30,726	25.00	33,862	25.32
2 - 4.99	3,035	22.15	5,909	21.73	31,141	25.33	32,775	24.51
5 - 9.99	1,853	13.52	3,236	11.90	13,007	10.58	13,848	10.35
10 - 19.99	896	6.54	1,462	5.38	7,863	6.39	7,946	5.94
20 - 49.99	997	7.27	1,853	6.81	7,034	5.72	7,132	5.33
50 - 99.99	1,085	7.92	2,354	8.66	2,679	2.18	2,625	1.96
100 - 199.99	531	3.86	943	3.47	1,786	1.45	1,937	1.45
200 - 499.99	1,563	11.41	3,468	12.75	1,674	1.36	1,930	1.44
500 - 999.99	1,377	10.05	3,321	12.21	563	0.46	646	0.48
1000 & more	242	1.77	788	2.90	471	0.38	374	0.28
TOTAL	13,704	100	27,192	100	122,946	100	133,726	100

55.40%

71.45%

Source: Directorate General of Statistics and Census
III Agriculture and Cattle Census, 1971
Table 17.

maximizes employment regardless of the income effect. Restrictions to maximizing the objective function include the various land types (by month for crop land), monthly labor availability, storage capaci for grain, quantities of institutional and non-institutional credit and minimum targets from the sector for grain, vegetables, meat and milk. Besides activity for the production of grain, vegetables, mea and milk with various levels of technology, there are activities for developing irrigated land, seeding pasture or converting pasture to cropland and for the importation and exportation of the various products. Common Market (or other international trade) assumptions can vary from completely open trading to a completely closed economy or any intermediate position for any one or all of the commodities.

Although only preliminary runs and analysis have been made to date, some interesting relationships are surfacing. For example, the obvious conflict between maximizing employment and income becomes evident. In employment maximizing solutions, more laborers are emplo but the average income per man/day worked is less than the minimum da wage rate. When management income is maximized, fewer people are employed, but the average daily income exceeds the minimum rate.

In early runs, freedom of imports and exports was assumed and credit levels were nearly unrestricted. Within this framework in income maximizing solutions, high qualities of vegetables would be produced; the majority for export. If credit is restricted to more realistic levels, vegetable production and export are reduced markedly and grain production is sharply increased. Income to the sector is reduced to 40 per cent of the amount earned with unrestricted credit and employment is reduced to about 64 per cent. The amount of irrigated cropland would be increased more than 50 per cent over actual levels and irrigated pasture would be increased over 30 per cent.

An even more realistic solution, at least in the short run, restricted vegetable exports and held credit at realistic levels. The reduction in credit use for vegetables freed these funds for use in grain production with high levels of technology. Total grain production increased to self-sufficiency levels. Income to the sector again dropped (by about 50 per cent) but employment is only slightly affected.

In all three of the above solutions, livestock competed strongly for resources. Of particular note is that highly productive dairy enterprises effectively compete for irrigated land with vegetables in both income and employment maximization models. In all of the

above solutions, some meat and milk are available for export.

Solutions were obtained for increased availability of grain storage. If more storage were made available, grain production on irrigated land would be reduced, making way for other higher valued enterprises and enterprises which require more labor per land unit. In the presence of restrictions on vegetable exports, the land freed from grain production would go into irrigated pasture for intensive dairy production. It is probable that if export markets for vegetables could be developed, a part of this land would go into vegetable production.

Thus, the preliminary results from our model tend to support the priority attention now being given to basic grains and vegetables. The CENTA program will develop the new technology needed and convey it to the farmer. The new agricultural bank recently established by the GOES will provide credit required and the marketing program will insure access and just prices to the producer. While future AID inputs to the sector will be dependent upon the on-going analysis and the interest of the GOES and other international financial institutions the general pattern and direction of our assistance program is apparent.

We will continue grant financed technical assistance and training to CENTA and to the planning and analysis staff of the Ministry. Short-term consultants and U.S. and in-country training will be required for IRA until the USAID loan to that institution is operational.

USAID's next targets for analysis, project design and possible financing will be in fresh fruit and vegetable marketing. One area which is key to the long term development of the human resources needed for the modernization of Salvadoran agriculture is university-level agriculture education. We will begin to examine this problem area during FY 1974 to determine what can be done to strengthen the agricultural faculties at the national university and the private university Simeón Cañas and to develop cooperative programs between the universities and the national agricultural school at CENTA.

Part Three: The Proposed Grain Marketing Program

I. Description of the Existing Grain Marketing System

There are five different classes of grain buyers in El Salvador: 1) the small local buyers who generally purchase from small producers; 2) the private trucker who buys directly from producers or the small local buyers; 3) the wholesale buyers; 4) processors who buy from producers or truckers; and 5) the government price stabilization agency. A problem which currently exists involves small producers who normally sell to the small local buyer or to a private trucker. There is survey evidence which indicates that many of them are receiving prices lower than prevailing market levels. The magnitude of the problem is unknown and more research in this area is needed. In addition to receiving prices which are lower than the market provides, there are wide intra-year fluctuations in prices and the small farmer is generally selling at harvest which is at the bottom of the cycle. He sells at harvest for several reasons, the most important of which is the lack of on-farm storage facilities.

The selling function is performed by public market sellers, street vendors, roadside vendors, small neighborhood stores, and supermarkets. The bulk of the corn is sold as tortillas through public market sellers and street vendors. The Instituto Regulador de Abastecimiento (IRA) also makes retail sales through a network of retail outlets. IRA plans, at least in the short run, to continue selling at the retail level although it is not a necessary part of a price stabilization program.

The transportation system in El Salvador, although fairly well developed, continues to cause marketing problems. The road network has been improved over the years and, since harvest of the grains is generally done during the dry season, market access is better. However, there are still remote areas which have inadequate secondary roads. Generally, during the year there are sufficient trucks to handle grains with the exception of the months of December and January when grains must compete for transport with the export crops (cotton, coffee, and sugar). A marketing development program to establish more accessible assembly and storage points would eliminate part of the need to move grains to the major cities at that time. Rail transportation is available between major cities, but trucks handle the bulk of the grains. Many small producers continue to rely on animals as a source of transport.

While grades and standards for basic grains are well defined in El Salvador, little use is made of them. IRA does attempt to use the

grades established by the CACM, but in the private trade, although grading is generally practiced, it is not standardized which reduces its effectiveness. This is one of the areas in which IRA will be able to provide technical assistance to the private trade. Handling and packaging of basic grains is also a problem area. Most of the grains are bagged rather than handled in bulk which results in considerable extra expense. This is true even in IRA.

Market information continues to be a problem and this contributes to the exploitation of small producers by the grain buyers. The Ministry of Agriculture (MAG) has a section which provides market information in the form of market price quotations and the results of marketing surveys. This function needs to be expanded and will require closer coordination between MAG, CENTA and IRA. The heavily publicized minimum price established by IRA in the future will be a major factor in providing market awareness to small producers.

The availability of adequate storage capacity for basic grains is another problem area. This is true not only of IRA and the price stabilization effort, but also of the private commercial and on-farm capacity. Table 1 presents a summary of the physical capacity, both public and private, which currently exists in El Salvador. The total is about 100,000 MT and a lot of this, especially at the farm level, is of very poor quality. Considering that the total production of grains in 1971-72 was about 600,000 MT, it is obvious that substantial quantities of grains are stored in structures never designed for holding grains or in open-air. MAG estimates are that up to 20 percent of grain stored in inadequate, open-air facilities is lost due to weather damage, insects and rodents and inadequate drying.

In summary, the best thing that can be said about the existing marketing system in El Salvador is that each year it manages to move the grains from the farm to consumers. Within this process, however, there are numerous examples of inefficiencies, imperfections, and inconsistencies which constantly disrupt the process. The question always becomes one of why the GOES has not recognized that problems exist and taken steps to solve them. The answer is the traditional one: the GOES has recognized the problems, but has lacked the ability to solve them due to inadequate resources. For example, to enforce a system of grades and standard requires trained experts, regulatory personnel, and large budget allocations. To stabilize prices effectively requires large investment levels and trained personnel that have been beyond the capacity of the GOES in the past. (Part Four contains a discussion of the past GOES efforts to stabilize prices through IRA.) In addition, there is strong competition

Table 1

Storage Capacity in El Salvador

Zones	I R A		Private Commercial[1/]	Private Non-Commercial[2/]		T o t a l	
	Silos	Warehouses	Silos	Silos	Warehouses	Silos	Warehouses
Western	-	415	230	5,901	3,659	6,131	4,074
Central	14,250	22,575	4,766	12,436	4,810	31,452	27,385
Eastern	2,000	15,500	4,922	5,269	6,831	12,191	22,331
Sub-totals	16,250	38,490	9,918	23,606	15,300	49,774	53,790
TOTAL	54,740		9,918	38,906		103,564	

1/ Includes Banco Hipotecario y Cajas de Crédito.

2/ Includes barns, warehouses, granaries and others at the farm level.

Source: Analysis of Demand and Supply for Agricultural Marketing Services in El Salvador - Ministry of Agriculture and Livestock, February 1973. ("Análisis de la Demanda y de la Oferta de Servicios de Mercadeo Agrícola en El Salvador - Ministerio de Agricultura y Ganadería - Dirección General de Economía y Planificación Agropecuaria, Depto. de Estudios Agrosocioeconómicos. Feb. 1973 y Depto. de Proyectos del IRA.)

within the MAG for the scarce resources which results in an allocation problem. For example, should the MAG be concentrating its resources on the marketing process when many of the very basic production problems remain unsolved? In the past the MAG has elected to allocate more resources to the production side than to marketing. This decision has resulted in a dynamic response in terms of productivity in the basic grains. The request by the GOES for this loan clearly indicates its recognition of the need for assistance to the marketing sector and its interest in beginning to provide such assistance.

II. Program Description

This program consists of three basic components: (a) the design, construction, equipping and upgrading of a network of storage and buying facilities for basic grains, (b) working capital for the purchase program and (c) technical assistance and training to support the entire effort.

A. The Storage Network

This loan will establish a network of storage and buying facilities located regionally within El Salvador for use in the price stabilization program. This network will take as its base the existing IRA facilities at San Martin and Usulután. At these two locations, IRA currently owns 33,695 MT of capacity with plans to build, this year, an additional 4,000 MT at Usulután. In addition, IRA currently rents 17,045 MT of which 12,500 MT is substandard and must be abandoned. Assuming the 12,500 MT is abandoned, IRA will have, as a base 42,240 MT of capacity. It has been determined that IRA will need additional capacity of about 42,000 MT to stabilize prices effectively. (See Part Four, Section II.) The new capacity will be provided through the addition of 14 new installations throughout the country which includes 2 terminal storage and buying plants. Finally, the network includes country buying stations (which will not be permanent installations but rather assembly points) to be serviced from the permanent installations through the use of trucks. This loan will provide 71 percent or $2,027 million of a total investment of $2,595 million for constructing and equipping these facilities.

It also includes 96 percent or $238 thousand of a total investment of $247 thousand for construction, improvements and new equipment for the two existing plants. In addition, $115 thousand is included for laboratory and field equipment (which is not part of the basic equipment in the initial construction of a new facility), a communication system and maintenance equipment for all facilities.

B. Working Capital

The loan program will establish a permanent working capital revolving fund within the Central Bank (BCR) to be used by IRA for the purchase of corn, beans, rice and sorghum. The fund will be utilized for the basic grain operations only within IRA. During a portion of the year, especially near the completion of IRA's grain sales cycle (June - August), the working capital fund will be increasingly liquid (estimated from 55 to 60% of the entire fund) as the grain supplies are being sold. Ideally, all grain would be sold at the end of the sales cycle in September but during some years, IRA would have carryover and would be expected to hold up to as much as 40-45% of its grain stocks in the last 2-3 months of the sales cycle, a portion of which may be held over into the new harvest year or exported. The total working capital resources required under the program will be $7.5 million. The loan will finance up to $3.5 million of the total requirements (45%) which will remain permanently in the BCR working capital fund and will be used solely for the grain stabilization purchase/sales program. The GOES counterpart requirement for the fund will be $4.0 million. While the GOES financed resources of the fund are not in use for grain purchasing operations (towards the latter part of the sales cycle), they will be available to the BCR for relending through the regular banking system. One possible use of these temporarily freed GOES resources could be short-term agricultural credit operations. The BCR will assume all responsibility against default through these short-term credit operations and will guaranty that these resources will be available to IRA at the commencement of its purchase operations under the price stabilization program.

C. Training and Technical Assistance

The final component of this loan will be $600 thousand for training and technical assistance. Manpower training and technical assistance will be required during the first two to three years of the loan assisted program to improve management and administrative procedures in accordance with the expansion of IRA's operations. The loan program will include long-term academic training in grain stabilization management and administration and short-term practical training (in-country or abroad) in such fields as grain classification, grain handling (cleaning, storage, drying and insect control), operation and maintenanc of equipment and grain pricing research (price reporting, price analysis, and supply and demand projections). Technical assistance financed under the loan will include an engineering consulting firm, a design engineer (storage and warehouse facilities), management consultants (central office operations and regional center administration), marketing economists and engineering supervision during the construction work. Technical assistance funds are provided also to assist in developing later phases of the marketing program or other MAG related programs.

III. Program Goals and Objectives

El Salvador's recently completed Five-Year Plan (1973-77) has as its major objectives increased income, improved distribution and the reduction of unemployment. The Plan outlines the GOES commitment to (a) undertake significant reforms of agricultural policy, (b) achieve basic structural changes in the agricultural economy, (c) promote a balanced growth within the sector and (d) strengthen the regulatory and operational capabilities of GOES institutions working in agriculture. Based on the policy guidelines of the Plan, the

GOES has developed a second phase agricultural development program which complements the initial program in agricultural research (CENTA) and which is centered on the creation of an effective marketing and price stabilization program and expansion of the farm credit system. This multi-phased, multi-project agricultural program is to be undertaken with the financial and technical assistance of AID and other international agencies. The rationale of AID technical and capital assistance in support of this sectoral effort by the GOES was detailed in the Agricultural PROP approved by AID/W in January, 1973.

In the marketing sub-sector, the price stabilization program proposed in this loan is oriented toward the income objective. It will: (a) assist in the development of the administrative and operational capabilities of the national marketing institute (IRA), (b) provide a network of storage facilities, (c) provide working capital for the grain inventory system and (d) assist in the development of a marketing price policy. The combination of these factors not only increase income opportunities but will also reduce annual production risks and encourage new farm investments.

The proposed loan is viewed as the first step in the transformation of IRA into a national marketing institute by providing an effective basic grains price stabilization program. Additional studies and external financing will be required in the future for further expansion of the grain marketing program (e.g. regional grain terminals, on-farm storage, and additional working capital) and for the development of the commodity marketing programs including fruits and vegetables and input marketing.

IV. Program Justification

The purpose of the revision and expansion of the grain price stabilization program is to eliminate market imperfections which are currently contributing to low income and unemployment conditions for small and medium-size grain producers. (Refer to Part Two, Section I for a detailed description of the market system.) The major impact of the program will be on grain producer incomes, but it will also have an indirect impact on the existing unemployment problem. Increases in consumer real incomes are also anticipated.

The price stabilization process will involve public intervention into the marketing system to eliminate the peaks and valleys of an intra-year wholesale price pattern. Appendix IV, Exhibit G contains the price ranges for all four grains since 1958/59. (Note that these differences are in wholesale prices during the year and not between

wholesalers and producers or wholesalers and consumers.) Ministry of Agriculture (MAG) and USAID estimates show that $ .60 per hundredweight would cover storage and handling costs during the course of a year for each of the grains. Comparison of this estimate with the intra-year differences gives a clear picture of the magnitude of the problem. (For example, for beans in 1969-70, the difference was $6.74 or more than 11 times higher than the $ .60 estimate.)

Table 1 translates the spreads into an income effect. If the spread had been maintained at $.60 over the 14 year period for all grains, producers and consumers would have divided about $65.0 million, which was absorbed by marketing middlemen. On an average per year basis, the income loss was about $4.8 million. Even if this spread had been held to $1.00 instead of $.60, the income savings would have been $32.0 million for the 14 year period or, about $2.3 million, per year. Analysis of the data on price spreads in Appendix IV, Exhibit G does not indicate that the spread has been narrowing over time. In other words, an analysis of the history of price spreads over the last 14 years does not suggest that the problem is being solved by natural market forces. With this in mind and the certainty that commercial marketings will continue to increase, the potential income loss per year over the next several years could greatly exceed the US $4.6 million historical average.

This intra-year income effect is dramatized when seen at the individual farm level. Table 2 provides data for an average size target group producer, using actual price figures for the 1971-72 season.

Table 2. -- Estimated Income Effect on an Average Target Group Producer with Four Hectares, 1971-72

Crop	Actual Spread	Excess Spread 1/	Yield for Four Hectares 2/	Additional Income 3/
	($/cwt.)	($/cwt.)	(cwt.)	($)
Corn	$ 1.19	$ .59	156	$ 46.02
Sorghum	1.82	1.22	108	65.88
Beans	3.98	3.38	76	128.44
Rice	.94	.34	212	36.04

1/ Actual spread minus $.60
2/ Actual 1971-72 yield per hectare times four.
3/ One-half of excess spread times yield for four hectares. Only about one-half of the excess spread would accrue to producers; the other part would go to consumers.

Table 1

Estimated Income Effect of Price Stabilization in Basic Grains Using Commercial Marketings and Price Data, 1958-59 through 1971-2 Crop Years

Crop	Total Commercial Marketings 1/	Annual Average Commercial Marketings	Weighted Average Price Spread 2/	Excess Spread 3/	Year Income 4/	Average Year Income Effect 5/
	(000 cwt.)	(000 cwt.)	$/cwt.	$/cwt.	($ 000)	($ 000)
Corn	48,406	3,457	1.23	.63	30,496	2,178
Sorghum	21,228	1,516	1.21	.61	12,949	925
Beans	4,046	289	3.70	3.10	12,543	896
Rice	6,773	484	1.88	1.28	8,669	620
Total	80,453	5,746	n.a.	n.a.	64,657	4,619

1/ Represents 70 per cent of total production of corn, 65 per cent of sorghum, 75 per cent of beans and 90 per cent of rice.

2/ Computed by calculating the intra-year wholesale price spread for each year and constructing a weighted (by production) average for the 14 year period.

3/ The weighted average spread less $.60 which is the estimate of a fair market return per hundredweight of grain for storage, handling, transportation, and middleman profit.

4/ Excess spread times total commercial marketings.

5/ Excess spread times annual average commercial marketings.

Source: Developed from data from the Statistical Section of the Ministry of Agriculture and Livestock.

If this producer had chosen to grow corn on his four hectares, and if IRA had maintained the $.60 spread, his income would have been increased by $46.02 (one-half excess spread times production). The income increase would have been $65.88, $128.44, or $36.04 for sorghum, beans, or rice, respectively. The MAG estimates that target group grain producers have an average cash income of about $700 per year. Reducing the intra-year price spread for a corn producer would have amounted to a 7 percent increase in his average cash income. In the case of sorghum, beans, and rice the percentage increase would have been 9, 18 and 5 percent, respectively.

The income estimates discussed above are based on intra-year price variation at the wholesale level (attributable to costs of storage, handling charges, and profits for risk-bearing over time.) In addition to this variation, at any given point in time during the year, there is a margin between producer level prices and wholesale prices and another margin between the wholesale and retail levels. These margins reflect such items as buying and selling costs, transportation, middlemen profits, etc. To the extent that the wholesale producer margin is excessive due to market imperfections such as lack of market access by small producers and a lack of competition between grain buyers, then it can be assumed that producers' incomes would be raised by the elimination of these imperfections. The same argument applies to consumers when considering the wholesale-retail margin.

Unfortunately, the data base necessary to compute these margins accurately and to determine their reasonableness does not exist at present. The MAG has conducted some special surveys to evaluate this problem, but much more work needs to be done. Analysis of these survey data do reveal one area in which imperfections can be clearly identified. Within one homogeneous production area, a survey team found a wide range of producer prices in the same time period. They concluded that the producers receiving the lower prices were the ones who lacked sales alternatives due to poor transportation alternatives or a lack of market information. Some of these producers received as much as $.40 to .50 per hundredweight less than the prevailing producer level price in the area.

This proposed program is intended to alleviate this type of problem. It will be heavily publicized and be available to all producers. Every producer will know that he has the alternative of selling to IRA at a publicly announced price level. This will force independent buyers to be more competitive. As IRA is currently structured, a producer would only have two IRA facilities in the whole country in which to deliver his grain. In other words, he would have a clear alternative, but the means to use it would still be lacking. Therefore, the construction of new facilities for IRA will be done on a regional basis within the country to provide outlets in all of the major production areas. While

this will not totally solve the problem, it will provide much greater access to a viable market alternative for basic grain producers.

Still another income impact of this program will be in product losses. A significant proportion of the grain crop in any given year is stored in the open air. In 1971-72, there existed about 100,000 MT of private and public grain storage capacity in the country to handle a total production of more than 600,000 MT. It can be assumed that the new IRA facilities will directly substitute for open-air or poor quality storage. MAG estimates are that open-air storage results in up to a 20 percent loss of product due to weather, insects and rodents, inadequate drying, resulting in spoilage, etc. The addition to IRA of 40,000 MT would represent a savings of up to 8,000 MT each year. At an average market price of about $95.00 per MT the savings would be around $760,000 annually.

A final income consideration was identified by preliminary results of the USAID/ES-MAG sector analysis. This analysis is using the linear programming technique to maximize income by providing an optimum combination of alternative enterprises. An additional 50,000 MT of storage capacity was introduced into the maximum income model to determine the effect on sector income. Analysis of the effect of this addition revealed that an additional $1.2 million per year was generated because additional storage capacity allowed enterprise combinations to be re-formulated. For example, it freed some irrigated land now being used for grains by allowing increased production and storage from the rainy season production period. The freed irrigated land was then put to a higher income use.

There are several other areas of potential impact of this loan on agricultural income and employment as well as on consumers which, although virtually impossible to quantify, should be mentioned. First, the reduction of market risk to producers through a guaranteed minimum price and greater market access will provide an environment in which producers will be more willing to assume greater production risk in the form of new technology and, hence, raise yields. This will result in lower costs per unit. Also, the release of land from grain production will result from the increased yields. This land will become available to support the income and employment-creating diversification effort currently underway in CENTA. Finally, increased grain production and the resulting lower prices will benefit all consumers in El Salvador. Also, IRA's increased analytical capability will allow them to avoid getting "caught short" with respect to imports and exports. For example, in the current year, due to a severe drought, it will be necessary to import grains. An early analysis of the situation would have allowed IRA to import grains early last Fall at prices much lower than those they will have to pay in the May-August, 1973 period. There are

numerous examples in IRA's history of losses from poor timing of import-export decisions.

Finally, the development of IRA as an effective marketing institution will lay the groundwork for future public marketing efforts. As vegetable production expands, for example, an effective public marketing institution can give valuable assistance in such areas as grades and standards, design of marketing facilities, and identification of potential export markets. El Salvador lacks such an institution and this will be an important spin-off effect of the grain price stabilization program.

V. Financial Plan

The cost of the program assisted by the proposed USAID loan will be financed as follows:

Purpose of Finacing	Sources of Financing and Amounts		
	Total	GOES	USAID
	(thousands of dollars)		
1. Land Acquisition	248.0	248.0	--
2. Physical Facilities	2,842.0	815.0	2,027.0
a. Upgrade existing facilities (Total)	247.0	9.0	238.0
1) Construction	(22.0)	(9.0)	(13.0)
2) Equipment	(137.0)	--	(137.0)
3) Vehicles	(88.0)	--	(88.0)
b. New Facilities (27,730 MT) (Total)	2,176.0	650.0	1,526.0
1) Construction	(1,624.0)	(650.0)	(974.0)
2) Equipment and Furnishings	(236.0)	--	(236.0)
3) Vehicles	(316.0)	--	(316.0)
c. New Facilities (Final 7,920MT) (Total)	419.0	156.0	263.0
1) Construction	(391.0)	(156.0)	(235.0)
2) Equipment	(28.0)	--	(28.0)
3. Working Capital	7,500.0	4,000.0	3,500.0

	Total	GOES	USAID
4. Other Items (Total)	715.0	--	715.0
a. Maintenance and Communication Equipment, Spare parts and Vehicles	115.0	--	115.0
b. Training	100.0	--	100.0
c. Technical Assistance	500.0	--	500.0
1) IRA	(200.0)	--	(200.0)
2) MAG	(100.0)	--	(100.0)
3) IRA - Engineering	(200.0)	--	(200.0)
5. Additional Administrative and Operating Costs	1,691.0	1,691.0	--
TOTAL	12,996.0	6,754.0	6,242.0

It is anticipated that the loan will be fully disbursed over a 4 year period. A preliminary disbursement schedule of GOES contribution/loan disbursements is shown on the following page. A final financial plan for loan/GOES contributions for the program including working capital, infrastructure investments and other related costs will be required as a condition of the loan prior to initial disbursement.

The tentative financial plan has been developed on the basis of the program implementation schedule presented in Part Five and reflects the Mission/GOES best estimate of the timing of all engineering and other technical components of the program. The contributions to the working capital fund or capitalization of the working capital fund has been programmed in accordance with the actual needs of IRA at the outset of the program (1974) and IRA's needs as the new facilities financed in part by this loan are completed (1975 and 1977). In accordance with the MDCC recommendations of May 4, 1973, the financial plan has been designed to place greater responsibility on the GOES for the counterpart financing for the working capital fund as the new facilities become operational.

	Total	GOES	USAID
4. Other Items (Total)	715.0	--	715.0
a. Maintenance and Communication Equipment, Spare parts and Vehicles	115.0	--	115.0
b. Training	100.0	--	100.0
c. Technical Assistance	500.0	--	500.0
1) IRA	(200.0)	--	(200.0)
2) MAG	(100.0)	--	(100.0)
3) IRA - Engineering	(200.0)	--	(200.0)
5. Additional Administrative and Operating Costs	1,691.0	1,691.0	--
TOTAL	12,996.0	6,754.0	6,242.0

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	Total	GOES	
4. Other Items (Total)	715.0		715.0
a. Maintenance and Communication Equipment, Spare parts and Vehicles	115.0		115.0
b. Training	160.0		160.0
c. Technical Assistance	500.0		500.0
1) IRA	(200.0)		(200.0)
2) MAG	(100.0)		(100.0)
3) IRA - Engineering	(200.0)		(200.0)
5. Additional Administrative and Operating Costs	1,691.0	1,691.0	
TOTAL	12,996.0	6,754.0	6,242.0

It is anticipated that the loan will be fully disbursed over a 4 year period. A preliminary disbursement schedule of GOES contribution/loan disbursements is shown on the following page. A final financial plan for loan/GOES contributions for the program, including working capital, infrastructure investments and other related costs will be required as a condition of the loan prior to initial disbursement.

The tentative financial plan has been developed on the basis of the program implementation schedule presented in Part Five and reflects the Mission/GOES best estimate of the phasing of all engineering and other technical components of the program. The contributions to the working capital fund or capitalization of the working capital fund has been programmed in accordance with the accrual needs of IRA at the outset of the program (1974) and IRA's needs as the new facilities financed in part by this loan are completed (1975 and 1977). In accordance with the MDCC recommendations of May 6, 1973, the financial plan has been designed to place greater responsibility on the GOES for the counterpart financing for the working capital fund as the facilities become operational.

	1974		1975		1976		1977		1978		
	GOES	AID	GOES	AID	GOES	AID	GOES	AID	GOES	AID	Total
Land Acquisition	186	—	0	—	62	—	0	—	0	—	248.0
Physical Facilities											
a) Upgrading Existing	9	238	—	—	—	—	—	—	—	—	247.0
b) New Facilities (27,730MT)	—	—	650	1526	0	0	0	0	—	—	2,176.0
c) New Facilities (7,920MT)	—	—	—	—	—	—	156	263	—	—	419.0
Working Capital	1500	2500	2000	1000	0	0	500	0	0	0	7,500.0
Training	—	70	—	30	—	—	—	—	—	—	100.0
Additional Equipment	—	40	—	75	—	0	—	0	—	0	115.0
Technical Assistance	—	200	—	200	—	50	—	50	—	—	500.0
Administrative Costs	0	—	406	—	406	—	439	—	440	—	1,691.0
	1695	3048	3056	2831	468	50	1095	313	440	0	12,996.0

Section VI - Special Statutory Consideration

A. Consistency of Loan with Regional Integration

A major issue raised at first Intensive Review Request meeting held in AID/W in early April 1973 was the consistency of this loan with regional integration policy -- specifically, regional grain policy. The Mission held that the program financed by the loan would strengthen the regional grain system by developing a viable national institution which could eventually be incorporated into the regional system and, thus, play an important role in implementing regional policy. AID/W held that the regional grain policy should be reviewed and evaluated and a determination should be made concerning the role of the loan program in the proposed regional system. This task fell to the Central American Mission Director's Coordination Council (MDCC).

On May 2-4 the MDCC met and concluded that the loan program could strengthen and support regional policy. Specifically, the MDCC review concluded that a USAID financed grain stabilization program in El Salvador was justifiable from a national standpoint and consistent with regional objectives.

They recommended that AID/W authorize the IRR immediately although they did suggest that the financial plan be redesigned to place proportionally greater responsibility on the GOES for the working capital fund as new facilities come into existence and thus encourage the GOES to seek regional financing as it becomes available.

This loan has been so structured and the Mission sees no inconsistencies of this program with regional integration policies.

B. Impact on U. S. Economy

The procurement of vehicles (U.S. procurement) and much of the grain storage and handling equipment will be dollar costs of the program to be procured from countries under Code 941. It is anticipated by the Mission that of the $6.5 million of the total loan, $2.742 million will be utilized to finance construction, equipment, technical assistance, and vehicles. Of this $2.742 million, it is estimated that $2.031 million or 74 percent will be procured from the U. S. In addition to the requirement that all vehicles purchased be of U. S. source and origin, it is anticipated that the bulk of U. S. manufactured grain silos, storage equipment, grain handling equipment, dryers, etc., will be of U. S. source and origin. Additional U. S. exports will probably be generated in the future because of the need for compatibility of supplies and replacement parts.

C. Effect on El Salvador's Balance of Payments

El Salvador has to import some grain almost every year although paradoxically, statistics show that production and consumption about balance. In 1970/71 the total value of grain imports is estimated at almost $2 million. The problem is that there are losses of an estimated 15-25 percent of the total crop because of inadequate storage facilities.

This loan will provide storage facilities such that the grain crop when harvested can be held over to meet consumption needs in the latter part of the annual production-consumption cycle. Furthermore, it will help free irrigated land now used for grains such that this land can be moved into vegetables (almost 75 percent of which is imported) and other intensive enterprises.

On the other hand, the loan should not generate within the private sector additional demand for farm equipment, chemicals or other commodities that would have to be imported from abroad. Thus, the loan should have a favorable effect on the El Salvador balance of payments. If the program saves annual foreign exchange outlays of even $1 million annually, it will amortize itself in terms of foreign exchange saved in less than seven years.

D. Consistency with CIAP Review

This loan is fully consistent with the CIAP's recommendations of February 1973 that greater policy emphasis should be placed on agriculture and the small and medium-sized operator. The loan financed program is directly aimed at the stabilizing prices and incomes of the major commodity produced by the Salvadoran small farmer. Therefore, it directly contributes to implementing the CIAP's recommendations.

At issue prior to the CIAP meeting was the role of the Inter-American Development Bank (IDB) in the proposed program. It was unclear whether the Bank would be willing to assist in the analysis of the project as well as the financing. At the CIAP meeting this issue was discussed in detail. The GOES and IDB agreed that the Bank should focus its major attention on agricultural credit for small farmers and recommended that A.I.D. play the major role in agricultural marketing. The Mission has informed the GOES that it will assist to the extent possible in developing a total marketing capability in IRA although no firm commitments have been made beyond the proposed loan.

E. Opinions of Other International Institutions

The Export-Import Bank in its meeting of May 7, 1973 stated that it was not interested in the loan due to the local currency financing and the concessionary terms required.

The International Bank for Reconstruction and Development has advised A.I.D. in its letter of May 9, 1973 that it is not interested in financing the project. The most recent IBRD program in agriculture was limited to a U.S. $4.9 million education loan to the GOES, of which a part ($600,000) was utilized to expand the educational facilities at the Escuela Nacional de Agricultura (ENA) which was later integrated into the CENTA agency. Recent Mission discussions with IBRD staff and field teams indicate that the IBRD plans to focus its assistance in El Salvador for the foreseeable future on education (non-formal education programming), child nutrition, low income housing (sites and services) and population (family/planning/health services).

The Inter-American Development Bank also has stated in its June 6, 1973 letter that it was not interested in financing the proposal. The IDB has discussed in detail with the GOES and is now planning comprehensive technical and capital assistance programs over the next three years in urban and municipal development, industrial credit, tourism infrastructure, health services, higher education and agriculture. In agriculture the following projects will be under review during 1973-75: three large scale irrigation projects; a coastal fisheries program; a supervised agricultural credit program; a livestock development program; a farm-to-market feeder road project; an agricultural marketing program (no timing determined); and, a rural water supply project. The proposed A.I.D. loan program in grain stabilization complements these possible major investments which can do much to improve the rural infrastructure, as well as expand needed services to the farm sector.

The Ministry of Agriculture has informed USAID/ES that the Central American Bank for Economic Integration (CABEI) is not interested in financing this loan.

F. USAID Director's Certification

Annex I, Exhibit A to this capital assistance paper contains the USAID Director's Certification for this activity in conformity with F.A.A. Section 611(e).

PART FOUR: Analysis of the Proposed Grain Marketing Program

The new marketing development program will completely transform IRA which, in the past, was largely ineffective in stabilizing prices and providing market services to small farmers. IRA, historically, set minimum buying prices for political reasons, (in efforts to carry out the Government's desire to subsidize small producer income) and the relation of these prices to the expected market equilibrium price level in any given year was largely ignored. This, generally, resulted in an IRA minimum price which was much higher than was reasonable in a market context, and also, resulted in a need to purchase excessive amounts to maintain the established minimum price level. IRA had inadequate storage capacity and working capital to even maintain a minimum price which was tied to an expected market level much less one which had been set artificially high. There was nothing basically wrong with using pricing as a mechanism to transfer income (except the danger of distorting production patterns), but the costs balanced against the available resources were not considered.

The second major problem was a shortage and/or poor timing with respect to the availability of working capital. The Central Reserve Bank of El Salvador (BCR) and the Central Government's regular budget transfers were IRA's major sources of working capital in the past. At the request of the Government, a line of credit was set-up in the Bank and made available to IRA for its purchasing operations. This line of credit, it should be emphasized, was not a revolving fund automatically available to IRA on demand. Rather it was a simple commitment by the BCR that it would provide funds to IRA on an annual basis. The amount of funds, the terms under which they were to be granted and the time schedule for disbursement were decided by the lending institution. The other major source of capital was the budgetary support provided by the National Government. IRA's organic law provides for adequate "capital resources and subsidies for operating costs and losses".

In accordance with this legislation, budgetary support was provided on a regular basis and actually reached $2.5 million in 1959. But, starting in 1960, these subsidies were reduced and did not come forth when needed. As a result, IRA ran into serious cash-flow problems. The problem continued to grow worse and by the late 1960's the BCR reduced the ceiling on its line of credit from $6.0 million to $3.0 million. In 1970, the Government provided $2.8 million in order to allow IRA to expand its purchase-sale program, but this amount coupled with the BCR credit was still insufficient to affect a significant influence on the grains market.

A final problem was the inability of IRA to recognize through analysis the appropriate time to import on export grains. This is a critical element to the program and can make all phases more efficient.

Even when IRA knew that imports would be required, they were many times delayed because they were not given authorization or sufficient funds to act.

The following discussion of the proposed grain marketing program is presented in five separate, but closely related, parts. It is based on a joint USAID/ES-IRA analysis done during Intensive Review. The first section deals with how IRA pricing decisions will be made, how the stabilization program will function, and finally the needs for storage capacity to make the program functional. The second section (Location Analysis) takes the estimate of needed storage capacity based on the price models, compares it with another estimate which was derived independently, and explains how the new storage capacity will be allocated to the production zones to maximize producer access to IRA. The third section (Facility Design and Related Items) contains a comparison of different types of storage facilities and equipment and the design of the optimum system to fit the allocated capacity from the previous section. Section IV contains an analysis of the present IRA financial situation and demonstrates that, given certain financial reforms, IRA will be capable of executing the new program. Contained in this section also is a detailed analysis of the working capital fund. The final section deals with IRA's organizational structure and management capability and its relation to the expanded program and includes the technical assistance and training plans.

I. Pricing

A. Analysis of the Price Model[1/]

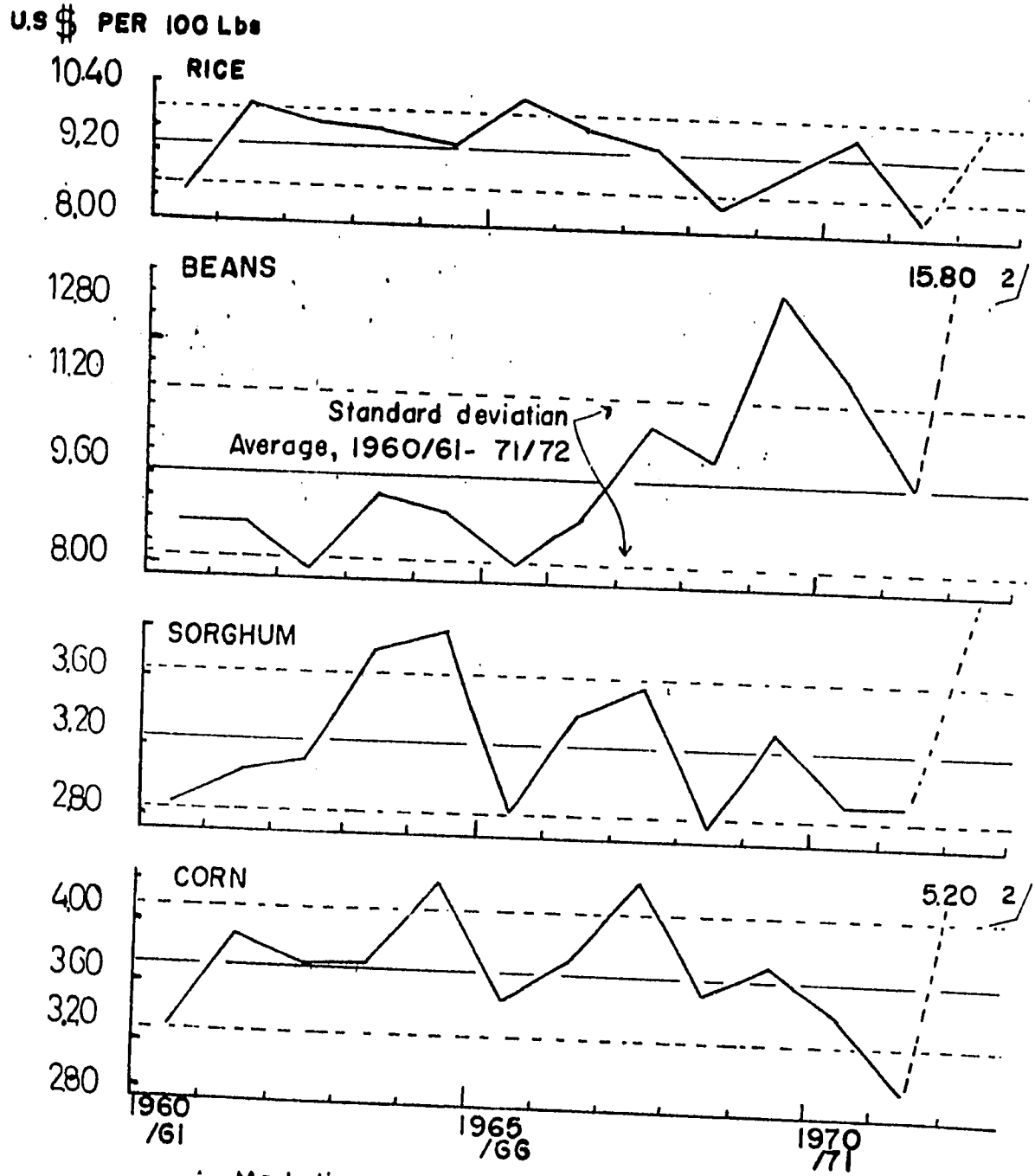
In the development of a model to establish a minimum buying price for IRA, the first step is to analyze the source and magnitude of the variation in prices. There are two sources of price fluctuations including year to year and seasonal variations.

1. Year to Year Fluctuations

Prices for the four grains are plotted on scales which reflect equal proportionate changes. (See Figure 1). That is, a 10 percent change in the price of corn corresponds to the same vertical distance on the corn section of the graph as does a 10 percent change in the price of beans on the bean section.

1/ This section was based, in part, on a consulting report by Louis F. Herrmann entitled Pricing Aspects of El Salvador's Stabilization Program for Basic Grains. This report was completed in late March, 1973.

Figure 1. BASIC GRAINS ANNUAL AVERAGE PRICES, 1960-61 THROUGH 1972-73



1 Marketing year (Corn, Oct.-Sept; Beans, Rice, Nov-Oct; Sorghum, Jan - Dec)

2 1972-73 partly projected

Source: Data from Ministerio de Agricultura y Ganaderia

From the 1960/61 to 1970/71 crop years corn prices varied from $2.95 to $4.32; bean prices from $8.00 to $12.80; rice prices from $8.27 to $10.25 and sorghum prices from $2.80 to $4.33. Statistical analysis showed that the following factors accounted for the major part of year to year price fluctuations in corn prices: (1) natural weather conditions; (2) variations in area planted; and (3) yields. Variation in area planted in turn was found to depend, in part, on the prices of the previous year. It was found that time trends in general (both for year to year and seasonal variations) affect prices. This problem causes considerable difficulties for a price control agency since it is difficult to determine when a turning point in the time trend has been reached. Not only is it hard to identify the turning point, but it is also often unpleasant to face the consequences of the fact that a trend has turned. Inability to detect such a turn can be costly in the short-run and, in long-run, can distort the total production pattern. The main safeguard against being in hot water is to proceed conservatively and not allow price fixing criteria to become to rigid or inflexible.

2. Intra-Year Fluctuations

The major problem in El Salvador, particularly as it affects small farmers, is not the fluctuations from year to year, but the variations that occur within the year. It is not uncommon for prices to vary 100 percent or more in any given year, as demonstrated in Annex IV, Exhibit G which shows the magnitude of intra-year variations in the major grains during the 1958/59 - 1971/72 period.

The major cause of seasonal variations are 1) the size of the crop harvested, and 2) trader expectations concerning the price they may be able to obtain later in the year. The latter, in particular, is an important factor in El Salvador given the lack of market access by small farmers and the consequent ability of middlemen or "intermediarios" to control the grains market.

At this point, it is necessary to determine whether IRA will be attempting to control year to year or intra-year fluctuations or both. A serious question may be raised about the extent to which year-to-year fluctuations should be artificially influenced. For example, if prices in a given year are set higher than those that would be established by normal market prices, there is a real danger that production trends would be seriously distorted. Also, the cost of having this type of program is considerably greater in terms of physical facilities and working capital. For these reasons, IRA will be mainly interested in influencing or stabilizing intra-year fluctuations. The objective is to stabilize prices within the crop year in order that farmers and consumers alike do not suffer from the wide seasonal variations. In so doing, IRA can help stabilize the year-to-year variations, but the major emphasis is on the seasonal problem.

How can these intra-year variations best be projected in order that they can be controlled, and, secondly, how much control is being sought? Several differents methods of price prediction were evaluated by applying them to historial data to ascertain their predictive ability. For example, models were attempted based on costs of production and moving averages. Finally, a special model based on historical patterns and on El Salvador's own unique conditions was developed. This model is described below.

3. The Model

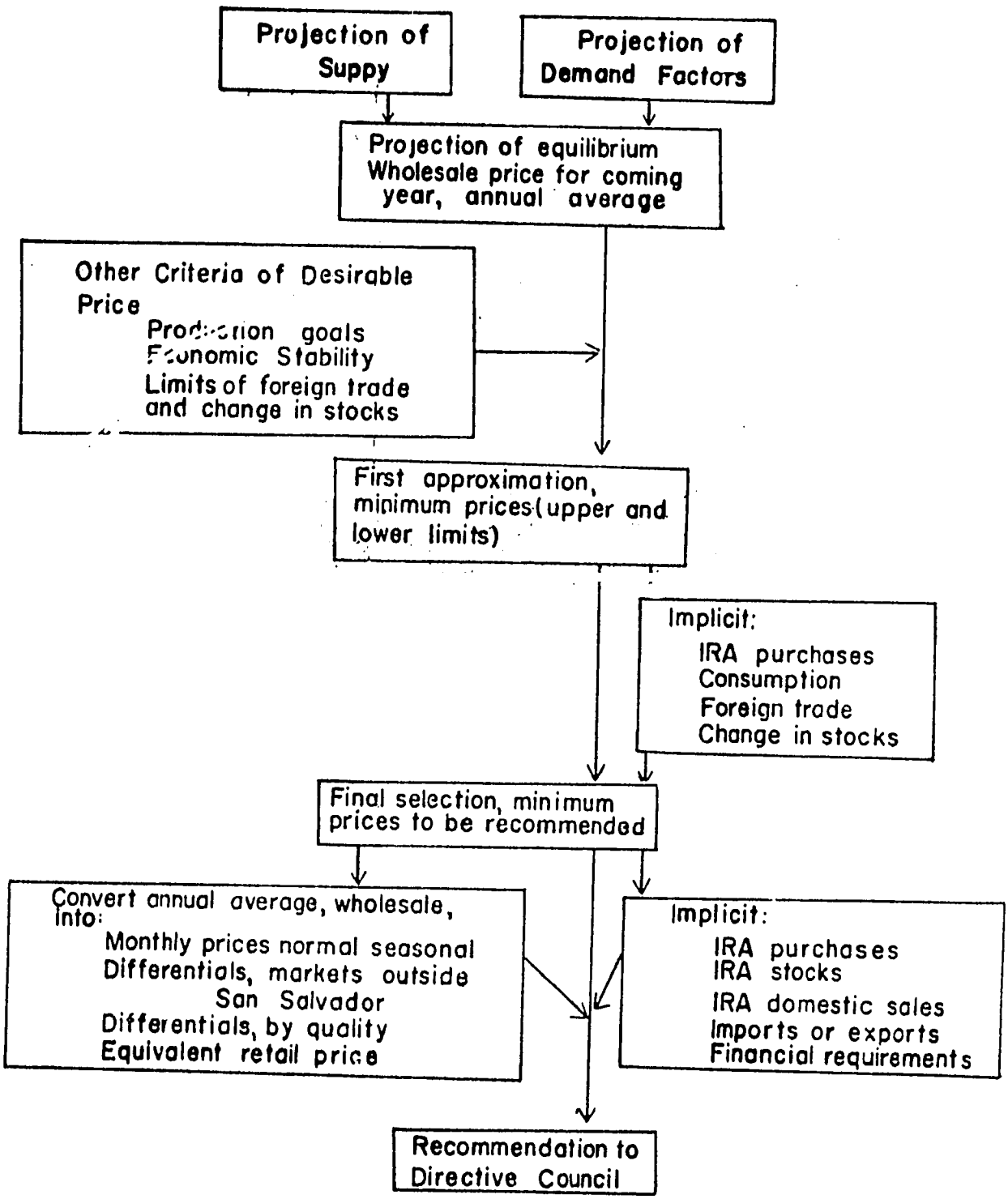
The model was developed under the assumption that IRA wished to stabilize the intra-year variation in basic grain prices around the annual average market equilibrium price in a given year. It was further assumed that IRA would buy grain at the established minimum price from anyone who offered it for sale. With these assumptions in mind the flow chart shown in Figure 2 was developed.

The keystone on which the model depends is the projection of the equilibrium wholesale price for the marketing year of the crop in question. To make this estimate, data on supply and demand factors must be compiled to formulate the model equations. On the supply side, area planted and yields must be projected. From this a quantity variable is formed which is used in the wholesale price projection equation along with such demand variables as substitute products, income, population, time, etc. Over 160 different equations for the four grains were evaluated in this portion of the model.

Having estimated the probable equilibrium price of a grain such as corn for the marketing year (October through September) 1973/74, the next step was to consider the relationship of the projected price to various possible criteria of a desirable price; as listed in the flow chart. In light of these considerations, a first approximation to the range of minimum prices to be considered was established. For 1973/74 these prices for corn were $2.90 and $3.40, respectively. They correspond to production estimates of 9.2 and 8.0 million hundredweight, respectively.

With the chosen upper and lower annual average market equilibrium prices, it was possible to estimate appropriate minimum and maximum prices and the quantities of corn that IRA might expect to purchase. If the annual average market equilibrium price were $2.90, for example, the normal seasonal variation in monthly prices would be from $2.50 in November to $3.46 in August, a range of $.96. Information about storage costs, and inferences about the effect of the element of market risk in the normal seasonal price pattern suggest that a seasonal range of $.60 might be adequate and that IRA might undertake to stabilize prices at such limits. Also, the maximum and minimum

Figure 2. FLOW CHART OF ACTIVITIES FOR DEVELOPING A MINIMUM PRICE RECOMENDATION



prices were chosen so that increased market demand at the reduced (relative to normal) year-end prices could be satisfied with the quantities purchased during the harvest season as a result of the lower disappearance induced by the higher stabilized price during the harvest period. A final point is that IRA's purchases during the harvest season would be augmented by the amount by which the private sector restricted its storage operations as a result of higher-than-normal harvest season prices, but the fixing of minimum and maximum prices would be governed by the changes in current disappearance alone. Given these considerations, appropriate prices were determined, implicit in a price flexibility of demand for corn of -.47. They were $2.65 and $3.25 respectively, in relation to the assumed market price of $2.90. With the market equilibrium price of $3.40, the maximum and minimum prices would be $3.17 and $3.77. At the most probable market equilibrium of $3.20, the range would be $2.96 to $3.56. (The market equilibrium prices of $2.90, $3.20 and $3.40 correspond, respectively, to production estimates of 9.2, 8.6, and 8.0 million hundredweight of corn.)

Estimates of the likely volume of purchases by IRA must allow for the possibility that the private trade will allow IRA to carry part of the stocks that the trade itself would carry if IRA were not maintaining a minimum price. With this in mind, and using the $3.20 equilibrium price, calculations for the 73/74 crop year showed that over 5 percent of the total crop would need to be acquired (and held for re-sale in the latter part of the production year to check price rises) in order to maintain a $.60 spread.

This 5 percent estimate, however, assumes that the production level and the market equilibrium price level projected were accurate for the 1973-74 year. Unfortunately, this is not always true. Suppose, for example, that IRA chose the $3.40 market equilibrium as its base, but that production was 9.2 million hundredweight and a $2.90 market equilibrium would have resulted. In this case, IRA would have to be prepared to purchase around 11 percent to maintain the $3.40. The analysis shows that IRA must be prepared to handle up to 19 percent of total corn marketings in a given year. In other grains, the percentage may well be higher.

The above discussion is heavily oriented to the minimum buying price and not to the upper limit. However, the estimate of this limit also serves an important purpose in price stabilization. With an equilibrium price of $3.20, the range would be $2.96 to $3.56. The $3.56 figure represents a threshold price; when the market price approaches $3.56, it is a signal for IRA to begin sales into the open market. In this way, IRA is able to control the market price at a level not to exceed $3.56.

This model is obviously a critical input into the price stabilization program envisioned by the GOES. It is a sophisticated approach to a difficult problem and tends to eliminate the "guesswork approach to prices" employed by many of the price stabilization programs in developing countries. The major constraint on any model of this type is the availability of basic, reliable data to make it operative. El Salvador will begin immediately to improve their data base in order to improve the accuracy of the projections. In the early years, given the weak data base, there will be errors. However, the errors made using the model with existing data will not approach the magnitude of error possible using methods employed by IRA in the past and by price stabilization agencies in many other countries. (See Annex IV, Exhibit H for a more technical discussion of the price model for corn).

The bulk of the above discussion has centered around corn mainly because the models for the other three grains are still in a preliminary stage and partly because corn represents more than 60 percent of the total grain production. All of the models will be in final form prior to initial disbursement of the loan.

B. Other Aspects of Pricing

Following the establishment by IRA of minimum and maximum buying prices, there are three other pricing considerations. First, the established minimum will be based on the three major cities (San Salvador, Santa Ana, and San Miguel) and will have to be adjusted in the other parts of the country for transportation. Secondly, grain to be received by IRA, regardless of location, varies in quality and makes it necessary to apply quality differentials to the minimum purchase price. Finally, there is the consideration of the potential effect on the price stabilization program of tourist grains.

1. Differentials in Buying Prices by Location

IRA recognizes that the value of grain varies depending upon its location in relation to the point of consumption. As a result, it will be necessary to establish price differentials to compensate for the transportation from the area of production to the area of consumption. Preliminary analysis shows that IRA will be able to use the same minimum buying price in the three major consumption centers: San Salvador, Santa Ana, and San Miguel. The other IRA locations will have a discounted price which reflects, basically, transportation between the buying stations and country storage facilities and the main terminal storage facilities.

Figure 3 contains a hypothetical example of how such a system would work with one section of the Santa Ana marketing area. It includes two proposed IRA country storage facilities, three IRA buying

stations (points where IRA will buy grains but will not have facilities), and the main terminal storage facility in Santa Ana. The formula developed includes both allowances for transportation and a slight extra adjustment to prevent the private sector from by-passing the intra-area facilities and moving the grain directly to another IRA location such as San Salvador.

This study is still in process and the final formula for use by IRA will be developed before the new facilities are operable. This will be part of the implementation plan required prior the first disbursement and will require additional analysis and some additional survey work which IRA is prepared to undertake.

2. Quality-Price Differentials

Quality of grain is another important factor which must be considered by IRA in establishing minimum buying prices. Grain which is damaged, contains excessive moisture, or has a high percentage of foreign material must be priced differently from high quality grain. IRA is currently using a quality premium and discount system. As an example, with corn, the buying price is established to allow 8 percent of damaged kernels. If a producer has more than 8 percent damage, he is discounted, and if he has less than 8 percent, he gets a premium. A similar procedure is used for the percentage of foreign material and moisture.

IRA plans to review carefully its system of quality pricing before the new facilities are in operation. To the extent possible, they plan to set their minimum buying price in such a fashion that most producers will get a premium to deliver high quality grains. They plan to operate in accordance with grades and standards established within the Central American Community.

3. Tourist Grains

In recent years because of greatly increased productivity of land and labor resources utilized in grain production, price levels of the basic grains have been lowered. In fact, in the case of corn, rice, and sorghum, El Salvador has had the lowest prices in Central America during the last three years. (See Table 1, Part Two, Section II) Interestly, productivity of beans has also increased, but due to shifts in demand (increased quantities demanded at the same price levels) the price of beans has remained high. Since IRA's minimum price will be established in relation to the market equilibrium price, and given El Salvador's relatively low prices within Central America, there will be little incentive for contraband grains to enter. Moreover, based on available information and data, there has been very little illegal movement of grains, including beans, in

Figure 3. Hypothetical IRA Buying Price Differential Formula 1/

	Tariff Rate to Santa Ana	Tariff Rate to Ahuachapan	Adj. Price Basis Tariff Race	IRA Buying Price
	(Dollars per hundredweight,			
Ⓣ Santa Ana	xxx	xxx	xxx	$1.20
⊗ Texistepeque	$ .04	xxx	$ 3.16	3.16 2/
⊙ Metapan	.14	xxx	3.06	3.16 2/
⊗ Candelaria	.08	xxx	3.12	3.12 2/
⊙ Ahuachapan	.12	xxx	3.08	3.12
⊗ Las Chinamas	.18	$ .06	3.02	3.08

Ⓣ Terminal Storage Facility
⊙ Country Storage Facility
⊗ Buying Station

1/ This formula is designed to recognize actual tariff rates between IRA buying stations and storage facilities. The formula however reflects a reduced tariff rates between IRA facilities to discourage the private sector from moving grain to out-of-position IRA facilities. If movement is necessary, such transfer can then be accomplished by IRA.
2/ Actual tariff rate allowed.
3/ 75% of tariff rate to Central Silo allowed (redondeo ascendente).
4/ Allowed actual tariff rate to Rural Buying Facilities plus 75 of tariff rate from Rural Facility to Central Silo.

the past several years. It is not likely that the small amounts that enter would affect price levels.

II. Location Analysis

At the present time, IRA owns storage facilities only at San Martin and Usulután. These sites are long distances from many of the production areas and it is difficult or impossible for the majority of the grain producers to deliver to them. Therefore, IRA has established a policy of decentralization of its storage facilities in order to provide more farmers with an opportunity to deliver direct to IRA buying and storage facilities. The objective of the expansion program is to locate grain storage facilities in areas where they will be utilized to the fullest extent possible and where they will benefit the largest number of producers.

A. Determination of Storage Capacity Needs[1/]

In order for IRA to stabilize prices, it must be in a position to buy or import grains during certain periods and store for later sale within the country or for export if necessary. To carry out its function, IRA must have sufficient storage space when it is needed and capital with which to buy the grains when they are offered. It presently has owned capacity sufficient to handle only 5% of the production of corn, sorghum, rice and beans as reported in the 1971 census[2/]. With rented space, it can handle 8% of the total. Much of this latter storage is inadequate and IRA is in the process of constructing an additional 4,000 MT at its Usulután plant to replace part of this rented storage. Even with this, it will own only enough capacity to store about 6% of a crop the size of that of 1971.

It is unreasonable to expect IRA to have sufficient storage for the occasional crop that would require it to store up to 20 percent of the total amount produced. In these cases, it will have to rent temporary storage or develop an active export program to

1/ The following discussion assumes a turnover rate of 1.0 per year.

2/

Owned as of May 1973	33,695 M.T.
Projected for 1973	4,000
	37,695
Rented as of May,1973	17,045
Total available in 1973	54,740 M.T.

to move the excess grains from the market. Also, increased private sector participation through marketing cooperatives can help in these years. However, it is obvious that IRA cannot carry on an adequate stabilization program with a capacity to store less than 6 percent of the total crop.

The Herrmann study showed that since 1960-61 IRA would have had to store 5 percent or more in at least half of the years. Three of these years were over 12 percent; it would have had to store as much as 19 percent in one of these years. Since these calculations were based on the assumption that IRA would have been able to predict with certainty the final market equilibrium price in any given year, the purchase levels would have been much higher if errors had occurred. The rather weak data base in El Salvador and the errors inherent in any projection procedure require that a safety margin be allowed. Applying this safety margin concept to the results of the price model, IRA must be prepared to handle at least 10-11 percent of the total volume and there will be occasional years when this will not be enough.

The study described in the remainder of this section estimated IRA's needs at 12-13% of the total crop. This estimate was independent of the Herrmann work and was made by analyzing the surplus-deficit areas of El Salvador and the flow of grains between these areas. Based on these two studies 12-13% was the figure used for this loan[3/]. Approximately 12,500 MT of the space rented by IRA is definitely sub-standard storage and should be replaced. Even after adding the 4,000 MT capacity at Usulután in 1973, IRA will need approximately 42,000 MT of new storage to fulfill its price stabilization role.

B. Determination of Storage Capacity Location.

The proper location of these grain storage facilities requires a rather detailed knowledge of the production and consumption of the various grains in an area. Global data are of little use since they do nothing to pinpoint location. Data on a departmental basis are better, but they also do not point out potential surplus/deficit areas within the department. Since some of the departments are rather large, or perhaps divided by a mountain or volcano, data on a departmental basis can be misleading. Departments are divided into municipios and these in turn into cantones. Data at the

3/ This estimate is consistent with and, in many cases, lower than similar estimates made by Kansas State University and the USDA in other developing countries. In fact, Kansas State recommended 20 percent for El Salvador.

smallest geographic level (the canton) would be ideal, but these are not available. Therefore, the analysis was made at the municipio level. (See Annex IV, Exhibit I).

The tabulation of the 1971 Census on a municipio basis has not been completed. However, preliminary production data on a Departmental level is available and this was used along with the 1961 Census of Agriculture as a basis for extrapolating production data on a municipio basis for 1971. This was done by taking a percentage that each municipio was of the total production of corn, sorghum, rice and beans, in each department. Then the percentage that each municipio was of total production in 1961 was applied to the preliminary production reported for each department in 1971. This gave an estimated production by municipios for 1974. (When the Census data are released in July or August, 1973, the actual data can be used to up-date the analysis. However, it is felt that the general magnitudes of production in each municipio are essentially correct.)

Since data on home consumption and sales were essential to obtaining a production/consumption balance, a survey of farms in each department was initiated. Approximately 1,000 farmers were interviewed. In addition, the Centro Internacional de Mejoramiento de Máíz y Trigo (CIMMYT) made available certain data from a survey made in early 1973 of 350 farms. These data were used for comparison purposes.

The determination of the surplus or deficit status requires a somewhat different approach for each grain. The balance for corn was determined as follows: the production based on the 1971 Census, was established for each municipio in a department. Then, based on the IRA survey in that department, the percentages of corn consumed on the farm and that which was sold were determined. The per capita consumption of corn in rural areas was estimated using both the farm interview and the CIMMYT study. Consumption in urban areas was based upon a limited number of studies made in Salvadoran cities. The consumption of corn in large metropolitan areas such as San Salvador, Santa Ana, and San Miguel was found to be lower on a per capital basis than for other urban areas. The total rural and urban consumption was then subtracted from the total production in the municipio to obtain a surplus or deficit figure. If the municipio had a surplus of corn, it would have to look to surrounding municipios for markets or move this grain into deficit areas much farther away.. The amount of corn moving into commercial channels was also determined. Even if it is ultimately consumed in the area in which it was produced, it must be adequately stored for later sale.

Sorghum presented a different problem in that only a small amount is used for human consumption, even in the areas where it is produced (only 6% for El Salvador as a whole). However, large amounts are consumed by animals produced on the farms where it is grown (ranging from 70% of the sorghum produced in Morazán to 20% in San Salvador). Therefore, consumption at the farm level took into account the small amounts consumed as food and for seed, as well as the large amounts consumed by animals. Since the farmers interviewed purchased very little sorghum, it was considered that most of the sorghum moving into commercial channels was purchased for eventual use by manufacturers of livestock feeds. The poultry industry is the main user of these concentrates and commercial production is centered around the larger cities. Therefore, it is felt that a good portion of the surplus sorghum moves to those areas where feed manufacturing facilities are located.

Rice is another special case since it must be milled before it can be used for human food. A small amount of crude milling can be done at the farm level and this sometimes occurs in areas which do not have rice mills nearby. However, up to 95% of the rice produced enters commercial channels, first for sale to the rice millers as "arroz en granza", and then for sale to consumers as "arroz en oro" (milled rice). For our purposes, we have calculated all rice in terms of arroz en granza. We estimated per capita consumption in both rural and urban areas and then calculated balances based on the production per municipio. Each municipio must be evaluated separately to see how far rice must travel before it reaches a rice mill. Some of this must then return to the municipio for consumption. The MAG made available a list of all known rice mills in the country and these were used to determine how far rice might travel for milling.

Beans are similar to corn in that large quantities are consumed on the farms where they are produced. All are used for human food and no processing is required. Since El Salvador consumes more beans than it produces, a large number of the municipios in the country are deficit producers. This is especially true in the eastern part of the country. Therefore, IRA's role will be to assist in the movement of beans from surplus areas of ports of entry to the areas where production is short.

Data were also obtained on on-farm storage facilities. This information, plus a knowledge of storage facilities in the areas studied (e.g., Banco Hipotecario in San Miguel and IRA in Usulután), assisted in determining the amount of new storage required.

There were two objectives in the locations of IRA's grain storage facilities: (1) to provide adequate storage in areas where such storage did not exist and, (2) to provide farmers a place to sell their grains at prices established by IRA in its program to stabilize prices to producers. These two objectives require a sort of balancing act in that it is obviously not economically feasible to put grain storage facilities in every location needing them, nor is it possible for IRA to provide a location that every farmer can reach. Therefore, one has to consider whether a location receives sufficient grain from an area to justify a storage site of sufficient capacity to be operated economically. One also has to consider, especially, that IRA will not buy all the grain moving from an area; most likely it will buy less than 20%. Finally, one has to consider the effect that IRA's buying price will have on prices received by producers in the area. Some producers, of course, will be close enough to the buying station to sell directly; others will have to hire transportation or sell to someone who will deliver to the IRA facility or to some market beyond this facility. At any rate, the existence of a grain storage facility in an area would effectively support prices, providing IRA is willing to buy all the grain offered to it at a base price.

Annex IV, Exhibit I contains the details on how each location for new storage facilities was determined. However, a brief description of the method used in the Department of San Miguel is given as an example.

San Miguel produced approximately 71,500 M.T. of cereals in 1971. Approximately 27,000 M.T. were consumed on the farms on which they were produced, leaving a balance of 44,500 M.T. moving into commercial channels. However, a consumption/production analysis showed that only 18,000 M.T. were surplus to the needs of the Department. A surplus production of 4,000 M.T. of corn in the northern part of the Department had to move south towards the City of San Miguel. Since the roads from this northern area converge on Ciudad Barrios, a town that could be used for a storage facility, this was a logical site for this area. Ciudad Barrios is 40 kms. from San Miguel and would serve to relieve the pressure of grain moving to the larger storage facility to be located there, especially during harvest time when transportation is short. It also will bring IRA facilities 40 kms. closer to a large number of producers. A facility of 1,520 M.T. capacity

would enable IRA handle 20 percent of the surplus grain moving from the areas. If this capacity proved to be inadequate, it would be easily expanded to 2,150 M.T., giving IRA capcity to handle about 30 percent of the surplus of the area.

The City of San Miguel is the potential receiving point for about 20,000 M.T. of corn, sorghum, and rice. It also serves as a distributing point for some 4,000 M.T. of beans that are brought in from other areas. Because of its key position, it is proposed that a rather sophisticated storage facility, having special dryers and cleaners, bagging equipment, etc. be located there. The minimum economic size for such a unit is 3,450 M.T. of storage in silos. Two 315 M.T. in-floor drying silos were added to give more flexibility in drying grains, plus being available for storing red and black beans in bulk. Because of the large amount of distribution that will be required, a 1,000 M.T. warehouse is included. This gives a facility of 5,080 M.T. capacity which is enough to handle about one-fourth of the surplus production in the area contiguous to the city. This capacity can easily be expanded to 6,180 M.T. by adding storage tanks. This capacity, along with that located at Ciudad Barrios, would enable IRA to handle 15 percent of the grains moving into commercial channels in the Department, plus up to 4,000 M.T. of beans and 2,500 M.T. of rice that would be distributed in the eastern zone.

Once a tentative site is located, it must conform to certain basic requirements with respect to living conditions for the personnel who will work in it, accessiblity by trucks, adequate and reliable electricity, sufficient land area, proper drainage, etc.

It should be pointed out that the program proposed here contains safeguards against the possibility of IRA over-investing in grain storage facilities. Every effort has been made to properly locate facilities with respect to present and future needs. We have also designed facilities that are expandable (or removable, if they are not used). For example, 1,520 M.T. facility can easily be expanded to 2,150 M.T. by the addition of storage tanks in areas that have been planned for such expansion. The larger, more sophisticated facilities of 5,080 M.T. can be expanded to 6,180 M.T. or larger in the same manner.3/ Since the percentage of grain in an area that IRA will buy is not known, we have planned a storage program in stages, beginning with the minimum economic capacity in the first stage and moving to larger capacities as the need in each area is demonstrated and as IRA develops its capability to handle such

3/ The unit in Santa Ana will have two additional 315 M.T. silos to handle the large volume of red and black beans in the area.

units. It should be pointed out that this program will not result in higher costs later since the new storage capacities will only require investment in the new silos. The land area, office, warehouse and management will remain the same.

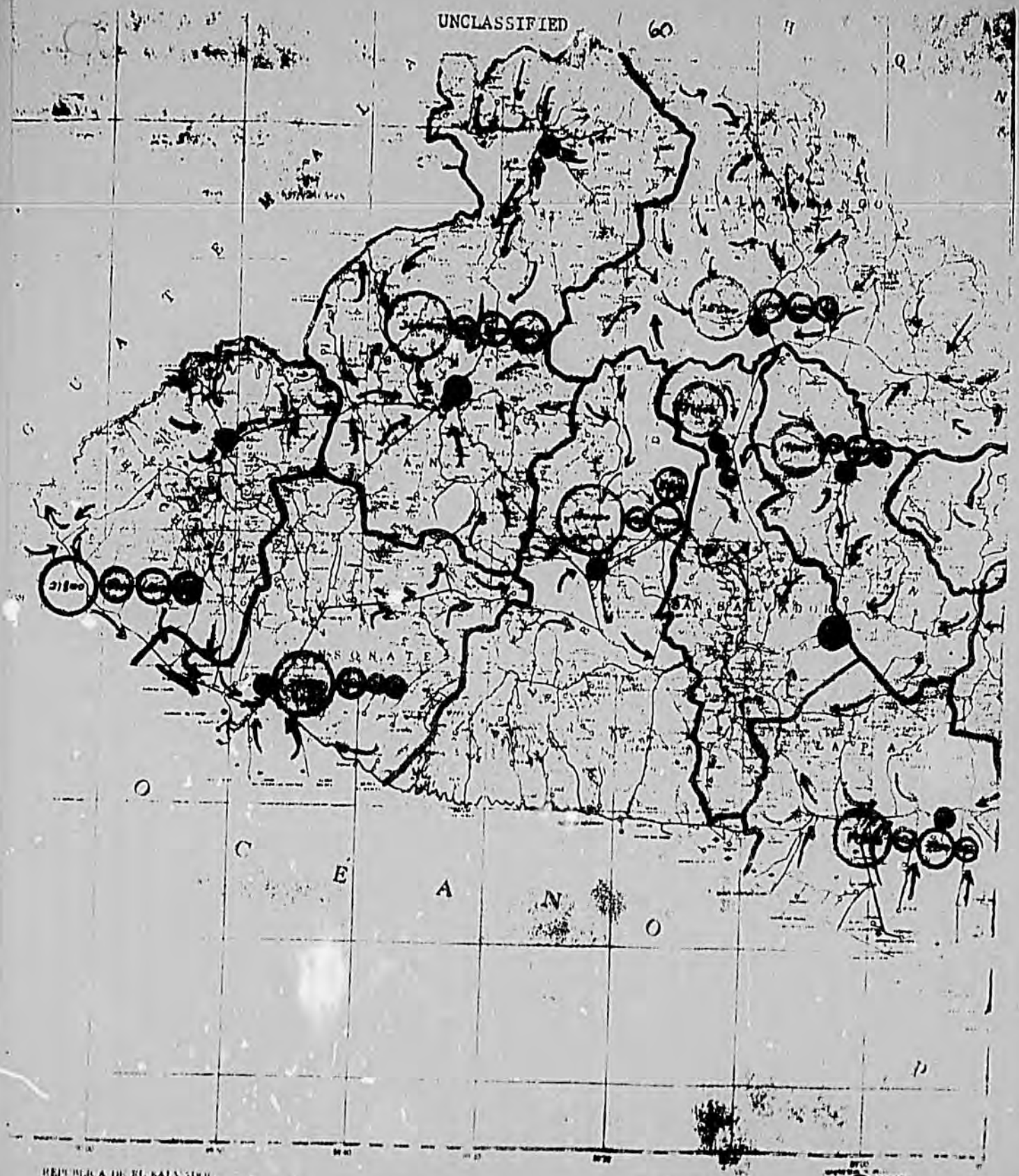
The sites selected and the capacities of each are shown below for stages I and II (See map on following pages for locations within El Salvador). For a detailed discussion of the selection of sites in each department, refer to Annex IV, Exhibit I.

	Capacity (M.T.)		
	Silo	Warehouse	Total
	Stage I		
Santa Ana	4710	1000	5710
San Miguel 1/	4080	1000	5080
Ahuachapán	1260	260	1520
Ciudad Barrios	1260	260	1520
Mercedes Umaña	1260	260	1520
Metapán	1890	260	2150
San José del Cañar	1890	260	2150
Santa Rosa de Lima	1260	260	1520
San Vicente (C. Panamericana)	1260	260	1520
Sensuntepeque	1890	260	2150
Sitio del Niño	1890	260	2150
Sonsonate (KM. 12)	1890	260	2150
Suchitoto	1260	260	1520
Zacatecoluca	1890	260	2150
Sub-Total	27,690	5,120	32,810
	Stage II		
Sub-Total 1/	8,500	520	9,020
Total	36,190	5,640	41,830

C. IRA Transportation Needs

Following the establishment of the new sites and the determination of the capacities needed at each of these sites, the

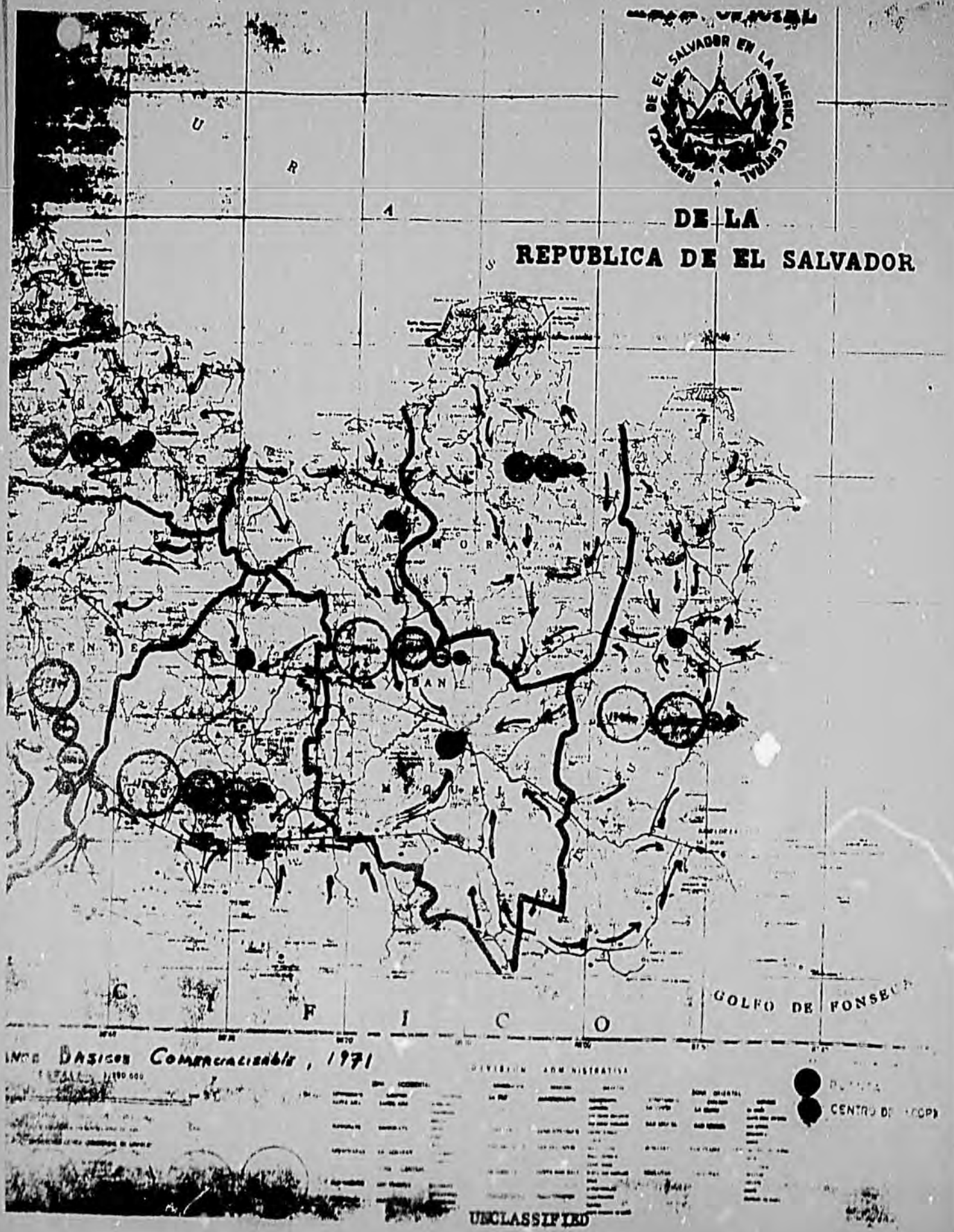
1/ This facility of 5080 MT and its expansion by 1100 M.T. in Stage II are included for purposes of illustration but will not be financed by this loan. They will be financed by CABEI under a loan already authorized to El Salvador



REPUBLICA DE EL SALVADOR

INISTERIO DE OBRAS PUBLICAS

INSTITUTO GEOGRAFICO NACIONAL



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final consideration is the needs of IRA for transportation to make the system operate efficiently. The first general conclusion is that IRA will, due to the seasonal nature of this operation be able to utilize private trucks on a rental basis or contract hauling to the extent feasible. This narrows the job to one of determining IRA's minimum ownership needs.

It has been determined that IRA will need a minimum of 16-6 ton trucks, one of which will be located at each facility. Since each facility will serve as a base for several buying stations (assembly points without facilities), this number represents a minimum to assure continued operation. This system will allow IRA to service more remote areas where a facility cannot be justified. Each of these trucks will be equipped with portable equipment for determining quality and weight of the grain.

A second transportation requirement is to provide a light pick-up truck for the manager of each facility or a total of 16 trucks. The manager of each facility will have the responsibility of furnishing to the central office information on prices, crop conditions, etc. This will require that he have mobility. He will, in addition, have other routine duties which will require mobility, such as banking operations, etc.

It has also been determined essential to provide each of the four terminal storage facilities with a 15 ton truck for use in transfering grains between IRA facilities. This can be especially critical during harvest when IRA may have difficulty renting vehicles.

Finally, there is a need for three additional vehicles. One will be a small panel truck for the Quality and Conservation Technician who will be responsible for quality control inspections and inventory checks at all IRA facilities. Another will be an enclosed van truck for the master mechanic who will be on call by all facilities to make on-site repairs. Finally, a vehicle will be provided for the Manager of Operations to make field visits.

A summary of the total vehicle needs and the time period in which they will be needed follows:

Type of Vehicle	Number needed for Existing Operation	Cost	Number needed for new Facilities	Cost
6 ton truck	2	$ 30,000	14	$ 210,000
15 ton truck	2	50,000	2	50,000
Pickup truck	2	8,000	14	56,000
Panel truck			1	7,000
Van truck			1	9,000
Personnel vehicle			1	5,000
TOTAL	-	$ 88,000	-	$ 337,000

III. Facility design and related items

A. General

The following sections discuss, in general terms, site requirements and alternatives for grain drying.

1. Site Requirements.

Each site selected by IRA must have potable water, 220 Volt, 3 phase, 60hz electric power, proper drainage, no swamps, landslides or unforeseeable natural hazards, and no large rocks or undulations that would not allow for economical leveling and compaction to 90 percent. There must be sufficient area for expansion and proximity to a market road. Because of grain dust, rodents, fumigation and noise, the larger sites at Santa Ana and San Miguel should be three kilometers outside the city and the country buying sites should be at least one kilometer from a commercial or residential area.

With respect to the silos, metal silos must be treated with sufficient zinc to prevent rust. Wood must be treated for resistance to rot and termites. Concrete will be the same used in standard construction work and will be reinforced and vibrated. Driveways on site may be gravel, fine crushed rock, or asphalt pavement. There must be an adequate water supply.

Although the capacity may vary, the design of facilities is such that all silos have the same diameter and construction. They should all be purchased from the same manufacturer for consistency in construction and interchange of parts. The purchase of all augers and cleaners must be from the same manufacturer to allow for interchange, ease of erection, and most importantly, to allow for uniform spare parts inventory. A variety of makes would require stockpiling many duplicate repair parts.

It is possible that all equipment can be itemized in one bid which will allow one contractor or bidder to purchase and ship all equipment. Large savings may be realized because of bidders ability to make bulk purchases and ship all equipment in large containers which saves the cost of expensive crating.

2. Grain drying considerations.

This explanation of grain drying and storage is made to establish the reasons for selecting a certain system for specific locations.

There are two basic types of drying techniques for grains:

No. 1 In-Bin Drying

No. 2 Auxiliary or exterior dryer (Batch or Continuous)

Each type has certain advantages and disadvantages and a recommendation cannot be made stating one system has overall superiority. Capacity, ultimate use of grains or dried commodities, ambient air temperature, and the rate or speed of moisture removal without damage from a kernel dictates the type of system and equipment that may be needed.

All systems use the same principle of fuel combustion with a high volume of air to carry moisture from the grain. The drying temperature and movement of air around a kernel affect the rate of moisture removal; therefore, air flow and heat and drying time must be in balance for the desired results.

The type of fuel used is determined by the availability and cost per B.T.U. A natural vapor gas or a liquified vapor gas is superior to the extent that it has oxidation with no smoke or odor and complete oxidation is not difficult. At present, electricity has not been accepted as a heat source because of the high B.T.U. requirement.

If large volumes of grains are not involved and if there is no need to make continuous exchanges of dry grain, the in-bin or bin drying is excellent and economical since the same facility is used for drying and storing grain with the addition of an elevated perforated floor in the bin and a combination heat and fan unit of the correct size for the volume of grain to be dried at ambient temperatures. This system has an advantage in

that some grains for example, rice and beans, must be dried slowly using low heat to prevent stress crack in kernels which occurs when moisture is rapidly removed. The fan unit can be used for "aeration" as needed without purchasing additional aeration units. The fan can also be used to fumigate grain by timing the air movement through the grain. Bin drying can be utilized in drying from depths of one inch to 16 feet, but extreme care with the correct heat and air movement must be used on depths of grain above six feet since the lower section can be dehydrated while the upper section develops molds due to moisture saturation from the lower levels.

The method in auxiliary drying is accomplished by using specially designed "bins" with equal grain depths surrounding a heated air chamber. The grain is heated by hot air movement through the grain which rapidly removes moisture and the grain then cooled to ambient air using the fan unit without heat. Dryers of this type are made in a variety of sizes or capacities to meet specific requirements.

More expensive, but more versatile, is the continuous flow automatic dryer that continually accepts wet grain which is dryed by heated air, but cooled by a separate fan contained within the same unit. The rate of drying is dependent upon the B.T.U. of heat used and the amount of air movement through the grain. The desired "rate" in the speed of drying is adjustable to prevent grain damage. Because of the flexibility in capacity, the continuous flow dryer is used for terminal grain drying. The disadvantage of the external dryers is the need to have sufficient quantities of the same grade of grain to completely fill a dryer since they cannot operate partially filled as in the case of a bin-drying technique.

In El Salvador, at the proposed buying stations, it has been determined that a variety of grains will be received, possibly in small quantities that would not be sufficient to fill even a small auxiliary dryer. At small buying stations, it is advisable that drying bins be used in certain locations because of the dual drying and storing capabilities without the need for moving the grain after drying.

Any grain to be stored with ambient air of 80 degrees Fahrenheit and high humidity should be first dried to 12 percent grain moisture.

Low, flat grain storage facilities equipped with adequate aeration are the cheapest of all types of facilities if it is

not required that facilities be constantly filled and emptied. This type includes round bins or rectangular buildings. The low profile facilities prevent grain losses since grains are not dropped a great distance. The low grain depth allows for more air movement with greater air saturation around each kernel.

The needs of an area determine the type of facilities. Flow volumes, movement rate, and the need for cleaning, bagging or processing affect the initial capital cost and handling cost.

Storage or grain handling facilities can be placed in three categories:

1) Low turnover (1.0 per year) storage as objective. Low cost and expandable. One M.T. to unlimited if space is available. Flat (rectangular building) or bin storage. Less than thirty foot height. Filled and emptied by portable augers or conveyors. In-bin or auxiliary drying with aeration.

2) High turnover (2.0 per year). Objective: Storage and handling, bagging and semi-terminal. Expandable 2500 M.T. to 8000 M.T. Steel bins, twenty to forty foot diameter from thirty to sixty feet extreme foof height. Equipped with receiving pits or rapid unloading. Elevators, conveyors over and under bins, permanent cleaners, bagging facilities or other processing as required. Possible to use a combination of in-bin or auxiliary drying with aeration.

3) High turnover (4.0 per year) Objective: Speed in grain handling, large capacity, terminal type.
8000 M.T. to Unlimited. Concrete silos, slip form construction twenty foot bin diameter, 100 ft. height, equipped with large belt conveyors for rapid movement of grain. (Drying grain in 100 foot height silos cracks the grain which is objectional when grain is used for human consumption. Difficult to use for beans or rice) Internal scales, cleaners, scalpers as needed. Continuous flow dryers as required and aeration.

B. Country Buying and Storage Facilities.

All country buying and storage facilities will use the in-bin drying system. This allows for complete versatility in accepting different types of commodities. Portable augers will be used for filling the silos and the dryers will be portable also. This equipment can be moved to other locations if urgently needed.

Propane fuel will be used. Although the cost per 100,000

B.T.U.'s is 14 cents higher than the cost of diesel fuel, the convenience, lack of maintenance, and the reduced danger of contamination, offset the higher cost. Storage tanks for propane are provided by the supplier.

The country buying and storage facilities will have radio communication with the terminal facilities and the Central office. This will permit the rapid movement of grain when needed and will also enable the country facility to obtain assistance in case repairs are needed. A stockpile of repair and replacement parts will be maintained at the existing San Martín facility.

The country buying and storage facilities will be of two sizes: one will have 1260 MT of silo capacity and 260 MT of bag storage space for a total capacity of 1520 MT. A second will be identical to the first, but will have two additional 315 MT silos which will give it 1890 MT of silo capacity and 260 MT of bag capacity. The number of each size of facility is shown below: (See Annex V, Exhibits A and B for the details on the country buying and storage facilities).

No. of Units	Capacity per Unit (MT)	Total Capacity (MT)	Total Cost $ U.S.
	Stage I		
6*	1520	9120	$ 600,000
6	2150	12900	780,000
	Stage II		
2	1520	3040	200,000
6	630	3780	180,000
	Total	18849	$ 1,760,000

* Expansion in Stage II

C. Terminal Storage and Buying Facilities (Santa Ana and San Miguel)

The study made by IRA indicates the need for greater storage capacity and faster handling capabilities at both Santa Ana and San Miguel. These two facilities will have drying silos in addition to continuous dryers. Beans and rice will be stored in low profile in-bin drying silos, but these can give back-up drying capcity for other grains in necessary. The sizes for these two facilities and the cost for Santa Ana are shown below: (See Annex V, Exhibits C and D for details on Santa Ana and San Miguel facilities).

Plant	Capacity (M.T.)	Total Cost $ U.S.
	Stage I	
Santa Ana	5710	$ 479,000
San Miguel 1/	5080	---
	Stage II	
Santa Ana	1100	39,000
San Miguel 1/	1100	--

D. Existing Grain Storage and Grain Drying Facilities in IRA

IRA has grain buying and drying facilities at two locations. Both facilities require alterations to allow them to receive grain in bulk. Both facilities have been reviewed and a report issued.2/ Since some of the alterations are urgent, they will be handled in IRA's present budget. The overall cost of these alterations to be included in the loan are as follows: (See Annex V, Exhibit E for details).

Plant	Total Cost of Alterations U.S.$
San Martin	$ 106,000
Usulután	53,000
	$ 159,000

E. Other Related Items

In cases of equipment failure, IRA will have to make rapid, on-site repairs. To do this, IRA will need to maintain a mobile repair vehicle with a trained mechanic and an inventory of spare parts. (See Annex V, Exhibits F and G for details).

In addition to a maintenance capability, IRA will operate a quality control system. A trained specialist will travel from one facility to another and be responsible for quality of grains and inventory control. (See Annex V, Exhibit H for details).

1/ This facility of 5080 MT and its expansion by 1100 M.T. in Stage II are included for purposes of illustration but will not be financed by this loan. It will be financed by CABEI under a loan already authorized to El Salvador. (See Annex V, Exhibit K)

2/ Stryker, H.B. Evaluation of Facilities for Handling and Storing Grains. FDD Field Report 30, ERS/USDA, Washington, D.C., November, 1972.

The trucks traveling from the country buying and storage facilities to buying points will need to be equipped to test and weigh at the point of purchase. (See Annex V, Exhibit I for details of the items needed).

An adequate communication system is of first importance to IRA. Since telephone service in rural areas does not exist, or is unreliable, a radio system is included in the loan proposal (See Annex V, Exhibit J for details).

Item	Cost $ U.S.
Equipment for master mechanic	3,300
Replacement parts	19,000
Quality control	2,300
Country buyers equipment	10,000
Communication system	59,000
Total	$ 93,600

F. Engineering Conclusions

1. Monitoring of Engineering and Construction

All monitoring will be carried out by the Mission's General Engineer in coordination with the Regional Engineering Office.

All plans, specifications and contracts related to construction and procurement of equipment will be subject to A.I.D. approval prior to disbursement against the contracts under the loan. Notice of all proposed construction will be advertised in the U.S. Commerce Business Daily in accordance with normal A.I.D. procedures.

Construction material and trained construction workers are readily available throughout El Salvador and the construction of the IRA facilities poses no problem from this standpoint.

2. Facility and Maintenance

The IRA has an ongoing maintenance program which has been

adequate for the existing operation. For the expanded operation, the IRA will have to have a larger maintenance program and this is provided for in the loan.

The IRA administration will continue the same kind of maintenance program with the expanded facilities using budgeted funds.

3. Summary

The requirements for preliminary plans and reasonable cost estimates have been met. The final plans, specifications and contract documents will be prepared under an A.I.D. approved contract. A Mission review of the background and experience of a number of Salvadoran architectural firms indicates that they are qualified to complete final design and supervise construction of the project.

A comparison has been made of the construction costs estimated under this project (unitary costs) with similar construction work undertaken in past A.I.D. loan projects and with present unit costs used in the Salvadoran construction industry. This analysis has indicated the easonableness of the cost estimates presented herein.

IV. Financial Analysis

A. Financial Profile - IRA

During the intensive review a comprehensive financial analysis was made of IRA with the TDY assistance of ROCAP controller personnel. It was noted during their review that financial statements could be made more responsive to managements needs for operating information. Before loan disbursements are made for investments in new facilities or for working capital, an improved cost accounting system will be installed in IRA. Loan-financed technical assistance will be made available for this purpose.

1. Balance Sheets

The Balance Sheets for the years 1969 through 1972, as adjusted and restated for more meaningful presentation, are attached as Annex III, Exhibit A. In IRA's own unadjusted statements, losses are carried as assets. In addition, some losses have

been erased from the account balances entirely when reimbursements, (additional capital) were received from the GOES. These practices distort both the total assets and the equity section of the Balance Sheet. For this analysis the equity section was reconstructed back to and including 1960 operating losses. Keeping in mind that equity does not include operating results prior to 1960 and that other portions of operating results may have been erased by miscellaneous GOES reimbursements, comments relative to Exhibit A are as follows:

1) At least $ 4,215,000 has been lost in operations from 1960 to 1972.

2) The low grain inventory on 12-31-70 is a result of larger than usual sales during that year. On the inventory records on 12-31-72, about 2 percent of the inventory is listed as damaged or otherwise unusable grain.

3) It is interesting to note that total assets were 2.4 times GOES contributed capital in 1969 and that this gradually decreased to about a one-to-one ratio in 1972. The decrease was a result of heavy losses and a shift from debt to equity financing. Debt amounted to 106 percent of total assets in 1969 and only 71 percent in 1972. Total assets decreased about 12 percent over the period. The debt shift is attributable to reductions in the accounts payable for grain (less corn was purchased in 1972) and the interest payable to the Central Bank. The Bank's position remained about the same. In 1972 there was $1.57 of available assets for every dollar loaned by the Bank. In 1969, the figure was $1.55. The GOES, however, saw $2.39 in assets for every dollar contributed in 1969 decrease to only $0.95 per contributed capital dollar in 1972 (remembering, again, that capital contribution figures are probably not complete).

4) It is not possible to construct a Source and Applications of Funds Statement from Exhibit A alone. The following analysis was made utilizing additional, unverified data from IRA.

Years 1970 to 1972

	000's of $	%
Source of Funds -		
GOES Subsidies	$ 4,594	77 %
Net Decrease - Inventory	17	1
Net Cash Decrease	248	4
Treasury Loan	140	2
Other	936	16
	$ 5,935	100 %
Application of Funds -		
Operating Losses	$ 2,916	49 %
Net Decrease, Accts. Pay./Grain	1,623	27
Net Decrease, L-T Debt	502	9
Other	894	15
	$ 5,935	100%

From this analysis we can see that 77 percent of IRA's funds, from 1970 to 1972, came from GOES subsidies and that 49 percent of the total funds applied went into operating losses. Another 27 plus 9 percent of the funds applied contributed to the already mentioned debt to equity shift.

5) The revised financial statements yield a different and much more definitive picture of the Institute's present financial situation and could be of assistance to management.

2. Profit/ (Loss) Statements -

Profit/ (Loss) Statements for the years 1969-1972, as adjusted for the analysis, are presented in Annex III, Exhibit B.

a) The volume of operations (buying and selling grains), has fluctuated considerably during the four-year period but administrative expenses and most operating expenses have remained relatively constant. If we exclude the directly variable expenses of packing, freight, export and "other" from operating expenses and, if we exclude the extraordinary portion of the 1971 depreciation from administrative expense, the balances of expenses are-

	000's of $			
	1969	1970	1971	1972
Operations	$ 655	$ 695	$ 590	$ 570
Administration	245	245	245	205
	$ 900	$ 940	$ 835	$ 775

The difference between 1970 and 1971 operations is primarily interest on borrowed funds prior to receiving the large 1971 GOES reimbursement. The 1972 decrease in administration is accounted for by depreciation: - a bookkeeping difference.

b) The conclusion to be drawn from the above is that, excluding packing, freight, direct export and certain "other" export related expenses, the cost of operations and of administration is generally "fixed" relative to the quantities of grain bought and sold. The excluded expenses could be expected to vary directly with volumes of grain handled during the year and/or with the amounts of grain, exported. The fact that their relationship does appear in Exhibit B is probably due to bookkeeping procedures. Other income also appears to be entirely independent of buying and selling volumes. The largest single item is inventory gain (loss). The size of this gain (loss) appears large but may be reasonable for this type of operation. As a percent of the cost of sales, the inventory gain (loss) has been (1.85) percent in 1969, + 1.84 percent in 1970, + 2.56% in 1971 and 2.92 percent in 1972.

c) Utilizing the "fixed" vs. variable breakdown presented in No. 1 above, a percentage analysis of "fixed" expenses can be made as follows:

	1971		1972	
	Amt.	%	Amt.	%
Fixed Expenses-				
Salaries	$ 458	55	$ 463	60 %
Interest	73	9	85	11
Depreciation	104	12	50	6
Maintenance	49	6	33	4
Rent	36	4	35	5
Utilities	22	3	17	2
Advertising	24	3	11	1
Insurance	14	2	23	3
Supplies	18	2	11	1
Other	37	4	47	7
	$ 835	100%	$ 775	100%
Salaries are broken down between -				
Operations	$ 362	79%	$ 346	75%
Administration	96	21	117	25
	$ 458	100 %	$ 463	100%

In summary, the accounting data do not present a complete financial picture. Unfortunately, a more comprehensive analysis cannot be completed until they are improved. One of the conditions of this loan will be theinstallment of a new cost-accounting system prior to disbursement for physical facilities or working capital. The data presented, in general do confirm what has been said throughout this paper. First, a substantial portion of IRA's funds (49 percent, 1970-72) have been applied to operating losses. These losses have been incurred because of inaccurate projections of prices or the establishment of unrealistic stabilization levels. Sales prices have not been sufficient to offset the high stabilization prices. Also operating losses have been incurred because of inefficiencies in handling grain and physical damage and inventory shrinkage atttributable to obsolete storage facilities. Secondly, fixed costs have been high per unit of grain handled. This problem has been a result of high salary costs and heavy interest payments on working capital and other debt. In general IRA has not operated efficiently.

This loan supported program will help correct existing deficiencies. More analytical competency will be established in IRA; modern storage facilities and handling equipment will be installed; and, administrative, operational and technical people will be trained such that the total organization, may operate more efficiently. Finally, fixed costs per unit of product will decline as IRA will have access to its own interest-free working capital. Also salaries and other fixed costs will be spread over a substantially larger volume of product.

3. Profitability of Operations

Depending largely upon which depreciation figure is used, IRA has incurred "fixed" expenses of some $775,000 in 1972. We calculate that 85.5 per cent or $662,600 of this total is attributable to grain operations. The remainder can be charged to other IRA operations in commodities such as salt, sugar and dried milk. To reach financial self-sufficiency it would be necessary for the buying and selling margin to cover this amount (which we assume will be the annual average) plus whatever additional variable expenses might be incurred for freight, packing and export activities. In the following analysis these forecasts are made based on different sets of assumptions.

a) Projected Revenue Status

Table I contains a projected cash flow statement for IRA for the next ten year period. Loan amortization costs are not included, on the premise that this program benefits the total society and society should pay its costs. The projection shows a positive net return of $365,676. This figure was derived by making the assumption that grain production would increase by 4 per cent per year which would result in the average IRA purchase levels shown in column 2. Assuming that IRA will maintain a spread of $13.23 per metric ton, the gross revenue was calculated from this figure; total fixed and operating costs were deducted which resulted in the net revenue figures shown in the final column.

It may appear that the net revenue for the 10 year period is rather small. It should be pointed out that IRA or any price stabilization agency is not, by nature, designed to be profitable. If profit were the goal, IRA would only have to increase the $13.23 spread to increase profits. This would be easy in El Salvador where spreads are normally much greater than $13.23. However, this would defeat the

purpose of the agency. IRA's major impact is not on its profit and loss statement, but in its effect on the incomes of small and medium grain producers and grain consumers. (See Part Three, Section IV).

B. Administration of the Working Capital Fund

The Banco Central de Reserva de El Salvador (BCR) and the National Government's regular budget have been IRA's major source of working capital in the past. At the request of the Government, a line of credit has been set-up in the Bank and made available to IRA for its purchasing operations. This line of credit, it should be emphasized, has not been a revolving fund automatically available to IRA on demand; rather it has been a simple commitment by the BCR that funds would be provided to IRA on an annual basis. The amount of funds, the terms under which they would be granted and the time schedule for disbursement have been decided by the lending institution. The other major source of capital has been the budgetary support provided by the National Government. IRA's organic law provides for "adequate capital resources and subsidies for operating costs and losses."

In accordance with this legislation, budgetary support was provided on a regular basis and actually reached $2.5 million in 1959. But starting in 1960 these subsidies were reduced and were not made available when needed. As a result, IRA ran into serious cash-flow problems (see previous Financial Analysis Section). The problem continued to grow worse and by the late 1960s the BCR reduced the ceiling on its line of credit. In 1970 the Government provided $2.8 million in order to allow IRA to expand its purchase-sales program, but this amount coupled with the BCR line of credit was still insufficient to affect market conditions. Almost since the beginning of its operations, IRA has been plagued with such problems. It has lacked sufficient working capital for its purchasing operations and has not been able to obtain funds on a regular basis when needed.

This loan will establish a permanent working capital revolving fund to be used by IRA for the purchase of corn, beans, rice and sorghum. The fund will not be utilized for procurement of other commodities by IRA. Based on recommendations from the price analysis group, the Director of IRA will recommend to the Board of Directors the amount of grain that will be purchased in a given year and the price at which it will be secured. The Board will thus have the final responsibility for deciding how much of the Fund will be drawn down in a given year. IRA's Director will have the authority, however, to act for the Board once a decision has been made.

It was argued earlier that IRA would need to purchase on the average of 13 per cent of total grain production per annum to hold the intra-year price spread around $.60. Recall this estimate was derived on the one hand, from the price analysis and, on the other, from the field survey to determine the surplus/deficit situation in each major area of the country.

Table I. -- Ten-year Projection of IRA Net Revenue

	Existing Facilities (metric tons)	IRA Purchases and Rental Operation 1/	Gross Revenue Assuming an IRA Spread of $13.23 per metric ton 2/	Total IRA Fixed and Operating Costs 2/	N e t Revenue
1974-75	54,740	60,000	$ 793,800	$ 662,625	$ 131,175
1975-76	75,050	71,298	943,273	976,925	- 33,652
1976-77	75,050	71,298	943,273	976,925	- 33,652
1977-78	84,070	79,867	1,056,640	1,013,525	43,115
1978-79	84,070	79,867	1,056,640	1,013,525	43,115
1979-80	84,070	79,867	1,056,640	1,013,525	43,115
1980-81	84,070	79,867	1,056,640	1,013,525	43,115
1981-82	84,070	79,867	1,056,640	1,013,525	43,115
1982-83	84,070	79,867	1,056,640	1,013,525	43,115
1983-84	84,070	79,867	1,056,640	1,013,525	43,115
TOTAL	----	----	$ 10,076,826	$ 9,711,150	$ 365,676

1/ Except for 1974-75, it is assumed that IRA will utilize their facilities during a given year at 95 percent of capacity. This is a very conservative estimate in that the Kansas State study said that IRA should utilize 160 percent (due to turnover). The 95 percent includes both IRA purchases and rental of space to the private trade. In 1974-75, IRA will need more than exists for their purchase program and will have to utilize at a little more than 100 percent.

2/ Assumes no import-export operations.

Thus the amount of working capital that will be required is estimated as follows: Taking the 1971 census production figures of 642,000 MT the amount that would need to be purchased would be 83,590 MT. The average price per hundredweight of corn over the last five years was $3.94; sorghum was $3.04; beans $11.27; and rice was $8.64. The weighted average of these prices (based on respective quantities produced) was $4.44. It would be IRA's objective to keep prices within a $.60 range of the average; i.e., no more than $.30 above or $.30 below it. At harvest time the purchase price would be $.30 on the lower side, or $4.14 ($4.44 - .30 = $4.14) Translating the hundredweight figure to metric ton equivalent resulted in a price of $91.29. The 83,590 MT that would need to be purchased at the price of $91.29 would amount to working capital needs of $7,631,000 which we have rounded off to $7.5 million.

One final consideration relates to the use of the fund during periods of the year when it is not being fully utilized by IRA. Due to the nature of the IRA operation, it will be buying during the six harvest months (September through February) and selling during the other six month period. In first month of harvest, September, a relatively small proportion of the fund would be utilized and, as the harvest progressed, the fund would gradually be drawn down until it was fully committed in February. Then, as IRA began sales operations, the process would reverse and the fund would be recovered in the March through August period. Theoretically, this would result in a situation where the fund was totally committed during February and March and built back to full value in August.

However, in actual practice the situation will be more complex. The above discussion assumes that IRA has been successful in exactly projecting the market equilibruim price in a given year. If this were not the case, and for example IRA had set a price which was too high, then they could be obligated to buy as much as 25 - 30,000 MT more than would have been needed. (Based on the standard error of the price projection equation. See argument in Section I above). This would result in a need to export or carry-over the excess purchases which would affect the availability of the fund for other uses. This would be especially true in the July - September period when much of the fund would otherwise be uncommitted. It, therefore, appears unlikely that more than about 55 - 60 percent of the total fund would be available in any given month (with the possible exception of August) for other uses in most years.

Consequently, prudent financial planning should provide for 40 - 45 percent of the total fund ($3.0 to 3.5 million) being committed in any given month. It is the conclusion of the Mission that the working capital fund should be utilized in other uses to the maximum extent practicable. Since up to $3.5 million will, in general, always be tied up in grain inventories in any given month, the USAID portion of the fund is proposed to be this amount and its use will be restricted to this purpose. This will allow the GOES to utilize their counterpart portion ($4.0 million) for other uses, when not fully employed in the grain price stabilization program. When feasible, the GOES will be encouraged to use their portion in short-term agricultural credit which will complement the CENTA effort currently underway.

V. IRA Organization and Management

A. Brief History

IRA was established as a government agency by Decree No. 840 in September, 1950 and charged with the development of production and marketing of agricultural products, especially corn, rice, beans and sorghum. The need for price stability for both the producer and the consumer was recognized in the law.

IRA, however, did not begin to operate until June, 1953. Since then, it has attempted to perform its principal function stabilizing prices to producers - by offering to purchase grains at a predetermined stabilization price in the harvest period. This price was set each year but generally, it was unable to maintain effectively the pre-established price. IRA also attempted to stabilize consumer prices by selling back into the market the grains which it had purchased during harvest or imported. In recent years, it has sold through retail agencies. But as pointed out earlier, IRA has not been effective in influencing the marketing system because of inadequate storage capacity and working capital. It has also lacked technical capability to forecast accurately prices and manage effectively the price stabilization programs.

Since IRA began operations, the Central American Common Market was established, adding a new dimension to the price stabilization program for El Salvador. The countries of the CACM established a Special Protocol for grains (The Protocolo of Limón) in 1965, pledging to coordinate their national programs and to adopt uniform policies with respect to production, import-export operations, and pricing. The Protocol never worked as planned, partially as a result of the 1969 war between El Salvador and Honduras and partially because the individual countries were unwilling to make strong commitments to basic grains policies which reduced that control over internal production and marketing decisions.

In summary, the chief restraints on IRA's performance were its limited resources (storage capacity, working capital and analytical capability). Market prices have broken through both the floors and the ceilings on numerous occasions in the past. Generally, the IRA operations have had little or no effect in narrowing market price spreads.

B. Changes in Operations

Recognizing that IRA had been largely ineffective, a series of changes in its operations were provided for in Decree No. 469 of December 21, 1971. The Decree removed the autonomy of IRA and put it under ministry of Agriculture and Livestock (MAG) control but with a Board of Directors including members from the Ministry of Finance, Ministry of Economy, Central Reserve Bank, Agricultural Bank, Agricultural Association, and Cooperative Association. Prior to Decree 469, IRA was autonomous under an appointee of the President of the Republic and a Board of Directors with minimum control from the Ministries of Economy and Finance.

The new Decree provided for:

1. Reorganization of the operating units of IRA;

2. Revision of the salary schedules to conform to law and to establish a scale based on private industry;

3. Establishment of an intensive training program and replacement of administrators and technicians in warehouses and processing plants;

4. Revision of the systems of weights and measures, standards, and contracting personnel;

5. Increasing the line of credit with BCR to $7,200,000 to meet the necessities for working capital;

6. Increasing dry milk importation to increase earnings; and,

7. Fixing guaranteed prices for basic products at reasonable levels and stabilizing prices to consumers.

Immediately following the Decree, the management structure was changed to provide for an overall general manager with an assistant manager for administration and an assistant manager for commercial operations. The existing manager in IRA was made the assistant for administration and the operations assistant was hired from outside IRA. The general manager position was

left open because the MAG wanted to find a highly qualified person for this job.

With its new management structure and the Subsecretary of the MAG acting as general manager, IRA began to implement some of the reforms from the Decree. During the early 1972 period, IRA requested a loan from USAID/ES to assist in making IRA a more workable institution. USAID/ES determined during Intensive Review that a loan for fiscal year 1972 would be premature and asked the MAG to present the request in fiscal year 1973 or 1974. In the meantime, USAID/ES began to provide technical assistance to aid IRA in the reform process. Progress was slow because of the vacancy in the general manager position.

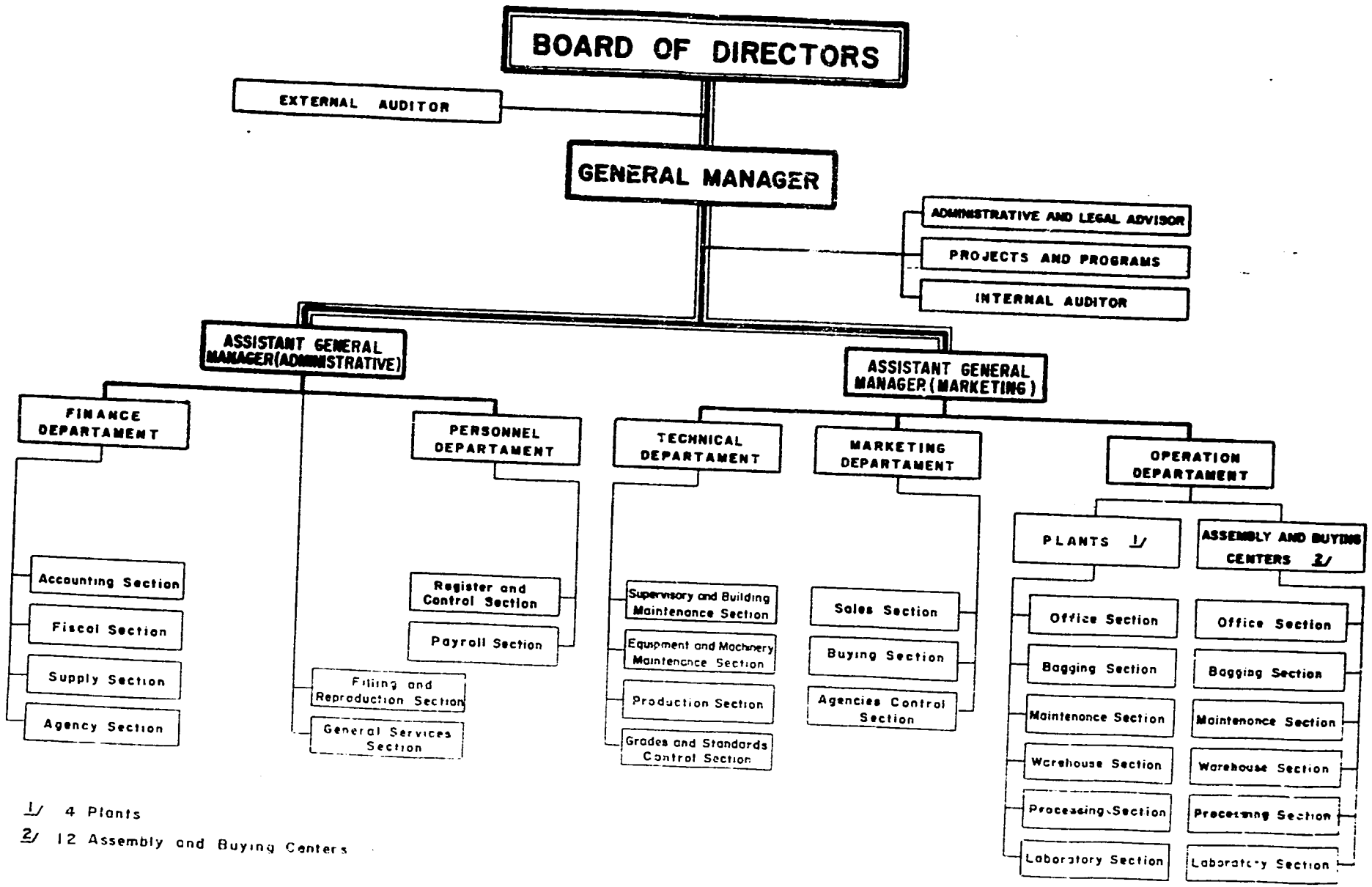
Finally, in late 1972, the MAG located and hired a highly qualified person to be the general manager of IRA. In addition, to having obtained an M.S. degree in Economics, the new general manager had spent the last several years with SIECA. In his short time in office, he has begun the process of transforming IRA into a viable organization. Already established in IRA, is a new analytical section responsible for the basic price work. An improved accounting and auditing system is being established and this system will be further refined before this loan is operative. A new field agency control section has been instituted. Five professional agronomos have been hired and CONAPLAN as well as MAG is making available professionals to assist in the reform effect. An organizational expert has been hired and is in the process of restructuring the entire agency (See the following page for the new organization) With this loan, many other changes will be possible. These include a sound training program, technical assistance, cost accounting reform, and many others which are detailed in various sections of this paper. The following section contains a detailed description of how the agency will be operated after the expansion.

C. IRA Operations in the Future

The addition of fourteen new storage facilities and a series of rural buying stations will require an expansion of the current IRA operational plan and the incorporation of several new operational concepts. (See Annex V for a detailed explanation of IRA's expanded operational costs including personnel, etc.)

First, because of the limited personnel at the terminal

PROJECTED ORGANIZATION OF IRA



1/ 4 Plants

2/ 12 Assembly and Buying Centers

facilities it will become critieal to have a manager who can perform all of the functions necessary to the operation. This will require an intensive training effort on the part of IRA. Secondly, it will be important for IRA to have a system which will assure that each unit adheres to the same basic policies and operational procedures. This will be a function of the Central Office and will be facilitated by the development of a series of handbooks detailing activities and responsibilities. In addition, each manager of the country facilities will be responsible only to the Central Office and not to the managers of terminal facilities. This will avoid a duplication of authority in the field operations.

IRA's payment procadure upon receipt of grains will also be changed. If the program is to be acceptable to the producer, some arrangement must be made to permit the closing of the sales transaction at the time that the grain is delivered to IRA. There is a security problem with maintaining large amounts of cash in the office of each IRA facility. However, where banks are at the same location, several different types of arrangements can be worked out to eliminate this problem. One method would be for IRA to make a deposit at the local bank and authorize the manager to issue checks against the account for payment for grain received. Another method would be to authorize the manager to issue a sightdraft against the IRA central account and then develop a working agreement with the local banks whereby a fee would be paid to the bank for handling the disbursement of the sightdraft.

In those cases where a local bank may not be readily accessible to the area, serious consideration will be given to making cash available to the manager for payment to the producer. If this results in too much cash being handled, a dual payment plan could be authorized. For example, cash payment could be limited to amounts of fifteen hundredweight or less and any amount over that limit would be covered by check. This would make some cash available to the producer immediately and he could later go to a location where a bank did exist.

Purchases at buying stations where no storage facility exists will be accomplished in the same manner as at an IRA storage facility. IRA plans to service these points on a preannounced day, preferably the normal market day at the location. During the harvest season, once a week will probably be sufficient.

This buying activity will be carried out under the authority and direction of the IRA facility manager to whom these satellite buying locations are assigned. Under the present plans the number

of such locations varies from one to three per facility. Experience will reveal whether the number of such locations should be expanded or reduced.

D. Technical Assistance Needs

1. Background

There are several reasons why IRA will require substantial technical assistance in activating the new operation of IRA. In the past, there were only two IRA facilities and these were not readily accessible to large numbers of producers. Also much of the grain purchased by IRA came through other institutions that make production loans to producers eliminating direct IRA contact with producers. As a result, IRA did not deal with large numbers of small producers which greatly reduced operational problems. The expansion to sixteen facilities will cause many new problems both at the point of purchase and in coordinating the activity between facilities and the central office. It will require a whole new approach to operations by IRA including many procedures never before used. As an example, new methods of handling and conditioning grain will be used in the new facilities such as in-storage drying.

The major technical assistance requirement will be the contracting of an engineering firm to prepare the final engineering design plans, specifications, and bid documents. The engineering firm will also supervise the construction undertaken under the loan.

In addition, the operational plan provides for extensive changes in the operation and management system. This includes new job assignments in the central office to direct activities and revised methods of handling the records that will be generated through the operation of sixteen facilities compared to two facilities in the past.

Also required will be new positions and trained technicians in quality control, repair and maintenance, and supervisory functions to assure uniform and efficient operations. Most of these demands will develop within a very short period of time.

Finally, from past experience, new facilities are often constructed by contractors that are not familiar with the operation and needs of a grain storage facility. As a result, errors or alterations are made that cannot be corrected without excessive extra cost. This technical assistance will be provided during site selection and the construction period. There will also be a need for such assistance in making the recommended alterations at the two existing facilities (San Martín and Usulután).

2. Technical Assistance Needs

The engineering firm will be retained for the total construction program beginning in June, 1974. Other needs will be as follows:

a. Final design, formulation of specifications, and site selection:

Two technicians - (3 months each) 6 months. This would be on a one-time assignment basis and is programmed for about July 1, 1974.

b. Supervision of construction of new facilities and supervision of alterations and refinement of the existing operations at San Martín and Usulután:

One Technician - 6 months; this should be broken into three phase assignment. The first part would be for existing facilities in the August-October, 1974 period. The second at the beginning of construction of the new facilities (on or about January 1, 1975) and a follow-up after a facility has been completed during the absence of the technician. This amount of assistance during construction of new facilities and the alteration of the two existing facilities should orient the resident engineer so that the remainder of the construction can be satisfactorily completed.

c. Grain Quality and Conservation Operation:

One Technician - 10 months; this assignment should be divided between two years beginning in 1974. It should be carried out during and immediately following the major harvest seasons.

d. Operation, maintenance and repair rengineer:

One Technician - 10 months; same as c(2) above.

e. Central office management and record keeping reorganization:

One Technician - 6 months; this assignment will be divided into two periods: one to assist in making the refinements which IRA has already identified and the other during the first harvest season to make changes not previously anticipated.

f. Change over to computer capability:

One Technician - 1 year; this assignment should begin as soon as the new equipment is installed and should be divided into two assignments. The first would establish the operational procedures and the second to make refinements in the program.

g. Development of operational handbooks and a cost accounting system:

One Technician - 6 months; this should be accomplished as soon as the central office management and record keeping reorganization (Item e) is completed.

h) Completion of the development of pricing models and refinements:

One Technician - 8 months; the completion of the initial models should be accomplished at the earliest possible date (before the end of 1973). Follow-up assignments will be necessary to check results and to make changes and this should occur 2 to 3 months prior to the announcement of IRA's prices in a given year.

i. Analysis and adjustment of program policy during the development period:

One Technician - 6 months; this should be short period assignments over a three year period beginning in 1974 to review the entire program and to offer suggestions for operational and policy changes.

3. Budget for Loan Funded Technical Assistance

Item a. - 2 technicians - 6 months	$ 20,000
Item b. - 1 technician - 6 months	20,500
Item c. - 1 technician - 10 months	34,000
Item d. - 1 technician - 10 months	34,000
Item e. - 1 technician - 2 months	7,000
Item f. - 1 technician - 12 months	41,000
Item g. - 1 technician - 3 months	10,000
Item h. - 1 technician - 6 months	20,625
Item i. - 1 technician - 6 months	21,500
Total 61 months	$ 208,625

4. Budget for Final Engineering Design and Construction Supervision -- Loan Funded

Total $200,000

5. Budget for Grant-Funded Technical Assistance

Item e. - 1 technician - 4 months -	$ 14,000
Item g. - 1 technician - 3 months -	10,000
Item h. - 1 technician - 2 months -	6,875
Total 9 months	$ 30,875

E. Suggested Training Program

1. Background

As in the case of technical assistance, the new IRA operation due to its complexity will require an intensive effort. The operation of the past was so small that it did not provide a sufficient number of trained personnel familiar with the program or with grain facility operation to properly man the new operation. In addition, the new operation is introducing methods that have not been used before and, as a result, these activities will be completely new to the personnel who have been employed by IRA in the past.

2. Training Needs - Loan Funded

The areas of training that have been identified are:

a. Two training sessions to be conducted in El Salvador.

These sessions will be directed toward training of facility managers and other key personnel. The plan provides for two such sessions over a two year period. One will be conducted just prior to activating the new facilities (on or about July 1, 1973) and the other in the following year, just prior to the major harvest season. Each session will be of three weeks duration and will cover the following activities:

1) Grain classification and quality determination;
2) Insect identification and control;
3) Preparation of grain for storage and conservation; of grain storage; and
4) Equipment operation, maintenance and repair.

In addition to these subjects, the session will cover management and central office procedures. The instructors for this course will be provided by IRA.

b. Following the two training sessions described above, there will be a need for advanced training of some of the key IRA personnel in the area of grain marketing and storage. Such training is offered on-campus at certain U.S. universities. These sessions are generally of three months duration and are scheduled on an annual basis. It is anticipated that three IRA personnel will attend these short courses: 1) the manager of operations; 2) the grain quality and grain conservation technician; and 3) the facility operation technician.

c. At some point in time (preferably as quickly as possible) two BS-MS level scholarships should be provided for training of potential candidates for managerial positions within IRA. This would be in the area of management, business administration, and grain marketing.

d. There will also be a need for advanced training for facility managers and key personnel in addition to that which will be provided in the previously mentioned in (a) above. Periodically, but not on any set schedule, certain U.S. universities of in some cases, other organizations conduct training sessions on an area basis at different locations in Central or South America. These sessions vary from four to six weeks in duration. This training would be provided after two years of operation of the new program. By this time, the IRA personnel will be familiar with the problems and the timing will coincide with the end of the training provided for in El Salvador.

3. Training Budget - Loan Funds

Item a. Four trainers two sessions of 6 weeks each	$ 28,000
Item b. Four IRA employees - 6 week sessions	17,600
Item c. Two IRA students - 2 years each	34,000
Item d. Twenty managers and key personnel - 6 weeks	16,500
Total	$ 96,100

4. Training Needs - Grant Funded

Due to timing, it is being recommended that the following phases of training be provided for by grant funding:

a. IRA will have two resident engineers; one a design engineer and the other an operational engineer. Both will be expected to work with the technicians to assist in preparing the final specifications for the storage units and the related equipment. If the two resident engineers are to be able to participate effectively in this effort it is necessary for them to view similar facilities in advance. This will be accomplished by a three week visit to U.S. and they wi be accompanied by one of the technicians referred to in Item a. of the previous section on technical assist

b. IRA has hired five new Agronomos who have been doing research work related to the proposed new program.

There will be, in the near future, several regional grain handling and conservation training sessions scheduled in C.A. and South America. These personnel will be sent to one of these training sessions.

c. In order to familiarize them with the actual mechanics of a grain marketing operation, the IRA General Manager and one other management employee will be sent to the U.S.. There are private grain companies in U.S. that are quite comparable to the operation that is being planned by IRA. For example, a company with a large central facility that also owns and operates several rural facilities would be ideal. Studying such an operation would reveal how grain is received from the farmer, how the quality is determined, how price differentials are established, how grain is dried, fumigated, and moved between facilities, how the records are maintained, and how the paper flow is controlled.

5. Training Budget - Grant Funds

a. Two engineers - U.S. - 3 weeks	$ 1,850.00
b. Five Agronomos - Guatemala - 6 weeks	7,500.00
c. General Manager and Assistance - U.S. 4 weeks	2,200.00
Total	11,550.00

There would be a need for a U.S. technician for a. and b. above (7 weeks) to coordinate and direct this training.

Part Five: Loan Administration

I. Implementation Plan

A. Loan Agreement

It is estimated that between 60 and 90 days will be required for loan negotiations once a draft loan agreement has been prepared by USAID and the Regional Legal Advisor/ROCAP and presented to the GOES (Ministry of Agriculture, the National Planning Council, the Central Bank and the Ministry of Finance). The Ministries must receive authorization from the National Assembly to enter negotiations related to foreign borrowings and to sign loan agreements. The development of the price stabilization program is one of the highest priority projects in El Salvador and the USAID does not envision any significant delay in the Ministries receiving authority from the National Assembly to negotiate and sign the loan agreement.

Implementation Letter No. 1 will be prepared with the loan agreement and discussed with the Borrower as part of loan negotiations.

B. Implementation Plan

Approximately 60-90 days should be required for the Ministry of Agriculture and IRA to meet the conditions precedent following loan agreement signing. The conditions precedent are presented in Section II-E below.

C. Estimated Timetable

The timetable encompasses the construction and equipping of the physical facilities, the capitalization of the working capital fund and the training and technical assistance components.

TIMETABLE

June, 1973	Loan authorized
July - October,1973	Loan negotiations, loan signing
November, 1973	GOES programming of working capital financing from GOES 1974 budget.
November, 1973-January,1974	Initial Conditions Precedent fulfilled
November, 1973- April, 1974	1) Preparation of manpower training plan 2) Preparation of technical assistance plan 3) Preparation of vehicle specifications 4) Preparation and completion of equipment lists and specifications to upgrade existing facilities.

April, 1974	1) Training plan completed and approved; Letter of Commitment opened in accordance with the training plan for the program. 2) Technical Assistance plan completed; call for interested consultants for final design and supervision. Other technical assistance contracts approved in accordance with plan. (Part Four, Section V-D) 3) Vehicle specifications and IFB documents completed. (Initial vehicle procurement, see Part Four Section, II-C). 4) Completion of IFB documents on equipment to upgrade existing facilities. Issuance of IFB documents.
	1) Consultant engineering firm retained for final design and supervision of new storage facilities. 2) Initial vehicle procurement contracts let. 3) Contracts let on equipment to upgrade existing facilities; Procurement: July - August, 1974; Installation: September - October, 1974.
August, 1974	1) Creation of Grain Purchase Working Capital Fund. (for 1974 harvest). *2) USAID disbursement of $2.5 million for working capital; GOES counterpart disbursement of $1.5 million to the fund.
October, 1974	1) Existing facilities upgraded and available for use. 2) Initial vehicle procurement completed. 3) Final plans and specifications for new units completed and IFB documents completed. (27,730 MT) Issuance contingent upon GOES agreement to make available the working capital needed for the 1975 harvest in accordance with the financial plan.
December, 1974	Bids received for grain storage facility construction (27,730 MT)

*A.I.D. loan disbursements will be made for the fund when actually required.

January, 1975	Bids awards made for construction. (27,730 M
February- August, 1975	Storage facility construction.
September, 1975	1) Initial 27,730 MT of storage units completed for use during 1975 harvest. 2) USAID disburses final $1.0 million for working capital; GOES counterpart of $2.0 million for working capital disburse
January - May,1976	1) Evaluation of new and existing facilities and operations to determine final locatio of 7,920 MT of storage facilities. 2) Review plans and specifications for final 7,920 MT.
June, 1976	Completion of IFB documents on additional storage facilities (7,920 MT). IFB documents issued.
September, 1976	Bids received for construction. (7,920 MT)
October, 1976	Bids awarded for construction. (7,920 MT)
November - July, 1977	Storage construction.
September, 1977	1) 7,920 MT storage units completed for use during 1977 harvest. 2) GOES disburses $0.5 million for working capital fund.

II. Loan Implementation

A. USAID Responsibility: Joint Evaluation

Monitoring of the project implementation will be the responsibility of the Food and Agricultural Officer assisted by the Capital Development Officer, Mission Engineer, ROCAP Engineering Office and Controller. As initiated in the CENTA program assisted by AID, the USAID will collaborate with the Economic Analysis and Planning Department of CENTA in undertaking periodic joint economic analyses of the effect the program has on the targeted farm group. This economic research will complement the actual project monitoring by AID and will furnish information and data needed by Salvadoran planners to design future development programs.

B. Disbursements

It is planned that all dollar costs will be disbursed under Letter of Commitment procedure. To the extent possible, the direct reimbursement method will be used on all local currency financing under the loan. In the case of construction contracts for the

January, 1975	Bids awards made for construction. (27,730 MT)
February- August, 1975	Storage facility construction.
September, 1975	1) Initial 27,730 MT of storage units completed for use during 1975 harvest. 2) USAID disburses final $1.0 million for working capital; GOES counterpart of $2.0 million for working capital disbursed.
January - May,1976	1) Evaluation of new and existing facilities and operations to determine final location of 7,920 MT of storage facilities. 2) Review plans and specifications for final 7,920 MT.
June, 1976	Completion of IFB documents on additional storage facilities (7,920 MT). IFB documents issued.
September, 1976	Bids received for construction. (7,920 MT)
October, 1976	Bids awarded for construction. (7,920 MT)
November - July, 1977	Storage construction.
September, 1977	1) 7,920 MT storage units completed for use during 1977 harvest. 2) GOES disburses $0.5 million for working capital fund.

II. Loan Implementation

A. USAID Responsibility: Joint Evaluation

Monitoring of the project implementation will be the responsibility of the Food and Agricultural Officer assisted by the Capital Development Officer, Mission Engineer, ROCAP Engineering Office and Controller. As initiated in the CENTA program assisted by AID, the USAID will collaborate with the Economic Analysis and Planning Department of CENTA in undertaking periodic joint economic analyses of the effect the program has on the targeted farm group. This economic research will complement the actual project monitoring by AID and will furnish information and data needed by Salvadoran planners to design future development programs.

B. Disbursements

It is planned that all dollar costs will be disbursed under Letter of Commitment procedure. To the extent possible, the direct reimbursement method will be used on all local currency financing under the loan. In the case of construction contracts for the

IRA facilities, the agreed upon retention percentages will be withheld by USAID pending final acceptance of the work.

On the basis of the present estimates, the disbursement period under the overall loan should run until December 31, 1977.

C. Procurement Procedures

Selection of contractors for construction work will be carried out under competitive bidding procedures required by Salvadoran law. Salvadoran law also requires that procurement of professional engineering services be accomplished through invitation to interested firms in a manner similar to A.I.D. standard procedures. Procurement of all additional goods and services will be in conformity with standard A.I.D. operating procedures.

D. Audits

Audits will be made periodically as considered necessary by the office of the Auditor General for Latin America.

E. Conditions and Covenants

1. General Conditions

A.I.D. loan funds will be used to meet the United States dollar (Code 941) and local costs of financing: the training of IRA personnel; technical assistance to IRA; the equipment materials and engineering services related to the expansion and upgrading of IRA grain storage facilities; and the creation of a working capital fund in the Central Bank for IRA's commodity purchases under the price stabilization program.

a) up to US$100,000 of the loan may be used to finance training costs of IRA personnel.

b) up to US$200,000 of the loan may be used to finance technical assistance to IRA.

c) up to US$100,000 of the loan may be used to finance technical assistance to the Ministry of Agriculture.

d) up to US$200,000 of the loan may be used to finance engineering design and supervision services to IRA.

e) up to US$3,500,000 of the loan may be used to finance working capital needs of IRA's grain purchase program.

2. Conditions Prior to Initial Disbursement.

Prior to the first disbursement under the loan, the Borrower will submit to A.I.D. for A.I.D. review and approval:

a) a detailed implementation plan for the entire program, including the upgrading of existing facilities.

b) a complete financial plan for the program including the timing and amounts of loan and Borrower counterpart financing of working capital, infrastructure investments and other related program costs.

c) evidence of the establishment within the Central Bank of a separate revolving working capital fund to function and be used in a manner satisfactory to A.I.D.

3. Conditions Prior to Disbursement for Other than Technical Assistance and Training Costs.

Prior to disbursement of loan funds for other than technical assistance and training, the Borrower shall submit in form and substance satisfactory to A.I.D.:

a) evidence that a comprehensive technical assistance program for improvement of the entire IRA grains operation has been initiated.

b) evidence that IRA has established a cost accounting system satisfactory to A.I.D.

4. Conditions Prior to Specific Disbursement.

a) Prior to disbursement for personnel training, the Ministry of Agriculture and IRA will submit a satisfactory training plan including cost estimates

b) Prior to the procurement of vehicles, the Ministry of Agriculture and IRA will submit a plan for vehicle maintenance and replacement.

c) Prior to disbursement for technical services to IRA and the Ministry of Agriculture, the Ministry of Agriculture and IRA will submit an implementation plan for the utilization of technical advisors, as well as, satisfactory scopes of work for the individual services.

d) Prior to disbursement for engineering services, the Ministry of Agriculture and IRA will submit a satisfactory contract for construction design and supervision services.

e) Prior to disbursement for the materials and equipment to be used in upgrading existing facilities, IRA will submit satisfactory final plans, specifications and bidding documents.

f) Prior to the advertising of bids for the construction of IRA facilities, IRA will submit a detailed schedule for all construction work and satisfactory final plans, specifications and bidding documents. Also, the Borrower will provide evidence satisfactory to A.I.D. that the additional working capital needs for the IRA to cover its operations with the future expansion of facilities will be made available to the grain purchase working capital fund, through a direct Government budgetary allotment or Government resources secured from other national or regional sources. Government contributions to the working capital fund and loan financed portions of the working capital fund will be channelled to the working capital fund in accordance with the financial plan for the program and, unless A.I.D. otherwise agrees in writing, will be retained in the fund for the life of the program.

5. Covenants

In addition to the standard covenants, the Loan Agreement shall contain covenants to the effect that, unless A.I.D. otherwise agrees in writing:

a) Upon completion of the first phase of the construction program (27,730 Mt) and throughout the life of the program, IRA will purchase grains (corn, sorghum, beans and rice) at their established minimum price from any producer who desires to sell to IRA. In addition to purchases from producers, IRA may also determine whether it wishes to buy grains from other sources (i.e. truckers and wholesalers).

b) During the life of this program, the Borrower agrees to announce minimum buying prices for grains (corn, sorghum, beans and rice) in advance of the major planting season. Exact dates will be determined in the implementation plan.

c) The Borrower will maintain the real and full value of the working capital fund (both A.I.D. and Borrower financed portions) for the life of the program. Such annual losses as may occur from IRA's commodity purchase and sales operations which reduce the working capital fund as constituted under this program, will be replaced by the Borrower from additional budgetary resources or Borrower's resources from other national or regional sources at the end of each annual purchase/sales cycle to be designated in accordance with the implementation plan. To the extent that these losses are replaced by borrowed funds, the Borrower guarantees that repayment will be for the account of the Borrower (GOES) and not IRA. Such capital surpluses accruing from IRA's commodity

purchases and sales operations will be retained in the working capital fund and will be used as necessary for the IRA commodity purchase/sales program.

d) The Borrower will consult with the Central American Coordinating Commission on Marketing and Price Stabilization (CCMEP) on its price stabilization levels and extra-regional trade for the production year in which it plans to use the working capital financed by the loan. Evidence of consultation with CCMEP will be the official minutes of the regular CCMEP meeting at which an El Salvador IRA representative was in attendance.

e) The Borrower agrees that during the life of the program, the AID financed working capital will be utilized solely for IRA's purchase of basic grains (rice, corn, beans and sorghum) for the price stabilization program.

CERTIFICATION PURSUANT TO SECTION 611(e) OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED

SUBJECT: El Salvador - Capital Assistance - Agricultural Development Loan - Grain Marketing

Having taken into account, among other things, the maintenance and utilization of projects in El Salvador previously financed or assisted by the United States, I certify that in my judgement El Salvador has the financial capability and human resources to effectively utilize and maintain the proposed Agricultural Development Loan.

This judgement is based primarily on the facts developed in the Capital Assistance Paper for the proposed loan of $6.5 million, which discusses in detail the capabilities of the Instituto Regulador de Abastecimientos (IRA) and finds that it will possess adequate financial and human resource capability, supported by technical assistance and training where appropriate, to effectively maintain and utilize the project. The IRA institution is competent to implement the project and to act for the Ministry of Agriculture and the Government of El Salvador as its Executing Agency. As the Executing Agency it has:

a) demonstrated its ability to carry out a limited price stabilization program using its own financial resources;

b) taken and is continuing to effectively plan and implement administrative improvement actions;

c) planned and is continuing to make arrangements for needed technical assistance and personnel training to improve the effectiveness of its operations.

J. P. Derum, Director

Date: May 31, 1973

MINISTERIO DE AGRICULTURA
Y GANADERIA
REPUBLICA DE EL SALVADOR, C. A.

REF.

No 04031

UNCLASSIFIED
ANNEX I
Exhibit B
Page 1 of 6 pages

San Salvador, May 24, 1973.

SUBJECT: Loan Application for National Marketing Development Program.

Mr. Director
Agency for International Development.
San Salvador.

During the past several months our Government has undertaken a comprehensive study of the marketing of basic grains for the purpose of developing a new system that would offer more secure outlets and stable prices to producers and consumers. Representatives of the Agency for International Development have assisted in this analysis and in development of the project for which we are seeking external financial assistance.

Background

It is the policy of our Government to make an intensive effort to assist the small and medium-sized farmer. In the past year we have signed a loan with the Agency for International Development to improve the National Center for Agricultural Technology (CENTA). This program is specifically designed to develop new varieties, new enterprises, and better methods of planting and harvesting the crops which are being produced by the small operator. We have passed legislation to develop a new Agrarian Foment Bank for the purpose of expanding production and log-term credit to the small producer. A law has been enacted establishing a new irrigation district and limiting farm size in that district. An important component of our policy is to improve the marketing of basic grains (i.e. corn, sorghum, beans and rice) which are major crops of small producers.

Thus, in the past year we have undertaken an intensive study of the grains marketing system with the technical assistance of AID representatives. Our analysas have confirmed earlier preliminary findings that major problems in our marketing system include inadequate storage facilities and working capital. The Government's marketing agency, the Instituto Regulador de Abastecimientos (IRA) has been unable to make purchases and sales on a timely basis to stabilize prices to producers and consumers.

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Description of Project

We are, therefore, planning to construct about 42,000 metric tons of storage facilities and develop a new working fund to be managed by IRA. In addition, we are planning to renovage some ---- 30,000 metric tons of existing facilities. Finally we are seeking tecnical assistance and training in order that IRA might carry out its assigned tasks more effectively and efficiently.

In order for the new program to function, we plan, among other things:

1) To establish in the Banco Central de Reserva a permanent revolving fund on which IRA can draw. The real and full value of this fund will be maintained by the Gobernment of El Salvador against losses and monetary inflation.

   Any necessary corrections to the fund will be made at least one month prior to the initiation of the major harvest (no later than October 1);

2) To buy grains from all producers that offer to sell to IRA, upon the completion of the first phase of the construction program as defined in the capital assistance paper;

3) To establish minimum prices for grains based on forecasts of market prices and anounce these prices at least one month in advance of the major planting season.

To implement this project we hereby request the Agency for International Development to evaluate the possibility of granting our Government a loan in the amount of approximately $6.5 million. In accordance with present estimates, these funds would be invested as follows:

Physical facilities	$	2,142,000
Working Capital		3,500,000
Technical Assistance, Training and Related Costs		600,000
Total	$	6,242,000

Our Government, in turn, plans to allocate about $6.8 million to this program to be invested as follows:

Land Acquisition	$	248,000
Physical Facilities		815,000
Working Capital		4,000,000
Administrative and Operating Costs		1,691,000
Total	$	6,754,000

We will submit to you in the next three months a mutually agreed upon timetable for disbursement of AID's and our own Government's funds. We thank you for the attention you give to this letter and renew the assurance of our esteem and consideration.

GOD, UNION AND LIBERTY.

Enrique Alvarez Córdova,
Minister of Agriculture.

Dr. Vicente Amedo Gavidia Hidalgo,
Minister of Finance.

Ing. Edgardo Suárez Contreras,
President of Central Reserve
Bank of El Salvador.

Lic. Alfredo Benjamín Hoyos,
Secretary of National Planning
Council.

MINISTERIO DE AGRICULTURA
Y GANADERIA
REPUBLICA DE EL SALVADOR, C. A.

REF.
No. 04031

San Salvador, 24 de mayo de 1973.

ASUNTO: Solicitud de crédito para el programa de Desarrollo Nacional de Mercadeo.

Señor Director de la Agencia
para el Desarrollo Internacional (AID),
CIUDAD.

Durante los meses anteriores, nuestro Gobierno ha emprendido un estudio del mercadeo de granos básicos con el propósito de desarrollar un nuevo sistema que daría como resultado una comercialización más segura y precios más estables a los productores y consumidores. Varios técnicos de la Agencia para el Desarrollo Internacional (AID) nos han ayudado a preparar este análisis y a desarrollar el proyecto para el cual estamos buscando ayuda financiera externa.

Antecedentes.

Es parte de la política del Gobierno hacer un gran esfuerzo para ayudar a los pequeños y medianos agricultores. El año pasado firmamos un préstamo con la Agencia para el Desarrollo Internacional (AID) - para mejorar el Centro Nacional de Tecnología Agropecuaria (CENTA). Este programa ha sido diseñado especialmente para desarrollar nuevas variedades de cultivos, diversificación agrícola, y mejores métodos de -- producción y de cosechas de cultivos producidos por agricultores y empresas pequeñas y medianas. Para poder contar con un Banco de Fomento Agropecuario, hemos aprobado la legislación correspondiente, con el propósito de aumentar la producción, así como la provisión de créditos a - largo plazo para los pequeños productores. Una ley ha sido decretada - para establecer un nuevo distrito de riego, en la cual se limita el tamaño de las fincas en este distrito. Un componente importante de nuestra política es el de mejorar el mercadeo de granos básicos (i.e. maíz, sorgo, frijol y arroz) los cuales constituyen la mayor parte de las cosechas de los pequeños productores.

Por lo tanto, el año pasado emprendimos un estudio intensivo -- del sistema de mercadeo de granos con la asistencia técnica de los técnicos de AID. Nuestros análisis han mostrado, en hallazgos preliminares, que en nuestro sistema de mercadeo el mayor problema es lo inadecuado y la insuficiencia de las facilidades de almacenamiento y el capi

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tal de operación. A la agencia de mercadeo de nuestro Gobierno, el Instituto Regulador de Abastecimientos (IRA), le ha sido difícil hacer compras y ventas suficientes en forma oportuna y en cantidades suficientes para estabilizar los precios a productores y consumidores.

Descripción del proyecto.

Por esa razón, estamos planeando construir alrededor de 42.000 toneladas métricas de facilidades de almacenamiento y desarrollar un nuevo fondo de operación, el cual será manejado por el IRA. Además, estamos planeando renovar las facilidades ya existentes de una capacidad de 30.000 toneladas métricas. Finalmente, estamos buscando asistencia técnica y entrenamiento para que el IRA pueda realizar eficientemente la obra que se ha propuesto llevar a cabo.

Para que el nuevo programa pueda funcionar, entre otras cosas hemos planeado:

1) Establecer en el Banco Central de Reserva de El Salvador un crédito rotativo permanente sobre el cual el IRA pueda retirar los fondos necesarios para sus operaciones de compra. El valor real y completo de este crédito será mantenido por el Gobierno de El Salvador contra pérdidas a inflación monetaria.

   Cualquier corrección necesaria que se le haga al crédito tendrá que hacerse por lo menos un mes antes de que comience la cosecha (a más tardar el 1o. de octubre).

2) Comprar los granos a todos los productores que ofrezcan venderle al IRA, una vez finalizada la primer fase del programa de construcción, como se define en el documento de asistencia de capital.

3) Establecer los precios mínimos basados en el proyecto de los precios de mercado y anunciar los precios por lo menos un mes antes de la época de cultivo.

Para implementar este proyecto, solicitamos por este medio a la Agencia para el Desarrollo Internacional evaluar la posibilidad de ofrecer a nuestro Gobierno un préstamo por la cantidad aproximada de $ 6.5 millones. Con relación a la presente estimación, dichos fondos serán invertidos de la manera siguiente:

Facilidades Físicas	$ 2,142.000
Capital de Operación	3,500.000
Asistencia Técnica, entrenamiento y otros costos relacionados	600.000
Total.....	$ 6,242.000

Nuestro Gobierno, a su vez, planea colocar alrededor de $ 6.8 - millones a este programa y los invertirá de la manera siguiente:

Compra de tierra	$ 248.000
Facilidades Físicas	815.000
Capital de Operación	4,000.000
Costos administrativos y de operación	1,691.000
Total.....$	6,754.000

En los siguientes tres meses nos comprometeremos a un acuerdo - mutuo sobre el plan de desembolso de los fondos de AID y los fondos de nuestro Gobierno.

Le agradecemos la atención que le brinde a la presente y reiteramos a usted las muestras de nuestra consideración y aprecio.

DIOS, UNION Y LIBERTAD,

Enrique Alvarez Córdova,
Ministro de Agricultura
y Ganadería.

Vicente Amado Gavidia Hidalgo
Ministro de Hacienda.

Ing. Edgardo Suár[illegible] Contreras,
Presidente del Banco Central
de Reserva de El Salvador.

Lic. Alfredo Benjamín Moyola,
Secretario Ejecutivo del Consejo
Nacional de Planificación y
Coordinación Económica.

LCP 2-2
marketing loan

Department of State TELEGRAM

USAID SAN SALVADOR
AMEMBASSY SAN SALVADOR

IRR. paper

ACTION:
AID5

UNCLASSIFIED
Classification

CONTROL 3335

INFO:
AMB DCM CHRON AGRIC ECON

RECD: MAY 26, 1973

ACTION TAKEN To be taken
DATE into account
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INFO GUATEMALA MANAGUA TEGUCIGALPA SAN JOSE
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AIDAC

ACTION COPY

E. O. 11652:N/A

GUATEMALA FOR USAID AND ROCAP

SUBJECT: IRR-AGRICULTURAL DEVELOPMENT LOAN PHASE II: MARKETING

REFERENCE (A) STATE 65059 (B) CAPTO A-12

1. THE DAEC REVIEWED THE IRR ON MAY 18. THE IRR IS APPROVED SUBJECT TO THE FOLLOWING QUALIFICATIONS AND CONSIDERATIONS WHICH SHOULD BE ADDRESSED IN THE LOAN PAPER:

(A) OBJECTIVES TARGET GROUP- THE LOAN PAPER SHOULD DEFINE , IN TERMS OF THEIR RELATIVE IMPORTANCE, THE OBJECTIVES OF THE GRAINS MARKETING PROGRAM - E G., INCREASED RURAL INCOME; INCREASED PRODUCTION; EMPLOYMENT; IMPROVED INCOME DISTRIBUTION. THE RELATIONSHIP OF THESE GOALS TO THOSE OF THE NEW FIVE-YEAR PLAN SHOULD BE DISCUSSED . THE INCOME EFFECT F THE PROGRAM, PARTICULARLY ON SMALL FARMERS,SHOULD BE EXPLORED. THE TARGET GROUP OF FARMERS WHICH WILL BENEFIT MOST FROM THE PROGRAM SHOULD BE IDENTIFIED AND THE PAPER SHOULD DOCUMENT HOW THIS HAS BEEN ESTABLISHED (FR EXAMPLE IN TERMS OF THE TARGET GROUP'S ACCESS TO STORAGE FACILITIES AND ANTICIPATED PURCHASING POLICIES OF THE GOES.

(B) THE LOAN PAPER SHOULD DEMONSTRATE THAT THE ESTABLISHMENT AND SUCCESSFUL OPERATION OF AN EFFECTIVE STABLIZATION PROGRAM WILL NOT BE UNDERMINED BY THE INFLUX OF "TOURIST" GRAINS INTO EL SALVADOR AND THAT A STABLIZATION PROGRAM WILL NOT INSTITUTIONALIZE ANY COMPARATIVE INEFFICIENCIES IN EL SALVADORAN AGRICULTURAL PRODUCTION. IN THIS REGARD THE PAPER SHOULD INCLUDE HISTORICAL DATA AS COMPLETE AS POSSIBLE ON PRODUCTION COSTS AND MARKET PRICE OF THE CROPS TO BE INCLUDED IN THE STABILIZATION PROGRAM ALONG WITH COMPARABLE CENTRAL AMERICA DATA.

(C) THE LOAN PAPER SHOULD ADDRESS THE RECOMMENTATIONS OF THE MDCC POSITION PAPER (REF (B)).

Department of State **TELEGRAM**

(D) THE APER SHOULD INCLUDE AN IMPLEMENTATION STRATEGY WHICH DISCUSSES, INTER ALIA, THE TIMING OF A.I.D. AND GOES WORKING CAPITAL INPUTS PARTICULARLY WITH REFERENCE TO A SCHEDULE FOR RE FURBISHING EXISTING STORAGE FACILITIES AND THE POSSIBLE AVAIL-ABILITY OF A CABEI/ROCAP GRAINS STABLIZATION-FUND.

(E) THE PAPER SHOULD INCLUDE AN EXPOSITION OF THE TECHNICAL CAPACITY OF THE GOES TO UNDERTAKE ALL ASPECTS OF THE PROGRAM AND AN ELUCIDATION OF THE TECHNICAL ASSISTANCE PROPOSED. DETAILED COST ESTIMATES SHOULD BE PROVIDED TO SUPPORT THE PROPOSED FUNDING OF NEW FACILITIES AND REFURBISHING OF EXISTING FACILITIES. THE LOAN PAPER DISCUSSION AND SUPPORTING DOCUMENTATION CONCERNING THE GRAIN STORAGE FACILITIES AND GOES TECHNICAL CAPACITY SHOULD CLEARLY DEMONSTRATE THE TECHNICAL FEASIBILITY OF THE PROJECT.
RUSH

JC/8656/0335

AID 1240-2 (4-72)

CHECKLIST OF STATUTORY CRITERIA

(Alliance for Progress)

In the right-hand margin, for each item, write answer or, as appropriate, a summary of required discussion. As necessary, reference the section(s) of the Capital Assistance Paper, or other clearly identified and available document, in which the matter is further discussed. This form may be made a part of the Capital Assistance Paper.

The following abbreviations are used:

FAA - Foreign Assistance Act of 1961, as amended.

App. - Foreign Assistance and Related Agencies Appropriations Act, 1972

AMA - Merchant Marine Act of 1936, as amended.

COUNTRY PERFORMANCE

Progress Towards Country Goals

1. FAA & 208; & 251(b).

A. Describe extent to which country is:	
(1) Making appropriate efforts to increase food production and improve means for food storage and distribution.	1.A(1) El Salvador is making appropriate efforts through the development of the CENTA institution for agricultural research, education and extension, the Agricultural Price Stabilization and Distribution Institute (IRA), the agricultural credit intermediaries (the Central Bank, supervised credit ABC, and GOES assisted agricultural credit cooperatives). This loan will directly lead to agricultural improvement.
(2) Creating a favorable climate for foreign and domestic private enterprise and investment.	1.A(2) El Salvador is creating such climate by: a) investment protection laws b) investment guaranties; c) tax incentives are provided by the Ministry of Economy on the basis of possible benefits to the "national interest"; d) Loans are available to qualifying industries from the Industrial Development Bank (INSAFI) and the Central Reserve Bank's Development Fund.

AID 1240-2 (4-71)

(3) Increasing the public's role in the developmental process.	(3) The public's role is increasing through the expansion of Savings and Loan Associations, the private and public development banks, the expansion of credit unions and cooperative and agricultural cooperatives, and the establishment of a public Agricultural Bank.
(4) (a) Allocating available budgetary resources to development.	(4) El Salvador is allocating substantial budgetary resources to development programs in education, agriculture and infrastructure projects.
(b) Diverting such resources for unnecessary military expenditure (See also Item No. 16 and intervention in affairs of other free and independent nations) (See also Item No. 14).	(4b) El Salvador does not appear to be taking these actions.
(5) Willing to contribute funds to the project or program.	(5) See the Financial Section of the Paper (Part 2) for a discussion of El Salvador's contribution.
(6) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual freedom, initiative, and private enterprise.	(6) The administration of President Molina is continuing the moderately reformist policies of the previous administration and has plans to undertake additonal social and economic reforms.

(7) Adhering to the principles of the Act of Bogota and Charter of Punta del Este.	(7) El Salvador is adhering to the principles of the Act of Bogotá and the Charter of Punta del Este.
(8) Attempting to repatriate capital invested in other countries by its own citizens.	(8) El Salvador has consistently followed policies that encourage the repatriation of capital invested in other countries by its citizens.
(9) Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.	(9) El Salvador is responding to these concerns and demonstrating a clear determination to take effective self-help measures as shown by its increase in tax revenues and contributions from its own resources for agricultural reform, educational reform and other development projects.
B. Are above factors taken into account in the furnishing of the subject assistance?	B. The above factors have been taken into account in furnishing of the subject assistance.
Treatment of U.S. Citizens	
2. FAA § 620 (c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government?	2. El Salvador is not known to be so indebted. However, negotiations continue between the GOES and the IRCA, a U.S. owned railway company, on the future of the firm. (see No. 3 below).

3. FAA & 620 (e)(1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities?	3. The GOES has "intervened" the IRCA (U.S. owned railroad) in order to supervise the financial transactions of the Company, which is running on a very short budget. The GOES has assured the USG that any necessary actions will be taken after prior consultations and consistent with recognized standard of redress and compensation.
4. FAA & 620(o); Fishermen's Protective Act. & 5. If country has seized,or imposed any penalty or sanction against, any U.S. fishing vessel on account of its fishing activities in international waters,	4. No case of seizure, penalty or sanction against U.S. fishing vessels is known to exist, even though El Salvador claims 200 mile territorial sea.
a. has any deduction required by Fishermen's Protective Act been made?	4.a. Not applicable.
b. has complete denial of assistance been considered by A.I.D. Administrator?	4.b. Not applicable.

Relations with U.S. Government and Other Nations.

5. FAA & 620(d). If assistance is for any productive enterprise which will compete in the United States with United States enterprise, is there an agreement by the recipient country to prevent export to the United States of more than 20% of the enterprise's annual productinn during the life of the loan?	5. Not applicable.
6. FAA & 620(j). Has the country permitted, or failed to take adequate measures to prevent the damage or destruction, by mob action, of U.S. property?	6. El Salvador has not permitted such acts.
7. FAA & 620(l). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, in convertibility or confiscation, has the A.I.D. administration within the past year considered denying assistance to such government for this reason?	7. A bilateral agreement between the United States and El Salvador relating to the guaranty of private investments was signed in San Salvador January 20, 1960 and entered into force April 5, 1960. El Salvador has actively instituted the guaranty program.
8. FAA & 620 (q). Is the government of the recipient country in default on interest or principal of any A.I.D. loan to the country?	8. No such default exists.

9. FAA & 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption?	9. El Salvador has consistently maintained diplomatic relations with the United States.
10. FAA & 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the A.I.D. Administrator in determining the current A.I.D. Operational Year Budget?	10. "El Salvador assessment rate is .04% of U.N. budget. For 1971 assessment was $71,488, for 1972 $81,216 and for 1973 $86,111. As of April 30, 1973 GOES owed UN $74,979 for 1973 assesoment and $133,518 for prior years. El Salvador will not be subject FAA Sec. 620(u) in 1973 but must be less than $167,327 in arrears for prior years to avoid application of Section in 1974." (State 100474 of 25 May 1973).
11. FAA & 620(a). Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba?	11. According to the best information available, El Salvador complies fully with these prohibitions against trade with or assistance to the present government of Cuba and with permitting ships or aircraft under its registry to carry proscribed items to Cuba.
12. FAA & 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement?	The Secretary of State has determined that El Salvador is not controlled by the Communist movement.

13. FAA & 620(f). Is recipient country a Communist country?	13. No.
14. FAA &620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression?	14. No.
15. FAA & 620(n). Does recipient country furnish goods to North Viet-Nam or permit ships or aircraft under its flag to carry cargoes to or from North Viet-Nam?	15. El Salvador does not traffic or knowingly permit trafficking with North Viet Nam.
16. FAA & 481. Has the government of recipient country failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country or their dependents, or from entering the U.S. unlawfully?	16. The Government has taken such measures as are within its capacity to control narcotics traffic and is cooperating with U.S. efforts to eliminate production and trade in narcotics.

Military Expenditures

17. FAA & 620(s). What percentage of country budget is for military expenditures? How much of foreign exchange resources spent on military equipment? How much spent for the purchase of sophisticated weapons systems? (Consideration of these points is to be coordinated with the Bureau for Program and Policy Coordination, Regional Coordinators and Military Assistance Staff (PPC/RC).)

17. Expenditures for military purposes represent approximately 5.98% and its public safety budget (Nat. Guard, Nat.Police, Fire Dept. etc.) represents 2.8% of its National Budget or a total of 8.76% of GOES budget for the two items. El Salvador's foreign exchange disbursements for military equipment are projected to be less than $1,000,000 per FY. No determination has been made that the GOES is devoting to military purposes a percentage of resources which materially interferes with its development.

CONDITIONS OF THE LOAN

General Soundness

18. FAA & 201(d). Ifnormation and conclusion on reasonableness and legality (under laws of country and the United States) of lending and relending terms of the loan.

18. The terms of the proposed loan are legal under both U.S. and Salvadoran laws, and are considered reasonable.

19. FAA & 251(b)(2); & 251(e). Information and conclusion on activity's economic and technical soundness. If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds $100,000, has country submitted to AID and application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

19. See Technical and Financial Analysis, Part Four, III and V. The application for this loan is attached as ANNEX I, Exhibit B. Assurances have been given by the GOES, Ministry of Agriculture that the funds, will be used in an economically and technically sound manner.

20. FAA & 251(b). Information and conclusion on capacity of the country to repay the loan, including reasonbleness of repayment prospects.

20. El Salvador is considered able to repay the proposed loan.

21. FAA & 611(a)(1). Prior to signing of loan will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the United States of the assistance?	21. A reasonably firm estimate of the cost to the U.S. of the proposed assistance has been made. See Part Four, III and IV and annexes III and V for the Engineering and Financial Plans.
22. FAA & 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purposes of loan?	22. Additional legislation is not required.
23. FAA & 611(e). If loan is for Capital Assistance, and all U.S. assistance to project now exceeds $1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project?	23. Yes. See Director's Certification in Annex I, Exhibit A.
24. FAA & 251(b). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.	24. As discussed in Part Three, Section VI-E the IBRD, IDB and EX-IM have expressed no interest in financing this project. Since concessional lending terms are required for the project other sources are not known to exist.

Loan's Relationship to Achievement of Country and Regional Goals

25. FAA & 207; & 251(a). Extent to which assistance reflects appropriate emphasis on: (a) encouraging development of democratic, economic, political, and social institutions; (b) self-help in meeting the country's food needs; (c) improving availability of trained manpower in the country; (d) programs designed to meet the country's health needs, or (e) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws.

25. (a) This project will strengthen the existing grain price stabilization agency.

(b) This program will reduce market risk to producers thereby encouraging them to accept greater production risk in the form of new technology.

(c) IRA plans to initiate training programs in such areas as grades and standards for private sector employees.

(d) The IRA program will lower the prices of basic staples to consumers which may result in improved diets.

(e) IRA will offer technical assistance to assist new and existing marketing cooperatives and private firms.

26. FAA & 209. Is project susceptible of execution as part of regional project? If so why is project not so executed?

26. It has been determined that the project cannot be executed as a part of regional project but will complement regional programs and specific projects when and if developed. See Part Three Section VI-A.

27. FAA & 251(b)(3). Information and conclusion on activity's relationship to, and consistency with, other development activities, and its contribution to realizable long-range objectives.

27. This activity has a basic significance for all of the Borrower's development activities and will play an essential part in the realization of long range objectives in agriculture.

28. FAA& 251(b)(7). Information and conclusion on whether or not the activity to be financed will contribute to the achievement of self-sustaining growth.

28. The program will reduce market imperfections and risk thereby creating additional incentives to producers to adopt new technology.

29. FAA& 281(a). Describe extent to which the loan will contribute to the objective of assuring maximum participation in the task of economic development on the part of the people of the country, through the encouragement of democratic, private, and local governmental institutions.	29. See 25 (e) above.
30. FAA & 281(b) Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political progesses essential to self-government.	30. The project is designed to assist small and medium sized producers increase their incomes and to allow lower food prices to consumers.
31. FAA & 601(a). Information and conclusions whether loan will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initintive and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.	31. This loan will indirectly support the efforts of the country to assist the small and medium size producers increase their technical efficiency by reducing market risk.

32. FAA& 619. If assistance is for newly independent countryȳ is it furnished through multilateral organizations or plans to the maximum extent appropriate?	32. El Salvador is not a newly independent country.
33. FAA & 251(h). Information and conclusion on whether the activity is consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress in its annual review of national development activities.	33. The loan is consistent with the findings and the recommendations of the Inter American Committee for the Alliance for Progress in its latest annual review.
34. FAA & 251(g). Information and conclusion on use of loan to assist in promoting the co-operative movement in Latin America.	34. See 25 (e) above.
35. FAA & 209; & 251(b)(8). Information and conclusion whether assistance will encourage regional development programs, and contribute to the economic and political integration of Latin America.	35. The project will encourage the utilization by El Salvador of regional credit facilities (through CABEI) once established for the financing of additional working capital needs for the grain stabilization program. See Part Three, Section VI-A.
Loan's Effect on U.S. and A.I.D. Program.	
36. FAA & 251(b)(4); &102. Information and conclusion on possible effects of loan on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving the U.S. balance of payments position.	36. This project will have no adverse effect on the U.S. economy. A substantial portion of the grain handling and storage equipment and field equipment to be procured under the loan will be procured from the U.S.

37. FAA § 601(b). Information and conclusion on how the loan will encourage U.S. private trade and investment abroad and how it will encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise).	37. The loan will finance the procurement of some goods from U.S. private sources, thereby encouraging private U.S. participation.
38. FAA § 601(d). If a capital project, are engineering and professional services of U.S. firms and their affiliates used to the maximum extent consistent with the national interest?	38. This will be complied with.
39. FAA § 602. Information and conclusion whether U.S. small business will participate equitably in the furnishing of goods and services financed by the loan.	39. To the extent possible, small business notification in accordance with A.I.D. procedure will be complied with.
40. FAA § 620(h). Will the loan promote or assist the foreign aid projects or activities of the Communist-Bloc countries?	40. No assistance under the Loan will promote any project or activity of a Communist-Bloc country.

41. FAA § 621. If technical assistance is financed by the loan, information and conclusion whether such assistance will be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis. If the facilities of other Federal agencies will be utilized, information and conclusion on whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.	41. Technical assistance provided under the loan to the fullest extent practicable will utilize goods and professional services from private enterprise on a contractual basis. It is not anticipated that loan funds will finance the use of other Federal agencies.
42. FAA § 252(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources.	42. The entire loan will be so used. U.S. $3.0 million of the loan will be used to procure goods and services related to storage facility expansion and related technical assistance from private sources. US$3.5 million of the loan will be used in the IRA commodity purchase program to purchase grains from private national sources.

Loan's Compliance with Specific Requirements.

43. FAA § 201(d). Is interest rate of loan at least 2% per annum during grace period and at least 3% per annum thereafter?	43. Yes.
44. FAA § 608(a). Information on measures to be taken to utilize U.S. Government excess personal property in lieu of the procurement of new items.	44. The loan agreement will so provide.

45. FAA & 604(a). Will all commodity procurement financed under the loan be from the United States except as otherwise determined by the President?	45. Yes.
46. FAA & 604(b). What provision is made to prevent financing commodity procurement in bulk at prices higher than adjusted U.S. market price?	46. No bulk commodity purchases are contemplated under this loan.
47. FAA & 604(d). If the cooperating country discriminates against U.S. marine insurance companies, will loan agreement require that marine insurance be placed in the United States on commodities financed by the loan?	47. Yes.
48. FAA & 604(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity?	48. No such procurement is contemplated.
49. FAA & 611(b); App. & 101. If loan finances water or water-related land resource construction project or program, is there a benefit-cost computation made, insofar as practicable, in accordance with the procedures set forht in the Memorandum of the President dated May 15, 1962?	49. Not applicable.

50. FAA & 611(c). If contracts for construction are to be financed, what provision will be made that they be let on a competitive basis to maximum extent practicable?	50. To the maximum extent practicable contracts for construction services will be let on a competitive basis.
51. FAA & 620(g). What provision is there against use of subject assistance to compensate owners for expropriated or nationalized property?	51. The loan agreement will not permit such use.
52. FAA & 612(b); & 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the United States are utilized to meet the cost of contractual and other services.	52. As reflected in the financial plan, maximum feasible local contributions are being obtained. No excess foreign currency is available.
53. App. & 104. Will any loan funds be used to pay pensions, etc., for military personnel?	53. No.
54. App. & 106. If loan is for capital project, is there provision for A.I.D. approval of all contractors and contract terms?	54. The loan agreement will so provide.
55. App. & 108. Will any loan funds be used to pay U.N. assessments?	55. No.

56. App. & 109. Compliance with regulations on employment of l and local personnel for funds obligated after April 30, 1964 (A.I.D. Regulation 7).	56. This will be complied with.
57. FAA & 636(i). Will any loan f be used to finance purchase, l term lease, or exchange of mot vehicle manufactured outside t United States, or any guaranty such a transaction?	57. No non-US vehicles will be procured.
58. App. & 501. Will any loan fun be used for publicity or propa- ganda purposes within the United States not authorized by the Congress?	58. No.
59. FAA & 620(k). If construction of productive enterprise, will aggregate value of assistance to be furnished by the United States exceed $100 million?	59. No.
60. FAA & 612(d). Does the United States own excess foreign currency and, if so, what arrangements have been made for its release?	60. No.
61. MMA & 901.b. Compliance with requirement that at least 50 per centum of the gross ton- nage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed with funds made available under this loan shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reason- able rates.	61. Compliance will be observed to the extent that such vessels are avail- able at fair and reasonable rates.

Instituto Regulador de Abastecimientos
Balance Sheets
1969 - 1972

(000s of Dollars)

	Year Ended December 31,			
A S S E T S	1969	1970	1971	1972
Cash	$ 600	$ 866	$ 503	$ 352
Grain Inventories	3,176	1,736	3,898	3,159
Letters of Credit	387	205	145	145
Deferred Operating Expenses	303	299	169	170
Land, Buildings and Equipment	2,224	2,255	2,388	2.452
Less: Reserve for Depn.	(967)	(1,067)	(1,171)	(1,221)
Other Assets	466	871	544	413
Total Assets	$6,189	$5,165	$6,476	$5,470
LIABILITIES AND EQUITY				
Accounts Payable/Grain	$1,727	$ 981	$1,889	$ 104
Interest Payable	692	767	2	9
Payable to Central Bank	3,998	3,835	2,747	3,491
Payable to Treasury	-	-	-	140
Other Liabilities	167	229	177	159
Total Liabilities	$6,584	$5,812	$4,815	$3,903

Instituto Regulador de Abastecimientos
Balance Sheets
1969 - 1972
(000s of Dollars)

	Year Ended December 31,			
LIABILITIES AND EQUITY (Cont.)	1969	1970	1971	1972
Capital - (Note 1)				
Original and Donations	$1,229	$1,229	$1,229	$1,229
Subsequent Construction	1,359	1,466	1,619	1,639
Reimbursed Losses, 1960-70	-	-	2,914	2,914
	$2,588	$2,695	$5,762	$5,782
Accumulated Losses - (Note 1)				
Reimbursable	$(2,655)	$(2,914)	$(3,452)	$(3,516)
Unreimbursable	(328)	(428)	(649)	(699)
Total Losses, 1960-70	$(2,983)	$(3,342)	$(4,101)	$(4,215)
Total Equity	$ (395)	$ (647)	$ 1,661	$ 1,567
Total Liability and Equity	$ 6,189	$ 5,165	$ 6,476	$ 5,470

NOTE (1) - Reimbursable losses are carried on the Institute's books as a receivable from GOES and not as an equity loss. Losses prior to 1960 were not restated for this presentation and as a consequence capital and losses are understated by that total amount.

Instituto Regulador de Abastecimientos
Profit/(Loss) Statements
1969 - 1972
($000's of Dollars)

	Year Ended December 31			
	1969	1970	1971	1972
INCOME				
Grain Sales	$ 3,602	$ 5,882	$ 3,531	$ 2,182
Less: Cost of Sales	(3,412)	(5,694)	(3,594)	(2,092)
	$ 190	$ 188	$ (63)	$ 90
Other				
Storage, Drying, Iodine	$ 33	$ 37	$ 40	$ 26
Sacks	26	47	7	21
Inventory Gain/(Loss)	(63)	105	92	(61)
Miscellaneous	4	9	7	5
	$ -	$ 198	$ 146	$ (9)
Total Income	$ 190	$ 386	$ 83	$ 81
EXPENSE				
Operations -				
Salaries	$ 381	$ 380	$ 362	$ 346
Interest	136	146	73	85
Packing	269	133	53	30
Freight and Transport	84	130	164	18
Maintenance	39	40	39	20
Treatment of Inventories	16	18	15	36
Rent	28	40	27	26
Utilities	20	20	22	17
Insurance	19	19	14	23
Special Export Expenses	-	13	96	-
Advertising	5	18	24	11
Paper and Supplies	9	13	12	6
All Other	41	60	100	19
	$ 1,047	$ 1,030	$ 1,001	$ 637
Income/(Loss) Operations	$ (857)	$ (644)	$ (918)	$ (556)

Instituto Regulador de Abastecimientos
Profit/(loss) Statements
1969 - 1972
(000s of Dollars)

	1969	1970	1971	1972
Administrative Expenses -				
Salaries	$ 97	$ 98	$ 96	$ 117
Depreciation	98	100	227(1)	50
Maintenance	11	11	10	13
Travel and Per Diem	11	10	9	3
Rent	9	9	9	9
Supplies	5	5	6	5
All Other	16	10	11	8
	$ 247	$ 243	$ 368	$ 205
Total Income/(Loss)	$(1,104)	$(887)	$(1,286)	$(761)

(1) Actual expense for 1971 was $104,000.
Remainder was prior years' write off.

Table 1

El Salvador: Balance of Payments - End of Year - 1967-1971
(US $ Millions)

	1967	1968	1969	1970	1971 A/
Exports of Goods & Services B/	230.7	238.0	226.6	256.2	
Imports of Goods & Services B/	265.9	261.3	259.4	267.0	
Current Account Deficit	35.2	23.3	32.8	10.8	30.0
Public Sector Financing, Net	7.0	7.8	12.9	2.6	
Disbursements	(11.3)	(11.9)	(17.1)	(9.4)	
Amortization	(4.3)	(4.1)	(4. 2)	(6.8)	
Other Capital, Net C/	25.6	20.9	15.0	23.2	
Changes in Net International Reserves (-: increase in monetary sense)	2.6	-5.4	4.9	-15.0	0.0
Net International Reseves	37.0	42.4	37.4 D/	52.4	52.4

Source: IBRD (data derived from Central Reserve Bank IMF, and IBRD estimates)

A/ Data on comparable basis not available for 1971; source for aggregate figures in Central Reserve Bank.
B/ Included international transfers
C/ Includes private capital, commercial banks, and 1970's SDR's allocation of $4.2 million
D/ Central Reserve Bank figure is $44.4 million; IBRD discounted assets from 60 day forward dollar purchases from internal sources.

Table 2

El Salvador: Merchandise Trade Trends - 1961-1971
(US $ Millions)

YEAR	EXPORTS	%GDT	IMPORTS A/	PER CENT DOMESTIC CONSUMPTION	+ SURPLUS - DEFICIT
1961	129.6	9.0	129.0	10.0	+ .6
1962	149.8	9.3	146.6	10.6	+ 3.2
1963	150.2	8.8	152.3	10.4	- 2.1
1964	175.5	9.4	191.8	12.1	-16.3
1965	190.0	9.5	202.5	11.9	-12.5
1966	189.9	9.0	220.0	12.0	-31.1
1967	207.2	9.4	223.9	11.6	-16.7
Average Growth 1962 - 1967		12.9		15.8	
1968	211.7	9.2	213.5	10.5	- 1.8
1969	202.1	8.5	209.2	9.9	- 7.2
1970	229.1	9.0	213.6	9.4	+15.5
1971	228.4	8.6	249.2	10.6 C/	-20.8
Average Growth 1968 - 1971		5.3	6.3		
Average Growth 1962 - 1971		9.9	12.0		

A/ Source: Central Reserve Bank, Monthly Review

B/ Current Prices

C/ Domestic Consumption Estimated at 1970 proportion of GDP.

Table 3

El Salvador: Central Government Expenditures-
Current and Capital By Sector
(1967-1971)
(Exchange Rate: US $1.00: Colones ¢2.50)

Expenditures	1967	1968	1969	1970	1971
Current [b]	196.7	206.6	248.4	224.4	285.9
Defense (Total)	24.3	29.5	71.8	26.4	32.1
Agriculture	9.1	9.5	9.4	10.4	15.8
Education	58.7	60.7	65.8	69.0	98.6
Health	31.5	35.8	35.4	35.1	61.2
Transportation	8.5	8.6	20.2	20.6	20.6
Communication	2.2	2.2	12.1	13.0	13.3
Interest[c]	9.6	10.2	13.6	15.0	16.3
Other Current	52.8	50.1	20.1	34.9	28.0
Capital[d]	108.1	94.7	104.3	123.0	180.2
Agriculture	26.1	28.5	34.5	46.0	41.4
Education	3.7	4.9	5.3	4.4	22.9
Health	1.5	0.5	4.7	5.0	5.5
Transportation	11.1	6.5	13.9	26.1	44.0
Communication		1.9	4.5	3.9	7.8
Industry and power	26.2	27.6	27.0	26.7	41.7
Other capital	39.5	24.8	14.4	10.9	16.9
Total	304.8	301.3	352.7	347.4	466.1

Source: AID Data Book.

a. Budget estimates.
b. Includes police elements of non-paramilitary
c. Estimated.
d. Includes the capital outlay of government enterprises not financed by the central government as follows (millions of colones): 1967 16.1; 1968 - 21.0; 1969 - 30.1; 1970 - 11.6; 1971 - 32.2

Table 4

El Salvador: Trends in Gross Domestic Product - 1961-1971
(Constant 1962 Prices)
(Exchange Rate: US $1.00: Colones ¢2.50)

Year	GDP		Agriculture		Other Sectors	
	Total	% Growth	Total	% of GDT	Total	%of GDP
1961	1431.5		451.1	31.5	980.4	68.5
1962	1602.6	12.0	537.0	33.5	1065.6	66.5
1963	1671.6	4.3	518.4	31.0	1153.2	69.0
1964	1827.5	9.3	540.0	29.5	1287.5	70.5
1965	1925.6	5.4	517.2	26.9	1408.4	73.1
1966	2063.5	7.2	527.2	25.5	1536.3	74.5
1967	2175.7	5.4	557.7	25.6	1618.0	74.4
1968	2246.1	3.3	567.7	25.3	1678.4	74.7
1969	2324.8	3.5	588.6	25.3	1736.2	74.7
1970 (p)	2405.7	3.5	622.0	25.9	1783.7	74.1
1971 (p)	2509.2	4.3	640.9	25.5	1868.3	74.5
1961-1967 Average Growth		6.73				
1968-1971 Average Growth		3.65				
1961-1971 Average Growth		5.61				

Source: Revista Mensual, Central Reserve Bank
Indicadores Económicos y Sociales
CONAPLAN

(p) = preliminary

Table 5

Yield Performance of Basic Grain in El Salvador

	El Salvador (tons/Ha.)	Guatemala (tons/Ha)	Mexico (tons/Ha)	U.S. (tons/Ha)
Corn (1970)	1.76	1.04	1.20	4.50
Rice (paddy) (1970)	3.72	1.55	2.55	5.12
Beans (1970)	1.18	0.34	0.50	1.37
Sorghum (1970)	1.19	0.89	2.70	3.18

Performance of per Hectare Yields in El Salvador Based on Index 1966/67 = 100.

Corn	(1971/72)	141.8
Beans	(1971/72)	222.5
Rice	(1971/72)	108.8
Sorghum	(1971/72)	156.4

Source: Various Reports and Surveys, Ministry of Agriculture.

Average Size of Agricultural Farms in El Salvador
Agricultural Year: 1970-71

Size of Farms (Ha.)	Number of Farms	Percent	Total (Ha.)	Percent	Average Size (Ha.)
Less than 1.0	132,907	48.78	70,568	4.82	0.530
1 - 1.99	59,842	21.97	83,084	5.67	1.388
2 - 4.99	44,002	16.15	134,163	9.16	3,049
5 - 9.99	15,730	5.77	112,590	7.69	7.157
10 - 19.99	8,977	3.30	126.566	8.65	14,098
20 - 49.99	6,772	2.49	213,067	14.55	31.462
50 - 99.99	2,241	0.82	154,841	10.58	69.094
100 - 199.99	1,115	0.41	153,515	10.49	137.681
200 - 499.99	640	0.23	192,248	13.13	300.387
500 - 999.99	141	0.05	96,547	6.60	684.730
1000 - and more	65	0.02	126,670	8.65	1,948,769
TOTAL	272,432	100	1463,859	100	5.373

Source: Directorate General of Statistics and Census
III Agriculture and Cattle Census, 1971.
Table 15.

Table .-- Monthly High and Low Wholesale Prices for Basic Grains, San Salvador, 1958-59 through 1971-72

(In Dollars)

Year	Corn			Sorghum			Black Beans			Rice		
	High	Low	Diff.	High	Low	Diff.	High	Low	Diff.	High	Low	Diff.
1958-59	5.60	4.44	1.16	4.70	2.62	2.08	11.11	9.25	1.86	11.09	8.66	2.43
1959-60	4.00	3.10	.90	2.27	1.48	0.79	9.33	7.02	2.31	9.06	7.67	1.39
1960-61	4.58	2.47	2.11	3.67	1.86	1.81	10.34	7.92	2.42	10.05	7.70	2.35
1961-62	4.64	3.39	1.25	3.36	2.77	0.59	10.84	7.39	3.45	11.86	8.23	3.63
1962-63	4.27	3.20	1.07	3.32	2.96	0.36	9.27	7.07	2.20	10.50	8.40	2.10
1963-64	4.66	3.05	1.61	5.04	3.04	2.00	10.98	7.87	3.11	10.41	9.00	1.41
1964-65	4.70	3.80	0.90	4.51	3.55	0.96	10.04	8.15	1.89	10.75	8.64	2.11
1965-66	3.90	3.16	0.74	3.24	2.58	0.66	9.34	7.23	2.11	12.14	9.00	3.14
1966-67	4.98	2.92	2.06	4.65	2.24	2.41	12.47	6.56	5.91	10.41	8.72	1.69
1967-68	4.91	3.94	0.97	4.33	3.12	1.21	12.66	8.57	4.09	9.82	8.70	1.12
1968-69	4.02	3.35	0.67	3.00	2.64	0.36	11.16	8.60	2.56	9.04	7.99	1.05
1969-70	5.00	3.13	1.87	4.20	2.42	1.78	16.40	9.66	6.74	11.60	7.60	4.00
1970-71	3.90	3.10	0.80	3.10	2.80	0.30	13.20	8.52	4.68	10.60	8.30	2.30
1971-72	3.82	2.63	1.19	4.08	2.26	1.82	12.40	8.42	3.98	8.75	7.81	0.94
Weighted Average Difference	n.a.	n.a.	1.23	n.a.	n.a.	1.21	n.a.	n.a.	3.70	n.a.	n.a.	1.88

Source: Statistical Section of the MAG.

THE CORN PRICE MODEL FOR THE 1973-74 SEASON[1)]
($1.00 = ¢2.50)

Projections of the expected corn supply for 1973/74 began with estimates of the area likely to be planted. Four different equations were used, all nearly equal in value from the standpoint of the size of the correlation coefficient and the standard error of estimate[1/].

Eq. 1 $M_M = -255{,}564 + 4{,}936T$ $R^2 = .576$ S.E. = 12,230

Eq. 2 $M_M = -313{,}711 + 5{,}101T + 4{,}185P_{M-1}$ $R^2 = .602$ S.E. = 18,285

Eq. 139 $M_M = -526{,}966 + 7{,}730T + 3{,}085R_{M-1} \quad 2{,}307P_{M-1}$ $R^2 = .609$ S.E. = 20,360

Eq. 140 $M_M = 5{,}826 + 6{,}819\ P_{M-1}$ $R^2 = .136$ S.E. = 27.731

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a/ Symbols used in the following equations have the following meanings:

M_M = area planted to corn

T = time, 1971/72 = 112 in equations other than numbers 137-144, where 1971/72 = 113

P_{M-1} = price in preceding year, colones per quintal

R_{M-1} = yield in preceding year, quintals per manzana

M_H = area planted with hybrid seed as proportion of total corn area (total = 1.00)

The equation number identifies it in the master list maintained by the price analysis group.

1) One quintal equals 100 lbs. One manzana equals 1.7 acres.

The equations gave estimates ranging from 307,000 manzanas to 344,000 manzanas.

The independent variables in these equations, single or in combination, were: price in the preceding year, time, and yield per manzana in the preceding year.

Two equations were used for estimating yield of corn per manzana

Eq. 13 $R_M = 89.4 + 1.0189T$ $R^2 = .744$ S.E. = 2.26

Eq. 146 $R_M = 17.3 + 28.12 M_H = .295T$ $R^2 = .863$ S.E. = 1.83

The estimate with hybrid corn as a factor was 26.0 quintals per manzana, while the estimate based on trend in yield with time alone gave 26.8 quintals. It is known that the supply of hybrid corn seed available for planting the 1973/74 crop is no larger than the quantity used for the 1972/73 crop. This offers sufficient reason for not expecting the historic rate of increase in yield to be equalled in 1973/74.

The standard error of estimate indicates the possible discrepancy between the projection and the final results in the forthcoming season. It includes the average effect of weather conditions during recent years (not including the 1972 drought, however), as well as other factors such as the statistical variations inherent in the methods used in compiling the original crop statistics.

With the foregoing yield and area estimates, total production estimates range from 8.0 to 9.2 million quintales. The most probable figure we take to be 8.6 million quintales.

It is well to bear in mind that these estimates have standard errors ranging from 600,000 to 700,000 quintales. These indicate, approximately, the range of production levels that must be considered in planning IRA's 1973/74 program.

Subsequent calculations were based on an expected production of 8.6 million quintales, subject to the 600,000 to 700,000 quintales standard error of estimate.

For estimating the 1973/74 annual average price of corn, we had available 30 estimating equations. From those, 4 were chosen on

the basis of the coefficient of correlation, the standard error of estimate, and the logical persuasiveness of the economic relationships represented by the independent variables and their coefficients. For example, a fairly satisfactory correlation was obtained with a multiple regression equation in which the price of corn depended on the per capita supplies of sorghum and beans, and per capita income. This was judged to be less satisfactory, however, than an equation with quantities of sorghum, rice and corn, and income per capita as independent variables, although the latter equation had a lower coefficient of correlation and a larger standard error of estimate.

The best equation, from several points of view, related the price of corn to the net volume of foreign trade in corn, wheat imports, corn production, and per capita income. Although the correlation was high and the standard error of estimate was low, this equation is unsatisfactory for projection purposes, since wheat imports depend on, and do not determine, the price of corn. The equation indicated that the price of corn rose with increases in the quantity of wheat imported. It would certainly not be possible to raise the price of corn by importing more wheat, or to lower the price of corn by prohibiting the importation of wheat. Despite this defect, this equation gives probably the best coefficients for effects of corn supplies and per capita increase on corn prices. With two alternative projections of 1974 wheat imports, one at the 1972 level of 900,000 quintales, and one at the 1971 level of 1,350,000 quintales, projected corn prices were ¢7.37 and ¢8.28.

The equation considered most reliable from an overall point of view gave a projection of ¢7.72 (The initial estimate with this equation was ¢8.02. Values of some of independent variables for 1973/74 were subsequently modified, reducing the projected corn price). The standard error of estimate in this equation was ¢0.73, giving a range of from approximately ¢7.00 to ¢8.50.

Altogether, the four price equations gave estimates ranging from ¢7.37 to ¢8.86. A price of ¢8.00 was adopted as the basis for planning in terms of the most probable annual average price of corn for the 1973/74 marketing year.

The corn price equations used were:

Eq. 22 $P_M = 10.39 - 13.370_S + 29.410_F + 5.06Y$

$R^2 - .589 S.E. = .73$

Eq. 30 $P_M = 13.72 - 7.2900_S + 3.4400_A + 2.52Y - 0.450_M$

$R^2 = .283$ S.E. = 1.215

Eq. 152 $P_M = 7.97 - 0892Q_{MCe} + 8.413Y - 2.281Q_{MP}$

$R^2 - .532$ S.E. = .866

Eq. 156 $P_M = 8.886 - .255Q_{MCe} + 258Q_{Tr} - 2.406Q_{MP} + 2.852Y$

$R^2 = .693$ S.E. = .795

2/ Additional symbols in these equations, not defined previously:

P_M = price of corn, ¢ per quintal, wholesale, Plaza de San Salvador average of twelve months September through August.

Q_M = Apparent consumption of corn, quintales per capita

Q_S = Apparent consumption of sorghum, quintales per capita

Q_A = Apparent consumption of rice, quintales per capita

Q_F = Apparent consumption of beans, quintales per capita

Q_{MCe} = Net foreign trade in corn, quintales per capita

Q_{Tr} = Wheat imports, quintales per capita

M_p = Quantity of corn produced, quintales per capita

Y = National income per capita, ¢1,000 (i.e., ¢593 = .593)

Combining the standard errors of estimate for production and price, gives the standard error of estimate of the value of the corn crop. Production of 8.6 million quintales at ¢8.00 per quintal would be worth ¢68.8 million with a standard error of estimate of 7.6 million, approximately 11 percent.

Some observations might be made here to provide perspective on the foregoing results. The projected production of 8.6 million quintales would be the highest production ever achieved in El Salvador. It would be obtained on the highest acreage ever planted to corn. It will be recalled that with the previous record production of 8.2 million quintales in 1971, the year's average price was ¢7.46 (marketing year, October through September). The price fell as low as ¢6.57 in June, 1972. Taking further account of the fact that some 480,000 quintales were exported in 1972, and that our projections assume that the ¢8.00 price will result without the necessity of exporting any, one receives the distinct impression that ¢8.00 is an optimistic projection. If that is the case, IRA's burden in attempting to keep prices at, say ¢7.40, would be very heavy, indeed.

We did not attempt to project a price at which it might be possible to export any part of the 1973/74 crop. To a considerable extent, the basic grains trade among the Central American countries is determined by negotiations among the price stabilization authorities. It would be difficult, and require much time, to analyze El Salvador's external trade in corn, and to determine the probable level of prices in such transactions. This is a task which probably could best be done at the regional level. However, it would seem worthwhile for El Salvador to undertake its own analysis of this problem on its own initiative, and from its own point of view, in order to be prepared as fully as possible for deciding on, and defending its interests in future negotiations.

As mentioned previously, the projections of supply and price were checked against other criteria of a desirable price for corn, and were judged not to be inconsistent with these criteria.

The next step was to adopt a set of lower and upper prices as a basis for evaluating the alternatives which IRA might need to choose among for the 1973/74 crop year. Since we had decided that ¢8.00 represented the most probable annual average price, a lower limit of ¢7.25 was taken for preliminary planning purposes, and an upper limit of ¢8.50.

The choice of ¢7.25 and ¢8.50 as limits was basically related to the standard error of estimate of the price itself. We could have considered, alternatively, that the basic uncertainty was in the production projection, and that, given the production figure, our estimate of price would be accurate within 1 centavo. In that case, the discrepancy to be expected between our projected price and the final result for the year would be attributable to the uncertainty in the production projection. The standard error of estimate of the production projection was such that, again, ¢7.25 and ¢8.50 represent a reasonable range of prices that might be realized in 1973/74, having the relatively small probability (approximately 1 in 6), that the market equilibrium price would be lower than ¢7.25.

The stabilization prices for the ¢7.25 alternative were taken to be ¢6.65 and ¢8.15. The higher of these prices is the wholesale price at which IRA would be prepared to dispose of any stocks it might acquire. At these prices, and under the assumption that the market equilibrium price for the year would average ¢7.25, IRA would expect to purchase during the harvest season a quantity of corn approximately equal to the quantity that it would need to sell during the season of high prices in order to keep the market price from rising above the upper limit.

If the market equilibrium price should turn out to be higher than ¢7.25, IRA would be unable to purchase the amount expected at a price of ¢6.65 and would not have enough grain to keep the price from rising about ¢8.15.

Assuming a market equilibrium price of ¢8.50, IRA's minimum purchase price would be ¢7.93, and the resale price ¢9.43.

The minimum and maximum prices consistent with our estimate of the most probable market equilibrium price of ¢8.00 would be ¢7.39 and ¢8.89.

With the ¢7.25 equilibrium price and IRA's minimum and maximum prices balanced accordingly, it was estimated that IRA would acquire 200,000 quintales which would normally have been consumed during the harvest season, and would carry this over for resale in the latter part of the year, thereby checking the seasonal rise in prices. At ¢8.00, IRA's seasonal purchases would amount to 270,000 quintales, and at ¢8.50, 325,000 quintales.

Suppose IRA were to fix a minimum price based on an ¢8.50 market equilibrium. Then, if supply or other economic factors should so depress consumption that without IRA's intervention the annual average would only be ¢7.25, IRA would have to buy some 700,000 quintales. This may sound like an extreme case, but, in fact, it has a probability of something like 1 in 6 of being this bad or worse.

As has been mentioned previously, the private trade would be inclined to shift to IRA some of its responsibility for carrying stocks. The amounts involved are relatively small, compared with the effect which stabilizing prices above the normal seasonal level would have on current disappear. For market equilibrium prices used in this exercise, private storage would be reduced 128,167 and 199 thousand quintales, respectively (with increasing level of market equilibrium price).

Combining the effects on current consumption with the effects on private storage gives an estimate of the total quantity that IRA would have to handle to stabilize seasonal price variations around the market equilibrium with a range of ¢1.50 between the minimum and maximum wholesale prices. For the respective market equilibrium prices, IRA's total volume handled was estimated at 328,437 and 524 thousand quintales.

Selection of Sites and Capacity Determination

The methodology used in site selection and capacity determination has been outlined in Part IV. The following is a department by department (and inter-department) analysis to determine the need for IRA storage facilities and the capacities required. The departments are listed in alphabetical order for easy reference, but it must be realized that several departments often form economically related zones. For example, the four eastern departments of San Miguel, Usulután, Morazán, and La Unión all lie east of the Lempa River. The city of San Miguel is a major distributing center for much of the zone. Therefore, any facility located in San Miguel will affect all departments, not just San Miguel. The same is true of Santa Ana in the western part of the country

AHUACHAPAN

The Department is divided into two main zones with respect to grain production: The municipios of San Francisco Menéndez and Jujutla, which lie along the Pacific coast, and those of Ahuachapan, Atiquizaya and San Lorenzo in the northern part of the country. The remaining municipios are mainly located in the mountainous, coffee growing areas. Because of the mountainous area dividing the two zones, they have to be considered separately from a marketing point of view. The two coastal municipios have their main areas of communication with Guatemala to the west and with Acajutla and Sonsonate to the east. The northern municipios have communication with Guatemala and with the City of Santa Ana.

Consumption (M.T.)

Grain *	Est. Prod. in 1971 - M.T.	Urban	Rural	Total	Balance	Est. amount entering commercial channels M.T.**
Maíz	25,333	3391	19518	22,909	+2424	21,800
Maicillo	7,866	--	1966	1,966	+5900	5,900
Arroz (en granza)	6,638	579	1911	2,490	+4148	6,300
Frijoles	3,592	--	--	2,572	+1020	3,300
Total	43,429	4631	25306	29,937	+13492	37,300

* Grains will be referred to by their Spanish names: Maíz (Corn), Maicillo, (Sorghum), Arroz (Rice), and Frijol (beans). All references to arroz (rice) is in terms of arroz en granza (Paddy rice).

** That amount of totah production which is not consumed on the farm (as human or animal food or for seed)

Maíz. Approximately 10,500 M.T. of maíz are produced in the two municipios of San Francisco Menéndez and Jujutla, of which 5,300 M.T. are in excess of the needs of the municipios. This surplus flows over the Carretera del Litoral towards Sonsonate. The municipios of Ahuachapán, Atiquizaya and San Lorenzo in the north produce another 10,000 M.T. of maíz, but have only a small surplus.

Maícillo. Approximately one-fourth of the 7800 M.T. produced in 1971 was consumed on the farm. Most of the remaining 5900 M.T. went to feed mills and dairy farms in Sonsonate and Santa Ana or in San Salvador.

Arroz. The Department produced about 6,600 M.T. of arroz of which 4100 M.T. is in excess of its needs. Practically all of this arroz flows to rice mills in Ahuachapán, Sonsonate or Chalchuapa.

Frijol. About 3600 M.T. of frijoles are produced, of which 3300 M.T. enter into commercial channels. Approximately 1000 M.T. must move out of the Department.

Storage. As in the Department of Santa Ana, a large percentage of the 52 farmers interviewed had on-farm storage facilities. Graneros were the most popular form of storage, and averaged almost 8 units per farm. The average storage capacity was 187 QQ (One Quintal equals to one hundred weights) per farm.

Type of Storage*	No. of farms with fac.	% of farms with fac.	No. of units of storage	Total cap.QQ	Average cap. QQ/farm.
Graneros	51	98	408	8,760	172
Bodegas	--	--	--	---	--
Trojes	8	15	9	734	92
Other	8	15	101	206	25
Total				9,700	

Eventhough a large percentage of the farmers had storage facilities, the total capacity was inadequate to handle the crop of a poor year such as 1972/73. Therefore, in normal years, a large quantity of grain must leave the farm at harvest to be stored elsewhere.

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* Graneros - metal bins holding 2500 - 3000 lbs. (this is considered to be good storage)
Bodegas - warehouses
Trojes - corn cribs
Other - Grain in bulk or sacks, stored in houses, etc.

Grain	Production QQ 1972/73	Normal Year	%1972/73 crop was of normal
Maíz	9588	13928	69
Maicillo	1962	4007	49
Arroz	1211	3874	31
Frijol	2183	3023	72
Total	14944	24832	60

Recommendation

The northern part of the Department of Ahuachapán is deficient in maíz production. However, an estimated 11,000 M.T. of this grain moves into commercial channels, as does approximately 3000 M.T. of maicillo, 5000 M.T. of arroz and 3000 M.T. of frijoles. Therefore, it is felt that IRA can play a role here in price stabilization and grain conservation. A facility of 1520 M.T. is recommended for the Ahuachapán area.

Grains from the southern area of the Department, would flow along the Carretera del Litoral to a storage facility to be located at the junction of CA 12 and CA 2. This facility will be 12 km. from Sonsonate and would also serve the municipios of Acajutla and Sonsonate. (see section on the Department of Sonsonate). It could serve as a receiving center for some of the grains being imported through the Port of Acajutla.

CABAÑAS

The Department of Cabañas is a fairly important producer of cereals and beans. It has good roads to Ilobasco and to Sensuntepeque (once the remainder of the road is paved).

Grain	Est. Prod. in 1971 M.T.	Consumption (M.T.) Urban	Rural	Total	Balance	Est. amount entering commercial channels
Maíz	17,598	2,137	16,631	18,768	- 1,170	10,200 M.T.
Maicillo	13,795	--	7,585	7,585	+ 6,210	7,600
Arroz (granza)	2,147	240	967	1,207	+ 940	1,900
Frijol	3,839	306	1,503	1,809	+ 2,030	2,300
Total	37,379	2,683	26,686	29,369	+ 8,010	22,000

Maíz. The Department is deficit in the production of maíz although the municipios of Victoria and Villa Dolores produce surpluses. These move to Sensuntepeque and to Ilobasco. Approximately 10,000 M.T. of maíz enter commercial channels and most of this probably stays within the Department.

Maicillo. Cabañas produces a considerable surplus of maicillo. The Department also produces a large number of hogs which are fed principally on maicillo. Approximately 20,000 head of hogs move through the Sensuntepeque market each year. (These consume an estimated 5600 M.T. of maicillo). The maicillo that is not consumed within the Department moves to San Salvador to be used in poultry feeds.

Arroz. The Department produces a surplus of arroz. Since there are no rice mills in the Department, almost 2000 M.T. must move towards San Vicente or to San Salvador for milling. About 1200 M.T. of this arroz moves back to the Department as arroz oro (milled rice).

Frijol. Approximately 2000 M.T. of frijoles are produced in excess of consumption. One municipio, Victoria, accounts for 65% of the surplus. These frijoles move to Sensuntepeque and then to other areas.

Storage. The 64 farmers studied had considerable on-farm storage that was of relatively high quality.

Type of Storage	No. of farms with fac.	% of farms with fac.	No. of Storage Units	Total cap. QQ.	Average cap. QQ/farm.
Granero	54	84	183	4614	85
Bodega	5	8	5	1250	250
Trojes	21	33	30	2104	100
Other	28	44	102	922	33
Total				8890	

The total storage capacity was almost enough to store a crop the size of the one in 1972/73, but only half enough to store a normal crop.

Grain	Production (QQ) 1972/73	Production (QQ) Normal Year	% 1972/73 was of normal
Maíz	4484	7940	56
Maicillo	2549	3999	65
Arroz	2275	4165	55
Frijol	408	1210	34
Total	9716	17315	56

Recommendation

Approximately 9000 M.T. of grains in the municipios of Sensuntepeque, Victoria and Villa Dolores move into commercial channels. Surplus grains from these municipios (approximately 7000 M.T.) must move through the town of Sensuntepeque enroute to other areas. Grains from the western part of the Department flow into Ilobasco and on towards San Salvador.

Because of the amounts of surplus grains produced in the municipios of Victoria, Villa Dolores and Sensuntepeque, a storage facility should be placed at Sensuntepeque. This facility should have a capacity of 2150 M.T. Two of the silos will be devoted to frijoles (red and black) but can be used for maíz and arroz if needed.

A facility of this size will enable IRA to handle 17 percent of the maíz, maicillo and arroz moving into commercial channels in the eastern area of the Department and about half of the frijoles.

CHALATENANGO

The Department of Chalatenango stretches some 75 kms. along the northern border of El Salvador. Its southern border is the Rio Lempa which divides it from five other departments. The border with Honduras is very mountainous and most grain in this region is for local consumption. The major producing area lies west of the Cerro Pelon del Norte in the triangle of Nueva Concepción, Agua Caliente and Tejutla. Approximately 21,000 M.T. of surplus grains are produced in the Department. A substantial portion of the municipios of El Paraiso, Potonico, San Francisco Lempa and San Luis del Carmen, as well as the municipio of Suchitoto in the Department of Cuscatlán, will be inundated by the Cerron Grande project.

Grain	Est. Prod. 1971 M.T.	Consumption (M.T.) Urban	Rural	Total	Balance M.T.	Estimated amount entering commercial channels M.T.
Maíz	37,569	4,831	20,504	25,335	+ 12,334	25,500
Maicillo	12,522	--	6,261	6,261	+ 6,261	6,300
Arroz (granza)	3,452	661	1,372	2,033	+ 1,419	3,200
Frijol	9,941	523	1,373	1,896	+ 1,045	1,600
Total	56,484	6,015	29,510	35,525	+21,059	36,600

Maíz. Almost 40 percent of the maíz moving into commercial channels comes from the western part of the Department. The central area that lies between the City of Chalatenango and the Troncal del Norte produ about one-fourth of the grains moving into commercial channels. The mountainous regions to the north and to the east produce mainly for trade within the area.

Maicillo. The grain is produced throughout the Department and an estimated half of it is consumed on the farm on which it was produced

Arroz. The Department produces more arroz than it consumes. The major producing areas are in Nueva Concepción-Agua Caliente-La Reina the municipio of Chalatenango.

Frijol. As with the other grains, the Department produces more frijoles than it consumes. Most of the surplus production comes from the Nueva Concepción-La Reina area.

Storage. The 191 farmers interviewed had an average of 108 QQ of storage space on the farm. The majority of this was in graneros.

Type of Storage	No. of farms with fac.	% of farms with fac.	No. of storage Units	Total cap QQ.	Average cap. QQ./farm
Granero	157	82	593	14,351	91
Bodega	13	7	14	1,970	152
Trojes	14	7	16	687	49
Others	42	22	42	3,565	82
Total				20,573	

The storage space available was only enough to store about two-thirds of a crop the size of the one in 1972/73 and about 38 percent of a normal year crop.

Grain	1972/73	Normal Year	% 1972/73 Crop was of normal
Maiz	19,427	34,233	57
Maicillo	6,595	9,254	71
Arroz	5,475	9,486	58
Frijol	762	1,241	61
Total	32,259	54,214	59

Recommendation

The Department of Chalatenango presents a somewhat difficult problem in the proper location of grain storage facilities. An important production area lies to the west of the Troncal Norte, with the center being the town of Nueva Concepción, 16 km. from the highway. Another important area lies between the city of Chalatenango and the Troncal del Norte. A case could be made for putting two storage facilities in the Department: one at Nueva Concepción and one between the Troncal del Norte and the city of Chalatenango. However, since grains from both these areas must flow towards the Troncal del Norte, it appears more logical to put one larger facility at a point where the grains moving from both areas converge. This appears to be in the vicinity of San José Las Cañas. Therefore, a 2150 M.T. storage facility is recommended for this area, with buying stations to be located in Nueva Concepción, Agua Caliente and Dulce Nombre de María.

CUSCATLAN

The Department lies next to the Department of San Salvador and the entire southern portion is within 25 km. from the IRA plant at San Martín. Actually, the San Martín plant now serves as a receiving station for the entire Department since a good road exists from Suchitoto direct to San Martin, a distance of 33 km.

Grain	1971 M.T.	Urban	Rural	Total	Balance M.T.	Est. amount entering commercial channels M.T.
Maíz	22,963	4,091	17,652	21,743	+ 1,220	17,200
Maicillo	3,299	--	1,317	1,317	+ 1,982	2,000
Arroz (granza	3,073	584	1,253	1,837	+ 1,236	2,800
Frijol	1,833	459	1,253	1,712	+ 121	900
Total	31,168	5,134	21,475	26,609	+ 4,559	22,900

Maíz. The Department is practically in balance with respect to the production and consumption of maíz. The municipio of Suchitoto produces a surplus and this moves to other areas within the Department and to San Martín. Approximately 17,000 M.T. of maíz moves into commercial channels.

Maicillo. The production and consumption of maicillo in the Department is not large. Less than 1500 M.T. of maicillo enters commercial channels.

Arroz. There is a surplus production of arroz. However, the 3000 M.T. produced in the Department is sold to rice mills located in San Salvador or to IRA in San Martin. About two-thirds of the milled rice returns for sale in the Department.

Frijol. The production of frijoles is practically in balance, with consumption. Some frijoles move to the IRA plant in San Martin.

Storage. Almost 90 percent of the 64 farms studied had graneros. Considering all types of storage, the farmers had an average capacity of 100 QQ per farm.

Type of Storage	No. of farms with fac.	% of farms with fac.	No. of Stor. units	Total cap QQ.	Average Capacity QQ/farm
Graneros	57	89	187	4,993	88
Bodegas	1	2	1	100	100
Trojes	2	3	2	425	212
Others	19	30	254	861	45
Total				6,379	

Eventhough farmers had considerable on-farm storage, they had only about half enought to store a crop such as that of 1972/73 and only a third enough to store the crop of a normal year.

Grain	Production QQ 1972/73	Production QQ Normal Year	%1972/73 Crop was of normal
Maíz	9,596	14,981	64
Maicillo	1,026	1,677	61
Arroz	1,355	2,052	66
Frijol	308	962	32
Total	12,285	19,672	62

Recommendation

The southern part of the Department has direct access to the IRA plant at San Martin. However, the northern parts of the Departments of Cuscatlán and San Salvador would benefit from a 1520 M.T. storage facility in the vicinity of Suchitoto. It should be located outside of town on the road to Aguilares. A facility of this size would handle 15 percent of the grains moving into commercial channels in the municipio of Suchitoto. It could easily be expanded to 2150 M.T. if this were needed.

LA LIBERTAD

The Department of La Libertad stretches from the Pacific Coast north to the western part of the Department of Chalatenango. The southern part is rough, rolling hills and produces mainly maíz. There are two principal production areas in the central and northern parts of the Department: the area comprising the Zapotitan Valley, and a large area to the north of the valley comprising the municipios of Quezaltepeque, San Juan Opico, San Pablo Tacachico and San Martin.

Grain	Est. Prod. 1971 M.T.	Consumption (M.T.) Urban	Rural	Total	Balance M.T.	Est. amount entering commercial channels MT
Maíz	48,353	7,090	26,678	33,768	+ 14,585	40,000
Maicillo	5,113	---	1,788	1,788	+ 3,325	3,300
Arroz (granza)	5,286	1,355	2,610	3,965	+ 1,321	5,000
Frijol	6,855	1,355	2,583	3,938	+ 2,917	5,500
Total	65,607	9,800	33,659	43,459	+ 22,148	53,800

Maíz. Considerable quantities of maíz are produced in the southern part of the Department but a large proportion is consumed on farms. Almost 70 percent is produced in the area of the Zapotitan Valley and in the four northern municipios. Much of the production in the Zapotitán Valley is large-scale.

Maicillo. This grain is grown throughout the Department but is relatively unimportant.

Arroz. Considerable quantities are grown in the Zapotitán Valley and the surrounding area and in the northern zone, especially in the area around San Juan Opico. Some 5000 M.T. must go to San Salvador for processing.

Frijol. The major production areas are the Zapotitan Valley and the area around San Juan Opico. Approximately 5500 M.T. move into commercial channels.

Storage. A large percentage of the 96 farms studied had high quality grain storage facilities on their farms. The storage capacity averaged 180 QQ per farm.

Type of Storage	No. of farms with fac.	% of farms with fac.	No. of stor. units	Total QQ Capacity	Average cap. QQ/farm
Graneros	91	95	557	13,575	149
Bodaga	4	4	5	1,370	342
Trojes	26	27	360	728	28
Total				17,411	

Even with the large amount of storage available, it was insufficient to store more than three-fourths of a crop the size of 1972/73 and only half the crop of a normal year.

Grain	Production QQ 1972/73	Production QQ Normal Year	% 1972/73 crops was of normal
Maíz	17,810	25,602	70
Maicillo	812	1,681	48
Arroz	2,134	3,126	68
Frijol	2,742	4,495	61
Total	23,498	34,904	67

Recommendation

A storage facility of 2150 M.T. is recommended for the Sitio del Niño area. It should be located alongside the Ferrocarril de El Salvador at the point where the rails go to Sonsonate, Santa Ana and to San Salvador. All of the surplus grains from San Pablo Tacachico, San Juan Opico and San Matías must go past this point. In addition, grains from the Zapotitán Valley can easily reach this facility. Grains from Quezaltepeque area will flow east toward San Salvador and San Martín.

LA PAZ

La Paz is an important producer of cereals. A considerable portion of the area to the north is rather rough and broken and devoted mainly to subsistence production. The largest production comes from those municipios that lie along the Carretera del Litoral and which extend towards the ocean. This is also an important area for cotton.

Grain	Est. Prod. 1971 M.T.	Consumption (M.T.) Urban	Rural	Total	Balance	Est. amount entering commercial channels
Maíz	24,920	4,497	17,327	21,824	+ 3,096	20,000
Maicillo	3,845	--	1,347	1,347	+ 2,498	2,500
Arroz (granza)	8,102	732	1,422	2,154	+ 5,948	7,900
Frijol	2,755	575	1,422	1,997	+ 758	1,800
Total	39,622	5,804	21,518	27,322	+12,300	32,200

Maíz. The municipios of Zacatecoluca, San Pedro Masahuat and Santiago Nonualco produce two-thirds of the maíz and arroz. A good amount of these cereals are produced by large land owners. Most of that not consumed in the Department flows into San Salvador. An estimated 20,000 M.T. enter commercial channels.

Maicillo. The Department is not a large producer of maicillo (approximately 4000 M.T.). About 2,500 M.T. move into commercial channels.

Arroz. The municipio of Zacatecoluca accounts for almost half of the arroz grown in the Department. A large part of this is produced on one farm that produces rice for seed as well as for human consumption. It is not known how much of this production goes for seed and how much for consumption. It is thought, however, that the Department as a whole is self-sufficient. Probably 4000 M.T. must go to rice millers for processing. One of the largest processors is located between Rosario de la Paz and Comalapa. Some rice goes to the IRA plant in Usulután.

Frijoles. The major frijol area lies in the northern part of the Department in the low hills that border Lake Ilopango. The natural flow from this area is towards Cojutepeque and towards San Salvador via Santo Tomás. Approximately 800 M.T. are surplus in the Department

and practically all of these go to San Salvador.

Storage. As in other Departments, the 71 farmers studied had considerable on-farm storage and a sizeable proportion of the capacity was of the better type.

Type of Storage	No. of farms with fac.	% of farms with fac.	No. of storage units	Total cap.QQ	Average cap. QQ/farm
Granero	28	61	96	7154	255
Bodega	4	7	4	780	195
Trojes	29	50	48	3040	105
Others	39	67	352	1449	37
Total				12,423	

The available storage was sufficient for a crop the size of 1972/73, but only half enough for a normal year.

	Production (QQ)		
Grain	1972/73	Normal Year	% 1972/73 was of normal
Maíz	7626	17,501	44
Maicillo	2333	4,499	52
Arroz	1,188	2,026	59
Frijol	146	295	49
Total	11,293	24,321	46

Recommendation

The southern part of the Department, including the municipio of Tecoluca of the Department of San Vicente, produces approximately 25,000 M.T. of grains that move into commercial channels. Almost 10,000 M.T. of these are surplus to the needs of the Department. The municipios in the northern part of the Department are relatively small producers of grains, although they are surplus producers of frijoles. Most of these latter move towards San Salvador via Santo Tomás or Cojutepeque.

There are three large rice millers located in the Department and these have considerable storage facilities. However, it is likely that an IRA storage facility located in Zacatecoluca would handle as much as 1000 M.T. annually. Much of this would be rice that originally went to Usulután or to San Martín.

A grain storage facility of 2150 M.T. should be located at Zacatecoluca. This would handle maíz and arroz and would serve the southern halves of the Departments of La Paz and San Vicente and the western part of the Department of Usulután.

LA UNION

The Department can be divided into two areas with respect to zones of market influence. The northern area, which lies above the Ruta Militar, is basically a surplus* area for grains and most of this flows toward Santa Rosa de Lima as does the surplus from the northern part of the southern area. The southern part of the Department is essentially a deficit area and grains move towards La Unión and San Miguel.

Grain	Est. 1971 Produc. (M.T.)	Consumption (M.T.) Urban	Rural	Total	Balance	Est. amount entering commercial channels M.T.
Maíz	32,483	4,418	23,139	27,557	+ 4,926	18,000
Macillo	21,181	--	8,471	8,471	+12,710	13,000
Arroz (granza	2,160	720	1,899	2,619	- 459	1,700
Frijol	855	462	1,554	2,016	- 1,161	500
Total	56,679	5,600	35,063	40,663	+16,016	33,200

Maíz. The production of maíz shows an overall balance of 5000 M.T. Most of this flows toward San Miguel where a deficit exists and also towards Santa Rosa de Lima which is the largest trading center in the northern part of the Department. The City of La Unión consumes about 10% of the total production of maíz in the Department.

Because of the nearness of San Miguel and Usulután to producing areas in the southern part of the Department, the flow of any surplus grains is toward these centers. There is insufficient surplus production to establish a storage center in the southern area.

In the northern half of the Department there exists considerable surplus production. The natural flow of this production is towards San Miguel and Santa Rosa de Lima. Santa Rosa de Lima is an assembly

* This is based on the 1961 and 1971 Census. It should be noted that the Survey Team did not find a large surplus. Knowledgeable local people in the area claim grains are produced mainly for home consumption. The revised 1971 Census, due in June, 1973, needs to be checked closely.

point and the grain ultimately flows towards San Miguel or into the Department of Morazán. About 4000 M.T. of this surplus maíz would pass through Santa Rosa de Lima enroute the other areas. It is likely that IRA could count on handling up to 1000 M.T. at Santa Rosa de Lima if its prices and conditions of purchase were attractive.

Maicillo. Of the 21,000 M.T. of maicillo produced in the Department, 8500 M.T. is consumed on the farms where it is produced. The remainder moves into commercial channels. Given the large volume of commercial production, it is likely that 50% or more moves out of the Department.

Arroz. There is a deficit in arroz production, amounting to approximately 450 M.T. in granza (about 270 M.T. in oro). There are no rice millers in the Department and an 80% of the production moves to San Miguel for processing. There does not appear to be any place for IRA to act with respect to arroz. Approximately 270 M.T. of arroz oro must be brought in from outside areas.

Frijol. Consumption of frijoles is more than double the production. Approximately 1100 M.T. must be imported to satisfy the need of the Department. IRA would likely import beans for distribution in the area. One could estimate that IRA would handle up to 500 M.T. per year. These could be handled through an IRA facility located in San Miguel with about half being distributed through its facility at Santa Rosa de Lima with the rest being sold to traders in the southern half of the Department.

Storage. As in the other Departments farmers have varying types of storage facilities. The 64 farmers interviewed had an average on-farm storage capacity of 85 QQ.

Type of Storage	No. of farms with fac.	% of farms with fac.	No. of storage units	Total cap.QQ	Average cap. QQ/farm.
Graneros	18	28	45	1730	96
Bodegas	1	1	1	200	200
Trojes	38	59	52	3270	86
Others	21	33	127	262	12
Total				5462	

The type and amount of storage on farms is inadequate for a normal year crop and considerable quantities of grain must move to places where storage is available.

Grain	Production (QQ) 1972/73	Normal Year	% 1972/73 was of normal
Maíz	2,899	9,515	30
Maicillo	2,767	7,218	38
Arroz	285	1,058	27
Frijol	9	19	47
	5,960	17,810	33

Recommendation

IRA could play an important role in the marketing of grains in this area by establishing a storage facility at Santa Rosa de Lima. Since road communication with the northern and southern zones are good, the influence of this facility would be felt over a wide area. A facility capable of handling and storing 1520 T.M. should be established and plans made to expand to 2150 M.T. as the need increases. No facility is needed for the southern part of the Department.

MORAZAN

According to our calculations, there is a shortage of all cereals except maicillo in this Department. The balance, using 1971 Census data is as follows:

Grain	Est. 1971 Prod. M.T.	Urban	Rural	Total	Balance	Est. amount entering commercial channels M.T.
Maíz	15,925	2,376	16,447	18,823	- 2,898	5,000
Maicillo	11,150	--	7,806	7,806	+ 3,344	3,300
Arroz (granza)	651	403	1,387	1,790	- 1,139	300
Frijol	1,117	320	1,388	1,708	- 591	200
Total	28,843	3,099	27,028	30,127	- 1,284	8,800

Maíz. The [illegible] deficit of 3000 M.T. is probably met by imports from neighboring [illegible] departments, primarily La Unión which shows a surplus of 5000 M.T.

Maicillo. When one deducts on-farm consumption of maicillo, there is a balance of 3344 M.T. That moves into commercial channels. Since maicillo is used as a food item in this part of the country, a good part of this could be purchased to offset the shortage of maíz. In

The Department of Morazán is basically a deficit area for all grains. Most of the production is for home or local use although some of the surplus in the western part of the Department could conceivably move into the Capeltique area for reshipment to San Miguel. More likely, the small surplus existing in some municipios would move towards San Francisco Gotera, Ocicalá, Cacaopera and other deficit areas.

Recommendation

Some communications exists between the northern municipios and Ciudad Barrios and any IRA installation here would influence prices in the northern part of the Department. A facility at Chapeltique and/or San Miguel would influence the western and southern parts of the Department.

There does not appear to be any justification for putting an IRA buying station in Morazan at this time. San Francisco Gotera is only about 30 km. from San Miguel and merchants from San Francisco Gotera buy maíz, maicillo, arroz and frijoles for distribution throughout the deficit areas. A new all-weather road is being built which will connect San Francisco Gotera with Perquín in the northern-most part of the Department. This should aid in the development of the area and if grain production increases to the point where sizeable surpluses exist, IRA could consider locating a facility somewhere north of San Francisco Gotera.

SAN MIGUEL

The Department of San Miguel is a surplus producer of maíz and maicillo but has a deficit production of arroz and frijoles

Grain	Est. 1971 Prod. M.T.	Consumption (M.T.) Urban	Rural	Total	Balance	Est. amount entering commercial channels
Maíz	44,929	7,751	27,557	35,308	+ 10,621	32,000 M.T.
Maicillo	21,284	—	10,642	10,642	+ 10,642	10,000
Arroz (granza)	2,382	2,232	2,121	4,353	- 1,971	2,000
Frijol	1,991	1,147	2,332	3,479	- 1,488	600
Total	71,586	11,130	42,652	53,782	+ 17,804	44,600

Maíz. The municipio of San Miguel is the largest producer of maíz in the Department (9100 M.T.) but is in a deficit position because of the large urban population consisting mainly of the city of San Miguel. However, the municipios of Moncagua, Chapeltique, Lolotique, Quelepa and Sesori, which lie to the northwest, are all surplus producers and this grain moves to San Miguel. Grain from the extreme northern area above Ciudad Barrios also eventually moves towards San Miguel. The municipio of Chirilagua in the south sends grains toward San Miguel and to La Unión. El Tránsito and San Rafael Oriente both have Usulután as their natural market.

The large concentration of surplus production in the northern part of the Department indicates that IRA could play a role here. Surplus production from Nueva Edén de San Juan, San Gerardo, San Luis de la Reina, Carolina and San Antonio del Mósco passes through Ciudad Barrios, through the town of Chapeltique and on to San Miguel. The surplus production in the municipios of Sesori and Chapeltique also go to and through Chapeltique to San Miguel. Altogether, over 7000 M.T. of maíz would have to flow through Chapeltique enroute to San Miguel and to other markets. The roads into the northern and northwestern parts of the Department are fairly good as far as Ciudad Barrios and to Sesori.

Maicillo. A similar situation exists for maicillo. Approximately 3000 M.T. of maicillo must move from the extreme northern part of the Department to San Miguel and other markets, especially those in the Department of Morazán. Another 2000 M.T. of surplus maicillo must move from the Sesori/Chapeltique areas.

Arroz. The major shortage of arroz exists in the municipio de San Miguel which accounts for two-thirds of the shortfall of 2000 M.T. in the Department. The other municipios, while mainly deficit, do not have a large trade in arroz. The exception is Chinameca, a coffee area, which has a deficit of approximately 230 M.T. Any trade in arroz will have to use San Miguel as a base. Approximately 3500 M.T. of arroz oro passes through San Miguel for distribution to the Departments of San Miguel, Morazán and La Unión.

Frijol. The Department has an overall shortfall of 1500 M.T. Only the municipios of Chirilagua and San Jorge have any sizeable surplus production. San Jorge is oriented toward Usulután while Chirilagua sends its surplus to La Unión and San Miguel. The City of San Miguel would probably act as a distribution point for 4000 MT of frijoles per year.

Storage. Farmers in the survey had considerable storage capacity although this was of variable quality. The type and capacity reported by the 101 farmers interviewed is shown below:

Type of storage	No. of farms with fac.	% of farms with fac.	No. of Storage units	Total cap.QQ	Average capacity QQ/farm
Granero	42		111	3,832	91
Bodega	12		12	2,655	221
Trojes	38		64	3,362	88
Other	31		552	1,588	51
Total				11,347	

Taking all of the above into consideration, the 101 farmers studied had more than enough storage for the 1972/73 crop (a very poor one), but only a little more than half enough to store the crop of a normal year. However, as one knows, any grain that is not sold immediately is stored in some fashion. And in the case of maiz and maicillo, the harvests do not coincide, so that maiz could be stored 3-4 months to be followed by macillo. Practically all of the arroz is sold, although not necessarily immediately. Therefore, there may be a need for some storage. Relatively few frijoles are produced in the eastern part of the country and these are probably stored in sacks within a room or a bodega.

Grain	1972/73	Normal Year	% 1972/73 was of normal
Maíz	6,237	13,770	45
Maicillo	2,360	5,533	43
Arroz (granza)	1,318	4,225	31
Frijol	67	208	32
Total	9,982	23,736	42

It is assumed that those who buy grains for their own use have some type of storage space for them. However, it is likely to be rudimentary and subject to attack by insects and rodents. In the case of urban populations, maíz, in particular, is bought by wholesalers at or soon after harvest, stored, and later sold to retailers and tortilla molinos. These wholesalers normally store the grain in sacks in bodegas within the towns. They may also use the facilities of the Banco Hipotecario in the City of San Miguel.

San Miguel probably has fairly large amounts of private storage for maíz. In addition, the Banco Hipotecario has capacity for 8000 M.T.

in metal silos.

An estimated 32,000 M.T. of maíz enters commercial channels. However, a large percentage of this is intra-municipio trade, i.e., it is sold to non-maíz producers in the municipio, both those living on farms and those living in towns and cities. About 10,000 M.T. of maicillo, 2000 M.T. of arroz and 600 M.T. of frijoles enter commercial channels. Most of the arroz must go to the city of San Miguel for milling because the only rice mills in the Department are located there.

The Department must import some 1700 M.T. of arroz oro and 1500 M.T. of frijoles for its own use. Probably another 2000 M.T. of arroz oro pass through the city of San Miguel enroute to Morazán and La Unión, and 2500 M.T. of frijoles also pass through. If the City of San Miguel served as the storage point for all of these grains, it would probably need at least 20,000 M.T. for the maíz and maicillo and another 1000 M.T. storage space to have a two month's supply of arroz and frijoles on hand for distribution. The 8000 M.T. capacity owned by the Banco Hipotecario can handle 40% of the needs of the maíz and maicillo.

Recommendation

This raises the question of IRA putting a large facility in the city of San Miguel. A small distribution facility could probably be justified on the basis that IRA needs to have a distribution point in the city as part of its program of price stabilization, especially with respect to arroz and frijoles. One of the major policies of IRA is to bring its facilities closer to the points of production. Insofar as the Department of San Miguel is concerned, IRA has several alternatives. It can establish grain storage facilities in or near the city of San Miguel and use these for receiving and distributing grains. However, these facilities do not need to be extensive because, as has already been pointed out, there already exist large storage facilities in San Miguel.

The first choice would be to put a 1520* M.T. facility in or near to Ciudad Barrios. This unit would serve the entire northern part of the Department. A facility of this size would handle 38% of the surplus maíz moving from the area, or 22% of the production moving into commercial channels. A second facility of 1520 M.T.

*1260 M.T. in silos and 260 M.T. in warehouse space

could be located in Chapeltique to receive the grain from this municipio and also from Sesori. This facility could handle about 50% of the surplus maíz from these two municipios or 35% of the total moving into commercial channels.

However, a better alternative would be to store grain from this latter area in a facility to be located in San Miguel. Chapeltique is only 25 km. from San Miguel and grain stored here would eventually pass to and/or through the city at some time or other. The facility in San Miguel would be somewhat more sophisticated than the unit in Ciudad Barrios. It would have better cleaning and drying facilities, and the elevators for lifting and transferring the grain would be fixed in place. A unit of 5080* M.T., planned for an expansion to 6180 M.T. would be adequate. The San Miguel facility would have a warehouse for receiving bagged grains and facilities for bagging and distribution to wholesalers. If the San Miguel plant proved to be inadequate in size after the initial expansion, it would be preferable to locate a 1520 M.T. facility in Chapeltique to relieve the pressure. Since the San Miguel facility would be used for distribution (or as a point of export) grains in the silos would be constantly moving out and would be replaced by grains from Ciudad Barrios and Chapeltique. The IRA facilities at Ciudad Barrios and San Miguel would handle 15 percent of the grains moving into commercial channels in the Department.

SAN SALVADOR

The Department of San Salvador is dominated by the City of San Salvador which, because of its large metropolitan area, dominates the entire central part of the Department. The area to the south of the city produces some grains mainly for local consumption. The main production area lies to the north in the municipios of El Paisnal, Aguilares, Guazapa, Nejapa and Apopa.

Grain	Est. Prod. 1971 M.T.	Urban	Rural	Total	Balance	Est. amount Entering commercial channels M.T.
Maíz	21,691	36,013	16,964	52,977	- 31,286	17,000
Maicillo	1,691	--	1,269	1,269	+ 422	400
Arroz(granza)	855	12,288	1,830	14,118	- 13,303	700
Frijol	997	7,904	2,329	10,233	- 9,236	800
Total	25,194	56,205	22,392	78,597	- 53,403	18,900

*4080 M.T. in silos and 1000 M.T. in warehouse space.

Maíz. The Department is short some 31,000 M.T. in producing enough maíz to satisfy its needs. However, approximately 17,000 M.T. moves into commercial channels and much of this must later return to rural areas to satisfy the needs there.

Maicillo. This grain is relatively unimportant in the Department.

Arroz. A small amount is produced mainly in the El Paisnal and Guazapa areas and probably goes to the rice mill located outside of San Salvador on the Troncal del Norte.

Frijol. A few frijoles are produced throughout the Department, mainly in San Martín and Tonacatepeque. Less than 800 M.T. move into commercial channels.

Storage. Eighty two percent of the 38 farms studied had graneros. The average storage capacity per farm was 93 QQ.

Type of storage	No. of farms with fac.	%of farms with fac.	No. of Stor.Unit	Total Cap. QQ	Average cap. QQ/farm.
Granero	31	82	81	2,364	76
Bodega	4	11	4	300	75
Trojes	10	26	12	800	90
Others	8	21	37	77	10
Total				3,541	

The farms studied had enough storage capacity to handle about three-fourths of the 1972/73 crop, but only enough to handle 43 percent of a normal crop.

Grain	Production QQ 1972/73	Production QQ Normal Year	%1972/73 was of normal
Maíz	3,703	6,578	56
Maicillo	374	598	63
Arroz (granza)	233	440	53
Frijol	509	620	82
Total	4,919	8,236	59

Recommendation

Only the northern part of the Department has any large amount of grains that move into commercial channels and these have good access to the large market in the City of San Salvador. The area of El Paisnal and Aguilares will also have access to the IRA storage facility to be built near Suchitoto (18 Km from Aguilares). No storage facility is recommended at this time.

SAN VICENTE

The Department of San Vicente is partially divided by the Volcán de San Vicente. One production area lies north of the Carretera Panamericana and another lies from San Vicente to the Carretera Litoral. The southern part of this area is more market-oriented to Zacatecoluca than to San Vicente. There are godd roads throughout the Department.

Grain	Est.Prod. 1971 M.T.	Consumption(M.T.) Urban	Rural	Total	Balance Est.	Estimated Amount entering Commercial Channels M.T.
Maíz	24,905	4,513	19,455	23,968	+ 937	18,700
Maicillo	7,773	--	3,886	3,886	+ 3,887	3,900
Arroz(granza)	5,860	620	1,173	1,793	+ 4,067	5,500
Frijol	1,826	708	1,799	2,507	- 681	1,600
Total	40,364	5,841	26,313	32,154	+ 8,210	29,700

Maíz. The Department is about in balance between the production and consumption of maíz. There is a large production of cotton between the Carretera Litoral along the Rio Lempa to the ocean. All this land is suitable for maíz production, but relatively little maíz is produced at this time. The major production areas are in the municipios of San Vicente and Tecoluca. However, these are also very populous areas and considerable maíz is consumed within these municipios. It is estimated that some 19,000 M.T. are traded in the Department. Some of the grains from the northern area flow to San Martín, while most of those produced in the southern part flow to Usulután. A storage facility in Zacatecoluca would attract most of the grains now flowing to the IRA plant in Usulután and relieve the pressure there.

Maicillo. San Vicente produces only about 8,000 M.T. of maicillo and consumes about half of this. The natural flow of this surplus is toward San Salvador where it is used in feed mills.

Arroz. The Department is a surplus producer of this grain. However, almost the entire production moves into commercial channels where it is milled.

Frijoles. Although San Vicente produced a large quantity of frijoles (1,800 M.T.) it is still short about 700 M.T. in meeting its needs. Most of these flow down from Cabañas which produces a surplus

Storage. The 58 farmers interviewed had a total of 7,033 qq. of storage space on the farm, of which almost half was in graneros.

Type of Storage	No. of farms with fac.	% of farms with fac.	No. of storage units	Total cap. QQ	Average QQ/farm
Graneros	39	67	111	3,259	84
Bodegas	--	--	--	--	--
Trojes	27	47	46	3,356	124
Other	16	28	166	418	26
Total				7,033	

This amount of farm storage was sufficient to store about 67 percent of the grains produced during 1972/73, but was only sufficient to store 46 percent of the crop during a normal year.

Grain	Production QQ 1972/73	Production QQ Normal Year	% 1972/73 Crop was of normal
Maíz	7,271	10,593	69
Maicillo	533	769	69
Arroz	1,615	2,341	69
Frijol	1,127	1,625	69
Total	10,546	15,332	69

Recommendation

Grains produced in the sourthern part of the Department flow towards Zacatecoluca where IRA will have a grain storage facility. Those produced in the northern part of the Department flow along the Carretera Panamericana to San Martín (41 km. from San Vicente). It is recommended that a grain storage facility of 1520 M.T. be constructed north of San Vicente near to the Carretera Panamericana (perhaps near San Esteban Catarina). This unit can be expanded to 2150 M.T. as the need arises. This will enable IRA to handle about 12 percent of all the grains moving into commercial channels in this area.

SANTA ANA

The Department of Santa Ana is a large producer of grains. It has the major consuming center, the city of Santa Ana, which serves as the main distributin center for the Departments of Santa Ana, Ahuachapán, and parts of Sonsonate and La Libertad.

Grain	Est. 1971 Production (M.T.)	Consumption (M.T.) Urban	Rural	Total	Balance	Est. amount entering commercial channels (M.T.)
Maíz	42,925	10,378	30,089	40,467	+ 2,458	36,000
Maicillo	4,999	--	2,500	2,500	+ 2,499	2,500
Arroz(granza)	4,050	3,030	2,136	1,166	- 1,116	3,800
Frijol	8,628	2,275	2,718	4,993	+ 3,635	6,900
Total	60,602	15,683	37,443	53,125	+ 7,677	49,200

Maíz. The municipio of Santa Ana produces large quantities of maíz but because of the influence of the city of Santa Ana (pop. approx. 90,000), the municipio is short some 8,000 M.T. of its needs. However, the municipios of Metapán, Texistipeque, and Santa Rosa Guachipilín are surplus producers and send about 8,500 M.T. to Santa Ana. El Porvenir produces some 2,200 M.T. of maíz and this goes to nearby Chalchuapa which has a deficit of the same amount.

Maicillo. This grain is relatively unimportant in the Department and most of the 2,500 M.T. that move into commercial channels is purchased by local feed mills to be used mainly for poultry and dairy feeds.

Arroz. About 3,800 M.T. of arroz move into commercial channels, principally to the rice mills located in Chalchuapa and Santa Ana. The Department as a whole is short about 1,100 M.T. of arroz en granza and this comes mainly from the Department of Ahuachapán.

Frijol. Santa Ana is the largest producer of frijoles in El Salvador and almost 7,000 M.T. move into commercial channels for distribution throughout the country.

Storage. Farmers in the Department are well-equipped with storage facilities. Over 95 percent of the 88 farmers studied, had an average of 8 graneros per farm.

SANTA ANA

The Department of Santa Ana is a large producer of grains. It has the major consuming center, the city of Santa Ana, which serves as the main distributin center for the Departments of Santa Ana, Ahuachapán, and parts of Sonsonate and La Libertad.

Grain	Est. 1971 Production (M.T.)	Consumption (M.T.) Urban	Rural	Total	Balance	Est. amount entering commercial channels (M.T.)
Maíz	42,925	10,378	30,089	40,467	+ 2,458	36,000
Maicillo	4,999	---	2,500	2,500	+ 2,499	2,500
Arroz(granza)	4,050	3,030	2,136	1,166	- 1,116	3,800
Frijol	8,628	2,275	2,718	4,993	+ 3,635	6,900
Total	60,602	15,683	37,443	53,125	+ 7,677	49,200

Maíz. The municipio of Santa Ana produces large quantities of maíz but because of the influence of the city of Santa Ana (pop. approx. 90,000), the municipio is short some 8,000 M.T. of its needs. However, the municipios of Metapán, Texistipeque, and Santa Rosa Guachipilín are surplus producers and send about 8,500 M.T. to Santa Ana. El Porvenir produces some 2,200 M.T. of maíz and this goes to nearby Chalchuapa which has a deficit of the same amount.

Maicillo. This grain is relatively unimportant in the Department and most of the 2,500 M.T. that move into commercial channels is purchased by local feed mills to be used mainly for poultry and dairy feeds.

Arroz. About 3,800 M.T. of arroz move into commercial channels, principally to the rice mills located in Chalchuapa and Santa Ana. The Department as a whole is short about 1,100 M.T. of arroz en granza and this comes mainly from the Department of Ahuachapán.

Frijol. Santa Ana is the largest producer of frijoles in El Salvador and almost 7,000 M.T. move into commercial channels for distribution throughout the country.

Storage. Farmers in the Department are well-equipped with storage facilities. Over 95 percent of the 88 farmers studied, had an average of 8 graneros per farm.

Type of Storage	No. of farms with fac.	No. of storage units	Total cap. QQ	Average cap. QQ/farm	Average cap.qq/farm
Graneros	85	97	672	17,155	202
Bodegas	2	2	3	430	215
Trojes	3	3	3	160	53
Other	6	7	29	58	10
Total				17,803	

During the short 1972/73 crop, farmers had more than enough storage space on the farm to handle the entire crop. During normal years, they still were able to hold large quantities of grains before sending them to market. Even so, a substantial portion of the crop had to move off the farm soon after harvest.

Grain	1972/73	Normal Year	% 72/73 was of normal
Maíz	12,724	22,373	57
Maicillo	3,025	4,803	63
Arroz	426	1,024	42
Frijol	1,666	3,310	50
Total	17,841	31,510	57

Recommendations

It is recommended that a 2,150 M.T. storage facility be located at Metapán. This unit should be able to handle red and black frijoles in bulk in two of its 315 M.T. silos. A larger unit should be established at Santa Ana with an initial capacity of 5,710 M.T. of storage, including 1,000 M.T. of bag storage. This facility will have to handle large quantities of frijoles and it will need storage for both red and black varieties. Therefore, the original design will include four 315 M.T. silos for frijoles. These, of course, can be used for other grains if not needed for frijoles.

A third unit may be needed in the Texistepeque area at some time in the future and, if so, it should begin with an installation having 1,520 M.T. capacity and later expanded to 2,150 M.T.

SONSONATE

Sonsonate is a large producer of maíz, maicillo and frijoles. Almost half of the maiz is produced in two municipios: Sonsonate and Acajutla. This production area lies along the Pacific Coast where maiz and maicillo compete with cotton. There is considerable production in the moderately rolling area along the Sonsonate highway between Armenia and Sonsonate. Most of the production in the mountainous areas is for home consumption.

Grain	Est. Prod. in 1971 M.T.	Consumption (M.T.) Urban	Rural	Total	Balance	Est. amount entering commercial channels M.T.
Maíz	27,537	6,568	19,863	26,431	+ 1,106	24,500
Maicillo	6,118	--	1,834	1,834	+ 4,284	4,300
Arroz (granza)	853	1,126	1,631	2,757	- 1,904	800
Frijol	1,334	1,281	2,075	3,356	- 2,022	900
Total	35,842	8,975	25,403	34,378	+ 1,464	30,500

Maíz. Despite the large production, the Department it does not have a surplus of maíz mainly because of the large population that exists in the coffee growing areas. It is estimated that some 25,000 M.T. enters into commercial channels but is mainly consumed in the Department.

Maicillo. About 4,000 M.T. is produced in excess of what is used on the farm. This is used mainly as a dairy feed since Sonsonate is one of the most intensive milk production areas in the country.

Arroz. Relatively little arroz is produced and up to 2,000 M.T. (en granza) must be imported from other areas of the country to satisfy the demand.

Frijol. Although the Department produces some 1,300 M.T. annually, it is still short about 2,000 M.T. to satisfy the demand. These frijoles come mainly from the Departments of Ahuachapán and Santa Ana.

Storage. Approximately 85 percent of the farmers interviewed had graneros on their farms. The total capacity of these graneros was 250 QQ per farm.

Type of storage	No. of farms with fac.	% of farms with fac.	No. of storage units	Total cap. QQ	Average cap. QQ/farm
Graneros	40	93	230	9,295	232
Bodegas	2	5	2	800	400
Trojes	3	7	4	170	57
Other	12		49	98	8
Total				7,363	

During normal years, farmers have capacity to store about 45 percent of their grains.

Grain	Production QQ 1972/73	Production QQ Normal Year	% 1972/73 was of normal
Maíz	8,701	11,515	76
Maicillo	2,485	3,384	73
Arroz	198	250	79
Frijol	674	1,042	65
Total	12,058	16,191	74

Recommendations

The Department of Sonsonate represents a special problem in locating grain storage facilities. The major surplus producing area lies along the coast. Another important production area comprises the municipios of Izalco, Caluco, Villa San Julian and Armenia. The surplus production from the latter area moves toward San Salvador, while the former moves toward Sonsonate.

The coastal area, which includes parts of the Department of Ahuachapán and Sonsonate, produces a surplus of approximately 9,000 M.T. of maíz which moves along the Carretera del Litoral (CA 2) toward Acajutla and west along the Carretera del Litoral (CA 2) towards the Sonsonate highway (A 12). Therefore, a facility located at this junction would serve the southern parts of both the Department of Ahuachapan and the Department of Sonsonate. It would also be located alongside the Ferrocarril de El Salvador. and grains could be shipped by rail to San Martín or to Santa Ana.

It is recommended that a 2150 M.T. facility be located at this point. It could also be used during periods when IRA was importing grains and required additional space. This capacity will enable IRA to handle about 16 percent of the surplus maíz and maicillo moving from these areas.

USULUTAN

The Department of Usulután is a large producer of cereals, especially maíz. There is a shortfall of approximately 1,100 M.T. of frijoles. The northern area of the Department has a natural market relationship with San Salvador and San Miguel and should not be considered as part of the City of Usulután market.

Grain	Est. 1971 Production (M.T.)	Urban	Rural	Total	Balance	Est. amount entering commercial channels (M.T.)
Maíz	53,391	7,554	30,576	38,130	+ 15,261	46,000
Maicillo	13,108	—	3,274	3,274	+ 9,834	10,000
Arroz(granza)	4,879	1,103	1,923	3,026	+ 1,853	4,700
Frijol	1,524	709	1,923	2,632	- 1,108	1,100
Total	72,902	9,366	37,696	47,062	25,840	61,800

Maíz. There are two major producing areas in the Department. The southern area which comprises the municipios that are contiguous to the Carretera del Litoral and also those that border the Pacific Ocean. This southern area produces almost 60 percent of the maíz, 45 percent of the maicillo, 75 percent of the arroz and about 25 percent of the frijoles. There is a small central area dominated by the Volcán de Tecapa which is mainly a coffee zone. The northern part of the Department is also a major grain producing area. The municipios of Berlin (the area which lies along the Rio Lempa and the Carretera Panamericana), Estanzuelas, Mercedes Umaña and Nueva Granada are the major producing areas in this zone.

Maicillo. This grain is produced throughout the Department with the exception of the coffee zones. About one-fourth of the production is consumed on the farm on which it was produced. Most of the deficit areas are in the southern and central parts of the Department and there is considerable intermunicipio trade.

Arroz. The Department produces a surplus of arroz. However, this gives an erroneous picture of the marketing situation since only 8 of the 23 municipios show a surplus over consumption. One municipio, Jiquilisco, accounts for almost 30% of the production in the Department. Since practically all arroz produced is sold to processors, approximately 2,900 M.T. of arroz re-enters trade channels as milled rice (oro). IRA receives considerable arroz at its plant in Usulután.

Frijol. The Department has a large deficit between production and consumption, amounting to 1,100 M.T. Production accounts for only about 60% of consumption. Eighty five percent of the deficit occurs in the central and southern areas. Therefore, any efforts by IRA would be as an importer and a distributor from the plant at Usulután. IRA might handle as much as 500 M.T. at this plant during the course of a year.

Storage. There was considerable on-farm storage facilities on the 68 farms studied and a good proportion of this was of high quality (graneros and bodegas).

Type of facility	No. of farms with fac.	% of farms with fac.	No. of stge. units	Total cap.QQ	Avg. Cap. QQ/farm
Graneros	42	62	222	10,940	260
Bodegas	8	12	8	2,600	325
Trojes	15	22	23	1,800	120
Other	20	29	488	1,228	61
Total				16,568	

The on-farm storage was sufficient to store about 90 percent of the 1972/73 crop, but only half of a normal year crop.

Grain	1972/73	Normal year	% 72/73 was of normal
Maíz	15,007	24,657	61
Maicillo	2,455	6,731	36
Arroz	675	1,241	54
Frijol	148	394	38
Total	18,285	33,023	55

In addition to on-farm storage, IRA has a large facility in the city of Usulután. The capacity is as follows:

Owned by IRA	5,500 M.T.
Rented by IRA	12,500 M.T.
	18,000 M.T.

The facilities rented by IRA would have to be considered substandard since they were designed for storing bales of cotton. Grain in the facilities can be handled only in bagsand it is difficult to control insects and rodents and to keep temperatures at adequate levels. IRA is in the process of adding 4,000 M.T. to its own storage facilities. The 5,500 M.T. of existing capacity, plus the 4,000 M.T. of new storage that is planned, is fully adequate to take care of IRA's maíz needs of the area.

Recommendations

As mentioned earlier, the northern zone of the Department produces large quantities of grains. In addition, some grains are now flowing from the municipios of Sesori and Lolotique of the Department of San Miguel into the northern part of the Department of Usulután. A new road that is under construction will soon link Sesori with Estanzuelas in the Department of Usulután. Approximately 13,000 M.T. of maíz is produced in the northern zone (19,500 M.T. including Sesori and Lolotique), of which 9,000 M.T. is in excess of the needs of the municipios in which it is produced. Therefore, an IRA facility of 1,520 M.T. should be located near Mercedes Umaña. This would handle about 12 percent of the maíz production in the northern part of the Department of Usulután and about 17 percent of the surplus production of maíz. There are insufficient quantities of arroz and frijoles for IRA to buy. The needs for frijoles and arroz could be met by distributing from the San Miguel plant.

COUNTRY GRAIN BUYING & STORAGE FACILITIES

El Salvador

1260 M.T. Bulk
260 M.T. Bags
1520 M.T.

ITEM A. CAPITAL INVESTMENT - COST OF SITE

Topography Survey & Design	$ 2,000
Site Preparation	500
Asphalt Hard Surface for Work Area	1,800
Water Supply	1,000
Crushed Rock for Drive	600
Fencing	1,232
TOTAL	$ 7,132
Contingency - 30%	2,140
	$ 9,272

1520 M.T.

ITEM B. CAPITAL INVESTMENT - Buildings

1	Bag Warehouse approx. 40 ft. x 60 ft. 260 M.T. (3) 12 foot doors, (1) walk in door, (2) windows extra smooth concrete floor	$ 6,700
4	315 M.T. drying bins - complete with heat units drying floor and withdraw tubes. Unload auger.	29,520
4	Electric Wiring - Outlets and Switches Outdoor lights for night operator.	1,000
	F.O.B. - FACTORY TOTAL	$ 37,220
	Crating and Freight 20%	7,444
	C.I.F. El Salvador TOTAL	$ 44,664
4	Concrete Base Foundations for Silos	1,716
4	Reinforcing for Base	200
1	Concrete floor for bag warehouse 40 x 60	858
	Reinforcing for floor	100
2	Bean ladders - Local Material	400
1	Watchman Shelter 16 M2 - $ 38.00 per M2	600
	Sanitary Facilities for Personnel 5 M2 at $80.00	400
	COST MATERIAL	$ 48,938
	Erection Costs 20%	9,788
	COST ERECTED	$ 58,726
	Contingency 30%	17,618
	TOTAL COST	$ 76,344

ITEM B-1	Depreciation	.05	$ 3,817
ITEM B-2	Insurance	.0045	$ 344

1520 M.T.

ITEM C. CAPITAL INVESTMENT - MACHINERY & EQUIPMENT - 10 year depreciation

1 Grain Auger - Portable [illegible] ft. 6 inch - electric	$ 1,852
1 Grain Auger - Portable 27 ft. 6 inch - electric	1,200
2 Grain Auger - Utility 16 ft. 6 inch - electric - No frame	800
2 Grain Auger Bin Sweeps with pressure gate switch	600
1 Scalper-Screens and fan. Bagging Auger Extra Screens, maize, beans, hull rice, sorghum	847
2 14 x 14 Heavy duty Tarpauling	80
1 Thermo couple temperature monitor-Base unit 4 nylon drops for 30' diam. silo $40.oo	500
1 One metric ton capacity: portable:scale-beam type:metric	500
1 Electronic Moisture tester-beans, maize, sorghum, rice	150
1 Grain testing scale - Gram calibrations	45
2 Grain Scoops 12" Aluminum	18
4 Bag Carts	240
2 Fire Extinguishers 5 pounds Class B & C Fires	80
1 Bag Sampler	6
1 Set dockage sieves	65
1 Deep bin probe with 18 ft. extensions	60
1 6 ft. probe. Partitions	50
2 Pocket Thermometers 15 to 90 Centigrade callbration	10
Heavy duty extension cords 115 V & 220 V	200
Bagging supplies: Needles - Cord	100
1 Office desk, chairs filing cabinet - Local Made	150

F.O.B. Factory Total	$ 7,543
Crating & Freight 20%	1,509
COST MATERIAL	$ 9,509
Erection Cost 20%	1,810
ERECTED COST	$ 10,862
Contingency 30%	3,259
TOTAL COST	$ 14,121

ITEM C-1 Depreciation of Equipment 10% $1,412
ITEM C-2 Insurance .0045 $ 64

1520 M.T.

SUMMARY

The country buying stations are designed for in-bin drying since there is no requirement to move or transfer grain within the facility. The drying silos allow for low heat in-bin drying for beans, rice or other grains to prevent stress cracks or breakage. The equipment is not complicated and will not require a great deal of maintenance.

Grain can be received by bag or bulk, cleaned before storage if required or cleaned before bagging in 100# or 200# bags.

Grain can be withdrawn from silos by a utility auger for bulk or bag movement thus allowing for filling or emptying silos at the same time if required.

TOTAL COST (1260 MT Bulk and 260 MT Bag)

ITEM A Site Cost		$ 9,272
ITEM B Building Cost		76,344
ITEM C Equipment Cost		14,121
	TOTAL	$ 99,737
	ROUNDED	$ 100,000

EXPANSION COSTS

1 Drying Silo (315 M.T.)		7,380
C.I.F. El Salvador		8,856
Concrete & Steel		479
	SUB-TOTAL	9,335
	ERECTION 25%	2,334
	ERECTED COST	$ 11,669
	CONTINGENCY 30%	3,501
	TOTAL	$ 15,170x2=30,340
630 M.T. EXPANSION		$ 30,000 (Rounded)

1520 M.T.

MANAGEMENT - EQUIPMENT-OPERATION COSTS

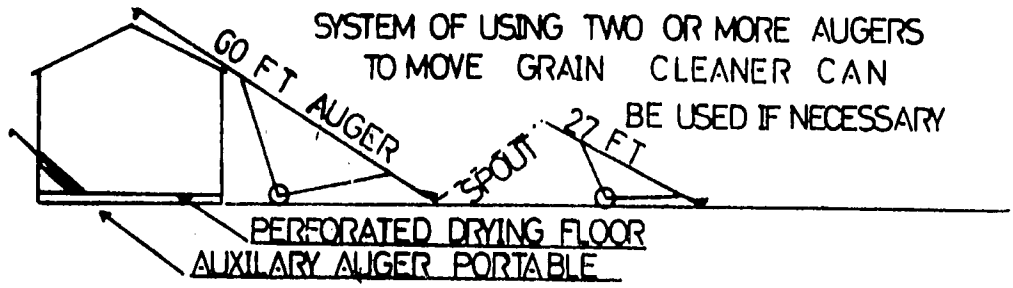
MANAGEMENT		
Manager per year		$ 1,560
Assistant Manager		1,200
Watchman		720
Labor (3 for 6 months)		792
	TOTAL	$ 4,272
OPERATION		
Propane $2.00 M.T.		2,520
Electricity .50 per M.T.		630
Fumigation .20 per M.T.		252
Repairs		300
	TOTAL	$ 3,702

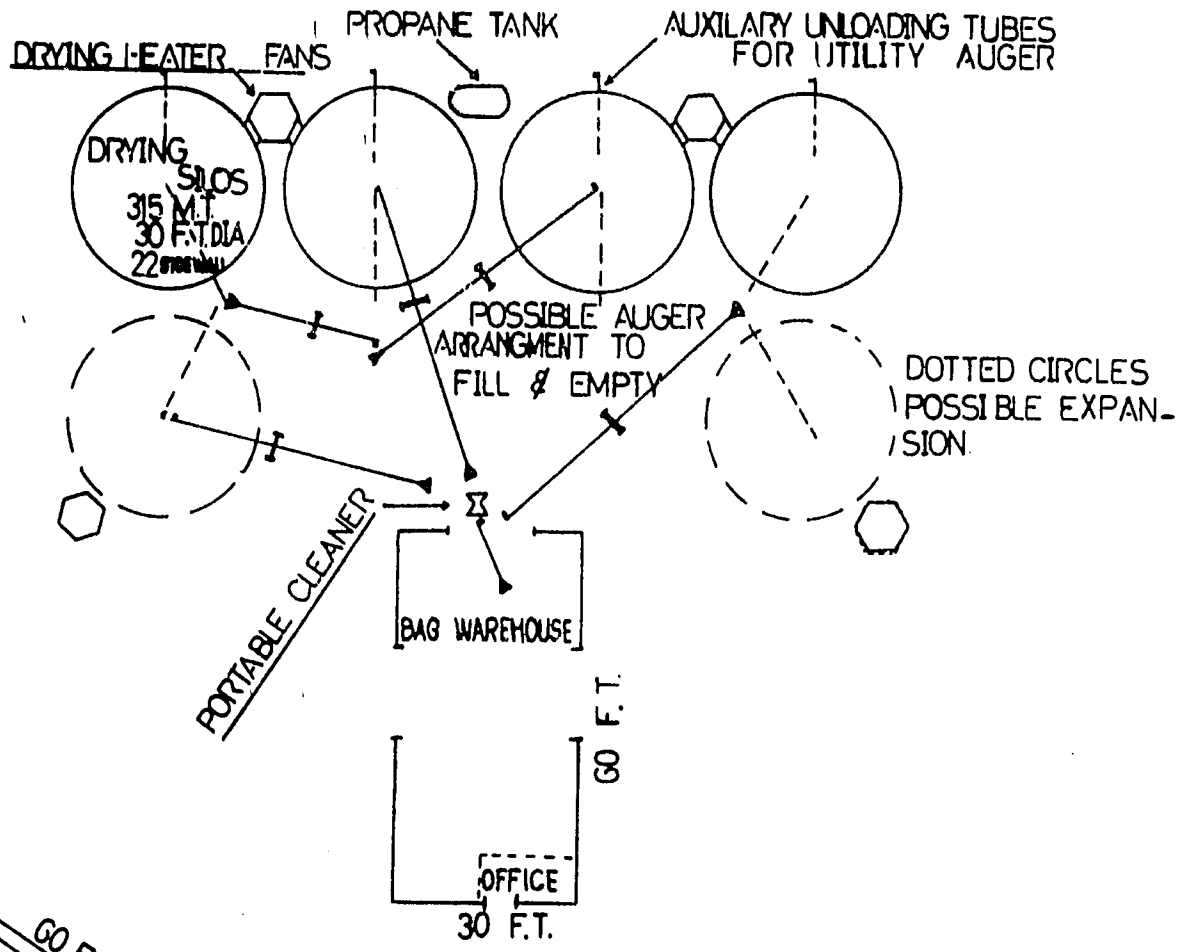
Annual Management		$ 4,272
Operation Costs		3,702
Trucking (Estimate 900 M.T. at $1.60)		1,440
4½% Interest on Capital Investment of ABC	$99,737	4,488
Depreciation of Building B-1		3,817
Depreciation of Equipment C-1		1,412
Insurance on Buildings B-2		344
Insurance on Equipment C-2		64
	TOTAL	$ 19,539

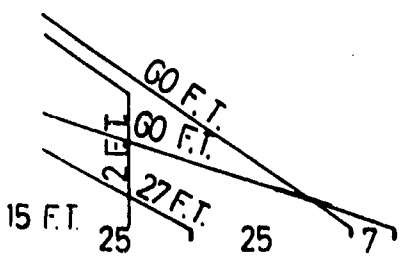
COUNTRY STORAGE & BUYING CENTERS

EL SALVADOR

1260 M.T. BULK
260 M.T. BAG
1520 M.T.



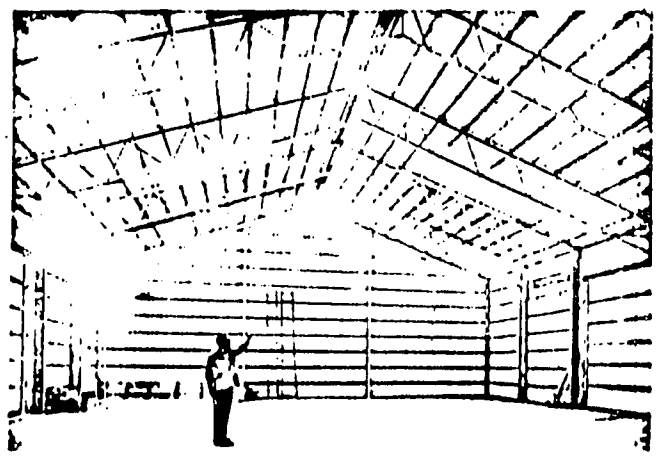




WATCHMAN SHELTER
& SANITARY FACILITIES

1 CM = 10 F.T.

Types of bulk warehouses, silos and filling augers that are planned for country buying stations.



COUNTRY GRAIN BUYING & STORAGE FACILITIES

El Salvador

1890 M.T. Bulk
260 M.T. Bags
2150 M.T.

ITEM A. CAPITAL INVESTMENT - COST OF SITE

Topography Survey & Design	$ 2,000
Site Preparation	500
Asphalt Hard Surface for Work Area	1,800
Crushed Rock for Drive	600
Water Supply	1,000
Fencing	1,232
TOTAL	$ 7,132
Contingency - 30%	2,140
TOTAL COST	$ 9,272

2150 M.T.

ITEM B. CAPITAL INVESTMENT - BUILDINGS

1	Bag Warehouse approx. 40 ft. x 60 ft. 260 M.T. (3) 12-foot doors, (1) walk-in door, (2) windows. Extra smooth concrete floor			$ 6,700
6	315 M.T. Drying bins - complete with heat units, Drying floor and withdraw tubes. Unload auger	$ 7,380		44,280
6	Electric Wiring - Outlets and switches outdoor lights for night operator	250		1,500
	F.O.B. - FACTORY TOTAL			$ 52,480
	Crating and Freight 20%			10,496
	C.I.F. El Salvador TOTAL			$62,976
6	Concrete Base Foundations for Silos	429		2,574
6	Reinforcing for Base	50		300
1	Concrete floor for bag warehouse 40x60			858
	Reinforcing for floor			100
2	Bean ladders - Local Material	200		400
1	Watchman Shelter 16 M^2 - $ 38.00 per M^2			600
	Sanitary Facilities for Personnel 5 M^2 at $ 80.00			400
	COST MATERIAL			$ 68,208
	Erection Costs		20%	13,642
	COST ERECTED			$ 81,850
	Contingency 30%			24,555
	TOTAL COST			$ 106,405

ITEM B-1 Depreciation .05 $ 5,320
ITEM B-2 Insurance .0045 479

2150 M.T.

ITEM C. CAPITAL INVESTMENT - MACHINERY AND EQUIPMENT - 10 year depreciation

1	Grain Auger - Portable 62-ft. 6-inch - electric	$ 1,852
1	Grain Auger - Portable 27-ft. 6-inch - electric	1,200
2	Grain Auger - Utility 16-ft. 6-inch - electric No frame	800
2	Grain Auger Bin Sweeps with pressure gate switch	600
1	Scalper - Screens and fan. Bagging Auger	847
	Extra Screens, maize, beans, hull, rice, sorghum	80
2	14 x 14 Heavy-duty Tarpaulin	500
1	Thermo couple temperature monitor-Base unit 4 nylon drops for 30' diam. silo $40.00	500
1	One metric ton capacity: portable: scale-beam type: metric	150
1	Electronic Moisture tester-Beans, maize, sorghum, rice	45
1	Grain testing scale - Gram calibrations	18
2	Grain Scoops 12" Aluminum	240
4	Bag Carts	80
2	Fire Extinguishers 5 pound: Class B & C Fires	6
1	Bag Sampler	65
1	Set dockage sieves	50
1	Deep bin probe with 18 ft. extensions	50
1	6 ft. probe. Partitions	200
2	Pocket Thermometers 15 to 90 Centigrade Calibration. Heavy duty extension cords 115 V & 220 V	100
	Bagging supplies: Needles - Cord	150
1	Office desk, chairs, filing cabinet - Local made	

F.O.B. FACTORY TOTAL	$ 7,543
Crating & Freight 20%	1,509
TOTAL	$ 9,052
Erection Cost 20%	1,810
ERECTED COST	$ 10,862
Contingency 30%	3,259
TOTAL COST	$ 14,121

ITEM C-1	Depreciation of Equipment	10%	$1,412
ITEM C-2	Insurance	.0045	64

2150 M.T.

SUMMARY

The country buying stations are designed for in-bin drying since there is no requirement to move or transfer grain within the facility. The drying silos allow for low heat in-bin drying for beans, rice or other grains to prevent stress cracks or breakage. The equipment is not complicated and will not require a great deal of maintenance.

Grain can be received by bag or bulk, cleaned before storage if required or cleaned before bagging in 100# bags.

Grain can be withdrawn from silos by a utility auger for bulk or bag movement thus allowing for filling or emptying silos at the same time if required.

TOTAL COST (1890 MT Bulk and 260 MT Bags)

ITEM	A	Site Cost	$ 9,272
ITEM	B	Building Cost	106,405
ITEM	C	Equipment Cost	14,121
		TOTAL	$ 129,798
		ROUNDED	130,000

2150 M.T.

MANAGEMENT - EQUIPMENT OPERATION COSTS

MANAGEMENT

Manager per year	$ 1,569
Assistant Manager	1,200
Watchman	720
Labor (3 for 6 months)	732
TOTAL	$ 4,272

OPERATION

Propane $2.00 M.T.	$ 3,780
Electricity .50 per M.T.	945
Fumigation .20 per M T.	378
Repairs	300
TOTAL	$ 5,403

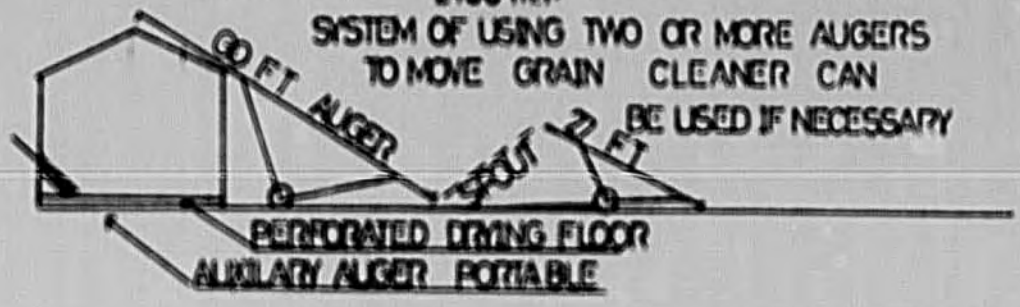
Annual Management	$ 4,272
Operation Costs	5,403
Trucking (Estimate 900 M.T. at $1.60)	1,440
4.5% Interest on Capital Investment of A+B+C = $129,798	5,841
Depreciation of Building B÷1	5,320
Depreciation of Equipment C÷1	1,412
Insurance on Buildings B÷2	479
Insurance on Equipment C÷2	64
TOTAL	$ 24,231

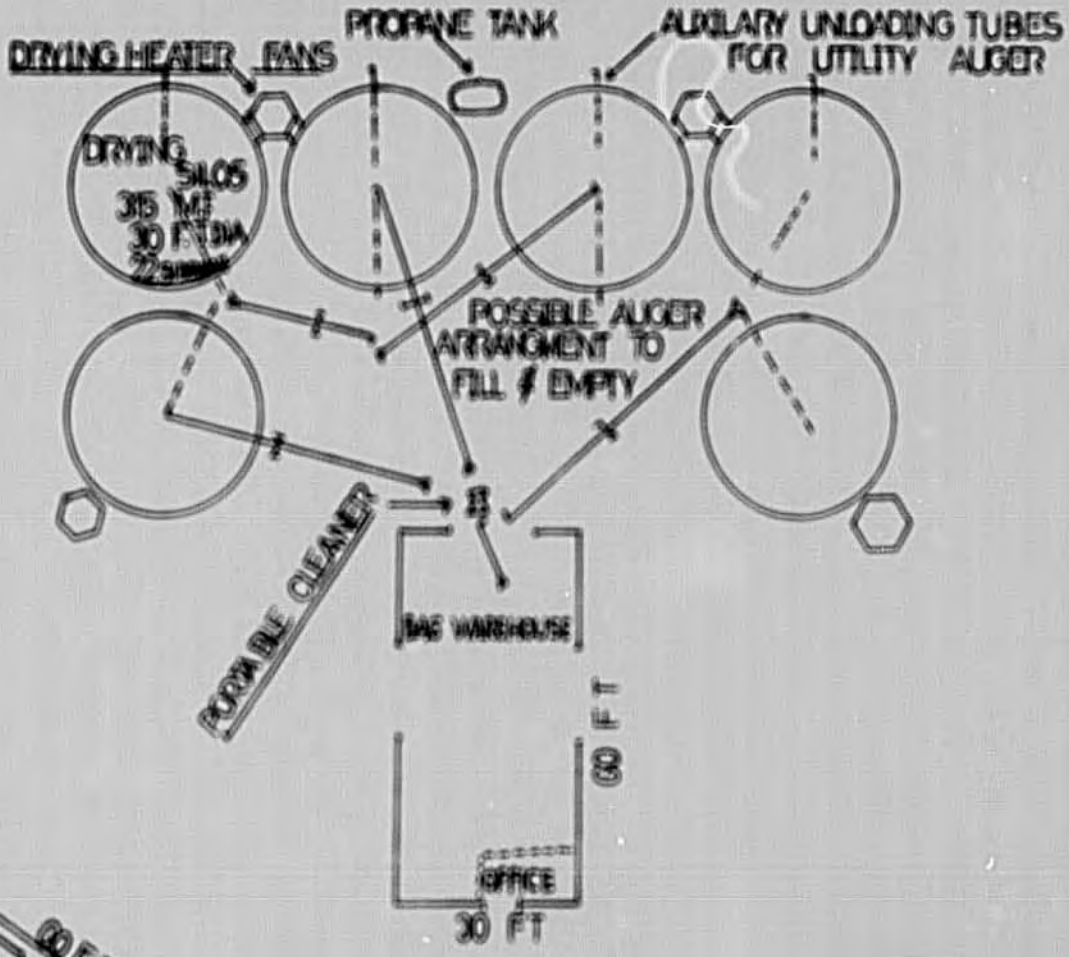
COUNTRY STORAGE & BUYING CENTERS

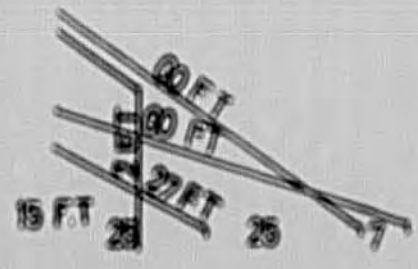
EL SALVADOR

1800 M.T. BULK
260 M.T. BAG
2150 M.T.

SYSTEM OF USING TWO OR MORE AUGERS TO MOVE GRAIN CLEANER CAN BE USED IF NECESSARY





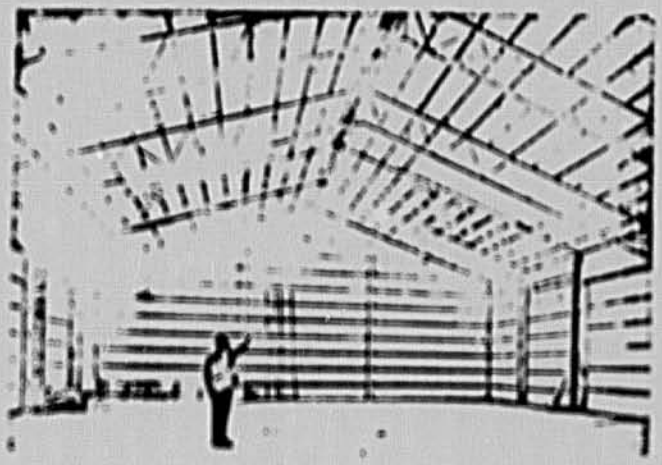


WATCHMAN SHELTER
SANITARY FACILITES

UNCLASSIFIED

1CM = 10 FT

Types of bulk warehouses, silos and filling augers that are planned for country buying stations.



TERMINAL STORAGE & BUYING CENTER

Santa Ana - 5710 M.T.

ITEM A. CAPITAL INVESTMENT

Topography Survey & Design	$ 3,000
Site Preparations	2,000
Crushed Rock for Drive	1,200
Water Supply	1,000
Fencing	1,640
TOTAL	$ 8,840
Contingency 30%	2,625
TOTAL COST	$ 11,492

5710 M.T.

ITEM B. CAPITAL INVESTMENT - BUILDINGS

All equipment coordinated for 3000 bu. hr.

1	Bag Warehouse 50x150 approx. (152x45.7) Wall pressure for possible 12 ft. bulk grain Bag capacity 1000 M.T.	$ 22,500
6	Steel Silos - 30 ft. dia. 35 ft. stiffened sidewall, 550 M.T. - Complete w/draw tubes, aeration & fan unit	53,400
4	Steel drying silos 30 ft. dia. 22 ft. sidewall 315 M.T. 1/4 C.F.A. - Complete w/draw tubes - dry fans & heat unit	29,520
1	Elevator - Verticle belt cup - 100 ft. (20 ft. below 0.0) Complete - Motor & Drive 70 M.T. per hr.	8,141
1	Self Clean conveyor top - 3 drops - complete with Motor & Drive	3,816
1	Belt conveyor to bag warehouse - reversible	1,600
1	Screw conveyor to wet holding bin - top	1,145
1	Auger from large bin to dryer 6 inch	400
1	Receiving pit - Gravity to elevator leg. Complete w/grill to support trucks - Estimate	2,000
1	Roof over receiving pit - Estimate	3,000
1	Valves & Spounting - Estimate	3,000
1	Ladder & Catwalk - A frame - Estimate	7,000
2	Hopper silos - 19 ft. above 0.0. Wet over dryer. Dry over receiving pit	3,750
1	Elevator - vertical - belt-cup - 80 ft. 30.5 M.T. hr. From dryer to dry holding silo	3,306

5710 M.T.

1	Holding silo for dry - hopper	$ 4,766
1	Conveyor under dry silo to main elevator or pit	1,000
1	Roof over conveyor between silos 100 ft.	1,000
1	Truck scale - Concrete deck 30 T.M. 60 ft.	9,000
1	Office at scale site - 20x30 ft. (56 M2 at $50)	2,800
1	Sanitary facilities adjacent to office - 12 M2 at $80	960
1	Electric Wiring for entire unit (some underground) 220 V - 115 V - 3-phase - 60 hz.	8,000
	F.O.B. - FACTORY SUB-TOTAL	$ 174,432
	CRATING & FREIGHT 20%	34,886
	SUB-TOTAL	$ 209,318
1	Concrete Floor - Bag warehouse-extra smooth 110 M3	3,630
	Steel Reinforcing 694 at .62	430
8	Concrete base - silos 13 M3 104 M3	3,432
	Steel	400
1	Concrete for bottom conveyor trench & 25 ft. adjacent 13 M3	429
1	Concrete for receiving pit 10 M3	330
1	Concrete for scale pit & office 26 M3	858
4	Bean Ladders - Local Constructions	800
1	Watchman Shelter - Local Construction - 16 M2 at $38.00	600
	COST MATERIAL	$ 220,227
	40% Erection	88,090
	COST ERECTED	$ 308,317
	Contingency 30%	92,495
	TOTAL COST	$ 400,812

ITEM B-1 Depreciation 20 years $20,040 per year
ITEM B-2 Insurance .0045 1,804 per year

5710 M.T.

ITEM C. CAPITAL INVESTMENT - EQUIPMENT

1	External dryer - 12.6 M.T. hr. Semi-portable - No installation	$ 16,000
1	Bagging facilities - automatic 50.8 M.T. fr. 100# or 200# bags, 30-foot vertical elevator	4,500
8	Bagging Carts	480
1	Portable platform scale - 300 lb. capacity indicator for over and under - metric and pounds	300
2	Portable Hand sewing machines	700
1	Bagging supplies	200
1	60 ft. 8 inch portable auger - electric	2,000
2	Utility augers for a bagging direct from silos	800
1	Portable cleaner - scalper w/bagging auger	747
1	Screens for cleaner	100
1	75 ft. 12 inch self-clean conveyor 70 M.T. per hr.	4,600
4	Horizontal unloading augers 8 inch	1,440
4	Bin sweep augers 8 inch	1,400
1	Thermo couple monitor	340
10	Thermo couple nylon drops $68.00 per silo	680
10	Aluminum grain scoops	90
2	Tarpaulins 14 ft. x 14 ft. Heavy-duty	80
6	Fire Extinguishers	240

5710 M.T.

1	First Aid Kit	$ 40
1	Set dockage sieves	100
2	Bag Samplers	12
1	Deep Bin probe 30 ft. extension	60
1	6 ft. grain probe - partitions	50
8	Pocket thermometers - Centigrade	40
1	Moisture tester for Beans, maize, rice, sorghum	150
1	Grain Testing Scale - Gram calibrations	45
	Heavy-duty electric extension cords 220 V & 110 V	200
	Office furniture	200
	F.O.B. - FACTORY TOTAL	$ 35,494
	Crating and Freight 20%	7,099
	TOTAL C.I.F. El Salvador	$ 42,593
	Erection and Placement 20%	8,519
	COST	$ 51,212
	Contingency 30%	15,364
	TOTAL COST	$ 66,576

ITEM C-1	Depreciation 10 year	$ 6,658
ITEM C-2	Insurance .0045	$ 299

SUMMARY

The facility has the capability to receive or discharge grain in a normal operation at 76.2 M.T. per hour. The bag warehouse is designed for bags or bulk, and grain could be received at the rate of 140 M.T. per hour if it is required to receive bulk grain from the port and there is space available at Santa Ana.

Grain can be dried at the rate of 12.7 M.T. per hour at a 5 point reduction. 1260 M.T. is provided as in-bin drying for beans but the silos can be used for drying and storing other grains if not used for beans. The in-bin drying is also a stand-by system in case the continuous-flow dryer should fail.

The facility will have a large truck scale - facilities for bagging at the maximum rate of 50.8 M.T. per hour in 100 lb. or 200 lb. bags. The grain can be rough cleaned before bagging and before or after drying as required.

CAPACITY

Bag or bulk	1,000	M.T.
Bulk only	4,710	M.T.
TOTAL	5,710	M.T.

TOTAL COST

ITEM A	Site Cost	$ 11,492
ITEM B	Building Cost	400,812
ITEM C	Portable Equipment Cost	66,576
	TOTAL	$ 478,880
	ROUNDED	479,000
EXPANSION - 1100 M.T.	INCREMENTS	$ 30,000
	Contingency 30%	9,000
	TOTAL	$ 39,000

MANAGEMENT - OPERATION COSTS

Management (12 mos.)

Manager	$ 2,160
1 Assistant	960
1 Assistant	840
1 1/4 Watchman	900
Labor $40 mo. (12 men - 4 mos.)	1,920
TOTAL	$ 6,780

Operation (12 mos.)

Propane $2 M.T.	10,160
Electricity $50 M.T.	2,540
Fumigation 20¢ M.T.	1,016
Repairs	700
TOTAL	$ 14,416

Annual Management	$ 6,780
Operation Costs	14,416
Trucking (Estimate)	3,200
45% Interest on investment A-B-C $478,880	21,550
Depreciation on Building B-1	20,040
Depreciation on Equipment C-1	6,645
Insurance on Buildings B-2	1,804
Insurance on Equipment C-2	299
TOTAL	$ 74,734

TERMINAL STORAGE AND BUYING CENTER

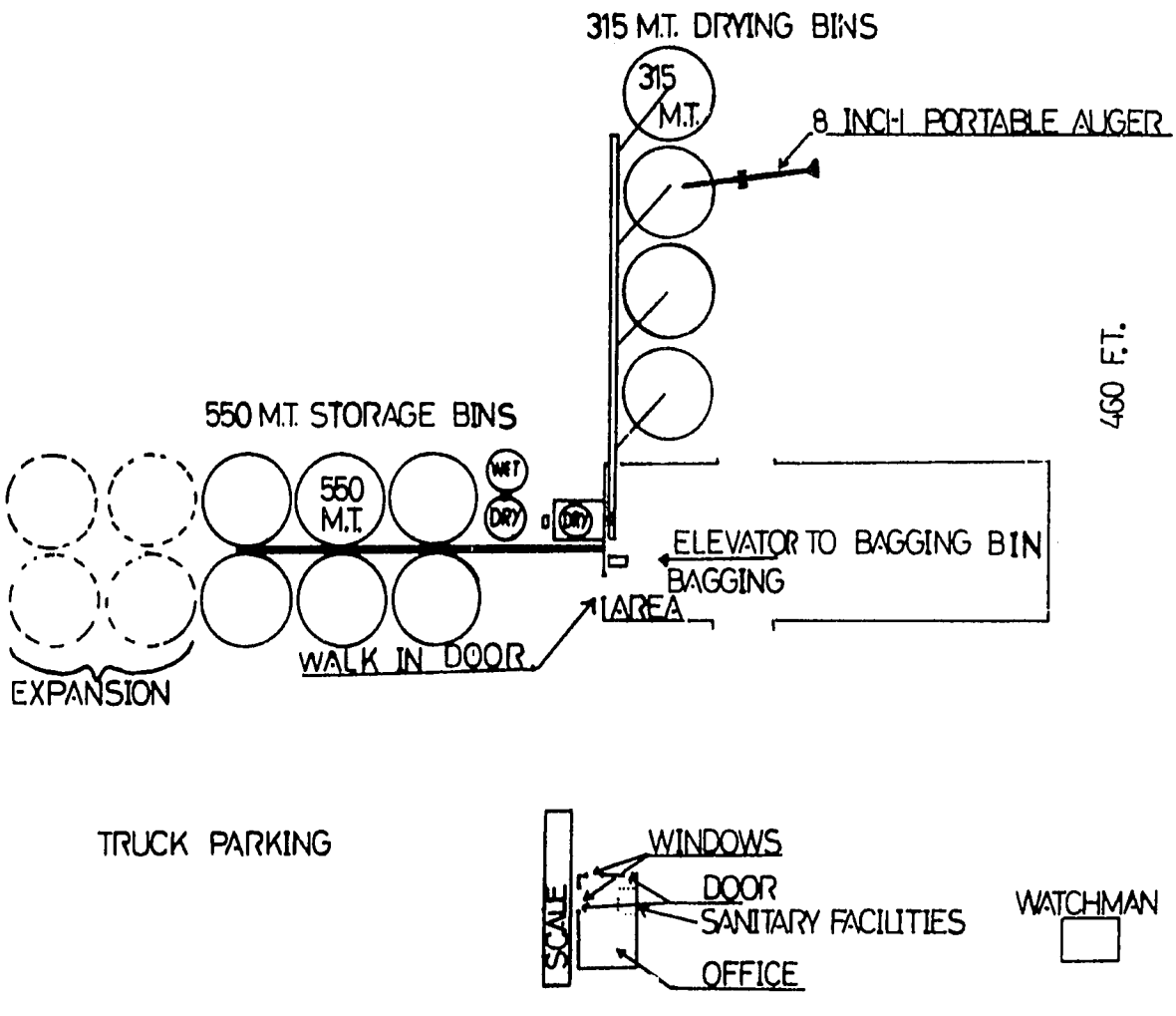
SANTA ANA

EL SALVADOR

CAPACITY: 1000 M.T. BAG

4710 M.T. BULK

5710 M T



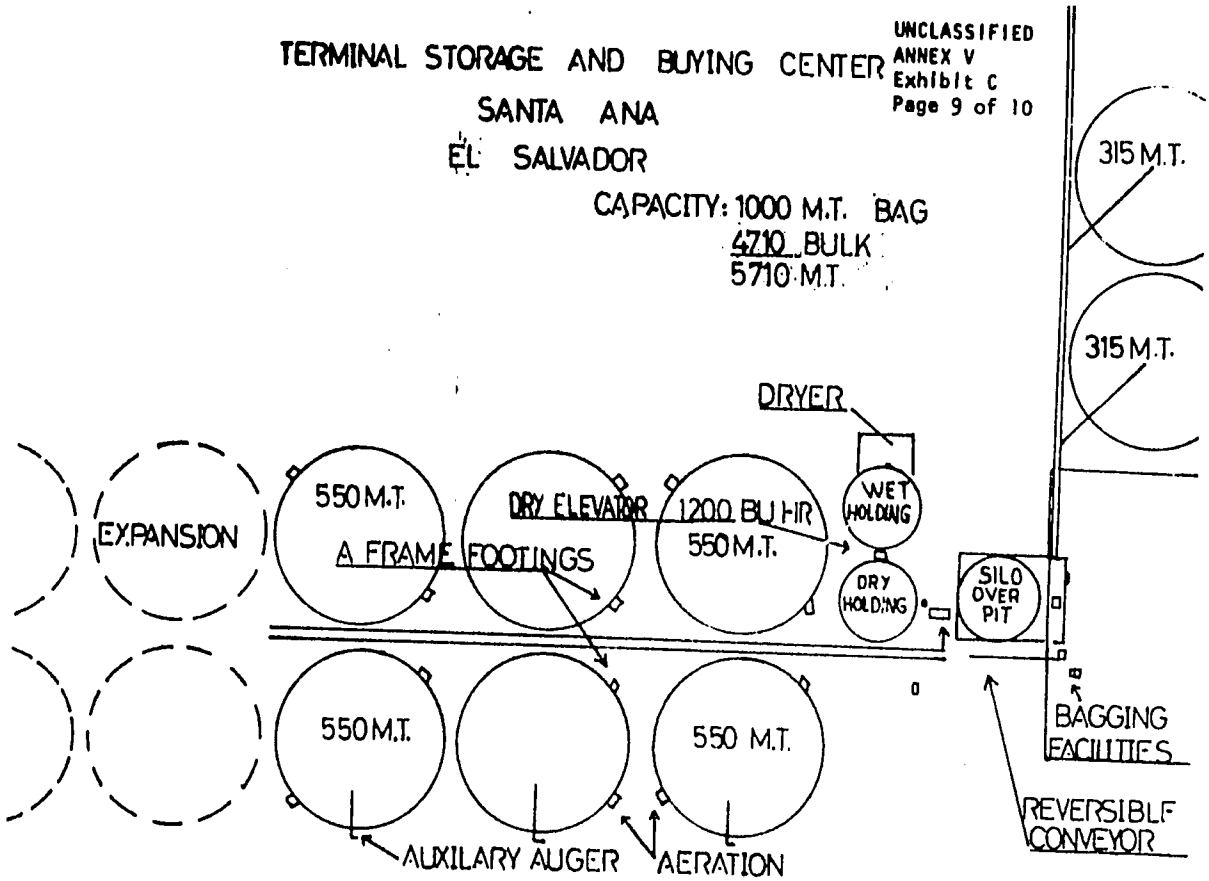
1 CM = 20 FT

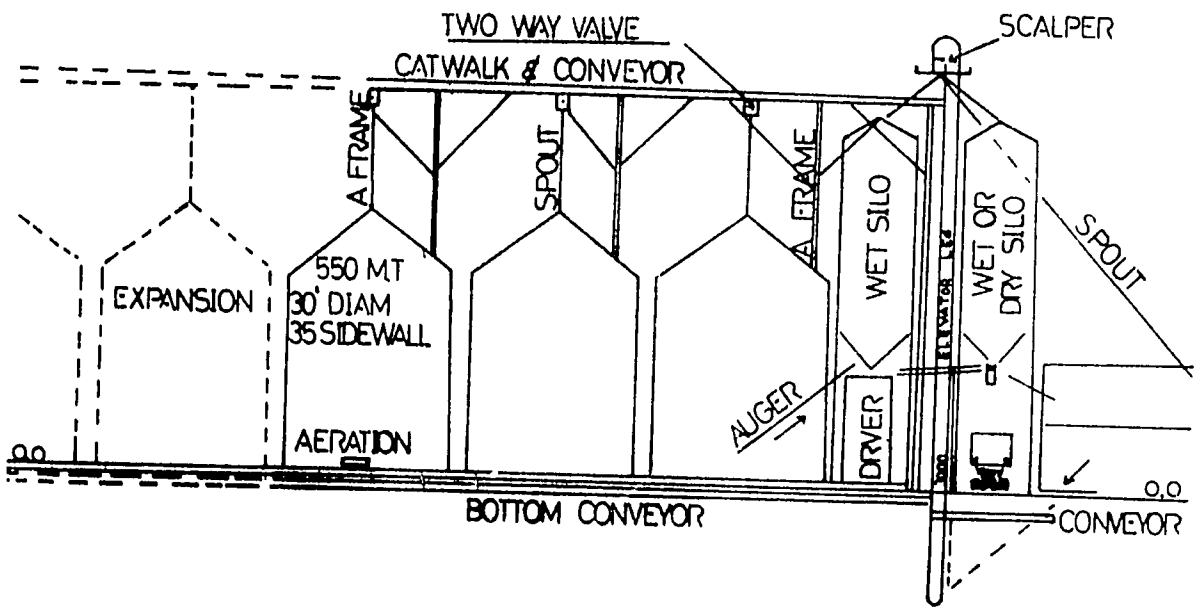
TERMINAL STORAGE AND BUYING CENTER

SANTA ANA

EL SALVADOR

CAPACITY: 1000 M.T. BAG
4710 BULK
5710 M.T.

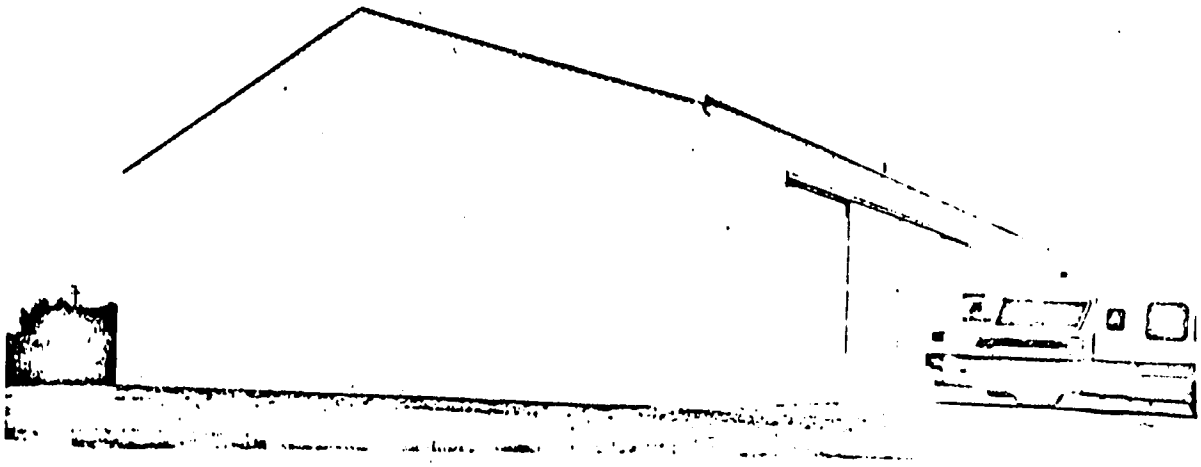


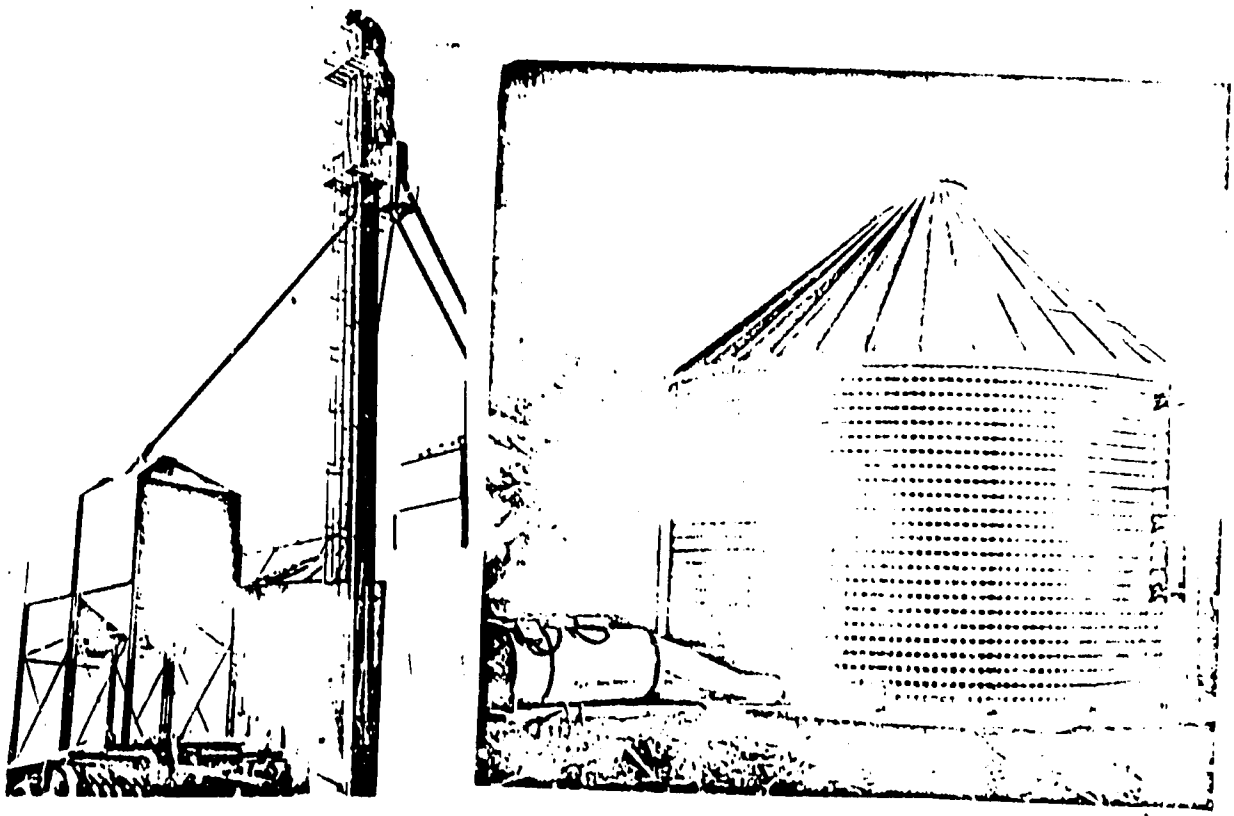


UNCLASSIFIED

APROX. 1CM= 10FT

Types of bulk warehouses, elevators, metal silos planned for Santa Ana and San Miguel. (Top and bottom conveyors, walkways and framework not shown).





TERMINAL STORAGE AND BUYING CENTER

San Miguel 1/
5080 MT

ITEM A. CAPITAL INVESTMENT

Topography Survey and Design		$ 3,000
Site Preparation		2,000
Crushed rock for drive		1,200
Water supply		1,000
Fencing		1,640
	TOTAL	$ 8,840
	Contingency-30%	2,652
		$ 11,492

1/ This exhibit is included for illustration purposes only since it is not included as part of this loan. It will be financed by CABEI.

S A N M I G U E L

5080 M.T.

ITEM B **CAPITAL INVESTMENT** – Buildings

1	Bag Warehouse 50 x 150 approx (15.2 x 45.7) Wall pressure for 12 ft. bulk-Bab Capacity 60%	$ 22,500
6	Steel silos 30 ft. dia. 35 ft. side 550 M.T. complete with drew tubes, aerations & fan unit	$ 53,400
1	Elevator vertical belt cup 100 ft. 20 ft. below 0.0-complete with Motor & Drive	8,141
1	Self Clean conveyor - top - 3 drops complete with motor & drive	4,328
1	Self Clean conveyor -bottom- Motor and Drive	3,816
1	Belt Conveyor to bag warehouse - reversible	1,600
1	Screw conveyor to wet hold bin top	1,145
1	Auger from large bin to dryer, 6 inch	400
1	Receiving pit - Gravity to elevator leg complete with grill to support brucks - estimate	2,000
1	Roof over receiving pit – estimate	3,000
1	Valve and spouts – estimate	3,000
1	Ladders - catwalks. A frames – estimate	7,000
2	Hopper silos 19 ft. above 0.0 Wet over dryer. Dry over receiving pit	3,750
1	Elevator – vertical belt cup 80 ft. 1200 bu.hr. from dryer to dry holding	3,306
1	Holding silo for dry – hopper	4,766
1	Screw Conveyor under dry silo to main elevator or pit	1,000
1	Roof over conveyor between silos 100 ft.	1,000

5080 M.T.

1	Truck scales - concrete deck - 30 T.M. 60 Ft.	$ 9,000
1	Office at scale site - 20 x 30 ft.(56 M2 at 50)	2,300
	Sanitary facilities adjacent to office 12 M2 at $80	960
1	Electric wiring for entire unit 220 V - 115V 3 phase 60 h#	8,000
	F.O.B. Factory Sub-Total	$ 154,672
	Crating and Freight 20%	$ 31,934
	Sub-Total	$ 191,606
1	Concrete floor-Bag warehouse-extra smooth 110 M3	3,630
	Steel reinforcing 694 M2 at .62	430
8	Concrete Base-Silos-13 M3 104 M3 Steel	3,432
1	Concrete for bottom conveyor trench and 25 ft. adjacent	429
1	Concrete - for receiving pit	330
1	Concrete - for scale pit and office 26 M3	858
1	Watchman shelter - Local construction 16 M2 x $38	$ 600
	Total Cost Mater	1 201,315
	40% Erection	80,526
	COST ERECTED	$ 281,841
	Contingency 30%	84,552
	TOTAL	$ 366,393

ITEM B-1 Depreciation 20 years $ 18,320

ITEM B-2 Insurance .0045 $ 1,649

5080 M.T.

ITEM C CAPITAL INVESTMENT - Equipment

1	External Dryer - 12.6 M.T. hr. Semi-portable - No installation	$ 16,000
1	Bagging Facilities-automatic 50.8 M.T hr. 100# - 200# bags 30 Ft vertical - elevator	4,500
8	Bagging carts	480
1	Portable platform scale-300 lb. capacity indicator for over and under. Metric	300
2	Portable hand sewing machines	700
1	Bagging supplies	200
1	60 ft. 8 inch Portable Auger	2,000
2	Utility augers - bagging direct from silos	800
1	Portable cleaner - scalper Bagging auger	747
1	Screens for cleaner	100
1	75 ft. self cleaning conveyor 70 M.T. hr.	4,600
4	Horizontal unloading augers 8 inch	1,440
4	Bin sweep augers 8 inch	1,400
1	Thermo-couple monitor	340
6	Thermo couple nylon drops	408
10	Aluminum grain scoops	90
2	Tarpaulins 14 x 14 ft. Heavy Duty	80
6	Fire Extinguishers	240
1	First Aid Kit	40
1	Set dockage sieves	100
2	Bag samplers	

5080 M.T.

1	Deep bin probe 30 ft. extension	$ 60
1	6 ft. grain probe-partitions	50
8	pocket thermometers - centigrade	40
1	moisture tester - beans, maize, rice, sorghum	150
1	Grain testing scale - Gram calibrations	45
	Heavy duty extension cords	200
	Office furniture	200
	F.O.B. Factory Total	$ 35,322
	Crating & Freight 20%	$ 7,064
	Erection & Placement 20%	$ 42,386
		8,477
	COST ERECTED	$ 50,863
	Contingency 30%	15,259
		$ 66,122

ITEM C-1 Depreciation 10 years $ 6,612

ITEM C-2 Insurance .0045 $ 298

SUMMARY

CAPACITY	4080	M.T. BULK
	1000	M.T. BAG
	5080	M.T.

The need for San Miguel is to receive maize and grain sorghum. If limited amounts of beans are received they could be transferred to San Martin's which will be the center for precision cleaning and bagging beans for the El Salvador consumer. If required, the facility at San Miguel could accept beans and rice for drying and storage.

The facilities at Santa Ana and San Miguel are duplicate except the facility at San Miguel will have only two drying silos. These can be expanded as needed but the main purpose of the drying silos is to add additional drying capacity which is also a reserve system in case the continuous dryer should malfunction.

San Miguel will have a large truck scale, facilities for bagging at the rate of 50.8 M.T. per hour in 100 lb. or 200 lb. bags. The grain can be rough cleaned before bagging and before or after drying as required.

Total Cost

ITEM	A	Site Cost	$ 11,492
ITEM	B	Building Cost	366,393
ITEM	C	Portable Equipment Cost	66,122
		TOTAL COST	$ 444,007
		ROUNDED	$ 444,000
Expansion Cost - 1100 M.T. Increments			$ 30,000
	30%	Contingency	$ 9,000
		TOTAL	$ 39,000

5080 M.T.

MANAGEMENT-OPERATION COSTS
(12 mos.)

Management

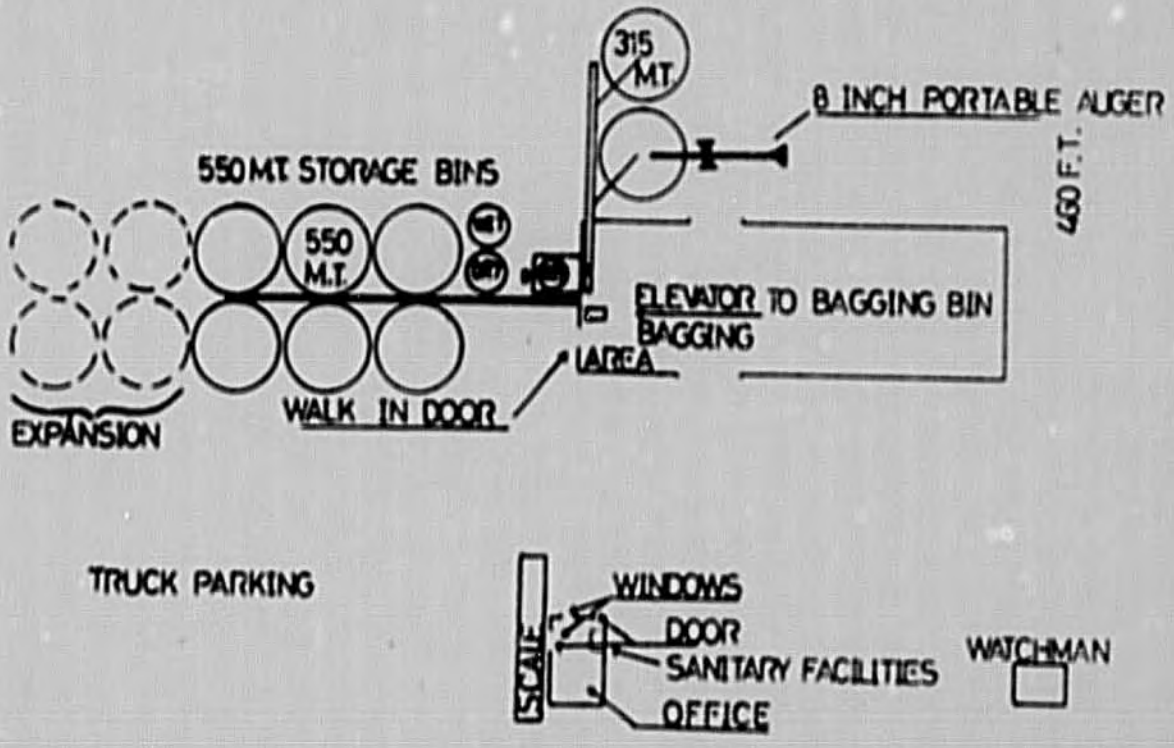
Manager	$ 2,160	
1 Assistant	960	
1 Assistant	840	
1 1/4 Watchman	900	
Labor (12 men-4 mos)	1,920	
Total		$ 6,780

Operation

Propane $ 2 M.T.	$ 8,160	
Electricity $50 M.T.	2,040	
Fumigation 20¢ M.T.	816	
Repairs	700	
		$ 11,716

Annual Management	$ 6,780
Operation Costs	11,716
Trucking Estimate	3,200
4.5% Interest on Investment A-B-C - $ 444,007	19,980
Depreciation on buildings B-1	18,320
Depreciation on equipment C-1	6,612
Insurance on Buildings B-2	1,649
Insurance on Equipment C-2	298
	$ 68,555

TERMINAL STORAGE AND BUYING CENTER
SAN MIGUEL
EL SALVADOR
CAPACITY: 1000 M.T. BAG
4080 M.T. BULK
5080 M.T.



UNCLASSIFIED

1CM = 20 F.T.

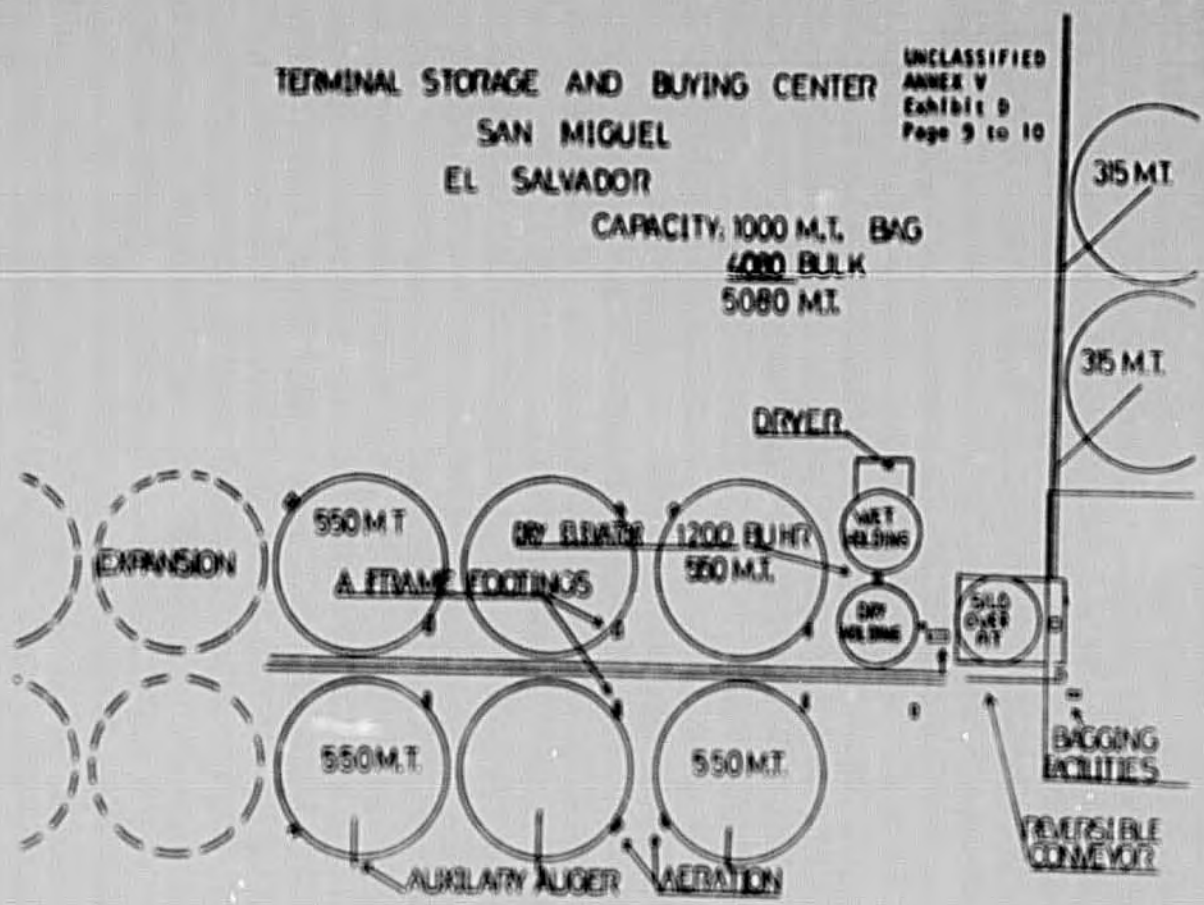
UNCLASSIFIED
ANNEX V
Exhibit 9
Page 9 to 10

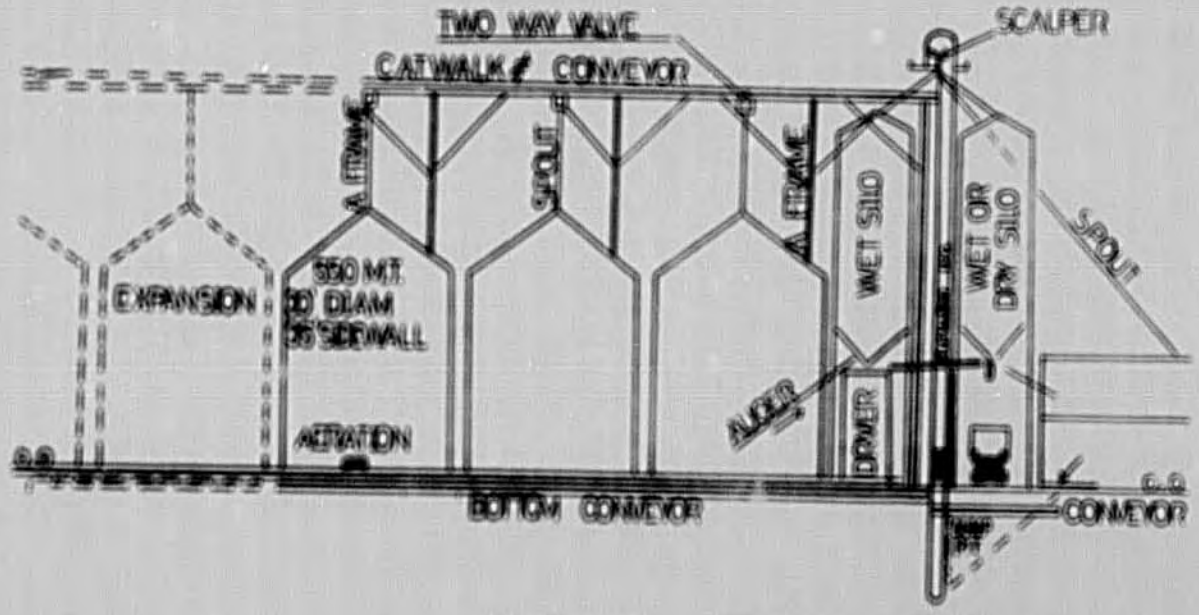
TERMINAL STORAGE AND BUYING CENTER

SAN MIGUEL

EL SALVADOR

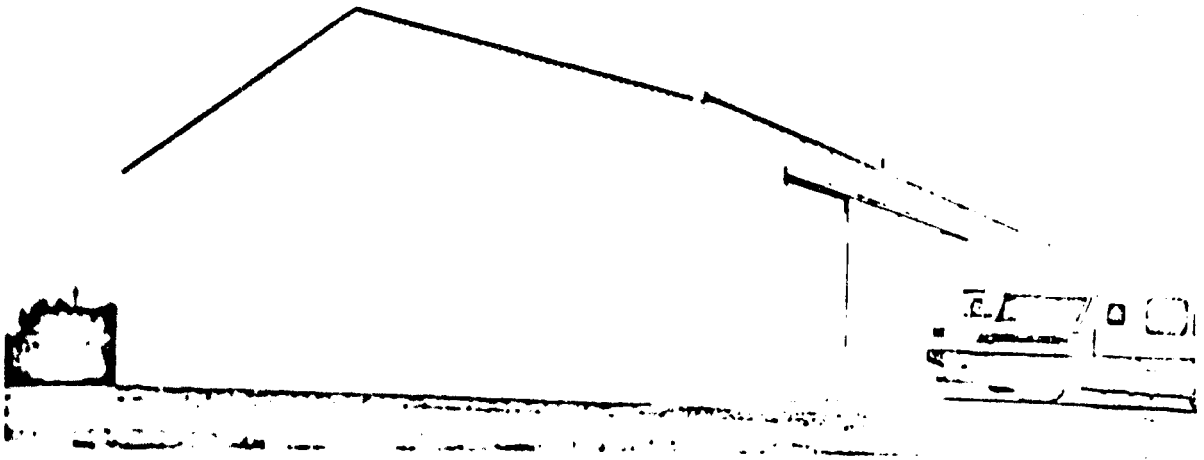
CAPACITY: 1000 M.T. BAG
4080 BULK
5080 M.T.

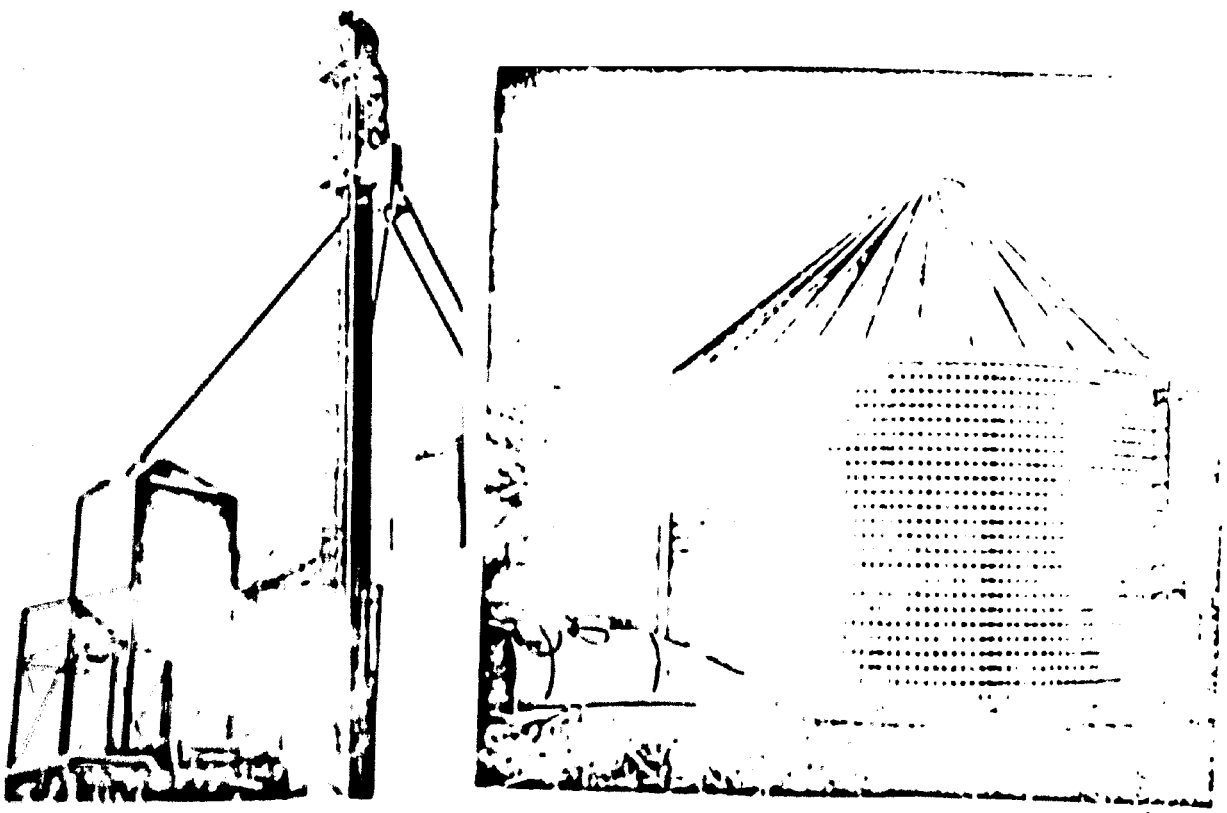




UNCLASSIFIED APPROX. 1CM = 10 FT

Types of bulk warehouses, elevators, metal silos planned for Santa Ana and San Miguel.(Top and bottom conveyors, walkways and framework not shown).





SAN MARTIN

Existing facilities

Bulk Steel silos	13,000 M.T.
Bag warehouse	12,000 M.T.

Immediate alterations that are paid by IRA are:

Hard surfacing of drives	$1,000
Purchase of a precision bean cleaner	7,000

US/AID LOAN REQUIREMENTS FOR SAN MARTIN (Installed price)

Construction of a bulk receiving pit	$ 4,000
Screw Auger and Motor for receiving pit	2,000
Roof over receiving pit and storage area	16,000
Additional grain dryer 12.7 M.T. per hr.	20,000
Alteration of existing silos at end of the warehouse for the bagging operation	8,000
Roof over existing receiving pits at the bag warehouse	12,000
Land fill for silo erection at the bag warehouse	1,200
Two drying silos for beans 150 M.T. each	16,000
One portable auger for filling and transferring beans for bagging (60 ft. 6 in.).	2,000
TOTAL	$ 81,200
Contingency 30%	24,300
	$ 105,560
Rounded	$ 106,000

USULUTAN

Existing facilities:

Bulk steel silos and flat bulk storage	4100 M.T.
Bag warehouse capacity	1400 M.T.

1250 M.T. of bag warehouse space is rented

An additional 4000 M.T. bulk storage is planned and will be constructed and financed by IRA. The plans for the bulk warehouse are being altered so that grain can be received in the bulk at Usulután and altered so that grain can be dried before being placed in the warehouse for storage.

US/AID LOAN REQUIREMENTS FOR USULUTAN (Installed price)

Additional continuous flow grain dryer 12.7 M.T. per hr.	$ 20,000
Spouting and elevator for dry grain discharge from dryer.	7,000
Truck scales 30 M.T. capacity 60 ft. length	14,000
TOTAL	41,000
Contingency 30%	12,300
TOTAL	$ 53,300
Rounded	53,000

CHIEF OR MASTER MECHANIC

Job description: The person employed must have the ability to weld, both gas electric, make minor electrical repairs, innovate and make needed changes of equipment. The person must understand the function and repair of grain handling equipment and understand grain drying. He will be furnished a van truck (cost estimate of $9,000) and the following equipment:

One	Strobe light (Elevator cup inspection)	$ 150
One	Gas welder and cutting torch-semi-heavy duty	300
One	Electric welder. Transformer type-induction 220V 230 Amp. Fifty ft. lead Fifty ft. electrod/cord extensions	400
One	Six inch vise bolted to repair truck	50
Variety	Open end and socket wrenches, Allen wrenches screw drivers, vise grip wrenches, metal and rubber hammers, extension cords, hard hat and small tools as needed	500
One	Small portable electric air compressor	200
Two	Fire extinguishers, hand-held, B&C fires	80
One	First Aid Kit	20
One	Voltage and Amperage tester	100
	Sub-total	$2,100
	Crating & Freight 20%	420
	CIF El Salvador	$2,520
	30% Contingency	756
	TOTAL	3,276
	Rounded	3,300

Replacement Parts

It is not intended that replacement parts should be kep at all locations except for a limited number of V belts or parts that experience has deemed necessary. If San Martin is to be us as the headquarters for the chief mechanic, then the parts shoul all be kept at that location. At present San Martin maintains a small repair store for the San Martin facility.

2	Fan and burner for drying silos	$ 2,400
4	Aeration Fans	1,400
1	60 ft. 6" auger	1,800
1	27 ft. 6" auger	1,200
2	Utility Augers	800
30	Bearings for portable augers & conveyors	400
30	V Belts for grain augers	150
5	Top drive roller chain for portable augers	50
100	Elevator cups	200
1	Cup Straightener	230
220	Ft. spare elevator belt	550
3	1 1/2 H.P. Electric motor	450
3	2 H.P. Electric motor 220 V 3P	540
1	5 H.P. Electric motor 220 V 3P	300
1	15 H.P. Electric motor 220 V 3P	325
20	Aluminum scoops	180
30	Grease guns	210
30	Thermometers	150
4	6 ft. partioned grain probes	200
4	Moisture testers	600
1	Re-charge kit and chemical for fire extinguishers	100
		$12,035
	Crating & Freight 20%	2,407
	CIF, El Salvador	$14,442.
	30% Contingency	4,333
	TOTAL	$18,775
	Rounded	$19,000

GRAIN SUPERVISOR

Job description: The person must understand grain testing and grain standards, insect infestations, moisture testing, grain drying, fumigation and knowledge of measuring grain to determine inventory.

Equipment needed:

One portable moisture meter	$ 150
Two grain thermomethers	12
One grain testing scale (Gram)	50
One set of dockage sieves	100
Two gas masks (One man should never enter a fumigated building without another person standing by, also equipped with a gas mask)	140
One 6 ft. partioned grain probe	60
One deep grain bin probe	60
Supply of air tight sample bags	10
Fumigation equipment and supplies for grain protectant	800
One first aid kit	40
One fire extinguisher for class H&C fires	40
SUB-TOTAL	$ 1,462
Crating & Freight	292
CIF El Salvador	1,754
30% Contingency	526
TOTAL	$ 2,280
Rounded	$ 2,300

To assist in inventory control, grain bins should be calibrated on the inside with red or black oil paint. The calibrations can be in 100qq. or calibration marks made for metric tons, or both. This saves the need for continuous measurement.

Country Buyers

It is planned to have fifteen country buyers that may buy from the roadside or at designated market points. Each will need a portable scale for weighing bags. This cannot be a platform scale.

The trucks for the country buyer are provided for in another section.

The equipment needed for each buyer.

1 Grain moisture tester - Battery operated or electric.		$ 150
1 Dockage sieves		100
1 Grain testing scale - Gram calibrations		50
1 Portable beam scale		130
		$ 430
	20% freight	86
	Total	$ 516
	30% contingency	155
	TOTAL	$ 671

15 buyers x $671	TOTAL	$10,065
	Rounded	$10,000

Communications

Due to the relatively poor quality of telephone service in the rural areas and the increased complexity of an expanded IRA, it will be necessary for IRA to have its own communication system.

It has been determined that a VHF system with approximately 30-50 watts and 2 channels with a repeater at a high point near San Salvador is needed. The minimum would include:

	Description	Cost
1	base station	$ 1,200
1	repeater	1,500
17	stationary units with semi-directional antennas	18,700
24	mobile units	24,000
	TOTAL	$45,400
	30% contingency	13,620
	TOTAL	59,020
	Rounded	59,000

Stage II Expansion

Although the Stage II expansion will remain flexible, it has been distributed on a tentative basis for purposes of the financial plan as follows:

2	1520 M.T.	units -	3040 M.T.
6	630 M.T.	expansions of 1520 M.T. units	3780 M.T.
1	1100 M.T.	expansions of Santa Ana	1100 M.T.
		TOTAL	7920 M.T.

DRAFT LOAN AUTHORIZATION

Provided from: ALLIANCE FOR PROGRESS LOAN FUNDS
AGRICULTURAL DEVELOPMENT - GRAIN MARKETING

Pursuant to the authority vested in the Deputy U.S. Coordinatc Alliance for Progress, by the Foreign Assistance Act of 1961, as amended and the delegations of authority issued thereunder, hereby authorize the establishment of a loan pursuant to Part Chapter 2, Title VI, Alliance for Progress, of said Act, to th Government of El Salvador, ("Borrower"), of not to exceed Six Million Five Hundred Thousand United States Dollars ($6,500,00 to assist in financing the United States Dollar and local currency costs of Borrower's program to establish a Basic Grai Marketing Program within the Republic of El Salvador. Not to exceed the equivalent of US$100,000 of the loan may be used to finance training of Instituto Regulador de Abastecimientos ("IRA") personnel. Not to exceed the equivalent of US$200,000 of the loan may be used to finance technical assistance to IRA. Not to exceed the equivalent of US$ 100,000 may be used to finance technical assistance to the Ministry of Agriculture. Not to exceed the equivalent of US$ 200,000 of the loan may be finance engineering design and supervision services for IRA. N to exceed the equivalent of US$ 3,500,000 of the loan may be used to finance the revolving working capital fund for IRA's gr marketing program. The loan shall be subject to the following terms and conditions:

1. Interest and Terms of Repayment

Borrower shall repay the loan to the Agency for International Development ("A.I.D.") within forty (40) years from the date of the first disbursement under the loan, including a grace period of not to exceed ten (10) years. Borrower shall pay to A.I.D. in United States dollars on the disbursed balance of the loan interest at the rate of two percent (2%) per annum during the grace period and three percent (3%) per annum thereafter.

2. Source and Origin

Except as hereinafter otherwise provided, goods, services (except for ocean shipping) and marine insurance financed under the loan shall have their source and origin in countries which are members of the Central American Common Market or in countries included in Code 941 of the A.I.D. Geographic Code Book. Marine Insurance may be financed under the loan only if it is obtained on a competitive basis and any claims thereunder are payable in freely convertible currencies. Ocean shipping financed under the loan shall be procured in any countries included in Code 941 of the A.I.D. Geographic Code Book, excluding countries which are members of the Central American Common Market.

3. Local Currency

United States dollars utilized under the loan to finance local currency costs shall be made available pursuant to procedures satisfactory to A.I.D.

4. Other Terms and Conditions

a. Prior to the first disbursement, the Borrower shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

i) a detailed implementation plan for the entire program including the upgrading of existing storage facilities.

ii) a complete financial plan for the program including the timing and amounts of the loan and the Borrower counterpart financing of working capital, infrastructure investments and other related program costs.

iii) evidence of the establishment within the Central Bank of a separate revolving working capital fund to function and be used in a manner satisfactory to A.I.D.

b. Prior to disbursement of loan funds for other than technical assistance and training, the Borrower shall submit in form and substance satisfactory to AID:

i) evidence that a comprehensive technical assistance program for improvement of the entire IRA grains operation has been initiated.

ii) evidence that IRA has established a cost accounting system satisfactory to A.I.D.

c. Prior to the issuance of any bidding documents to obtain bids for the construction of any IRA facilities, IRA will submit in form and substance satisfactory to AID:

i) a detailed schedule for the construction work together with complete engineering plans, specifications and bidding documents.

ii) evidence that sufficient working capital for IRA to cover its operations with the future expansion of facilities will be made available to the grain purchase working capital fund through a direct GOES budgetary allotment or GOES resources secured from other national or regional sources.

iii) evidence that all contributions to the working capital fund will be channelled to such fund in accordance with the financial plan for the program and, unless A.I.D. otherwise agrees in writing, will be retained in the fund for the life of the program.

(d) Borrower shall covenant with AID that:

i) As storage capacity provided for pursuant to the program, becomes available and subsequently throughout the life of the program, IRA will purchase grains (cron, sorghum, beans and rice) at their established minimum price from any producer who desires to sell to IRA and in addition may purchase grains from other sources such as truckers and wholesalers. Preference as to purchases shall be given to producers of said grains.

ii) During the life of the program, IRA will announce the minimum buying prices for grains (corn, sorghum, beans and rice) in advance of the major planting season on the dates set forth in the implementation plan.

iii) It will maintain the value of the working capital fund at the same level as established in the implementation and financial plans.

iv) It will consult with the Central American Coordinating Commission on Marketing and Price Stablization (CCMEP) on its price stabilization levels and extra-regional trade for the production year in which it plans to use the working capital financed by the loan. Evidence of consultation with CCMEP will be the official minutes of the regular CCMEP meeting at which an El Salvador IRA representative was in attendance.

v) Throughout the life of the program, it will utilize the U.S. $3,500,000 or any part thereof provided by AID to the working capital of IRA solely for the purchase by IRA of basic grains (rice, corn, beans and sorghum) pursuant to the Borrower's price stabilization program.

vi) One year from the date of the first disbursement of the contribution by AID to the working capital fund of IRA, and annually thereafter throughout the life of the loan, the Borrower shall perform an evaluation of the price stabilization program, the scope of which evaluation shall be satisfactory to AID, and shall make available to AID the findings of said evaluation.

(e) The loan shall be subjected to such other terms and conditions as AID may deem advisable.