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

PROJECT PAPER

Proposal and Recommendations
For the Review of the
Development Loan Committee

COSTA RICA - COMMODITY SYSTEMS

AID-DLC/P-2268

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

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September 22, 1977

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Costa Rica - Commodity Systems

Attached for your review are recommendations for authorization of a loan to the Government of Costa Rica (the "Cooperating Country") in an amount not to exceed Five Million Five Hundred Thousand United States Dollars (\$5,500,000) ("Authorized Amount") to help in financing certain foreign exchange and local currency costs of goods and services required for the Project.

This loan is scheduled for consideration by the Development Loan Staff Committee on Tuesday, September 27, 1977, at 2:30 p.m., in Room 5951 New State. If you are a voting member, a poll sheet has been enclosed for your response.

Development Loan Committee
Office of Development Program
Review and Evaluation

Attachments:

Summary and Recommendations
Project Analyses
Annexes 1 - 11

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AGENCY FOR INTERNATIONAL DEVELOPMENT PROJECT PAPER FACESHEET	1. TRANSACTION CODE <input checked="" type="checkbox"/> A ADD <input type="checkbox"/> C CHANGE <input type="checkbox"/> D DELETE	PP 2. DOCUMENT CODE 3
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3. COUNTRY ENTITY Costa Rica	4. DOCUMENT REVISION NUMBER <input type="checkbox"/>
5. PROJECT NUMBER (7 digits) <input type="text" value="515-0134"/>	6. BUREAU/OFFICE A. SYMBOL LA B. CODE <input type="text" value="05"/>
7. PROJECT TITLE (Maximum 40 characters) <input type="text" value="Commodity Systems"/>	
8. ESTIMATED FY OF PROJECT COMPLETION FY <input type="text" value="8"/> <input type="text" value="2"/>	9. ESTIMATED DATE OF OBLIGATION A. INITIAL FY <input type="text" value="7"/> <input type="text" value="7"/> B. QUARTER <input type="text" value="4"/> C. FINAL FY <input type="text" value="7"/> <input type="text" value="7"/> (Enter 1, 2, 3, or 4)

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) -						
A. FUNDING SOURCE	FIRST FY <u>77</u>			LIFE OF PROJECT		
	B. FX	C. L C	D. TOTAL	E. FX	F. L C	G. TOTAL
AID APPROPRIATED TOTAL	891	4609	5500	891	4609	5500
(GRANT)						
(LOAN)	891	4609	5500	891	4609	5500
OTHER U.S.						
HOST COUNTRY		978	978		5500	5500
OTHER COUNTRIES						
TOTALS	891	5587	6478	891	10109	11080

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)									
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY <u>77</u>		H. 2ND FY <u> </u>		K. 3RD FY <u> </u>	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) FN	220		020		5500				
(2)									
(3)									
(4)									
TOTALS									

A. APPROPRIATION	N. 4TH FY <u> </u>		Q. 5TH FY <u> </u>		LIFE OF PROJECT		12. IN-DEPTH EVALUATION SCHEDULED
	O. GRANT	P. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1)						5500	MM YY <input type="text" value="1"/> <input type="text" value="2"/> <input type="text" value="8"/> <input type="text" value="1"/>
(2)							
(3)							
(4)							
TOTALS						350 5500	

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

1 = NO
2 = YES

14. ORIGINATING OFFICE CLEARANCE					15. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION					
SIGNATURE					<input type="text" value="0"/> <input type="text" value="9"/> <input type="text" value="0"/> <input type="text" value="8"/> <input type="text" value="7"/> <input type="text" value="7"/>					
TITLE			DATE SIGNED							
			MM	DD	YY					

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

1. TRANSACTION CODE
 C A = ADD
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PID
 2. DOCUMENT CODE
 1

3. COUNTRY/ENTITY
 COSTA RICA

4. DOCUMENT REVISION NUMBER
 1

5. PROJECT NUMBER (7 DIGITS)
 515-0134

6. BUREAU/OFFICE
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7. PROJECT TITLE (MAXIMUM 40 CHARACTERS)
 COMMODITY SYSTEMS

8. PROPOSED NEXT DOCUMENT
 A. 2 = PRP 3 = PP
 B. DATE MM YY

10. ESTIMATED COSTS (\$000 OR EQUIVALENT, \$1 = Q8.54)

FUNDING SOURCE		48508
A. AID APPROPRIATED	FN	5,500
B. OTHER U.S.	1.	
	2.	
C. HOST COUNTRY		5,500
D. OTHER DONOR(S)		
TOTAL		11,000

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION
 a. INITIAL FY 77 b. FINAL FY 77

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

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. FIRST FY 77		LIFE OF PROJECT	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	H. GRANT	I. LOAN
(1) FN	220		020		5,500		5,500
(2)							
(3)							
(4)							
		TOTAL					

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)
 010 040 052 075 080

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)
 BR BL BF DEL EQTY LAB

14. SECONDARY PURPOSE CODE
 260

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)
 To increase incomes of the rural poor.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)
 To install an integrated commodity systems approach in the Ministry of Agriculture's development program.

17. HUMAN RESOURCE REQUIREMENTS (staff/funds)
 N/A

18. ORIGINATING OFFICE CLEARANCE
 Signature: *Jan. J. Sanchez*
 A.I.D. Affairs Officer
 Date Signed: MM DD YY 09 06 77

19. DATE DOCUMENT RECEIVED FOR AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
 MM DD YY

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SUMMARY AND RECOMMENDATIONS

It is recommended that a Loan for an amount not to exceed \$5,500,000 be authorized to the Government of Costa Rica (GOCR) to assist in financing the Agricultural Commodity Systems Project. The Loan will be repayable in dollars within twenty (20) years, including an initial grace period of five (5) years, at an interest of three per cent (3%) per annum.

A. The Project

1. Target Group

Although poverty is widely dispersed throughout Costa Rica, this Project will be instituted in five geographic zones, each with an especially high concentration of poverty. The five zones are geographically scattered with different microclimates and physical characteristics. As of 1973, their total population was 205,000 persons, of which 53 percent (108,000) fell below AID/W's poverty benchmark of \$150 per capita in 1969 prices. Of this immediate target group of 108,000 rural poor, approximately half are farmers and the other half laborers.

2. Purpose

The Goal of this Project, as well as of the AID program in Costa Rica, is to increase the incomes of the poor. The IAP, Agricultural Sector Assessment, and other studies indicate that the bulk of poverty in Costa Rica lies among farmers and landless workers whose future income and employment opportunities cannot be raised through increased production of either basic grains or traditional export crops. This Project is intended to bring about an institutional change in the MAG approach to this target group, and make an immediate impact on a portion of that group.

The Purpose of this Project is to install an integrated commodity systems approach in the Ministry of Agriculture (MAG) agricultural development program.

3. Project Elements

The four elements of the Project are as follows:

(a) MAG Training - The Ministry of Agriculture will set up a Systems Committee for overall Project coordination, planning, implementation, monitoring and evaluation; and a Marketing Technology Unit to provide a broad range of marketing information and technology to farmers throughout Costa Rica, with particular emphasis on the needs of the smaller farmer. A variety of training for MAG staff is included, ranging from on-the-job to advanced academic training.

(b) Farm Management - A systems approach will be used in the development of farm plans for 4,000 target farmers. Technical assistance and training will be given to farmers through field days, meetings, short courses and promotional activities.

(c) Research - Four types of research are included in the Project:

1) Improved Plant Materials. Project funds will be used to establish a National Plant Introductory Garden and to establish or strengthen at least 5 regional experimental stations. Improved plant materials for diversification will be distributed to the experimental stations for testing and multiplication for future use by farmers.

2) Field Days and Demonstrations. Variety trials and demonstrations will be carried out on cooperating farmers' fields in support of the regional outreach program.

3) General Research and Development. Specific problems and constraints identified in the commodity systems will be addressed in research under contracts with individuals and institutions.

4) Farmer Group Pilot Projects. A series of specific marketing activities will focus on reduced post-harvest losses, improved product quality, and improved linkages between production and marketing opportunities. In addition, experimental activities implemented by farmers groups will address given con-

straints at specific points within commodity systems.

(d) Credit

Loan funds will move through the National Banking System (SBN) via constituent banks as short and medium term credit to small farmers, individuals or groups, participating in the integrated systems approach to agricultural enterprises.

4. Summary Project Costs

	<u>AID</u>	<u>GOCR</u>	<u>TOTAL</u>
MAG Training	\$ 333	\$ 40	\$ 473
Farm Management	534	465	1,049
Research	1,583	210	1,793
Credit	2,500	4,285	6,785
Contingency and Inflation	500	500	1,000
TOTAL	\$ 5,000	\$ 5,500	\$11,000

B. End-of-Project Status

By the end of the Project an integrated system approach for conducting the MAG agricultural development program will have been instituted with substantial modification made in farm management, long term cropping patterns, marketing practice, and participation in processing activities of 4,000 small farmer enterprises. More intensive farm management, marketing, and on-farm processing activities will have created near-full employment for 4,000 farm family members and provided additional employment for 4,000 non-farm poor annually by the sixth year after the end of the Project. Individual and group lending for medium term enterprises along with short term lending, both based on farm plans, will have been instituted in 5 regions in Costa Rica.

C. Summary Findings

The Project is feasible in terms of technical, economic, financial, and administrative criteria. USAID/Costa Rica's Agricultural Sector Assessment identified crop diversification as one

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of the best opportunities to raise rural poor incomes. The MAG wishes to employ an integrated commodity system approach in promoting this diversification, and has the capability of applying this methodology.

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I. BACKGROUND

A. Sector and Poverty Overview

The Agriculture Sector is the most important sector in the Costa Rican economy. As of 1976, it accounted for 20 percent of GDP, 62 percent of total export earnings, and 35 percent of total employment. It has provided a significant share of the investment resources and raw materials necessary for the country's relatively rapid industrial expansion.

Between 1965 and 1975, Costa Rica enjoyed the fastest growing Agricultural Sector in Latin America, in total and per capita terms. Most of this expansion has been in export commodities (coffee, bananas, sugar, and beef) until recent years, when dramatic increases occurred in the production of basic grains. Rice production increased from an annual average of 66,000 metric tons in the period 1970-4 to 106,500 metric tons in 1975, while bean production increased from an average of 12,000 metric tons to 16,200 in 1975, and maize production from 69,000 to 91,700 metric tons in 1975. In both the export and foodgrain sectors, increased production has been due to expanded acreage and increased yields -- with increased prices playing an important role in the expansion of the area in production and in the adoption of new technology.

The Ministry of Agriculture and associated agencies have concentrated many of their activities on small farmers: e.g., the production-oriented Projects-by-Campaign program; the cooperative movement which organizes and supports groups of farmers; the national banking system's production credit program for small farmers; the Land Tenure and Colonization program for small farmers; and the National Production Council's program to purchase basic grains at guaranteed minimum prices.

The GOOCR's medium term strategy calls for changes in land tenure patterns; expanded use of new technologies; expanded and diversified agricultural exports; zoning of principal agricultural activities; and promotion of employment-generating production. In the short term, emphasis is being given to production needed for domestic consumption -- i.e., for direct consumption (foodgrains) and for use as industrial raw materials -- partly through the strengthening of extension, credit, and marketing services for small and medium farmers. Also, in order to sell exportable surpluses, the Government is trying to develop new export markets.

Since 1960 AID has authorized five agricultural loans to Costa Rica totalling almost \$40 million. The most recent programs have been: a \$16.4 million Agricultural Sector Loan in 1970 (022) which assisted in strengthening the Ministry of Agriculture (MAG), the Cooperative Development Institute (INFOCOOP), the National Banking System, the Land Colonization Institute (ITCC), the Municipal Development Institute (IFAM), the National Production Council (CNP), and the University of Costa Rica (UCR) in their efforts to provide services and resources to small farmers; a \$7.9 million follow-on Agricultural Sector Loan in 1974 (025) which is continuing institutional support to MAG, INFOCOOP, and IFAM; ^{1/} and a small Agricultural Technical Support grant which financed miscellaneous studies and technical assistance in support of the Sector Loans.

As part of the grant project, USAID contracted with the local consulting firm "La Academia de Centro América" (\$80,000) to do a Rural Poverty Profile based on the 1973 Agriculture, Housing, and Population Censuses. The resulting study, Poverty in Costa Rica, identifies the Costa Rican population which falls below AID/W's poverty benchmark of \$150 per capita income in 1969 prices, showing geographic concentration and various socio-economic and demographic characteristics of poverty.

Details of this poverty analysis are included in USAID/ Costa Rica's Development Assistance Program of October 1976 and Amended Strategy Statement of May 1977. In summary, the analysis shows nearly 47 percent of the total population below AID/W's poverty benchmark. Of the 874,000 persons classified as poor, 26 percent are urban and 74 percent rural. Poverty is more prevalent in the countryside, touching 57 percent of the total rural population vs 31 percent of the urban population. Also, of particular note in planning future programs, 63 percent of the rural poor belong to non-farming families.

AID's rural target group can be disaggregated as follows:

^{1/} An evaluation of Loan 025 was transmitted to AID/Washington September 1, 1977.

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(a) Non-Farm Rural Poor	409,000
(b) Poor Small Farmers (0-2 hectares)	106,000
(c) Poor Small Farmers (2-5 hectares)	59,000
(d) Poor Small Farmers (5-20 hectares)	<u>72,000</u>
	646,000

As discussed in its recent Agricultural Sector Assessment, the USAID/CR sector goal is to increase the incomes of these rural families. In order to do so, the Sector Assessment identified two major strategies: to increase employment opportunities for groups (a), (b), and (c); and to increase farm productivity and profits for groups (c) and (d). Some families will also receive land under a redistribution program, 1/ thus automatically placing them in group (d).

Employment opportunities will need to be generated both on and off farms. Farms of less than five hectares with potential for intensification should provide increased employment opportunities for the families on those farms and, to a limited extent, for other rural workers. However, most of the additional on-farm employment will need to come from the 5 to 20 hectare farms. A third source of ~~on~~ non-farm employment will be non-target group farms of any size. Off-farm rural employment opportunities will come from marketing, handling, and agro-industrial activities.

Diversification into higher value activities and improvements in farming technology will be the two principal means for improving productivity on 2-5 hectare farms. For farms of 5-20 hectares, more intensive land use and crop diversification are the two principal income improvement strategies. These activities will provide higher incomes to farmers and generate new employment for the non-farm and small-farm families who depend on wage incomes.

This Project is designed to assist the MAG in developing new mechanisms for integrated commodity systems and agricultural

1/ A PID describing a proposal in this area accompanies this PP.

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TABLE I: Geographic Distribution and Composition of Poverty 1/

<u>Area</u>	<u>No. of Persons with Less than \$150 p.c. in 1969 Prices</u>				<u>Area's Poor as % of Total Poverty Group</u>	<u>Poverty Group as % of Total Population In Area</u>
	<u>Urban</u>	<u>Farming Rural</u>	<u>Non- Farming Rural</u>	<u>Total</u>		
San José Urban Agglomeration	<u>146,965</u>	+ <u>29,458</u>	+ <u>116,590</u>	= <u>293,013</u>	<u>33.5</u>	<u>34.0</u>
Rural Periphery	<u>80,222</u>	+ <u>207,706</u>	+ <u>292,864</u>	= <u>580,792</u>	<u>66.5</u>	<u>57.6</u>
Central Region Outer Ring	18,247	+ 77,125	+ 115,796	= 211,168	24.2	66.8
Outer Regions (Pacífico Norte, Llanuras del Norte, Ver- tiente Atlántica, Pacífico Sur)	61,975	+ 130,581	+ 177,068	= 369,624	42.3	53.4
Country-Wide	<u>227,187</u>	+ <u>237,164</u>	+ <u>409,454</u>	= <u>873,805</u>	<u>100.0</u>	<u>46.7</u>
	(26%)	(27%)	(47%)	(100%)		

1/ Using the moderate definition for poverty, i.e., using the mixed exchange rate of 7.7 colones per U.S.\$1 and deflating by the mid-1973 consumer price index.

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product diversification, both of which will increase employment opportunities and farm productivity. It initiates activities which will be carried out in planned FY79 and FY81 Agricultural Sector Loans: e.g., resource conservation considerations will be built into farm management plans as a precursor to the Natural Resources Component of the FY79 Program; small farmer marketing activities (formerly proposed in the FY77 Small Farmer Income Grant project) will be built into the Commodity Systems approach as a precursor to the Marketing component of the FY79 Program; MAG regional offices and the Ministry's central office of planning (OPSA) will be designing the five pilot regional activities and evaluating program impact as a precursor to the Sector Planning component of the FY79 Program; diversified farm plans and new commodities will be developed as a precursor to the Agricultural Products Diversification component of the FY79 Program; and the commodity systems approach will introduce linkages to agro-industries and processing as a precursor to the Agro-Industry component of the FY81 Program.

B. Problem Statement

The basic problems to be addressed in this Project are low incomes and insufficient employment opportunities for the rural poor. There are many reasons for these conditions. Low incomes on the farm are often due to poor physical endowment of the farm -- land quality, size, location, or climate -- and/or to the way in which the farm is used -- low level of technology, insufficient credit and modern inputs, poor cropping patterns, and inefficient marketing. Inadequate rural employment opportunities are largely a result of agricultural production patterns. Some Costa Rican crops -- coffee, bananas, sugar cane, tobacco, vegetables -- require considerable manual labor, but normally only in certain seasons and geographic areas. The expansion of mechanized rice, sorghum, cotton, and sugar production by large farmers has, however, slowed down the demand for agricultural labor.

Diversification into higher value and more labor-intensive production and improvements in farming technology are the most readily apparent means to increase both employment opportunities and incomes. However, their potential cannot be realized unless adequate intermediate and final markets exist and unless sufficient inputs are provided. Thus therefore requires that the introduction of new high value/labor intensive crops be made through an integrated commodity system which views agricultural production from the farm to the consumer.

While attempts have been made by the Ministry of Agriculture and other GOCR entities to improve the production and productivity of small farmers, interventions have been limited to traditional development approaches involving traditional crops, such as research and extension activities in improved production technologies, provision of credit, and formation of farmers into cooperatives. Many of these interventions were done in isolation or out of sequence. For example, efforts were made to increase basic grains production on some small farms, but the small farmers were left with problems in drying, handling, storing, and marketing new production. These deficiencies in turn have created another set of problems; in grain quality, for example, high levels of aflatoxins in poorly handled grains can create serious health problems for consumers.

Of the three components of the 1974 AID Loan 515-L-025, two (INFOCOOP and IFAM) are dealing with marketing problems in ways complementary to this Project. The MAG component, basically the Projectospor-Campana, will demonstrate new production technologies in specific traditional and non-traditional crops. This work is systems-related only in that it will increase production and encourage diversification at an early point in the "vertical" system. The second loan component INFOCOOP credit to co-ops, will finance production and marketing activities, with the bulk of the funds going into marketing subprojects--storage facilities, processing equipment, and the like--carried out by member co-ops. These co-ops will not be participating in this Project. Under the third component, IFAM, the municipal bank, is sub-lending to municipalities to finance infrastructure including, among others, access road construction and maintenance and terminal markets. This sort of activity will play a part in the overall systems approach, but will not be included in the proposed Project.

The System Approach

The production of food is, and will continue to be, the principal productive activity of the target group, either directly as farmers or indirectly as employees of farmers or others engaged in post-production activities. Success in this contributes towards attainment of nutritional goals, another area of GOCR emphasis.

The main purpose for producing foods, fibre, or other rural commodities is to fulfill the need or desire of a consumer. Ability to produce is only one element in the equation. If what is produced does not reach the consumer or he is unable, or unwilling, to pay for the product, the farmer is no better off, and probably worse off, than he was before he produced the commodity.

These linkages between farmer and consumer form Costa Rica's "food system" and ensure that food requirements for the population are met. The total system is complex, and there are innumerable inter-relationships between the various links of the system. While an attempt to deal with the whole system might be an appropriate candidate for academic research and computer modeling, it is difficult to conceive of such work resulting in any tangible benefits for the rural poor in the near future.

It is feasible, however, to select a particular commodity, analyze the need of present or potential consumers for the product, and identify the factors involved in meeting that need. This will provide assurance that the farmer will have a market if he produces the particular commodity. The individual commodity systems lead towards an understanding of the total system.

If the particular commodity is one already being grown in Costa Rica, the approach will highlight segments of the system chain which can be improved. If new, the analysis will indicate the elements which must be established before the anticipated material benefits will be realized by the producer.

The integrated commodity system approach considers the total production/processing/marketing system of each individual commodity as a continuum. Each and every element in the total system is described, usually in chronological order. While the system is usually a linear one, various sub-systems which relate to inputs and outputs to the system provide branching lines of chronological events. A typical system for a farmer's operation may consist of the following:

1. Develop a farm
2. Obtain technical information
3. Develop a plan for the farm
4. Obtain credit for inputs
5. Purchase or provide inputs
6. Obtain labor
7. Clear land/prepare soil
8. Plant the crop or crop mix
9. Weed crops
10. Fertilize crops
11. Control insects and diseases
12. Perform other miscellaneous practices
13. Harvest crops
14. Handling/transport from field
15. Post harvest handling

16. On-farm storage
17. Assembly/preparation/grading
18. Preprocessing/grading/packaging
19. Transport
20. Storage
21. Assembly/processing/packaging
22. Transport/distribution
23. Sales to consumers

While the above describes a vertically integrated system, the steps within the system for a given commodity will vary because of social, economic or technical reasons.

The importance of a well functioning commodity system can be illustrated by comparing: (1) a commodity system (coffee) which has included small farmers and has been successful in increasing their incomes and in providing employment to rural laborers; and (2) a commodity system (pejibaye) which is neither "systematized" nor integrated, and which does not allow small farmers to exploit potential benefits.

A Functioning System

More than two hundred years ago coffee was a valuable world wide commodity, with Haiti being the principal exporter. It was introduced about this time into Costa Rica, and by trial and error locations were found where coffee responded well to the soil and climate.

Through succeeding years improved varieties of the Arabian type were introduced and grown to maturity. Cultural practices were improved and became known by most farmers in coffee growing regions. Methods of processing were improved upon.

In recent years the GOCR has taken an active role in improving the coffee commodity system. It has been instrumental in conducting research in cultural practices, improved varieties, economic use of fertilizers, control of diseases and insects,

processing technology, equipment for processing, grades and standards, and coffee economics. Technical specialists in several fields of coffee technology were trained and put to work on solving technical problems of coffee production/processing/marketing. These specialists also provided support to growers in forming associations and cooperatives which obtain credit, technical assistance and other inputs from government sources. Cooperatives served the growers in the collection, handling, processing, and marketing of the coffee. Processing included all changes that occurred in the product from the coffee berry to the bagged, graded, green coffee sold in national and international markets. All of these steps in the vertically integrated system were carried out principally by the private sector (the coffee growers), but were encouraged by government policies and programs. The integrated system for coffee provided significantly increased income for thousands of small, medium, and large farmers alike. It developed the level of coffee production, processing, and marketing technology in Costa Rica now recognized as the highest in the world.

A Non-System

An example of a commodity with a relatively unformed system is Peach Palm or Pejibaye (*Bactris gasopae* H.B.K.). It is a crop recognized by the National Academy of Science and other investigators as having very high potential for human food products and animal feeds. It has wide acceptance as a specialty, seasonal, fresh fruit for human consumption at all economic and social levels in Costa Rica.

It was a staple food of the Indians before arrival of the Spaniards. Seed of the best varieties has been maintained through the years. Pejibaye is a perennial crop that can be grown in the hot, wet lowlands as a commercial plantation, as a mixed planting with other crops, or as a shade tree for cacao and coffee at intermediate altitudes. Yields of 50,000 Kg/Ha. per year can be obtained of a carbohydrate product that is high in oil and carotene and medium (6-7%) in protein. It has potential for use as a base for animal feed concentrate, if problems of processing and marketing can be solved. Human food products of many types are also possible. From the commercial plantings that currently exist, only a small portion of the highest quality fruit is marketed for human consumption. As much as 80-90 percent of the production may go to waste for lack of alternative markets. There are several possible interventions that can be made in pejibaye to promote this crop system and to create markets for its products and by-products.

Starting with existing plantings of small growers in such places as Tucurrique near Turrialba, improvements and expansion in production can be made, processing technologies can be developed, and market alternatives can be created in such a way as to provide increased incomes and employment for participating small growers. Simple machines, such as hammer mills for chopping the fruits in chips, and mechanical dryers, may be all that is needed to produce a raw material which will not rot, can be easily stored, and can be sold as a basic constituent of animal feed concentrates. Testing of this product as an animal feed base is necessary, as is the development of markets with existing feed concentrate producers. Research can lead to development of other products.

As the system is tested and improved it can be expanded to other Central American countries. Since Costa Rica has the largest collection of improved plant materials of pejobaye, and since most of the world's research has been conducted in Costa Rica, Costa Rica could be the leader in the development stage of this potentially important crop.

A graphic model of an integrated system for pejobaye is provided in Annex 6 . This model more clearly demonstrates the complexity of an integrated system and its related sub-systems.

Other commodities to be considered for promotion under this Project are:

1. Fruits and vegetables
2. Spices, flavorings, colorants and essential oils
3. Cacao
4. Ornamentals
5. Macadamia
6. Dairy products
7. Forest products

Many of these are already produced in Costa Rica using varying levels of production, processing, and marketing technologies. An integrated commodity systems approach will identify constraints

and solutions to the orderly development and expansion of small farm production, processing, and marketing for these commodities.

This first phase of an integrated commodity approach as described above is illustrative. Each of the steps identified in the continuum is evaluated to determine inadequacies which exist associated with that step. These inadequacies, or problems, are then arrayed in order of their critical importance to the entire continuum. With this phase completed the result is a vertically integrated array of all the identified constraints to development for each of the crops and enterprises considered.

To proceed to systematic, orderly solutions to the constraints identified in the vertically integrated system, attention must then be given to a horizontal integration process. This involves an analysis of each of the constraints to determine what is needed to overcome it, and which Costa Rican institution can best carry out the required actions. To illustrate, there may be readily available improved production technology for a specific crop, but the target group small farmers are ignorant of it, do not understand it, or are not convinced that its use will benefit them. In such a situation, institutions such as the MAG Extension Service, which has direct contact with producers, should be given the responsibility for addressing this constraint. For constraints requiring organized investigation, the primary responsibility should fall on a research institution; and when results are available, on the Extension Service for dissemination of the new information. If necessary credit is not available at any point of the continuum, and is a constraint to the functioning of the system, then the credit institutions would become the focus of attention.

Constraints which affect the supply of production inputs, marketing, transportation, or processing services will have to involve joint public and private sector actions. In such cases, MAG will need to elicit the cooperation and participation of the private sector. It is possible that, in some cases, the Ministry of Economy, Industry and Commerce (IEC), the National Production Council (CNP), the new Central Wholesale Terminal Market (CEFM Project) and other public entities will need to become involved.

Examples of the integrated commodity systems approach are already found in Costa Rica in bananas, African oil palm, coffee, beef, sugar and tobacco. However, this approach will be new in Costa Rica in its application to small farmer enterprises.

Improvement of the lot of the rural poor is essentially a problem of integrating effective consumer demand with the products derived from the activities of the rural poor. The commodity systems approach provides the comprehensive view and framework for identifying the relevant and important factors at an early stage and for the design and implementation of responsive programs and projects. More specifically, its application will:

- Outline the system structure and essential elements, ensuring adequate consideration of each;
- Define the inter-relationships between the various elements of the system;
- Provide a basis for establishing emphasis and priorities, ensuring that all important links are in place at appropriate times;
- Provide a basis for comparative assessment of the various commodities in terms of contribution to the achievement of rural development goals;
- Identify areas of necessary, or desirable, present or potential private sector contribution, cooperation and interest which will serve as the foundation for entrepreneurial and agro-industry initiatives.

This Commodity Systems Project is based upon a vertically and horizontally integrated approach. It attempts to promote new crops and better management of both new and traditional crops in small farmer enterprises in 5 regions of Costa Rica. It hopes to institute a new credit system for a mix of long term and short term crops and products, based upon a farm enterprise rather than a commodity line of credit. The Project represents the MAG's initial attempt to use a systems approach for solving small farmer problems, and an extension of the MAG's program to problems other than those of production. Finally the Project will test the use of a series of non-traditional and improved traditional crop and product enterprises as the best alternative for use by small farmers to increase their family income and employment.

C. Project Target Group

The project will concentrate in five geographic zones, each of which was selected because of a high concentration of poverty

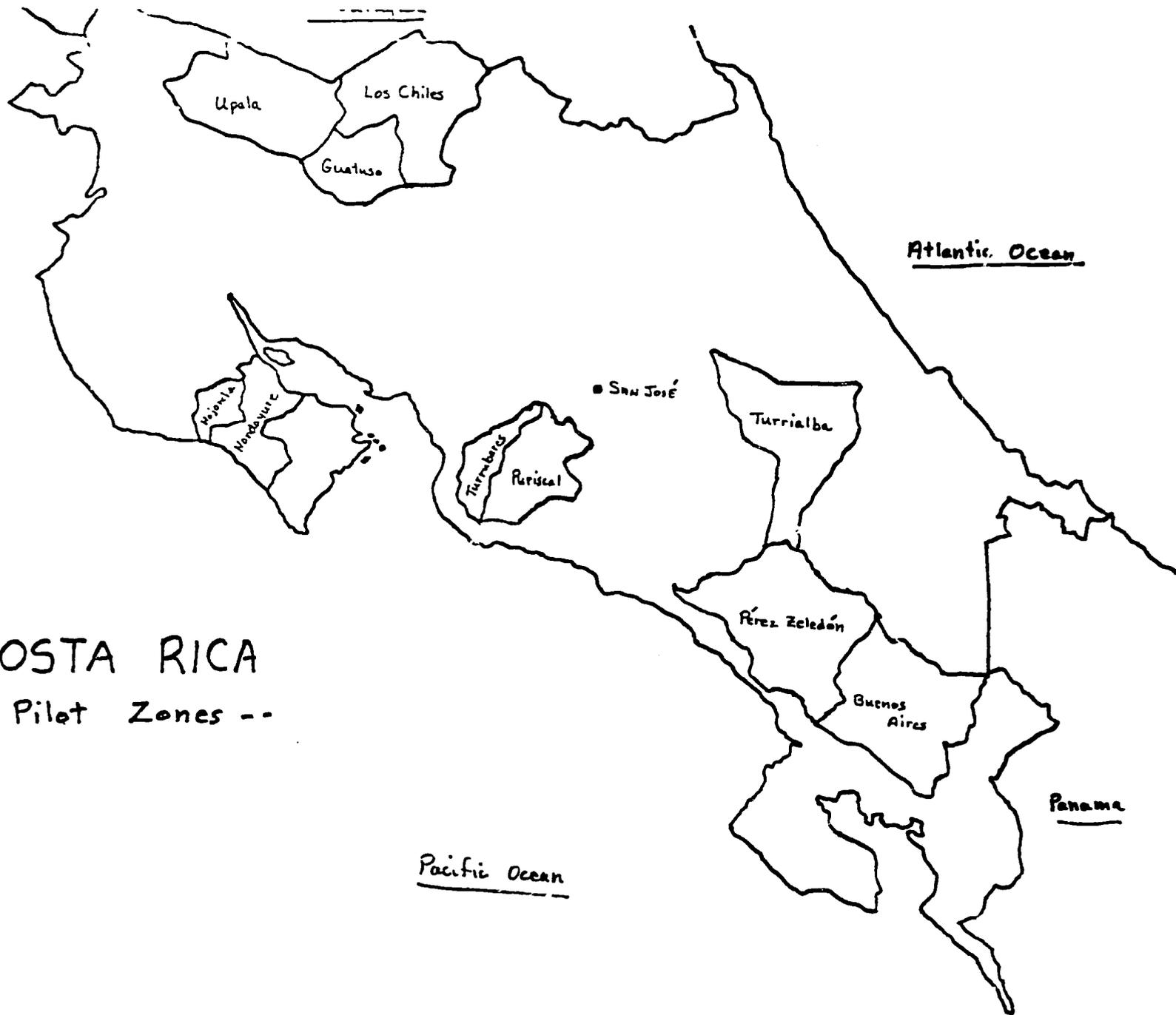
and the physical potential for agricultural product diversification. Of the country's 35,000 poor small farms, 23 percent (8,000) are located in the ten cantones comprising the project's target zones.

The five zones are geographically dispersed (map follows), with each having different micro-climates and physical characteristics. As of 1973, their total population was 205,000 persons, of which 53 percent (108,000) fell below AID/W's poverty benchmark of \$150 per capita in 1969 prices. Of this immediate Target Group of 108,000 rural poor, approximately half are farmers and the other half laborers.

Puriscal and Turrubares are in San José Province to the south-west of the capital city. Both are predominantly agricultural cantones, with corn, coffee, tobacco, and beans being most important in Puriscal and cattle being most important in Turrubares. The majority of farms are less than 20 hectares in size (72 percent), and of these small farms, nearly 85 percent fall below AID/W's poverty benchmark. Also, more than one quarter of the total population can be classified as non-farm poor. There is a high prevalence of poverty within the two cantones (61 percent of the total population), and unemployment rates have been increasing during the past several years. It has also been an area of high out-migration, primarily to the San José Urban Agglomeration. Because of rapid de-forestation in recent years, erosion has been heavy and land is rapidly being destroyed. For both income and ecological reasons, agricultural production patterns must begin to change.

Pérez Zeledón is at the southern most edge of San José Province and Buenos Aires is immediately south-east in Puntarenas Province. Together they comprise the San Isidro de General zone. Both are predominantly agricultural areas, with maize, coffee, and beans being most important in Pérez Zeledón; and bananas, basic grains, and cattle most important in Buenos Aires. Land in extensive pasture has increased significantly during the past decade, resulting in rapid de-forestation of some 3,500 has. per year. The majority of farms are less than 20 hectares (66 percent), with approximately 75 percent of these small farms below the poverty benchmark. Also, nearly one quarter of the total population (21,360 out of 87,193) are non-farm poor. Looking at the entire zone's population, some 54 percent fall below AID's income poverty benchmark. There have been insufficient employment opportunities, thereby leading to significant seasonal out-migration, especially in Pérez Zeledón.

COSTA RICA
-- Pilot Zones --



Upala, Los Chiles, and Guatuso are all part of Costa Rica's last frontier in the northern plains east of Guanacaste. They are major agricultural areas, primarily producing beans and other food-grains, as well as some cattle. Because it is a newly settled area, the percentage of farms less than 20 hectares is low (27 percent), although the vast majority do fall below the poverty line. This area has also attracted a large number of agricultural laborers, resulting in a large proportion of non-farm poor (28 percent of the total population). Because land is used very extensively in the Northern Plains, there is great potential to introduce non-traditional crops which will increase on-farm incomes as well as generate new employment opportunities. While the prevalence of poverty is lower in this zone than in the other target regions, we feel that it is important to demonstrate the advantages of agricultural product diversification in an area of high potential.

Hojancha and Nandayure are located in the Nicoya Peninsula. Both are dedicated primarily to cattle production, along with basic foodgrains. Studies done by the Municipal Development Institute (IFAM) show these cantones to be among the very poorest in the country. They are characterized by low incomes, high unemployment, and relatively high seasonal out-migration. The majority of farms are smaller than 20 hectares, with most of these being below the poverty benchmark (81 percent). There are also a large number of non-farm poor, although they comprise a smaller number than the farm poor. Looking at the total population for the zone, nearly 60 percent fall below the poverty line. This zone is also characterized by heavy de-forestation and erosion, both of which could be reduced by changed land-use practices.

Turrialba is the eastern most canton in Cartago Province. It borders Limón Province and is the home of CATIE, a Central American Regional Research and Training Center. It is primarily an agricultural area, with coffee, sugar cane, and corn being the most important crops. The vast majority of farms are less than 20 hectares (83 percent), and of these 1,700 small farms, approximately 64 percent are poor. In addition, there are a large number of non-farm poor. In terms of the total population, approximately 47 percent can be classified as poor. While the concentration of poverty is not as high as in some other areas of the country, the area offers great potential for labor-intensive agricultural product diversification -- especially important in this zone with a predominance of non-farm poor.

GEOGRAPHIC ZONE PROFILES (1973)

	<u>Population</u>	<u>No. of Small Farms (Less Than 20 Has.)</u>	<u>No. of Poor Farms</u>	<u>Total Pop. Below Poverty Line</u>	<u>Farm Poor</u>	<u>Non-Farm Poor</u>	<u>Poor as % Total Pop.</u>
Puriscal & Turrubares	28,859	1,798	1,526	17,726	9,766	7,960	61.4%
Pérez Zeledón & Buenos Aires	87,193	5,124	3,882	47,369	26,009	21,360	54.3%
Upala, Los Chi- les, Guatuso	26,280	634	558	11,283	3,850	7,433	42.9%
Hojancha & Nan- dayure	19,957	1,119	911	11,631	6,286	5,345	58.3%
Turrialba	<u>43,202</u>	<u>1,721</u>	<u>1,096</u>	<u>20,443</u>	<u>7,562</u>	<u>12,881</u>	47.3%
	205,491	10,396	7,973	108,452	53,473	54,979	

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The Purpose of the Project, the installation of a new methodology in the MAG and SBN approach to small farmers, involves testing this methodology on a sufficient number of participants over a sufficient time to firmly establish its utility and acceptance. The size of the participant group anticipated--4,000 small farmers--and the amount of credit to be offered them--over \$7 million, including rollover of short-term credits--reflect the Mission's estimate as to (a) the maximum number of participants the MAG and SBN can service in four years; and (b) a sample size large enough to serve as a valid test of utility and acceptance.

The inclusion of \$2.5 million in loan funds for credit (versus \$4,285,000 of SBN counterpart) is intended to offer the SBN an incentive to enter into the field of medium-term lending to small farmers for non-traditional crops supported by a farm plan, and to offer a buffer against losses which may occur in this new activity. This \$2.5 million level reflects Mission judgment as to the minimum input which will constitute an adequate incentive to bring about this new lending policy.

II. PROJECT DESCRIPTION

A. Goal, Purpose, Inputs, Outputs

1. Goal Statement

The Goal of this Project as well as the AID programs in Costa Rica is to increase the incomes of the poor. The IAP, the Agricultural Sector Assessment, and other studies indicate that the bulk of poverty in Costa Rica lies among farmers and landless workers whose future income and employment opportunities cannot be raised through increased production of either basic grains or traditional export crops (coffee, bananas, beef, sugar). We propose to assist the GOCR in developing the institutional capacity to bring to this group's attention income opportunities in production of new crops, and in improved post-harvest handling and marketing of existing production. These in turn will lead to accomplishment of AID's sub-goals for the agriculture sector: (1) to increase the profitability of small farm enterprises; and (2) to increase employment opportunities in rural areas.

2. Purpose Statement

The Purpose of the Project is to install an integrated commodity systems approach into the Ministry of Agriculture's development program.

By the end of the Project, the following conditions will have been met:

a. An integrated systems approach for conducting the MAG agricultural development program will have been instituted with substantial modifications made in farm management, long term cropping patterns, marketing practices, and participation in processing activities of 4000 small farmer enterprises;

b. Near-full employment for 4000 farm family members and additional employment for 4000 non-farm poor by the sixth year after end of project; and

c. Individual and group lending for medium term credit

in medium/long term enterprises, with short term production lending, both based on farm plans, will have been instituted in five regions in Costa Rica.

The integrated systems methodology will be institutionalized within the MAG during the life of the Project. Since most of the cropping systems are long-term in nature, the Purpose-level profitability and employment objectives are not expected to be fully achieved by the end of the Project, but when the long-term crops come into full production.

3. Inputs

AID inputs will consist of:

- a twenty year Loan of \$5,500,000 for MAG Training, Farm Management, Research, and Credit activities.
- personnel and administrative support for project planning, monitoring and evaluation.

GOCR inputs will consist of:

- MAG counterpart contribution of \$1,215,000 for personnel and operations costs
- counterpart contribution by the SBN of \$4,285,000 for medium and short term credit
- personnel and administrative support of CATIE, CITA, CIGRAS, UCR, and other public sector institutions which will participate in the Project under agreement or contract arrangements.
- personnel and administrative support of MAG/OPSA/CAN/COTEPSA/CARs, in project planning, implementation, monitoring and evaluation.

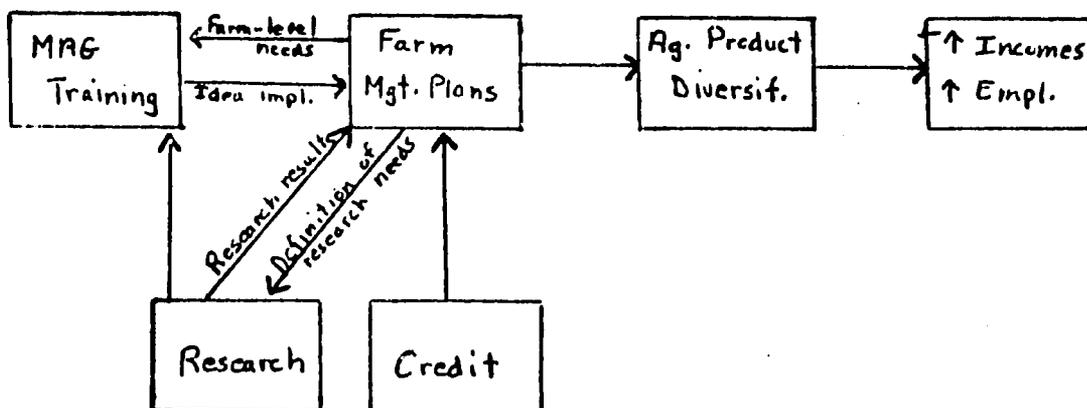
B. Project Elements

The specific elements of the Commodity Systems Project

to be funded are as follows (\$'000):	<u>AID</u>	<u>GOCR</u>	<u>TOTAL</u>
- MAG Training	\$ 333	\$ 40	\$ 473
- Farm Management	584	465	1,049
- Research	1,583	210	1,793
- Credit	2,500	4,285	6,785
- Contingency and Inflation	<u>500</u>	<u>500</u>	<u>1,000</u>
	5,500	\$5,500	11,000

The four Project elements are not entirely discrete and cannot be arranged in a simple sequential order. Rather, each element reinforces others -- for example, the two-way relationship between MAG Training and the development of Farm Management plans. However, at the risk of oversimplifying, the main objective of the MAG Training element is to inculcate the commodity system concept into the Ministry of Agriculture, followed by the Farm Management element which will apply this concept to at least 4,000 small farms. The Research and Credit elements lead to the extension of the commodity system concept, although the requirements of both are also results of agricultural extension work done in developing Farm Management plans.

This can be illustrated as follows:



1. MAG Training

A Systems Committee will be established within the Ministry of Agriculture for overall Project coordination, planning, implementation, monitoring and evaluation. It will oversee all financial, technical and administrative aspects of the Project. It will have authority to enter into agreements or contracts with regional and national institutions or individuals to assist in various planning, investigatory, or implementation phases. It will review and approve plans for subproject activities developed at the local (CAR) level. It will plan and oversee the conduct of a Base Line Study for the Project to be used in the Evaluation Plan, and will participate in the annual and final Evaluations of the Project. It will prepare all required reports for other GOCR offices and for AID.

The formation of the Systems Committee and confirmation of its authority will be an early Condition Precedent. The Systems Committee will also arrange for the formation of a Marketing Technology Unit (Division) within MAG, with such specialists as physiologists, pathologists, engineers, economists, and statisticians. This Unit will plan and develop market activities, will develop training materials, provide training to MAG technicians, and will provide general backstopping to MAG personnel in marketing technology. Within the Market Unit will be a Market Information Sub-Unit which will gather, analyze, and disseminate daily information on availability and prices of major agricultural commodities.

A variety of training activities is included in this element of the Project. These will encompass a mix of on-the-job training; academic training, training for technicians in production/processing/marketing of non-traditional crops; training of technicians in post-harvest handling and marketing of traditional crops; and training of technicians in farm plan development. Approximately 200 technicians will be trained for a period of 50 days each, in six or more subject matter areas. This training will be done in-country by MAG officials and contracted individuals and institutions.

Project funds will also be used for academic training of MAG personnel. Master of Science scholarships of one or two years (U.S., Costa Rica or third country) will be provided for ten technicians in such fields as marketing, food processing, agro-industry, farm management, economics and crop specialization. Bachelor of Science level scholarships will be offered to twenty lower

level technicians in general agriculture, with majors in subjects relating to the Project objectives.

At the conclusion of the Project we expect the CARs to have adopted and be utilizing the system approach, and the system committee as a formal entity may be dissolved.

SUMMARY BUDGET OF ELEMENT 1, MAG TRAINING

(Omits "Contingency and Inflation")
(\$US)

	<u>AID</u>	<u>GOCR</u>	<u>TOTAL</u>
Personal service contracts-10 person/years	120,000	-	120,000
Short term contracts-10 person/month	29,000	-	29,000
Short term TDY training specialists	25,000	-	25,000
8 M.S. scholarships in production/marketing/processing	60,000	-	60,000
20 B.S. scholarships in production/marketing/processing	99,000	-	99,000
Committee Costs	-	<u>40,000</u>	<u>40,000</u>
TOTAL	<u>333,000</u>	<u>40,000</u>	<u>373,000</u>

2. Farm Management

MAG technicians will perform a series of activities at the local level to improve farm management techniques in the non-traditional and improved traditional crop and product enterprises of 4,000 participating small farmers.

The CAR Directors and staff will be responsible for developing farm plans. A systems approach will be used in the development of these plans. The CARs will decide upon the appropriate crops to be promoted, the commodity problems to be solved, and the specific types of participating farmers. They will also determine technical assistance requirements, and farmer training needs, as well as conduct trials and demonstrations on crops. They will form groups of farmers interested in one commodity, and will develop technical information to disseminate to these farmer groups.

Within the 4,000 target farmers, approximately one third of the farm plans will be undertaken with groups of farmers for which aggregate credit will be provided. The remaining two thirds of the plans are expected to be individual plans which will be the basis for individual medium and short term credit.

In developing the farm plans, MAG technicians will start from the present organization of the farm and its present level of technology. The farmer will be assisted in working out his own costs and returns from his present cropping pattern. He will consider alternative ways in which he can reorganize the use of the land on his farm, of his available family labor, abilities and capital in order to come up with a higher family income. A technical package and the estimated economics of new crops will be suggested to the farmer for his consideration. His farm plan will consider the mix of enterprises; opportunities for use of higher technology and new crops; and, where his land is under-utilized, how to put more land into high productivity crops. Farm plans are expected to be simple enough to be well understood by farmers. Instructions will be provided on how to obtain credit based upon the farm plan.

CARs will work with farm groups in providing farmer training, technical assistance, developing farm plans and educating farmers in the use of a systems approach and better farm management practices.

Technical assistance from outside sources will be provided to strengthen MAG capabilities in implementing the commodity systems. Experts in farm management, food technology, marketing, agro-industry, engineering, animal feeds, forest products, and crop specialists will be needed.

Approximately 4,000 farmers will be trained through field days, farmers meetings, short courses, demonstrations and general promotional activities of a similar nature. Uniform training materials will be developed for generalized use and area or crop specific training materials will be prepared as needed. Approximately 100 field days, demonstrations, courses and other types of group training will be conducted over the life of the Project.

SUMMARY BUDGET OF ELEMENT 2, FARM MANAGEMENT

(Omits "Contingency and Inflation")
(\$US)

	<u>AID</u>	<u>GOCR</u>	<u>TOTAL</u>
Short-term Contractors	50,000	-	50,000
Operational assistance to CARs to provide T.A.	321,000	-	321,000
Trials, demonstrations and training	213,000	-	213,000
CAR operational and travel	-	83,000	83,000
Vehicles	-	282,000	282,000
Training of small farmers by CAR and MAG personnel	-	<u>100,000</u>	<u>100,000</u>
TOTAL	<u>584,000</u>	<u>465,000</u>	<u>1,049,000</u>

3. Research

Four types of research are included in the Project: (a) development of improved plant materials; (b) field trials and demonstrations; (c) farmer group pilot projects; and (d) general research and development.

a. Improved Plant Materials.

Project funds will be used by the MAG Research Directorate to establish a National Plant Introductory Garden and to establish or strengthen at least 5 regional experimental stations.

Activities will involve introduction (procurement and importation) of large quantities of improved plant materials for diversification. Seeds, trees, budwood, rootstocks, tubers, roots and cuttings will be purchased, donated, or obtained through plant material exchange. Different species, varieties, clones and populations will be collected to form foundation plantings for observation, testing and multiplication in appropriate ecological areas of Costa Rica. Improved plant materials will be sought worldwide, particularly in those countries with environments similar to Costa Rica. Improved plant materials from indigenous sources will also be used.

After initial observation for diseases, insects, and general performance in the Plant Introductory Garden, plant materials will be distributed to the regional experimental stations where they will be tested and multiplied for future use by farmers, (See Annex 7 for more detail). AID funds will be used to improve or construct station facilities, purchase equipment, purchase plant materials, and provide part of the operational costs of experimental stations. MAG counterpart funds will be used for salaries of technicians and laborers, land, utilities, plant imports from other than Code 941 countries, and operating costs at experiment or sub-stations.

b. Field Trials/Demonstrations

In support of the regional outreach program and to motivate small farmers, 100 variety trials and demonstrations will be done in each of at least five regions. Because of their existing experience in conducting trials and demonstrations for traditional crops these activities will be carried out by CAR personnel with assistance from MAG specialists. The trials and demonstrations will be held on cooperating farmers' fields and will serve as the loci for field days, meetings, farmer training, short courses, or other extension activities. For some crops these controlled plantings will serve as sources of multiplication and distribution of plant material to small farmers.

Funds for these activities will be used by each CAR Director to cover materials and supplies, labor, and general operations.

c. General Research and Development

The Systems Committee will solicit research

recommendations from the CAR Directors who have identified constraints in the various commodity systems being implemented in their areas. Contracts for this research will be executed by the Systems Committee. A variety of problems identified in the integrated systems approach will be addressed through this subelement. Project funds will be employed to contract individuals and institutions to conduct specific research. These may include feasibility studies for specific local enterprises, market studies, export promotion studies, engineering studies to determine equipment needs for farmer group agro-industries, food technology research and development, wood product research, studies on quantitative and qualitative losses of agricultural products in the market system, animal feed research and development, feeding trials, agricultural by-product utilization research, and design of on-farm agricultural product processing/handling/drying equipment. CATIE, CITA, CIGRAS, the Tropical Science Center, the Tropical Wood Products Laboratory, UCR, and other public and private institutions will be involved in this research.

d. Farmer Group Pilot Projects

(i) Marketing Activities

A series of specific marketing activities described in the Small Farmer Income (FY 77) proposal was suggested as ways to increase the value added to agricultural output at the farm level and /or reduce the value lost between farm and market. These activities were to focus on reduced post-harvest losses; improved product quality; and improved linkages between production and marketing opportunities. The substance of this earlier proposal is included in this P. This Project component will be completed within 18 months, and will consist of 10 independent subprojects at specific locations, dealing with groups of farmers having problems with known technical solutions. The financial feasibility of these known technologies will then be tested.

The subprojects will be implemented by groups of farmers and MAG and CAR personnel. Farmers will be organized either into cooperatives, growers associations, or informal groups which market their produce together. The farmers will play an active role in conceptualizing and planning their subprojects, assisted by CAR personnel. They will be expected to bear half the costs of the subproject. Local MAG personnel will provide supervision, technical

assistance and training. In addition to the immediate income effect to be realized by the farmers, the principal impact of this activity will be the working experience gained by the CARs in solving marketing problems.

The Systems Committee will determine the priority of subprojects to be funded. Criteria for subproject selection will include: low cost, proven technical feasibility, simplicity, high degree of farmer interest, high potential benefit, large number of beneficiaries, and replicability. Examples of possible subprojects are included in Annex 8.

(ii) Systems Research and Development

Besides the specific marketing sub-projects to be initiated in the first 18 months of the Project, a number of other experimental or R and D activities will be attempted. CARs will identify possible group activities which could address a given constraint at any point within a commodity system. They will provide expertise to design, locate or determine costs of materials, equipment and facilities needed for the group enterprise. While sub-projects will be implemented largely by farmer groups, continued technical assistance and guidance will be provided by CARs and their staff during the life of the subprojects. Financing will be provided for such activities as village plant nurseries, local retail markets, community food processing plants, village operated grain driers and storage facilities, farm transport facilities, warehouses, grading and packing sheds, milk coolers and collection tanks, fence post treatment facilities, lumber drying, sheds, sawmills, furniture making equipment, animal feed mixing plants, fruit dehydration plants, nut processing equipment and facilities for village leather industries.

An estimated 60 subprojects will be implemented in at least 5 regions of the country during the last three years of the project. Although this financing will be derived in part from Loan funds, it will be provided to these experimental projects as donations. This will be the first time MAG funds will be used in this manner.

The criteria for the selection of these experimental sub-projects will be substantially similar to those to be applied to the Marketing Activities described above. A comparison of the two subproject groupings follows :

	<u>Marketing Activities (10)</u>	<u>System R and D (60)</u>
Subject:	Marketing	Production, Marketing, Processing
Technology:	Proven	Being Tested
Financial Feasibility:	Being Tested	Being Tested
Participants:	Few	Many
Cost:	Large	Small
Timing:	First Year	Years 2-4

COST BREAKDOWN OF ELEMENT 3, RESEARCH

(Omits "Contingency and Inflation")

(\$US)

	<u>AID</u>	<u>GOGR</u>	<u>TOTAL</u>
a. Improved plant materials	641,000	167,000	808,000
Equipment	(200,000)	-	(200,000)
Improvement of station facilities	(200,000)	-	(200,000)
Operating cost of experiment stations	(156,000)	-	(156,000)
Seed, trees bedwood, root, stock, etc.	(85,000)	-	(85,000)
Personnel, utilities, materials and supplies		(167,000)	(167,000)
b. Field trials/demonstrations (Item funded under Element 3, Farm Management)	-	-	-
c. General Research and Develop.	469,000	-	469,000
Institutional Contracts	(425,000)	-	(425,000)
Personal Services Contracts	(44,000)	-	(44,000)

	<u>AID</u>	<u>GOCR</u>	<u>TOTAL</u>
d. Farmer group pilot projects	473,000	43,000	516,000
Marketing Activities	(160,000)	(43,000)	(203,000)
Farmer Group pilot projects	<u>(313,000)</u>	<u>-</u>	<u>(313,000)</u>
TOTAL	<u>1 583,000</u>	<u>210,000</u>	<u>1,793,000</u>

4. Credit

Loan funds will move through the National Banking System (SBN) via constituent banks to small farmers participating in the integrated systems approach to agricultural enterprises. Such lending will follow farm plans developed under the Farm Management element of the Project.

The SBN will be responsible for covering the operating costs, including personnel, of the Credit Element and will utilize existing systems of sub-loan analysis and processing. To further reduce the per-unit cost of lending, loans to groups/associations will be encouraged. Credits may also be granted to processors for relending to producers in cash or kind. This type of sublending can be expected as medium term crops begin to come into production.

The SBN will make funds available (\$2 million) from their regular portfolios in short term production credit sub-loans to farmers participating in the medium term non-traditional programs. We anticipate that this short term production credit will be in addition to previous SBN levels of lending to small farmers for production credit.

Farmers as individuals or in groups will be selected by MAG/CAR for participation in the program. Farm plans will be developed by MAG for the individual enterprise and submitted to the SBN for credit analysis. The SBN will collaborate closely with MAG personnel in the development of farm plans to determine credit worthiness of individuals selected to participate in the Program. More than 90% of the farms in Costa Rica are owner-operated, and SBN officials indicate they feel adequate security would be available for financing medium term enterprises in the majority of cases.

The criteria for small farmer participation in the Commodity Systems Project will be based upon USAID's DAP and Agricultural Sector Assessment strategy and identification of the AID target group in Costa Rica. Two principal criteria will be per capita income of \$150 or less at 1969 prices and land holdings not to exceed 20 hectares. Since the average rural family size numbers approximately seven members and current per capita poverty income levels are now approximately \$300, a family income of less than \$2,000 per year in 1977 would establish the major eligibility for participation. Other less formal criteria to be employed by MAG and the SBN as considerations for participation are: (1) propensity to work cooperatively in groups; (2) past and present credit worthiness of individuals; and (3) geographic proximity to other farmers participating in the Project.

The SBN will maintain close liaison with MAG technicians assisting farmers with farm plans to assure minimum delays in credit analysis, loan closing, and loan disbursements.

Rollover funds throughout a period to be agreed upon shall be used for the same general purpose as initial program funds, and the SBN will provide separate accountability of medium and short term credits within this Project. The GOCR and SBN will covenant to maintain the medium and short term revolving production funds at levels at least equal to the funding provided by the Project.

As MAG technicians develop farm plans they may identify farmers who are concentrating on similar crop mixes due to comparative advantages of weather or soil types, or other instances where some common bond such as family ties or a jointly owned irrigation system would serve to form individuals into informal "mutual guarantee" groups. These groups would not be cooperatives, but might serve as pre-coop entities, particularly when long term crops reach maturity. Technical assistance will be less costly to administer when given these groups of from 8-25 individuals.

In the "mutual guarantee" system loans are made to the group but signed by all members, who have the joint responsibility to pay the loan of anyone who defaults. The groups normally will not allow bad risks to join, and tend to provide a continuous monitoring role on each member, checking to see that agro-inputs are applied on time, harvest and handling done properly, etc. Finally, group members can work together in high labor times, such as harvest, for the common benefit of all. This system is legal in Costa Rica, but has not been widely used. The SBN is enthusiastic about group lending. They recognize it would substantially reduce the per unit cost of lending and at the same time permit a higher incidence of credit technician/farmer supervision. Group lending under AID programs in other countries, such as the Dominican Republic, has allowed credit agents and agriculture technicians to service increased numbers of small farmers.

FLOW OF PROGRAM CREDIT FUNDS

Individual Loans

MAG/CAR technician develops farm plan with farmer.



Farmer makes loan application to SBN.



SBN does credit analysis.



Farmer receives medium/short term credit.



MAG/CAR/SBN provide T.A., monitorship, and collection efforts.



Farmer repays SBN.



SBN relends for similar purpose.

Group Loans

MAG/CAR technician develops individual farm plans and when applicable encourages formation of similar enterprises into groups.



Group makes joint application for medium/short term credit.



SBN does credit analysis and deposits money in special account for group.



↓
President/treasurer make periodic withdrawals from special account based on weekly/monthly requirements of individuals, and based on group approval then disburse money.

↓
MAG/CAR/SBN/GROUP provide monitorship, T.A., and collection efforts.

↓
Farmers sell crops and deposit to special account and loan repaid to SBN.

↓
SBN relends for similar purpose.

Crop-specific criteria will be developed with the SBN. Basic guidelines are presented below:

MEDIUM TERM CREDIT

Term 2 to 10 years
Interest Not less than 8%
Grace variable with enterprises

PROGRAM FUNDS	\$4,785,000
Average sub-loan	1,200
Maximum crop enterprise	1,750
Maximum dairy enterprise	2,500
Minimum loan	250

SHORT TERM CREDIT

Term Crop cycle to 1 year
Interest Not less than 8%
Grace period none

PROGRAM FUNDS	\$2,000,000
---------------	-------------

Average subloans	500
Maximum subloan	700
Minimum subloan	100

A partial listing of uses of subloan funds follows: seeds, plant materials, agro-inputs, tools, equipment, breeding stock and capital improvements essential to the enterprise. With respect to group loans, consideration will also be given to small irrigation projects and storage and processing facilities.

Medium term credit will be given only to small farmers who have less than 20 hectares and who have a farm plan developed by MAG technicians. Project funds for short term credits will be given only to farmers participating in the Commodity Systems' enterprises. Such short term monies will allow improvement of traditional practices as well as interplanting, which will increase overall productivity and provide additional income to help defray medium term debt service requirements.

The SBN will assure that no more than 40 percent of total sub-loan monies are directed to livestock enterprises. No funds will be made available for beef cattle enterprises.

ALLOCATION OF ELEMENT 4, CREDIT

(Omits "Contingency and Inflation")

(\$US)

	<u>AID</u>	<u>GOGR</u>	<u>TOTAL</u>
Short Term	-	2,000,000	2,000,000
Medium Term	<u>2,500,000</u>	<u>2,285,000</u>	<u>4,785,000</u>
TOTAL	<u>2,500,000</u>	<u>4,285,000</u>	<u>6,785,000</u>

III. SOCIAL AND ENVIRONMENTAL ANALYSES

A. Social Analysis

1. Cultural Feasibility

a. Target Group

This Project is directed toward the small poor farmer, long established or recently resettled, who owns fewer than 20 hectares of land. It will also be oriented, indirectly, toward the landless rural poor. Given the heterogeneity of the target group, it is necessary to the success of the project to have an understanding both of the existing overall social landscape, and of the differences among the groups involved.

b. Small Farmers - Established

(i) General Characteristics

The average poor, small farmer has had 2-3 years of education and is part of a 6 member family. About half of them take seasonal employment away from their farms. There has been some out migration and transmigration in the peripheral areas of Costa Rica, but most farmers in rural areas have been in residence a long time and constitute a stable population.

(ii) Social Organization

The Costa Rican farmer has traditionally lived in a dispersed community settlement. Although formal social organizations related to government, schools and churches are important in the community, they have their foundation in less formal family-friendship groups. The success or failure of any new program is in large part determined by how it is accepted by these informal groups. Social interaction tends to take place within a social strata rather than among strata, thus communication is limited. Small farmers owning their own land are one social stratum, landless laborers another, and large farm owners still another. This basic community structure, however, need not harm a program if it is recognized and care taken to include leaders from the informal groups as well as the more visible leaders of the formal community structure.

(iii) Receptivity to Change

The established small farmer has been doing the same things his grandfather did, and in many cases on the same land; therefore, certain resistance to new crops and technology can be anticipated. It is important to show these farmers what can and will happen if new techniques and crops are adopted. Risk can be minimized for the small farmer by extensive, well-planned use of demonstration plots. It has been the experience of extension workers that although the farmers are cautious, they are anxious to adopt new ideas if proven sound. For example, approximately one-third of all small farmers in Costa Rica now use fertilizers, and some are also beginning to use agricultural machinery. The farmers are quick to accept change when they are confident that profit will increase. When government support prices were raised several years ago for rice, beans and corn, dramatic production increases followed.

(iv) Project Suitability and Acceptance

In general, organization of the established poor small farmer is not expected to be a problem. Although introduction of innovation may face some resistance, this basic mistrust of new things may be overcome by making sure that the farmer has ample opportunity to learn by seeing and doing. This Project includes training courses, demonstrations, and field days which will provide the farmers with exposure to the methods of improved production, marketing and processing technology, and farm management. Technical assistance will be provided to small farmer groups and individuals in location specific programs to promote improved production, marketing and processing of new and traditional crops and products. The farmer will be encouraged to participate actively in these programs, and to share ideas and experiences with other farmers and with those offering the technical assistance.

c. Small Farmers - Newly Settled

(i) General Characteristics

Families in newly-settled communities, 92% of whom come from rural areas, have an average of 6 members. The majority of these people were day laborers before they obtained their lands, and they continue to leave the farm for seasonal work.

(ii) Social Organization

In the newly-settled communities there is little in terms of either formal or informal social organization. Most of these communities are new, and, in general, not many resources have been allocated for development of new community infrastructure and social programs. The members have rural backgrounds and are accustomed to a strong network of family-friendship ties; however, since the settlers came as individuals from different parts of the country, they are uprooted and broken off from familiar channels of communication. Interaction is inhibited since trust and friendship have not had time to develop.

(iii) Receptivity to Change

Introducing new crops and technology should be easier in this group since it may be assumed that having moved outside their normal social sphere to a new land, they are already started on a process of change and are more receptive to change than small farmers who have been many years in the same community.

(iv) Project Suitability and Acceptance

Although acceptance of new ideas should be easier in the newer communities, any program instituted in this type of community must be prepared not only to introduce innovations, but also to develop the basic community organization necessary for implementation. The administering body in most newly-established communities is a formal and artificial organization imposed from outside with no ties to family-friendship groups. Efforts need to be made to develop new channels of communication and cooperation. Improved community coordination will increase the probability of the farmers benefitting from the technical assistance and credit offered by this project.

d. Landless Poor

(i) General Characteristics

The landless rural poor tend to be younger than landowners with smaller household size, nearly 1/2 with fewer than 5 members.

(ii) Social Organization

The landless rural poor have a social organization similar to that described for land-owners, except that participation in formal community organizations and activities is more limited.

(iii) Receptivity to Change

The landless rural poor may be the most difficult group to reach; not only because they will benefit only indirectly by new jobs being created, but also because they are less likely to participate in community organizations. Since their existence is quite precarious the landless poor may be extremely resistant to change. They believe that they can at least survive the way they are, and may be reluctant to take risks such as participating in training programs for new jobs. These training programs are absolutely necessary if the rural poor are to be able to work in new industries. Subsidies, however, will probably be necessary since they will in most cases be forced to quit their work as day laborers in order to participate in the training programs.

(iv) Project Suitability and Acceptance

Although the landless poor may be more difficult to reach, industries in rural areas and on-the-job training will help to breach this barrier and incorporate the rural poor into more permanent types of employment. This Project, through more intensive farm management practices, marketing, and on farm and near farm processing, will provide this additional employment.

2. Spread Effects

The benefits of the Project will spread to other rural poor within the target region, in addition to those in other regions. This Project provides for medium term credit for perennial crops, historically not available to small farmers. If the project works in the target region, it is to be expected that interest will be generated in other regions, and that similar credit will be extended to farmers in those regions. Investigations and research activities, offering innovations and solutions to problems especially troublesome to small farmers, will be of benefit to farmers in all regions.

The spread of Project benefits outside the target

area is often hampered more by socio-cultural than technical constraints; therefore, the support of the respected informal leaders is important. Since much of what is to be spread is knowledge, the efficient lines of informal communication may be important in increasing benefit spread.

3. Social Consequences and Benefit Incidence

a. Access to Resources and Opportunities

It is a major thrust of this Project to improve the access of the rural poor to certain resources and opportunities. Credit will be made available, technical assistance provided, and employment generated. These activities will contribute directly to the goal of increased income for the target group.

b. Employment

The more intensive farm management practices, marketing, and on farm and near farm processing activities will have provided on farm and farm related employment for 4,000 farm families and 4,000 other rural poor by the 6th year after the end of the project. Farm jobs will be available for the chronically unemployed rural unskilled workers, and more full-time employment will be available for the seasonal laborer. Marketing and processing will also provide jobs for the educated unemployed.

c. Rural Displacement, Migration, and Urbanization

The greater availability of employment, especially full-time, in the rural areas should help to reduce migration to the urban areas. As the landless poor become incorporated in these more permanent types of employment their general welfare should improve as they become eligible to participate more fully in social services.

d. Implications for the Role of Women

There appears to be a general trend toward incorporating women more fully into the economic life of Costa Rica.

Although many farm women do not work outside the home, they are fully integrated into farm activities, as-

training responsibility especially for animal care and gardening. The important role of women in farm families will be recognized by having the whole family unit, not just the males, participate in farm planning projects.

Women have traditionally had most of the responsibility for picking coffee. Any new crop with similar part-time labor requirements, such as macadamia nuts, could generate employment for farm women. More responsible work opportunities will become available to women as increased production generates new jobs in marketing and processing.

This Project provides for training in several areas. The farm training courses, demonstrations and field days will be planned for both men and women. Female MAG employees will be encouraged to participate in the short-term training programs, and female candidates will be sought for the scholarships in production, marketing and processing.

e. Changes in Power and Participation

(i) Community Organization

A strengthening of local community organization, as well as the increased contact rural people will have with MAG extension agents and other government functionaries, will increase the skill and confidence of rural residents in dealing with and influencing the policies of the central government.

(ii) Large and Medium Land Owners

Problems outside the mechanics of trying to work with the target group could come from large and medium land owners involved in labor-intensive farming such as coffee and sugar cane. These crops, and therefore, these landowners, will be affected by anything which drives up the cost of farm labor.

B. Environmental Analysis

An Initial Environmental Examination accompanies this PP.

The finding is that this Project will not have a significant effect on the environment, and therefore a negative determination is appropriate.

IV. FEASIBILITY ANALYSES

A. Economic Aspects

USAID/Costa Rica's Agricultural Sector Assessment identified crop (or agricultural product) diversification as one of the highest potential means of raising rural poor incomes: through the introduction of higher value (and more labor-intensive) crops to poor small farmers and through the provision of new employment opportunities to the non-farm poor and to small farm families with excess labor.

The potential income and employment effects of new cropping systems are illustrated in the following two tables:

Value of Production per Hectare Cultivated 1/

<u>Crop</u>	<u>2 to 5 Ha. Farms</u>	<u>5 to 10 Ha. Farms</u>
Tomatoes	3,345	2,896
Tobacco	1,245	1,106
Sugar Cane	202	754
Yuca	367	439
Coffee	769	844
Cacao	118	157
Beans	108	229
Corn	100	100

Labor Requirements of Agricultural Activities 2/

<u>Crop or Activity</u>	<u>Person-Days of Labor</u>
Tomatoes	200 - 232
Flowers	300 - 500
Potatoes	40 - 206
Sugar Cane	61 - 81
Cocoa	15 - 70
Oranges	66
Dairy	54 - 59

1/ From Annex A of Agricultural Sector Assessment

2/ From Annex A of Agricultural Sector Assessment

Yuca	48 - 63
Corn	45 - 50
Beans	25 - 33

In order to analyze the economic feasibility of the new cropping systems being proposed by AID and the Ministry of Agriculture in this project, we first looked at the profitability of specific crops and activities. Potential profitability is demonstrated in the Financial Feasibility Section of this Paper.

However, this potential profitability cannot be realized unless adequate intermediate and final markets exist and unless sufficient production inputs are provided -- hence the need to approach the introduction of new high value/labor intensive crops through an integrated commodity system. The four-year cost of developing such a systems mechanism, including direct operational, research, credit and technical assistance costs, is estimated at approximately \$11 million.

The USAID-assisted program will concentrate in five geographic zones, 3/ with a minimum of 4,000 farms to be directly assisted. As a result of this project, substantial changes will have been made in farm management, long-term cropping patterns, marketing practices, and access to agricultural processing facilities.

The direct income effects of higher value production on these 4,000 target farms will not reach their maximum until several years after project completion. However, basing projections on a model farm of seven hectares, it is estimated that by the seventh year of the project these 4,000 poor farmers will have increased annual profits totalling more than \$2 million or more than \$500 per family. By the fourteenth year, their increased annual profits will total nearly \$5 million, or more than \$1,000 per family.

The employment effects of changed cropping patterns will also be significant. Comparing the current utilization of labor with projected labor requirements for new cropping systems, the 4,000 target farms will generate an additional 137,000 days of labor. Using current

3/ South-Central Pacific (Puriscal and Turrubares cantones); San Isidro de El General (Pérez Zeledón and Buenos Aires); Northern Plains (Upala, Los Chiles, Guatuso); Nicoya (Hojancha and Nandayure); and Turrialba.

minimum wages for agricultural workers, this additional demand for labor will generate approximately \$400,000 per year in the target zones.

The marketing studies and pilot marketing/processing activities financed through this project are the most difficult to quantify. However, improved access to markets and processing facilities and improved handling of products will increase farmer sales as well as provide new off-farm employment opportunities. Assuming that these two effects will total approximately 10 percent of gross farm sales in the five pilot zones (\$80 per farm), the annual income effect on the 4,000 target farms will be approximately \$320,000.

Conservatively analyzing the economic impact of the project (i.e., attributing production changes only to the 4,000 target farms and not calculating a spread effect), the internal economic return for the project has been calculated at 25.0 percent. Since there are many more small farms in the area, it is likely that moderate changes in cropping patterns will occur in some of the additional 6,400 farms, thereby increasing the rate of return to the 30 percent range. These activities in the five pilot zones will also be replicated in other areas of the country, thereby ensuring that the \$11.3 million investment will have a much broader long-term impact on rural employment and incomes.

As an example, in calculations done for an amendment to the Agricultural Sector Assessment, if all of the poor farms in the five pilot zones were to make moderate changes in their land-use patterns,^{4/} some 273,000 days of additional labor would be required. There are 55,000 non-farm poor in these five zones. Assuming that they were able to perform a substantial amount of this additional labor, nearly 30% of the non-farm poor could potentially rise above the AID/W poverty benchmark of \$150 per capita income in 1969 prices.

^{4/} Reduction in extensive cattle pasture land and movement into more intensive dairy production or tree crops; reductions in cereals production and movement into fruit trees.

B. Technical Aspects

1. The Systems Approach

As brought out in the Assessment of the Agricultural Sector in Costa Rica, in various research reports produced by the Centro Agropecuario Tropical de Investigaciones y Enseñanza (CATIE) at Turrialba, in USAID Costa Rica special studies, and in numerous other investigations, favorable opportunities exist for the development of certain non-traditional agricultural commodities which can increase income for small farmers. These commodities also serve as the bases for various types of on-farm and near-farm enterprises which would enhance employment opportunities for rural non-farm poor. In addition to the development of non-traditional crops, considerable improvement can be brought about in the production and marketing of traditional crops.

Among the commodities that may be considered^{1/} for promoting under this Project are:

- Fruits and vegetables
- Spices, flavorings, colorants and essential oil
- Peach palm (pejibaye)
- Cacao
- Ornamentals
- Macadamia
- Dairy products
- Forest products

Many of these are already produced in Costa Rica using varying levels of production, processing and marketing technologies. This Project provides for an integrated commodity systems approach through which constraints can be identified and solutions devised to encourage the orderly development and expansion of production, processing, and marketing small farm

^{1/} Summaries of findings of ten general and crop-specific studies follow as Annex 11.

production. The MAG and cooperating entities will take into consideration the sequential actions that will occur (1) within the commodity system being developed; (2) with relationship to the individual farm plans and enterprises being promoted; and (3) with small farmer group activities. Each commodity system being developed by the Project differs in its present stage of development, in its complexity, and in the relative importance of existing constraints on its component parts.

The following listing of activities likely to occur within five commodity systems illustrates the probable priority of constraints and sequence of actions to be taken.

In the following example of the small farmer intensive dairy commodity system (see 1a), the absence of potential or existing producers associations to facilitate the flow of inputs and outputs represents the primary "constraint" to the system. One should note in Example 1 that dairy technology is not a constraint, since it is well developed in Costa Rica. No research is needed for expansion of the small farmer dairy commodity system.

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1. Small Farmer Intensive Dairying Activities

Implementating Agency and Timing

Financing

- a. formulation of potential or existing producers associations to facilitate the flow of inputs and outputs.
- b. provision of knowledge to farmers on improved dairy technology
- c. development of farm plans which include intensive dairy enterprises
- d. provision of credit for purchase of animals, fencing, improved pasture, etc.
- e. establishment of facilities for collection, processing, transport of milk to processing plants
- f. improvement of the availability of high grade cows/belifers to small farmers
- g. provision of irrigation facilities for maintaining pasture throughout dry season

CAR and staff (during first six months of Project)

(see Financial Plan Element 2)

CAR and staff, (during first year of Project)

(see Financial Plan - Element 1 and 2)

CAR and staff farmers, (during years 0.5 - 4)

(see Financial Plan - Element 2)

SBN and CAR staff (during years 2 - 4)

(see Financial Plan - Element 4)

CAR and staff, farmer groups (during years 2 - 4)

(see Financial Plan - Element 3)

CARs and staff. UCR, CATIE, private enterprise (during years 1 - 4)

(see Financial Plan - Element 3)

CARs and staff, farmer groups (during years 2 - 4)

(see Financial Plan - Element 3)

2. Fruits and Vegetables Activities

- a. formation of potential producers into associations to facilitate the flow of inputs and outputs
- b. provision of training and technical assistance to farmers and groups in development of farm plans and management techniques to maximize use of resources and to maximize output values.

To be conducted by CARs (during 1st year of Project)

(See Financial Plan Element 2)

To be conducted by CARs (during years 1 - 4)

(see Financial Plan Element 1 and 2)

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2. Fruits and Vegetables Activities (Continued)

- c. the conduct of research and development activities to reduce on-farm losses
- d. the conduct of research and development activities to improve post harvest methods including simple grades and standards, use of improved containers and packages, improved handling, assembly, packing and transport techniques
- e. the training of MAG personnel and farmers in improved marketing technology
- f. provision of short and medium term credit needed for implementation of farm plans
- g. provision of technical and financial assistance to farmer groups in developing and conducting group activities in production, marketing, processing
- h. establishment and strengthening MAG research stations for new non-traditional crops emphasis
- i. the conduct of research and development on new crops to be promoted in the future ^{1/}
- j. the conduct of market studies to improve upon the existing commodity system

Implementing Agency and Timing

To be conducted by CARs, Marketing Unit, PSCs (during years 1 - 4)

To be conducted by CARs, Marketing Unit, PSCs, and cooperating entities as necessary (during years 1 - 4)

To be conducted by CARs, MAG specialists, the Marketing Unit and PSCs (during year 1)

To be conducted by SBN, CAR (during year 2 - 4)

To be conducted by CAR, Systems Committee (during year 2 - 4)

To be conducted by MAG Research Division (during year 1)

To be conducted by the MAG Research Directorate (during year 1 - 4)

To be conducted by MAG Marketing Unit, PSC and cooperating entities as needed (during year 1 - 4)

Financing

(see Financial Plan Element 3)

(see Financial Plan Element 3)

(see Financial Plan Element 1)

(see Financial Plan Element 4)

(see Financial Plan Element 3)

^{1/} Note: Since the technology of existing fruits and vegetables in Costa Rica is well developed, no agronomic research is needed on a priority basis at the present time. Other factors than research represent higher priority constraints.

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<u>3. Forestry Products Activities</u>	<u>Implementing Agency and Timing</u>	<u>Financing</u>
a. formation of potential producers into associations to facilitate the flow of inputs and outputs	CARs (during year 1)	(see Financial Plan Element 2)
b. provision of training to MAG and farmers and technical assistance to farmers and groups in development of farm plans and forestry management technology to utilize labor and land more effectively	CARs, CATIE, MAG Specialists (during year 1 - 4)	(see Financial Plan Element 1 and 2)
c. development of group activities for nurseries to propagate tree seedlings	CARs, (during years 1 - 4)	(see Financial Plan Element 3)
d. provision of medium term credit to finance tree crops on farms	SBN and CAR (during year 2 - 4)	(see Financial Plan Element 4)
e. development of group activities to utilize present and future production of wood products	CAR (during year 2 - 4)	(see Financial Plan Element 3)
f. research to improve the forest products commodity system (e.g., more efficient wood product utilization, use of by-products, new wood industries, etc.)	MAG, Wood Products Laboratory (during years 1 - 4)	(see Financial Plan Element 3)
g. research trials/demonstrations on use of forest species as a farm enterprise	CARs (during years 2 - 4)	(see Financial Plan Element 3)
<u>4. Cacao System Activities</u>		
a. formation of existing cacao producers into associations to facilitate flow of inputs and outputs	CAR (during year 1)	(see Financial Plan Element 2)
b. formation of potentially new cacao growers into associations	CAR (during year 1)	(see Financial Plan Element 2)
c. provision of training and technical assistance to both groups in a & b above in cacao technology including rehabilitation of old plantings, demonstrations of rehabilitation	CAR (during year 1)	(see Financial Plan Elements 2 and 2)

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	<u>Implementing Agency and Timing</u>	<u>Financing</u>
4. <u>Cacao System Activities</u> (Continued)		
d. development of farm plans which include cacao enterprises	CAR (during year 0.5 - 4)	(see Financial Plan Element 2)
e. provision of financial assistance to farmer groups in cacao nurseries and processing facilities	CAR, System Committee (during year 2 - 4)	(see Financial Plan Element 3)
f. provision of medium and short term credit for rehabilitation and new cacao plantings	SBN and CAR (during year 2-4)	(see Financial Plan Element 4)
g. provision of technical assistance to farmers and groups in providing market outlets for cacao production	CAR, Marketing Unit (during years 2 - 4)	(see Financial Plan Element 2)
5. <u>Speciality Crops Activities</u> (including spices, flavorings, essential oils, colorants, etc.)		
a. the conduct of research on <u>new</u> speciality crops that appear to have high potential for use by small farmers ^{1/}	MAG Research Division (during year 1 - 2)	(see Financial Plan Element 3)
b. propagation of plant material for use by farmers	MAG, Res. Division, farmers (during year 2)	(see Financial Plan Element 3)
c. training of MAG personnel and farmers in speciality crop technology	CAR, PSC (during year 1)	(see Financial Plan Element 1)
d. working with existing farmer groups, encouragement of further diversification on small farms	CAR, PSC (during year 1)	(see Financial Plan Element 2)

^{1/} Note: Good technology for some speciality crops already exist - for example annatto, black pepper, pimienta, etc.

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	<u>Implementing Agency and Timing</u>	<u>Financing</u>
5. <u>Speciality Crops Activities</u> (including spices, flavorings, essential oils, colorants, etc.) (Continued)		
e. development of farm plans to include high value speciality crops	CAR (during years 1 - 4)	(see Financial Plan Element 2)
f. provision of credit for specialty crops	SBN and CAR (during years 2 - 4)	(see Financial Plan Element 4)
g. financial assistance to farmer group in processing facilities for speciality crops	CAR, Systems Committee (during years 2 - 4)	(see Financial Plan Element 3)
h. expansion of farmer groups or creation of new groups to enter into speciality crop production/marketing with repetition of steps b thru g	CAR (during year 3 - 4)	(see Financial Plan Element 2)

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2. Technical Assistance

The attainment of the outputs expected from this Project will require a considerable volume of technical assistance, with recipients ranging from high level professional personnel of the GOCR to the target small farmer. Given the diversity of the constraints identified within the commodity systems, a considerable diversity of subjects will have to be addressed. Much of the expertise can be procured locally, especially in the phases of production and in economic studies. However, considerable outside assistance will be needed in processing and in marketing, as well as in small farm planning and management.

Much of the T.A. component may be considered to be training. This assistance would basically be addressed to upgrading the technical capabilities of Costa Ricans at all levels; and, as a result, strengthening the GOCR entities concerned with agricultural development as well as transferring improved technology in production, processing and marketing to the private sector. As an additional means for improving the technical competence of Costa Rican professional personnel and public sector institutions, academic training programs to the M.S. and B.S. level are planned. This academic training would be limited to fields such as marketing, food processing, agro-industry, farm planning and management, certain aspects of agricultural economics, and crop specialization, since these are subject-matter areas in which MAG has limited capabilities at present.

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C. Administrative Aspects

1. Roles of Implementing Organizations

The key GOCR implementing organization will be the Ministry of Agriculture's to-be-formed Systems Committee. Project related financing of farmers and coops will be provided by the SBN. Several Costa Rican research and development centers will play active roles: the Food Technology Research Center (CITA); the Center for the Investigation of Grains and Seeds (CIGRAS); and the Tropical Agricultural Research and Training Center (CATIE). In the campo, the Regional Agricultural Centers (CAR) will play a leading role in project design and implementation.

a. MAG

(i) Systems Committee

The Systems Committee will also be responsible for contracting specialists to work in new crops and other areas of assistance.

(ii) CAR

The Agricultural Regional Center (CAR) Directors will be responsible for developing farm plans for the production of non-traditional crops, and the delivery of technical assistance to participating small farmers. The CARs will take the lead in conducting a series of marketing activities related to small farmer post-harvest and marketing problems, including individual problem analyses, implementation plans, and evaluation criteria.

(iii) Dirección de Investigación

This office will be responsible for the operation of the plant Introduction Garden and the five experiment stations.

(iv) Marketing Unit

The marketing Unit of MAG will comprise a group of 4 - 6 marketing technology specialists headed by a trained marketing economist currently assigned to OPSA. The Unit will plan,

develop and implement marketing activities of the Project, including identification of specific marketing problems, devising solutions, development of marketing training materials, training of MAG personnel, technical support for the CARs, marketing studies, the establishment of an information system for prices and availabilities of major food products, and the analysis of data and its compilation for dissemination in forms usable by farmers. The market Unit's initial target audience will be small farmers involved in the Commodity Systems Project. The services are expected to expand and eventually be useful to all farmers in Costa Rica. An antecedent to this Unit is the "Proyecto Integral de Mercadeo Agropecuario" (PIMA), an office set up in 1972 within the Ministry of the Presidency, which has since been dissolved with its technicians going into the large IFAM Municipal Market project in the outskirts of San Jose and into the Marketing Division of OPSA. This OPSA office works in the marketing aspects of planning across the agricultural sector, rather than at the CAR or farm level.

b. SBN

The primary responsibility of the SBN, through its constituent banks, will be sub-lending to support the production and marketing elements of this Project. Five million dollars, half provided by AID and half by the GOCCR, will be made available to individuals and groups of farmers for medium-term production and marketing credits (1 to 10 years). In addition, the BNCR will make up to \$2 million in short-term production credit available to small farmers in this Project.

The SBN policies and procedures as they apply to loan amounts, grace and repayment periods, and interest rates will be tailored to meet the credit needs of the small farmers participating in each integrated crop production and marketing system.

During Project implementation, the farmers and farm groups will apply directly to the SBN - BNCR for credit, supporting their application with farm plans; description of production technology; and, if needed, engineering plans and specifications. The BNCR technical staff may participate in the development of the sub-loan applications.

The Bank will supervise the use of funds to ensure proper use in accordance with approved farm plans. As many of the long-term crops (e.g., macadamia, pejobaye and cacao) will not begin to yield until year 4 to 7, continued vigilance by the BNCR will be required.

c. Cooperating Institutions

That portion of R&D concerned with the introduction, testing, and multiplication of new and improved crop varieties will be the responsibility principally of the MAG. These research centers: CATIE, CITA, and CIGRAS will be the primary organizations for R&D in production and processing technologies for new and improved commodities. Depending upon the kind of R&D required in marketing, additional help in specific problems may be required under contract or other arrangements.

CATIE will conduct training; operate nurseries for multiplication of plant material of cacao seed, peñibaye, and macadamia; and other activities. Data and technical recommendations from the ROCAP Small Farmer Cropping System will also be useful in ecological areas where this ROCAP program is now conducting research. This information will be especially valuable in improving production on very small farms. Data on labor requirements, input needs, and market potential for basic food crops and selected vegetables will be made available by CATIE for development of appropriate feasibility studies. National technicians who have worked with the CATIE/SFCS program will be available to train extension agents where multiple cropping research has been carried out.

CIGRAS will conduct studies and research in the magnitude of on-farm losses of grains; develop simple on farm drying facilities for grains, root crops, fruits and other agricultural products; provide engineering services in design and installation of driers, silos or other storage systems; and provide training to MAG personnel in drying technology.

CITA will conduct research in food processing; develop uses of agricultural by-products; and provide training to MAG personnel in food technology and promote food processing as a home industry.

The UCR will select genetic material and establish a germ plasm collection of peñibaye of early maturity, short stature, spineless characteristics, high yield, and improved quality for various uses including fresh fruit, flour and tortillas, animal feeds, and "palmito".

The ROCAP associated Regional Horticultural Project is providing technical assistance and training to the Ministry of Agriculture extension service (Horticultural Division staff), and to the staff of the Horticultural Division of the University of Costa Rica, the leader in field research in Costa Rica. Training at the graduate level for at least two Costa Rican horticulturists, annual short course training on research materials and methods, marketing of perishable products, etc., will be offered. Plant material of selected high yielding, superior quality varieties also will be made available to Costa Rican counterparts for experimental use and as the base for commercial multiplication. These two groups in turn will be providing technical assistance in this Project.

d. Ministry of Finance

As the GOCR's authorized representative for arranging all foreign loans, the MOF has requested the loan and will negotiate the Loan Agreement. Commitments of counterpart funds are made by the MOF, which presents the annual budget, including proposed loan and counterpart drawdowns, to the Legislative Assembly for approval.

ORGANIZATIONAL RESPONSIBILITIES

<u>Activity</u>	<u>Organization</u>
MAG Training	System Committee MAG/OPSA CAR
Farm Mpt	System Committee CAR
Research	System Committee CITA CIGRAS CATIE UCR
Credit	SBN CAR CATIE

2. Capability of Implementing Organizations

a. MAG

The Ministry of Agriculture (MAG) bears the major GOCR responsibility for agricultural and rural development in Costa Rica. Its programs over the years have been directed largely to agricultural production. After considerable success in meeting gross production goals, the MAG has begun directing more attention with AID assistance to target groups of small, poor farmers. Under loan 022 the Ministry's operations were reorganized and agents were trained in techniques of group education and extension to small farmers. Under Loan 025 crop-specific production activities are being implemented in each agricultural region, with identified target group participants. Through this experience the MAG is developing the capacity to work with groups of small farmers in all parts of the country.

The GOCR's Agricultural Development Program (ADP), started in 1971, has taken the initial steps required to modify traditional structures so that public services can be provided more effectively and equitably in rural communities. Progress has included the establishment of the National Agricultural Council (CAN), composed of the three Ministers and three Executive Presidents of autonomous agencies involved in the rural sector with the Minister of Agriculture as chairman (7 members). This group meets at least once a month to discuss and decide policy and programs in the agriculture sector.

Much of what CAN discusses are studies, projects, and plans submitted by the Agricultural Sector Planning Office (OPSA), a group of about forty technicians with specialties in planning, agricultural economics, agronomy, resources, meteorology, statistics, etc. This group works under the direction of the Technical Vice-minister of Agriculture and the Executive Secretariat of CAN. CAN meetings are well attended, and debate is open. Given the group's status and ability to commit their respective institutions, CAN decisions usually become policy.^{1/}

Other areas of progress within the ADP include: the reorganization of the MAG extension and research services; the expansion of credit to small farm operators and cooperatives to include many new borrowers; greater use of crop insurance and commodity price stabilization programs to reduce production risks; land titling to enhance the security of land

^{1/} The failure of the CAN member home offices to delegate authority to their field offices led to the demise of the CANCTIOs, an experiment in which an attempt was made to replicate the CAN at the Regional level.

tenure; grain and seed quality research; and the expansion of training of middle management agricultural technicians.

The Agricultural Development Program has created a national consensus on rural needs and the Sector's importance to national development. This awareness of rural needs is exemplified, in part, by the research work MAG is engaged in regarding a number of specific small farmer crops in three large experimental stations.

The quality of several MAG offices is recognized abroad. MAG's Veterinary Department, because of its successful work in controlling poultry and animal disease, is frequently requested to provide assistance and advice to other Central American countries on their own animal disease problems. The Extension Service of the Ministry is the most effective in Central America. As of August 1977 there were 51 extension agencies dispersed around the country.

The MAG organization consists of a national headquarters, eight regional centers (CARs), and three experimental stations. The CARs carry out local agricultural programs established at the national level. In a move towards further decentralization, the Ministry has cultivated the direct participation of community residents through the establishment of Cantonal Agricultural Centers, strengthening the capacity of rural localities to address their own common agricultural needs.

The new Marketing Unit will be set up to identify and respond to specific marketing problems and mission opportunities, particularly at the small-farm level. The Unit's staff and a listing of typical tasks to be carried out appear in Annex 10, MAG Marketing Unit Tasks. The Unit will provide technical support to the CARs and the SBN in the preparation of farm plans; will be available to consult with farmer groups and individuals; and will carry on an active national market news campaign.

MAG's budget has jumped from about \$5 million in 1974 to a present level of \$9 million, signifying a GOCR investment of some \$13 million dollars through 1977 and a budget increase of over 80% in four years. Significant MAG budgetary increases have been made in the last two years in a number of program areas which relate to this Project. Budget funds for research have increased by 57%. CAR budgets have risen from approximately \$1.6 million to \$2.1 million. Funding for forestry has increased by 58%.

Top management of the Ministry is professionally competent. The staff includes 320 professionals, 412 agricultural technicians, and about 415 administrative employees. Of the total professional staff 72% are stationed in rural areas. MAG personnel have acquired experience during the last six years managing various portions of two AID Agricultural Sector Loans (Loans 022 and 025), loan funds from IBRD and BID, and inter-institutional arrangements/agreements (e.g., IICA, INFOCOOP, etc.) required for loan implementation. MAG's planning arm, OPSA, is capable in project planning, monitoring and evaluation. OPSA's overall capability was reinforced this year with the incorporation of a seven-member contract team (supported by Loan 025 funds). OPSA is currently working on a new four-year Agricultural Development Program for release in early 1978.

b. SBN

Commercial banking in Costa Rica is provided only through government controlled (autonomous) institutions, grouped in the National Banking System (SBN) under the control and direction of the Central Bank. The four banks in the SBN all provide credit to agriculture. The largest in this group, and also the one with the greatest proportion of its portfolio in agricultural loans, is the Banco Nacional de Costa Rica (BNCR). With over 100 offices, the BNCR is one of the largest banks in Central America. Its loan portfolio includes exposure to non-traditional products: vegetable oil and lard processing; a tannery; and dairy products.

The BNCR plans to continue expanding its operations to rural areas. Its rural credit department includes a technical assistance staff with one chemical engineer, 120 agronomists and agricultural engineers, 2 technicians to promote small industry and crafts, and veterinarians and zootechnicians. Each regional office manager is expected to live in and become knowledgeable about his local area, and usually has a background in agronomy. The SBN banks carry out their agricultural lending operations in an efficient manner. Bank officials are usually qualified and competent, perhaps reflecting the relatively high salaries paid to bank employees.

General GOOCR credit policy in recent years has been expansionist. Over the past five years agricultural credit has more than doubled, while credit to small farmers has tripled. This expansion represents increased availability of funds from both national and external sources. The SBN has handled AID, BID and IBRD Loan funds during the past four years. The increase in small farmer credit is the result of a national policy decision to increase the availability of SBN funds to that target group.

c. CITA

The Food Technology Research Center (CITA) was established as part of the University of Costa Rica (UCR) in 1968 as a result of an agreement between the Ministry of Agriculture, the UCR, and the National Production Council (CNP). CITA functions as a research organization for developing new food products, improved processing technology, and improved quality standards for processed foods. With financial assistance from AID (Loan 022) and the Interamerican Development Bank (IDB) a research facility was constructed on the University grounds in 1974.

CITA is reasonably well equipped to conduct the type of food technology research required for Costa Rica. Its pilot plant is considered the best in Central America. Research priorities are well directed towards areas of critical national need -- the National Nutrition Program (NNP) and greater self sufficiency in food manufacture. Training facilities for personnel at intermediate levels are expanding quite rapidly. The professional staff has grown from six in 1974 to 16 as of June 1977, and the support staff has increased equally. However the Center may still be understaffed for the amount of work it is required to perform.

CITA presently has some elements of an extension program, as the staff in their normal research role conduct cooperative work with the food industry or agricultural cooperatives. One of the major accomplishments thus far has been the development of an undergraduate curriculum in food technology.

A USAID contract employee with many years of experience in food technology has reported, 1/ based on five

1/ Technical Services Contract 515-260-T. Final Report, 6/15/76.

years association with CITA, that it has the potential of becoming the best organization of its kind in Latin America.

d. CIGRAS

The Center for the Investigation of Grains and Seeds (CIGRAS) was formed in 1972 as part of the Faculty of Agronomy at the UCR. Its task is to establish and enforce standards for production, distribution, and trade in crop seeds. CIGRAS also provides services in the introduction of improved methods of handling, processing, and storing grains.

CIGRAS has a modern and well equipped seed and grain laboratory in which to conduct investigative and extension work. Correspondingly, CIGRAS has a highly professional staff made up of a Director, who holds PhD. from a U.S. University; one grain and two seed specialists (PhDs); and three agricultural agronomists. The professional staff is supported by a group of seven administrative employees, including two grain-seed analysts.

CIGRAS has conducted more than 2,400 seed investigations since it began laboratory operations in 1973. These investigations have provided information on such factors as humidity, density, purity, etc., as related to seed quality. Additionally the Center has conducted, as of December, 1976, more than 120 laboratory analysis of various kinds of grain, e.g., rice, corn, beans and sorghum. CIGRAS maintains close working relationships with CNP, the Association of Food Industries of Costa Rica (ACIA), various CARs, and the Ministries of Agriculture in El Salvador, Honduras, and Nicaragua. In 1974 CIGRAS organized the "First National Seminar on Seeds" which was attended by more than 50 Costa Rican technicians with interests in seed technology. In 1976 in collaboration with the Government of Denmark's Institute of Seed Pathology for Developed Countries CIGRAS presented the first seminar-workshop on seed pathology for seed technicians in the Central American and Caribbean area.

Benefits resulting from CIGRAS' work in seeds include: use of high quality seed; reduction in the amount of seed required per area unit; higher plant population; and the reduction of weed infestation in plantings.

e. CATIE

The Tropical Agricultural Research and

Training Center (CATIE) is a scientific and educational non-profit autonomous institution. It was formed in June, 1973, as a civil association by the Costa Rican Government and IICA, with a Board of Directors composed of members from IICA, the GOCR and a number of outstanding professionals from the Americas. The basic objective of CATIE is to support the countries in Central America and the Antilles in their agricultural, animal, and forestry development programs, in order to increase food production and the average income per unit area of land in the rural sector. To meet this objective, CATIE has established research, training and technical cooperation programs. CATIE's main facilities are located in Turrialba, Costa Rica. CATIE's regional activities are carried out through cooperative programs with national institutions in each country. CATIE has about 1,100 hectares of land on which to conduct its research work. It has adequate facilities for research and training, laboratories, classrooms for 100 graduate students, greenhouses, herbarium, as well as a highly professional international research staff. CATIE also maintains the best tropical agricultural library in Latin America.

As a supporting center of IICA, CATIE has graduated more than 600 professionals with an M.S. degree. Since 1973, CATIE has continued developing its graduate program by supporting the Graduate Studies Program of the UCR. The aim of this program is to train production specialists in the three fields of CATIE's research work. Informal training is also given at CATIE by means of short courses, seminars, technical meetings, and in-service training. The short courses are designed to provide professionals with the latest technical knowledge. CATIE's core program is financed mainly by IICA's contribution, annual contributions from the Costa Rican and Panamanian Governments, profits from the Center's commercial farm operations, and fees services. It also receives support in cash and through the assignment of specialists provided by developed countries.

The countries of Central America and the Antilles are giving priority attention to improving food production. At present CATIE is working in three Departments: Tropical Crops and Soils, Tropical Animal Husbandry and Forest Sciences. All three concentrate on the development and testing of production systems. CATIE is focussing its research program on studying technologies capable of increasing production per unit area, adaptable for use by small and medium size farmers. The research program contemplates the gradual integration of agri-

cultural, cattle, and forest systems, as a means of utilizing the area's resources more efficiently.

The Department of Tropical Crops and Soils, in addition to concentrating its efforts on the development and improvement of food crops production systems for small farmers, is also engaged in research on production systems with cacao, pejabaye and macadamia -- three crops intended to play an important role in farm plans under this Project.

The Department of Animal Husbandry efforts are being dedicated to developing cattle production systems for milk, meat, and both. The work in all systems is based on the proper use of pasture grass (the cheapest and most abundant resource the tropics have) and supplementing feed with local by-products such as cane tops, reject bananas, and coffee and cacao husks. This work is directly applicable to that segment of the Project in which dairying will be promoted as a small farm production activity in selected areas of Costa Rica.

The Department of Forest Sciences' main lines of research include: silviculture, watershed management, wildland management, wood technology, and forest protection -- all which relate to the promotion of selected tree crops as a small farmer production activity.

CATIE has worked with AID on various agricultural development activities since the middle 1970s. In 1975 AID/ROCAP and CATIE signed a contract whereby the Center agreed to perform technical research services in connection with the development of new cropping systems for use on small farms in Central America. CATIE is also working on a soils fertility project in coordination with ROCAP. The purpose of this project is to provide soil fertility expertise to agricultural institutions in Central America. Other CATIE activities supported by AID include the collection and distribution of agricultural data and horticulture production.

CATIE's competence and performance record with AID has recently been the subject of a favorable evaluation. 1/

1/ Harwood/Rice Evaluation report on the Small Farmer Cropping Systems Project, June 1977.

V. FINANCIAL ANALYSIS

A. Financial Plan

As reflected in Table 1, Summary Cost Estimate and Financial Plan, the total Project cost is \$11 million, of which \$5.5 million will be from AID Loan funds and \$5.5 million as GOCR counterpart. AID loan terms will be determined according to AID/W's criteria for "intermediate" countries, most likely a 20 year loan, with 3% interest charge during both the five year grace period and the 15 year repayment period. Even with these less-concessional terms the Loan is attractive to the GOCR as the terms are still softer than those being used by other international lenders in Costa Rica.

Project funds will flow substantially in the manner shown in Table 4, Project Implementation and Fund Flow Chart. It is anticipated that funds will be disbursed in the following manner:

<u>Disbursing Agency</u>	<u>Fund Application</u>	<u>Amount (\$'000)</u>	
		<u>AID</u>	<u>GOCR</u>
Project Committee	Integrated systems, plans, training marketing/production and operations	\$2,500	\$ 715
National Banking System	Medium term credit	\$2,500	\$2,285
	Short term credit		\$2,000
		\$5,000	\$5,000
	Contingency and inflation	500	500
	TOTAL	<u>\$5,500</u>	<u>\$5,500</u>

Table 4, Costing of Project Elements, shows the cost components of each element.

\$333,000 will be provided under Project Element N°1, MAG Training, for: (1) the establishment of a Systems Committee for overall Project planning, implementation, monitoring and evaluation, (2) the formation of a Marketing Technology Unit (Division) within MAG to provide leadership in marketing activities, and (3) a variety of training activities within MAG. Of the \$333,000, \$149,000 (45%) will be used for operational costs of the Systems Committee and Marketing Division; \$25,000 (8%) will be used to cover short term TDY training specialists in production/processing/marketing of non-traditional crops, post-harvest handling and marketing of traditional crops, etc.; and \$159,000 (47%) will be used to cover Master of Science scholarships for eight MAG technicians and Bachelor of Science scholarships for twenty lower level MAG technicians.

Project Element N°2, Farm Management, will require \$584,000 in AID funding: \$50,000 (9%) will be used to cover T.A. requirements in farm management, food technology, marketing, agro-industry and to assist MAG personnel in training activities, project planning and project implementation. The remaining \$534,000 (84%) will cover operational costs, travel and per diem, and materials and supplies in the five CAR's, as well as financial support for the CARs' field days, farmer meetings, short courses, demonstrations, and general promotional activities. The GOCR will purchase vehicles and spare parts with their own funds.

Project Element N°3, Research, will be the primary responsibility of the Ministry of Agriculture at the national and local levels. This element will be financed with \$1,583,000 of AID loan funds. Of the total, \$469,000 (30%) will be used to contract institutions and individuals for new crop research, processing research, market research, economic research, and special studies in marketing and processing. AID will fund \$485,000 (31%) of commodity costs for plant materials (seeds, trees, roots, etc.) and equipment for the five regional nurseries and the Plant Introductory Garden. Over the life of the project, an additional \$156,000 (10%) of this Element will be used to cover part of the operating costs of the five experimental stations.

Also under Project Element No. 3, a series of specific marketing activities will be financed with \$160,000 (10%) to cover part time professional services and commodities for cooperating groups of farmers and MAG personnel. \$313,000 (20%) in loan funds will

be provided under this Project Element to cover group activities in non-traditional crops, mostly commodity and construction costs of required facilities.

A total of \$6.8 million (\$2.5 million AID funds and \$4.3 million counterpart) will be provided as Project Element No. 4, of which \$4.8 million will provide medium-term credit to farmers for production of non-traditional crops or expansion of enterprises that have higher return potential than traditional basic grains, and \$2.0 million for annual production loans to the same borrowers to provide farm income for family support and debt servicing during the period that medium term enterprises are maturing. Medium term subloans are expected to have terms of no more than eight years (an average term of five to six years is anticipated). Interest rates will be 8% for both medium and short term credits with grace periods tailored to specific medium term enterprises.

The final cost element of the Financial Plan is a contingency and inflation provision. Table 1 reflects estimated costs to AID of \$500,000 and GOCR of \$500,000 respectively. These estimates are based on a conservative rate of approximately 10% of direct Loan costs.

The creation of a Systems Committee along with its supporting staff will provide a focal point for the generation of necessary accrual data for this project. The following is a description of the basis for their gathering of accruals for the various Project elements.

<u>ELEMENT</u>	<u>PROBABLE ACCRUAL BASIS</u>
1. MAG Training;	1. Systems Committee accounts payable subsidiary ledger; services provided under contracts; MAG accounts payable.
2. Farm Management	2. MAG and CARs accounts payable; services provided under contracts; status of courses against actual expenditures; purchase orders for vehicles, materials and supplies.

<u>ELEMENT</u>	<u>PROBABLE ACCRUAL BASIS</u>
3. Research	3. MAG accounts payable; services provided under contracts and agreements; purchase orders for equipment, materials and supplies.
4. Credit	4. Sub-loan portfolios against project drawdowns.

TABLE No. 1

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

Project Element No.	Description	AID			GOGR LC	Total Project		
		FX	LC	TOTAL		FX	LC	TOTAL
1	MAG Training	203	130	333	40	203	170	373
2	Farm Management	47	537	584	465	47	1,002	1,049
3	Research	554	1,029	1,583	210	554	1,239	1,793
4	Medium term Credit	-	2,500	2,500	2,285	-	4,785	4,785
	Short term Credit	-	-	-	2,000	-	2,000	2,000
	Total	<u>804</u>	<u>4,196</u>	<u>5,000</u>	<u>5,000</u>	<u>804</u>	<u>9,196</u>	<u>10,000</u>
	Contingency and Inflation	<u>81</u>	<u>419</u>	<u>500</u>	<u>500</u>	<u>81</u>	<u>919</u>	<u>1,000</u>
	Project Total	<u>985</u>	<u>4,615</u>	<u>5,500</u>	<u>5,500</u>	<u>885</u>	<u>10,115</u>	<u>11,000</u>

NOTE: No inflation nor contingency is contemplated for the \$350,000 Grant.

TABLE No. 2

ESTIMATED DISBURSEMENT SCHEDULE
(In US \$000)

No.	Description	YEARS									
		FIRST		SECOND		THIRD		FOURTH		ALL	
		AID	GOGR	AID	GOGR	AID	GOGR	AID	GOGR	AID	GOGR
1	MAG Training	130	10	106	10	60	10	37	10	333	40
2	Farm Management	77	116	169	116	169	116	169	117	584	465
3	Research	396	53	396	53	396	53	395	51	1,583	210
4	Medium Term Credit	400	385	700	600	700	650	700	650	2,500	2,285
	Short Term Credit	-	325	-	550	-	562	-	563	-	2,000
	TOTAL	<u>1,003</u>	<u>889</u>	<u>1,371</u>	<u>1,329</u>	<u>1,325</u>	<u>1,291</u>	<u>1,301</u>	<u>1,391</u>	<u>5,000</u>	<u>5,000</u>
	Contingency and Inflation,	<u>75</u>	<u>89</u>	<u>146</u>	<u>133</u>	<u>141</u>	<u>139</u>	<u>138</u>	<u>139</u>	<u>500</u>	<u>500</u>
	Project Total	<u>1,078</u>	<u>978</u>	<u>1,517</u>	<u>1,462</u>	<u>1,466</u>	<u>1,530</u>	<u>1,439</u>	<u>1,530</u>	<u>5,500</u>	<u>5,500</u>

COSTING OF PROJECT ELEMENTS
(In US \$000)

<u>PROJECT ELEMENT</u>		<u>COSTING METHODS</u>	<u>YEARS</u>				
<u>No.</u>	<u>Description</u>		<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>All</u>
1	MAG Training	10 person/years at \$12 thousand a year.	72	48	-	-	120
		10 short term contracts at \$3 thousand each.	19	10	-	-	29
		- Short term TDY specialist to train MAG personnel at a cost of \$12.5 thousand for 3 TDY specialists and \$12.5 thousand to cover food, transportation and materials of training courses at an estimate cost of \$62.5 per trainee (200 trainees)	25	-	-	-	25
		- 8 M.S. scholarships of one year ea. in production/marketing/processing, at a cost of \$8.0 thousand each.	0	20	20	20	60
		- 20 B.S. scholarships of three years each in production/marketing/processing at \$2.7 thousand per year per scholarship.	0	20	54	25	99
		TOTAL AID	<u>116</u>	<u>98</u>	<u>74</u>	<u>45</u>	<u>333</u>
		- Committee costs at \$3 thousand a year. One secretary at \$5 thousand a year. Travel and per diem \$2 thousand a year.					
		TOTAL GOCR	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>40</u>

COSTING OF PROJECT ELEMENTS
(In US \$000)

<u>PROJECT ELEMENT</u>		<u>COSTING METHOD</u>	<u>YEARS</u>				
<u>No.</u>	<u>Description</u>		<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>All</u>
2	Farm Management	15 person/months of short term contractors at two months at a time at \$3.3 thousand per month.	25	25	-	-	50
		Operational assistance to 5 CARs who will provide Technical Assist. to farmers at \$17.4 thousand per year per CAR office. First year assistance will be only \$12 thousand per CAR office.	60	87	87	87	321
		Assistance to 5 CARs in the amount of \$213 thousand or \$14.2 thousand per year per CAR for trials and demonstrations and training costs.	-	71	71	71	213
		TOTAL AID	<u>85</u>	<u>183</u>	<u>158</u>	<u>158</u>	<u>584</u>
		CAR operational cost estimated at \$19 thousand and travel costs of \$1.8 thousand a year.	21	21	21	20	83
		50 vehicles at \$4 thousand each and \$82 thousand for spare parts.	70	70	70	72	282
		CAR personnel and MAG extension agents assisting or participating in farmer training at an estimate cost of \$25 thousand per year.	25	25	25	25	100
		TOTAL GOGR	<u>116</u>	<u>116</u>	<u>116</u>	<u>117</u>	<u>465</u>

COSTING OF PROJECT ELEMENTS
(In US \$000)

<u>PROJECT ELEMENT</u> <u>Description</u>	<u>COSTING METHOD</u>	<u>YEARS</u>				
		<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>All</u>
Research	5 institution Contracts with CITA, CIGRAS, CATIE, Wood Products Laboratory, etc. at an approximate cost of \$85 thousand per contract.	106	106	106	107	425
	22 person/months of personal services contracts at \$2 thousand per month.	11	11	11	11	44
	\$100 thousand has been estimated for the purchase of seed trees, bedwood, root stock, etc., all at different prices and quantities, 5 stations at \$20 thousand each.	10	25	25	25	85
	\$200 thousand has been estimated for the purchase of equipment as tractors, seed cleaners, etc. 25 units at \$8 thousand each.	50	50	50	50	200
	\$200 thousand has been estimated for improving station facilities as building, water systems, fences, etc. 5 stations at \$40 thousand each.	50	50	50	50	200
	\$156 thousand to cover part of operating cost of 5 experiment stations at an average of \$40 thousand per station.	28	28	50	50	156
	10 pilot marketing activities at an estimated cost of \$160 thousand or \$16 thousand per project to cover: 1) part time professional services at a cost of \$4 thousand per project and 2) \$12 thousand per project for its implementation.	160	-	-	-	160

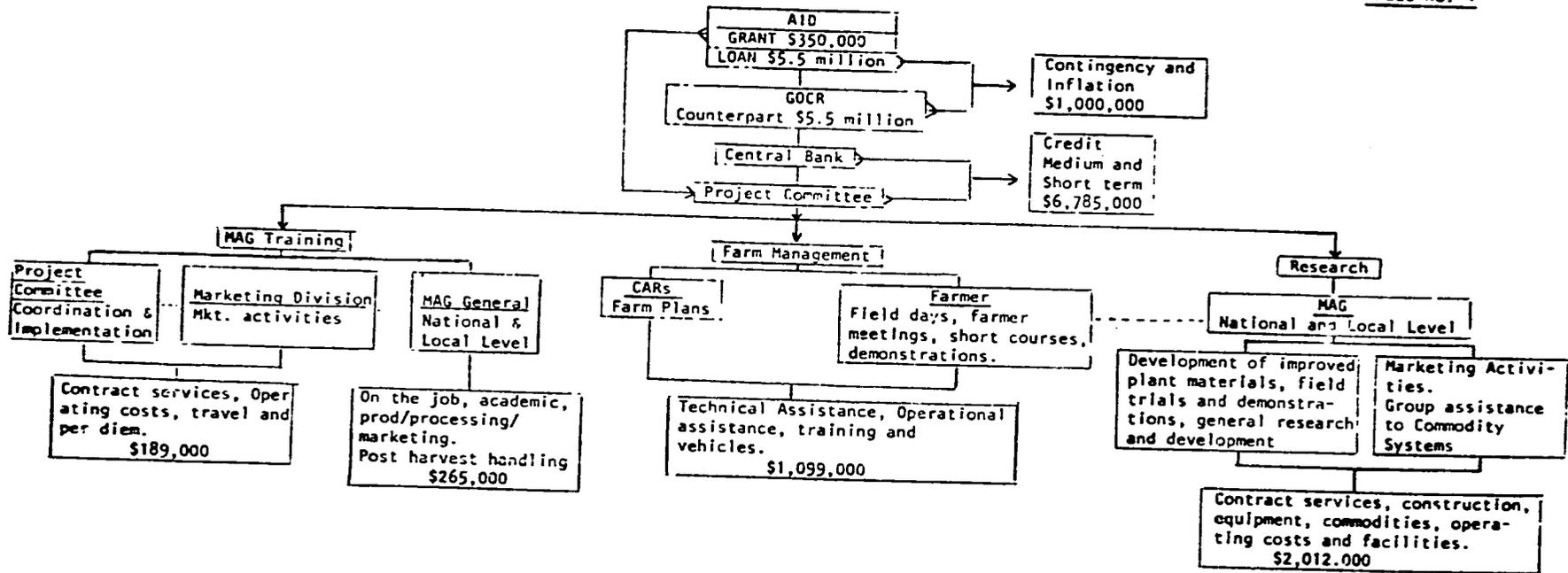
COSTING OF PROJECT ELEMENTS
(In US \$000)

<u>PROJECT ELEMENT</u>		<u>COSTING METHOD</u>	<u>YEARS</u>				
<u>No.</u>	<u>Description</u>		<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>All</u>
3	Research (Cont.)	60 farmer group pilot projects at an estimated cost of \$5.2 thousand each. The \$5.2 thousand will cover \$4.7 as financial assistance and \$.5 to cover MAG costs in planning, developing and implementing the project.	-	100	100	113	313
		TOTAL AID	<u>415</u>	<u>370</u>	<u>392</u>	<u>406</u>	<u>1,583</u>
		\$167 thousand contribution is estimated to cover personnel cost of \$37 thousand, utilities of \$3 thousand and \$1.8 thousand for materials and supplies each year for 5 experiment stations.	42	42	42	41	167
		Salaries of MAG personnel in reviewing, approving and implementing pilot marketing activities is estimated at \$10 thousand and operating costs at \$1 thousand each year.	11	11	11	10	43
		TOTAL GOCR	<u>53</u>	<u>53</u>	<u>53</u>	<u>51</u>	<u>210</u>
4	Credit	TOTAL AID	<u>400</u>	<u>700</u>	<u>700</u>	<u>700</u>	<u>2,500</u>
		TOTAL GOCR	<u>710</u>	<u>1,150</u>	<u>1,212</u>	<u>1,213</u>	<u>4,285</u>
		TOTAL PROJECT ELEMENTS	<u>1,905</u>	<u>2,680</u>	<u>2,715</u>	<u>2,700</u>	<u>10,000</u>
	Contingency and Inflation !/	AID	75	146	141	138	500
		GOCR	89	133	139	139	500
		TOTAL	<u>164</u>	<u>279</u>	<u>280</u>	<u>272</u>	<u>1,000</u>
		PROJECT TOTAL	<u>2,069</u>	<u>2,959</u>	<u>2,995</u>	<u>2,977</u>	<u>11,000</u>

!/ No inflation or contingency is contemplated for the \$350,000 Grant.

PROJECT IMPLEMENTATION AND FUND FLOW CHART

TABLE No. 4



B. Budget Analysis

Table 1 shows Central Government of Costa Rica actual expenditures for 1974, 1975 and 1976 and Projected 1977 budget by Government Branches and Ministries, and Table 2 shows Ministry of Agriculture expenditures for the same period. Total actual expenditures of the Central Government increased from ₡2.3 billion in 1974 to ₡3.9 billion in 1976 (₡8.50-US\$1) representing an increase of 74% over the three year period. A further increase of ₡.2 billion from the 1976 actual expenditures is reflected in the 1977 projected budget. If compared to the 1974 actual expenditures the total increase for the period 1974-1977 is 83%.

The Executive Branch of the Central Government includes all ministries and more than 93% of total actual expenditures during the three year period. The largest budgetary allocation during the period 1974-76 was to the Ministry of Education (28%). In comparison, the Ministry of Agriculture accounted for 4% of total expenditures, making it the sixth ranked Ministry. In 1976 the Agricultural Sector's expenditures increased to more than 5% of total expenditures. This represents an increase of 190% during the three year period from ₡68.7 million in 1974 to ₡199.5 million in 1976. This 1976 increase is attributable mostly to the special transfer of ₡100.0 million to the Institute of Land and Colonization (ITCO), as approved by Government Decree N°5875 article 4 dated 12-26-75.

Table 2 reflects MAG's actual expenditures by cost element for 1974, 1975 and 1976. It shows (excluding transfers) an increase from ₡38.0 million in 1974 to ₡65.8 million in 1976 or an increase of 73% for the period. The 1977 Budget shows an additional increase of ₡4.0 million over the 1976 level.

Personal services comprise the highest cost element within the MAG Budget: 65% of total expenditures during each of the three years. Total expenditures for personal services have increased 69% over the three year period, from ₡24.5 million in 1974 to ₡41.5 million in 1976.

MAG actual expenditures, excluding transfers, show that the ratio of current to capital expenditures has remained approximately the same.

NOTE: All percentages based on actual, non-rounded data.

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	<u>1974</u>		<u>1976</u>	
	<u>0000</u>	<u>%</u>	<u>0000</u>	<u>%</u>
Current	33,586	88	55,989	85
Capital	<u>4,400</u>	<u>12</u>	<u>9,784</u>	<u>15</u>
TOTAL	37,986	100	65,773	100

OPSA's two year budget is shown in Table 3, with the breakdown of both IICA and GOCR funds.

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CENTRAL GOVERNMENT
Actual Expenditures for 1974, 1975, 1976 and Projected Budget for 1977
(In million of £)

TABLE 1

DEPT.	ACTUAL				ACTUAL				ACTUAL		ACTUAL			
	1974		1975		1974		1975		1976	1977	1976		1977	
	EXPENDITURE	PERCENT	EXPENDITURE	PERCENT	EXPENDITURE	PERCENT	EXPENDITURE	PERCENT			EXPENDITURE	PERCENT	EXPENDITURE	PERCENT
LEGISLATIVE BRANCH	25.9	—	25.9	1.22	26.1	—	26.1	1.23	26.5	—	26.5	—	26.5	—
Legislative Assembly	24.9	—	24.9	—	25.2	—	25.2	—	25.8	—	25.8	—	25.8	—
Controller General	10.0	—	10.0	—	10.9	—	10.9	—	10.7	—	10.7	—	10.7	—
EXECUTIVE BRANCH	2,221.1	477.4	2,798.5	82.52	2,124.6	127.3	2,251.9	62.76	2,403.2	1,273.3	2,403.2	1,273.3	2,403.2	1,273.3
Ministry of Agriculture	22.2	—	22.2	—	22.5	—	22.7	—	22.1	—	22.1	—	22.1	—
Ministry of Commerce	127.4	13.1	127.4	3.90	126.3	6.6	125.2	3.89	127.1	22.2	127.1	22.2	127.1	22.2
Ministry of Foreign Affairs	29.2	—	29.2	—	27.4	—	27.4	—	29.3	—	29.3	—	29.3	—
Ministry of Public Safety	48.5	—	48.5	—	47.4	—	47.4	—	48.4	—	48.4	—	48.4	—
Ministry of Revenue	206.7	20.6	483.5	2.28	20.5	—	20.5	—	20.8	—	20.8	—	20.8	—
Ministry of Agriculture	42.8	27.1	28.7	2.33	32.3	236.1	76.6	23.82	32.3	34.4	32.3	34.4	32.3	34.4
Ministry of Commerce	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Ministry of Education	13.9	—	24.5	—	13.6	—	21.2	—	22.8	—	22.8	—	22.8	—
Ministry of Health	225.2	24.2	425.4	18.46	277.1	212.2	447.3	16.99	341.2	426.4	341.2	426.4	341.2	426.4
Ministry of Labour	221.4	21.4	241.8	8.25	235.8	—	241.3	8.42	234.2	36.3	234.2	36.3	234.2	36.3
Ministry of Transport	222.7	16.4	127.1	5.24	154.1	6.3	242.2	5.65	243.5	22.2	243.5	22.2	243.5	22.2
Salary Adjustments	13.3	5.3	22.4	—	21.7	1.1	22.3	—	22.3	—	22.3	—	22.3	—
Miscellaneous	—	—	—	—	1.4	—	1.4	—	1.1	—	1.1	—	1.1	—
LEGISLATIVE BRANCH	49.7	5.8	75.6	1.33	54.2	7.8	111.8	3.54	126.2	9.2	126.2	9.2	126.2	9.2
EXECUTIVE BRANCH	13.5	3.2	16.8	—	15.2	—	15.2	—	15.7	—	15.7	—	15.7	—
LEGISLATIVE BRANCH	—	—	—	—	—	—	—	—	—	—	—	—	—	—
EXECUTIVE BRANCH	—	—	—	—	—	—	—	—	—	—	—	—	—	—
LEGISLATIVE BRANCH	8.5	—	8.5	—	11.7	—	11.7	—	11.7	—	11.7	—	11.7	—
EXECUTIVE BRANCH	43.8	—	43.8	1.93	43.2	—	43.2	1.93	—	—	43.8	—	43.8	—

Source of Information: Controller General Annual Report and 1977 Budget.

MINISTRY OF AGRICULTURE

TABLE :

ACTUAL EXPENDITURES FOR 1974, 1975 AND 1976
AND PROJECTED BUDGET FOR 1977
(In 2000's)

	1974				1977			
	Current	Capital	Total	Percent	Current	Capital	Total	Percent
TOTAL	41,609.5	27,091.3	68,700.8	100.00	61,808.4	22,301.4	84,109.8	100.0
Personal Services	23,726.0	743.5	24,469.5	35.61	34,314.2	62.1	34,376.3	40.87
Non-Personal Services	2,789.4	112.6	2,902.0	4.22	4,789.7	738.5	5,528.3	6.57
Materials and Supplies	2,605.6	-	2,605.6	3.79	5,954.0	81.7	6,035.7	7.18
Machinery and Equipment	118.3	1,891.1	2,009.4	2.93	1,333.6	924.3	2,257.9	2.68
Construction and Improvements	3,090.4	1,640.5	4,730.9	6.89	1,723.8	--	1,723.8	2.05
Current Transfers	6,523.2	12,107.0	18,630.2	27.12	11,091.5	7,352.1	18,443.6	21.93
Capital Transfers	1,500.0	10,584.5	12,084.5	17.59	2,005.0	8,790.7	10,795.7	12.83
General Appropriations	1,214.6	12.1	1,226.7	1.79	596.6	115.5	712.1	.85
Amortizations (Internal Debt)	42.0	-	42.0	.06	-	-	-	-
Financial Investments	-	-	-	-	-	4,236.4	4,236.4	5.04

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MINISTRY OF AGRICULTURE

TABLE 2

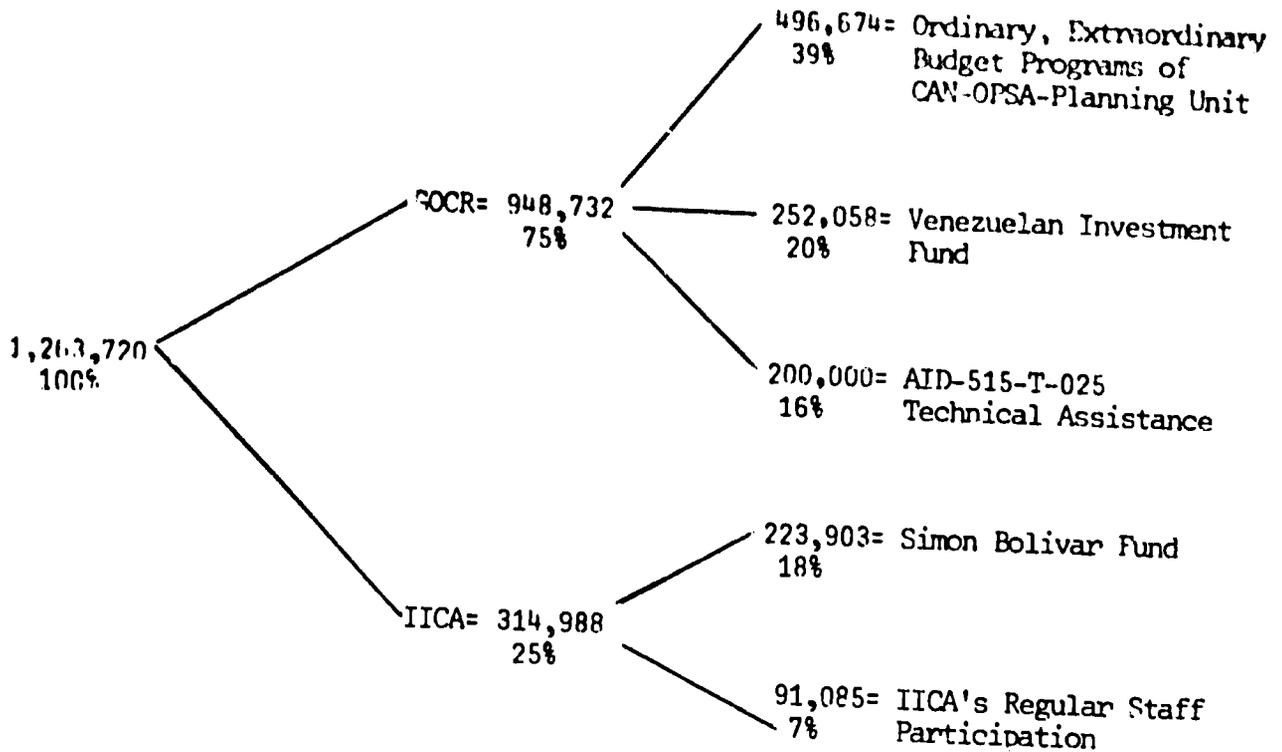
ACTUAL EXPENDITURES FOR 1974, 1975 AND 1976
AND PROJECTED BUDGET FOR 1977

(In 0'000's)

	1976				1977	
	<u>CURRENT</u>	<u>CAPITAL</u>	<u>TOTAL</u>	<u>PERCENT</u>	<u>TOTAL</u>	<u>PERCENT</u>
TOTAL	65,571.6	133,871.4	199,443.0	100.00	77,892.9	100.00
Personal Services	41,470.0	-	41,470.0	20.79	49,552.9	63.61
Non-Personal Services	4,954.0	1,346.5	6,300.5	3.16	7,769.1	9.97
Materials and Supplies	6,273.0	183.1	6,456.1	3.24	8,380.5	10.76
Machinery and Equipment	1,397.6	696.6	2,094.2	1.05	1,977.8	2.54
Construction and Improvements	258.0	3,344.9	3,602.9	1.81	1,450.0	1.86
Current Transfers	8,082.7	4,104.7	12,187.4	6.11	6,621.4	8.50
Capital Transfers	1,500.0	119,982.4	121,482.4	60.91	1,500.0	1.93
General Appropriations	1,632.7	-	1,632.7	.82	503.1	.65
Amortizations (Internal Debt)	3.6	-	3.6	-	138.1	.18
Financial Investments	--	4,213.2	4,213.2	2.11	--	

OPSA Budget and Funding Sources

For the Two Year Period October 1, 1976 Thru September 30, 1978
(US \$)



Breakdown of Total Costs

	<u>GOCR</u>	<u>IICA</u>	<u>Total</u>	<u>Percent</u>
Personal Services	370,330	194,460	564,790	44 %
Non-Personal Services	488,197	106,768	594,965	47 %
Supplies & Materials	47,779	1,214	48,993	4 %
Machinery & Equipment	42,426	2,428	44,854	4 %
Regular Transfers	-	10,118	10,118	1 %
TOTAL	<u>948,732</u>	<u>314,988</u>	<u>1,263,720</u>	<u>100 %</u>

C. Credit Analysis

a. The National Banking System

The National Banking System (SBN) allocation of credit to the agricultural sector has shown continuous and rather dramatic growth over the past few years. Between 1974 and 1976 lending for agriculture increased by 55%, for livestock 16%, and for all other activities 55.6%. Relative portfolio breakout is shown in tables 1 and 2.

Small farmers received approximately 20% of all agricultural sector credit granted during the three year period of 1974-1976, but the rate of increase was not proportionate to the growth of total credit to the sector -- while agricultural sector credit increased by 33%, from \$169.2 million in 1974 to \$225.6 million in 1976, small farmer credit increased by only 15%, from \$37.2 million in 1974 to \$42.8 million in 1976. For 1977, \$323.27 million, or 36.5% of total credit programmed by the SBN will go to the agricultural sector. Of this, \$48.92 million is allocated for the small farmer.

However, to view the supply of credit in nominal terms only is erroneous due to recent world-wide and Costa Rican inflation. A colon of credit in the past would purchase considerably more inputs than a colon of credit today, and the purchasing power of the credit portfolio has grown more slowly than the aggregate supply of credit.

All four banks comprising the National Banking System provide agricultural credit. During the past 3 years, these banks have been utilizing more of their own resources for small farmer credit: their parts of the loan portfolio have increased from 37.7% in March 1975 to 46.2% in March 1977. Under this project, the SBN will assure that not less than \$2 million of short term production credit is made available in support of medium term financing. This would not constitute a shift in the SBN portfolio, and spread over four years, would represent only 20 to 25 percent of the annual increases in the small farmer portfolio which has taken place each year for the past five years. Therefore, this earmarking of funds would not reduce any historical production programs and would be discounted by the amount of money previously lent to the target group by the SBN.

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b. Credit to the Small Farmer

AID has supported several credit programs in Costa Rica assisting the small farmer, each tailored to a target group and an institutional purpose.

Loan 515-L-005, authorized in 1963, was designed to develop an agricultural credit program consisting of medium and long term loans to individual farmers in low and middle income groups, and to cooperatives to finance livestock, agricultural supplies and equipment, agricultural services, and capital improvements to farms. Loan 515-L-017, signed in May 1967, increased the resources which the Banco Nacional de Costa Rica could relend to small farmers through the decentralized rural credit offices of its Rural Credit Department. Funds provided by the loan were used only for medium and long-term loans to farmers with total net annual income of less than the equivalent of \$3,000.00. Any project increasing agricultural production, except those specifically excluded, was eligible for financing -- e.g., purchase of livestock, equipment, shares in cooperatives, fertilizer, development of perennial crops. Loan 515-L-022, authorized in June 1970, was aimed at increasing national production and improving the standard of living of the Costa Rican small farmer. It incorporated thousands of small farmers into both the credit system and modern agriculture. Loan 515-T-025, signed in 1974, calls for the provision of credit to cooperatives and cooperative organizations for the production, processing, distribution and marketing of agricultural products. Loan and counterpart funds totalling \$5.3 million are being utilized for that credit.

The INFOCOOP portion of AID Loan 075 earmarked specific credit for cooperatives working in production, processing, distribution and marketing. Although there are 025 funds uncommitted at present, they are expected to be fully utilized by coops during 1978. The target group farmers in the proposed loan are largely those who operate as individuals, many of whom are outside of the institutional channels of credit. As these individuals organize into groups they will still be at a pre-cooperative stage of development. At the target group's present stage of development it would be premature to attempt to federate them into formalized cooperatives. Also, the proposed new enterprises have longer terms and higher risks than those enterprises allowable under INFOCOOP financing.

The SRN does not require any major change to

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promote production diversification to non-traditional crops. However the SBN is profit oriented and will move carefully into new and potentially higher risk enterprises which extend over medium terms. In order to promote such lending it must be demonstrated that such loans are sound investments and do have profit potential.

Existing laws which govern the SBN are in conformance with loan proposals, and the SBN has been enthusiastic in their response to the Program. They recognize the need to keep unit costs of lending at a minimum and are eager to utilize group lending concepts. The Project funds appear sufficient and conditions adequate to make a meaningful impact on target group farmers; and to provide the SBN with profitable lending that, over time, could serve as an incentive for diverting an increasing ratio of resources from traditional crops to non-traditional crops.

c. Interest Rates

As is the case in most other less developed countries, the rates of interest paid on deposits and charged on loans in Costa Rica have been fairly low. During the 1950s and 1960s, most of the rates of interest charged were between 6 and 8 percent per annum. During those periods, however, Costa Rica had few inflationary problems. The rate of price increases averaged from 2 to 3 percent per annum. As a result, the rates charged represented about 3 to 4 percent per annum in real terms. This situation began to change in the early 1970s. The rate of inflation reached a peak of over 40 percent per annum in 1974 and although it has declined since then, it is estimated to be above 12 percent per annum at present. Starting toward the end of 1974, on the other hand, the Central Bank has been raising several interest rates, which now range between 8 percent and 20 percent per annum. These increases, however, have been lower than the rate of inflation and most rates remain negative in real terms. In addition, by keeping the rates of interest charged on many agricultural loans at the 8-10 percent level, while raising other rates, the former have become increasingly preferential. The following are some of the rates of interest authorized by the Central Bank for the present year:

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Agriculture

Small farmers (sugar production, basic grains, oil seeds, forest products, vegetables, etc.)	8 %
Cooperatives (same crops)	10 %
Small farmers (Coffee)	12 %
Larger farmers	10-12 %
Larger farmers (Coffee)	14 %
Livestock	8-12 %

Industry

Small	8 %
Other	10-12 %
<u>Services</u>	12 %
Housing	10 %
<u>Commerce</u>	20 %
Personal	20 %

The rates of interest charged on agricultural loans have been low in several aspects. They have not reflected the opportunity cost of capital in Costa Rica. As a result, they have not equated the supply and demand for bank credit, generating excess demands. Non-price rationing has been necessary. Although the official banks are not supposed to be profit maximizers, they are nonetheless influenced by profit considerations. (For example, progress in the banking bureaucracy is much influenced by the profitability of the division in which the official works). Moreover, there is a substantial degree of risk aversion among the bankers. Bank officials thus tend to favor loans with the lowest risk and administrative costs and the highest interest rates. This has tended to discriminate against lending to small farmers as well as against lending for new and risky crops. At the same time, the substantial subsidy implicit in the disequilibrium

interest rates has gone to a few large privileged borrowers to a very large extent. Furthermore, the low rates of interest charged have been ineffective in distinguishing between productive and unproductive investments, since projects with very low rates of return (even negative) can still be profitable for the borrower.

The rate of interest of 8 percent per annum proposed in the Project seems low. It is equivalent to the lowest rates charged at present, according to the previous table. The Project's target, however, is not the easiest or less expensive for the banks to service. On the contrary, administrative costs will be higher and risks, in particular, more pronounced than typical livestock loans. One should not be overly optimistic about the bankers' response in these circumstances. It is likely that, as a result, funds will tend to concentrate in the easiest areas (e.g., dairy) within the Project.

If the expected rate of inflation in the near future is at least 10 percent per annum, the proposed rate will be negative in real terms and it will not permit adequate replenishment to the credit program fund. If a higher interest rate cannot be charged, replication will have to rely on another mechanism. In view of all these considerations, the Project takes into account the following:

- (a) the improbability of negotiating with the Central Bank and other banks a higher interest rate (12 percent, for example).
- (b) the desirability of adopting a flexible position in this respect, indicating that the rate charged will be "no lower than 8 percent per annum", but leaving open the possibility that the rate may be increased in the future, either because of a change in circumstances (e.g., inflation) or because of a change in interest-rate policies and structures in general.
- (c) the need to obtain a commitment from the Borrower that enough funds will be made available for these credit operations to replicate the project. A commitment from the Central Bank might be more desirable (politically feasible and administratively functional) than Government transfers or subsidies in order to replenish the fund.

d. Cash Flow of Revolving Credit Fund

Under the assumption of average short term loans being \$500 each, and medium term loans \$1,200 each, the Revolving Credit Fund would reach 19.9 thousand farmers (Table N°5) or a Credit Fund rollover of 4.6 over the twenty year life of the Project. This assumes that only one medium term loan will be granted to each individual farmer.

Short term loans for production credit will also be granted to the same borrowers to provide farm income for family support and for debt servicing during the period that medium term enterprises are maturing. After paying off medium term loans farmers will continue to obtain short term loans through the National Banking System which in 1977 had \$48.9 million available for small farmer agriculture financing.

Income generated through interest collection from short and medium term loans has been allocated 50 percent to administration and profits and 50 percent to cover bad-debts which may occur through high risk loans. A total of \$5.8 million will be generated through interest collections over the twenty year project.

Table No. 11

THE NATIONAL BANKING SYSTEM TOTAL AND AGRICULTURAL CREDIT GRANTED

(In U.S. \$ 000,000)

	1974				1975				1976				1977			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	CREDIT GRANTED	% OF TOTAL	SMALL FAR-HER CREDIT	% OF CREDIT TO CREDIT	CREDIT GRANTED	% OF TOTAL	SMALL FAR-HER CREDIT	% OF CREDIT TO CREDIT	CREDIT GRANTED	% OF TOTAL	SMALL FAR-HER CREDIT	% OF CREDIT TO CREDIT	CREDIT GRANTED	% OF TOTAL	SMALL FAR-HER CREDIT	% OF CREDIT TO CREDIT
Agriculture	102.7	28.82	12.2	12.09	175.5	26.19	20.5	14.00	157.8	24.81	20.8	13.29	221.5	25.0	21.5	14.70
Business	87.5	25.07	21.8	26.80	80.8	12.01	16.8	31.00	78.2	12.35	22.0	26.96	101.8	11.5	22.5	26.95
Sub-total	189.2	53.78	34.0	28.80	256.3	37.20	37.3	24.00	236.0	37.16	42.8	18.25	323.3	36.5	44.0	31.65
All other credit	235.0	66.22	—	—	351.2	50.00	—	—	386.5	56.84	—	—	507.7	58.5	—	—
TOTAL CREDIT	424.2	100.00	34.0	8.78	607.5	100.00	37.3	24.00	622.5	100.00	42.8	6.75	831.0	100.00	44.0	11.65

* Suspended.

NATIONAL BANKING SYSTEM (2001)
 Total Credit Growth - By Type
 (In US \$000,000)

	<u>1974</u>	<u>1975</u>	<u>1976</u>
Agriculture	100.69	102.28	127.31
Business	67.46	68.81	78.31
Industry	110.82	110.23	126.78
Electricity and Other Energy Sources	.06	.32	.06
Commerce	24.31	23.28	22.38
Services	42.73	43.27	42.22
Housing	10.35	21.84	22.21
Personal	13.83	24.26	32.46
Other	<u>11.24</u>	<u>27.21</u>	<u>22.12</u>
TOTAL	<u>402.24</u>	<u>407.26</u>	<u>428.46</u>

MEMORANDUM FOR THE RECORD

Item	Quantity	Unit Price	Total
1000	100	10.00	1000.00
2000	200	20.00	4000.00
3000	300	30.00	9000.00
4000	400	40.00	16000.00
5000	500	50.00	25000.00

Total: 60000.00

उत्तरांचाल

संक्षेप उत्तरों में दी गई प्रश्नों के उत्तर दीजिए।

- 1. (क) भारत की संसद का नाम क्या है?
- 2. (ख) संसद के दो सदन कौन कौन हैं?
- 3. (ग) लोकसभा की संख्या क्या है?

	लोकसभा	राज्यसभा
सदस्यों की संख्या	543	250
सदस्यों की संख्या	543	250
सदस्यों की संख्या	543	250
सदस्यों की संख्या	543	250
कुल	543	250

- 4. (घ) लोकसभा के अध्यक्ष का पद क्या है?

	लोकसभा	राज्यसभा	कुल
सदस्यों की संख्या	543	250	793
सदस्यों की संख्या	543	250	793
कुल	543	250	793

5. (ङ) संसद के दो सदन कौन कौन हैं? उनके नाम क्या हैं? उनके कार्य क्या हैं? लोकसभा के अध्यक्ष का पद क्या है? राज्यसभा के अध्यक्ष का पद क्या है? संसद के दो सदन कौन कौन हैं? उनके नाम क्या हैं? उनके कार्य क्या हैं? लोकसभा के अध्यक्ष का पद क्या है? राज्यसभा के अध्यक्ष का पद क्या है?

6. (च) लोकसभा के अध्यक्ष का पद क्या है? राज्यसभा के अध्यक्ष का पद क्या है? संसद के दो सदन कौन कौन हैं? उनके नाम क्या हैं? उनके कार्य क्या हैं? लोकसभा के अध्यक्ष का पद क्या है? राज्यसभा के अध्यक्ष का पद क्या है?

7. (छ) लोकसभा के अध्यक्ष का पद क्या है? राज्यसभा के अध्यक्ष का पद क्या है? संसद के दो सदन कौन कौन हैं? उनके नाम क्या हैं? उनके कार्य क्या हैं? लोकसभा के अध्यक्ष का पद क्या है? राज्यसभा के अध्यक्ष का पद क्या है?

CASH FLOW OF REVOLVING CREDIT FUND
SHORT AND MEDIUM TERM CREDIT
(U.S. \$000)

TABLE 4

Year	CASH DERIVED FROM						CASH USED FOR						Portfolio End of Year
	Reg. Cash Bal.	AID Loan	GOCR Count.	Int. Coll.	Prin. Coll.	Total Cash Sources	Sub-Loan Short	Terms Medium	Adm. & Profit	Bad Debt Res.	Total Cash Uses	Cash Avail.	
1	-	400	710	-	-	1,100	325	785	-	-	1,110	-	1,110
2	-	700	1,150	85	325	2,264	875	1,300	45	44	2,264	-	2,960
3	-	700	1,212	237	1,071	3,220	1,437	1,448	119	118	3,122	98	4,774
4	98	700	1,213	382	1,958	4,351	2,000	1,708	192	190	4,090	261	5,524
5	261	-	-	522	2,883	3,666	2,000	702	261	261	3,224	442	6,343
6	442	-	-	507	3,311	4,260	2,000	1,097	254	253	3,604	656	6,129
7	656	-	-	490	3,289	4,435	2,000	1,300	245	245	3,790	645	6,165
8	645	-	-	491	3,238	4,374	2,000	1,264	246	245	3,755	619	6,166
9	619	-	-	494	3,202	4,315	2,000	1,220	247	247	3,714	601	6,184
10	601	-	-	495	3,091	4,187	2,000	1,146	243	247	3,641	546	6,239
11	546	-	-	499	3,221	4,266	2,000	1,156	250	249	3,655	611	6,174
12	611	-	-	494	3,232	4,337	2,000	1,227	247	247	3,721	616	6,169
13	616	-	-	494	3,196	4,306	2,000	1,214	247	247	3,758	598	6,187
14	598	-	-	495	3,187	4,280	2,000	1,191	243	247	3,684	594	6,191
15	594	-	-	495	3,184	4,273	2,000	1,186	243	247	3,681	592	6,193
16	592	-	-	496	3,194	4,282	2,000	1,189	243	248	3,695	597	6,188
17	597	-	-	495	3,202	4,294	2,000	1,198	243	247	3,693	601	6,184
18	601	-	-	495	3,192	4,283	2,000	1,197	244	247	3,692	596	6,189
19	596	-	-	495	3,191	4,282	2,000	1,191	243	247	3,686	596	6,189
20	596	-	-	495	3,192	4,283	2,000	1,192	243	247	3,687	596	6,189

TABLE No. 5

AVERAGE NUMBER OF SUBLOANS BY TYPE

(One Farm Plan Per Medium Term Credit)

<u>YEAR</u>	<u>SHORT TERM CREDIT</u>		<u>MEDIUM TERM CREDIT</u>	
	<u>By Year</u>	<u>Cumulative</u>	<u>By Year</u>	<u>Cumulative</u>
1	650	650	654	654
2	1,750	2,400	1,083	1,737
3	2,874	5,274	1,207	2,944
4	4,000	9,274	1,423	4,367
5	4,000	13,274	585	4,952
6	4,000	17,274	914	5,866
7	4,000	21,274	1,083	6,949
8	4,000	25,274	1,053	8,002
9	4,000	29,274	1,017	9,019
10	4,000	33,274	955	9,974
11	4,000	37,274	963	10,937
12	4,000	41,274	1,023	11,960
13	4,000	45,274	1,012	12,972
14	4,000	49,274	993	13,965
15	4,000	53,274	988	14,953
16	4,000	57,274	991	15,944
17	4,000	61,274	998	16,942
18	4,000	65,274	998	17,940
19	4,000	69,274	993	18,933
20	4,000	73,274	993	19,926

NOTE: Average number of subloans obtained from Cash -Flow.
 Sub-loan amounts divided by \$500 for short term subloans and
 \$1,200 for medium term subloans.

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D. Financial Feasibility

A summary of selected data collected and revised by the Academia of Central America (from the MAG 1973 census) in Poverty in Costa Rica appears as Table 1. This summary includes only the poor farmers in the 5 Project target areas. Poor farmers are defined as those owning less than 20 hectares of land and having per capita incomes of less than \$150 per year (1969 prices).

The summary shows per capita net annual cash income for the poor farm families is nil. Even imputing family labor, housing and consumption income, these farmers appear to lead an extremely marginal existence. It is expected, therefore, that any increase in cash incomes of farm production will have a large effect on these farm families.

Table 2 projects increased net cash income to the average farm as a result of Project inputs. These cash income figures reflect the maximum that could be expected from a 7 hectare farm (assumed to be the average size farm participating in the project).

As shown on Table 3, Project Net Cash Flows, target farms will have a return on total capital employed of 19%, even at 50% efficiency. This calculation considers interest paid as a cost of producing the farm income; therefore, the farmer can expect all of this substantial return as cash income to himself and his family.

Total Project investment, including non-reimbursed T/A, training and research, was used to compute rates of return. However the individual farmer should actually enjoy an even higher rate of return on his cash investments.

SUMMARY OF FARM DATATABLE No. 1ALL 5 TARGET AREAS

Converted to U.S. \$ at 8.50

PROVINCE	NUMBER OF FARMS	OFF-FARM WAGE OUT INCOME	GROSS FARM SALES	TOTAL COSTS	NET FARM INCOME	TOTAL CASH NET INCOME	AVERAGE FAMILY SIZE	PER CAPITA (CASH NET INCOME)
Alajuela	493	23	511	536	(25)	(2)	6.6	---
San José	1,229	49	964	1,266	(302)	(253)	6.6	(38)
Cartago	718	53	764	639	125	178	7.0	25
Puntarenas	3,144	32	799	800	(1)	31	6.9	4
Guaracaste	683	40	788	878	(90)	(50)	7.1	(7)
WEIGHTED AVERAGES	6,247	38	804	861	(57)	(19)	6.8	(3)

Notes:

- 1) Source: 1973 GOCR census as adjusted by La Academia de Centro América.
- 2) Data includes only farms which meet the following target criteria:
 - a) Per capita annual income of less than \$ 150.
 - b) Farm size - 1 hectare to 20 hectares.

TABLE 2
COMPUTATION OF TOTAL ANNUAL NET FARM INCOME
For Typical Farm Size of 7 Hectares

Year	Annual Increase in Farm Cash Income 1/	Annual Total Farm Cash Income 2/	Additional Farmers in Project 3/			
			654 Year 1	1,083 Year 2	1,207 Year 3	1,423 Year 4
1	24	16	16	26	29	34
2	184	146	120	199	222	262
3	314	433	205	340	379	447
4	542	950	354	587	654	771
5	1,108	1,953	725	1,200	1,337	1,577
6	1,414	3,226	925	1,531	1,707	2,012
7	1,832	4,837	1,198	1,984	2,211	2,606
8	1,925	6,527	1,259	2,085	2,323	2,739
9	1,925	7,567	1,259	2,085	2,323	2,739
10	1,925	8,273	1,259	2,085	2,323	2,739
11	1,925	8,406	1,259	2,085	2,323	2,739
12	1,925	8,406	1,259	2,085	2,323	2,739
13	1,925	8,406	1,259	2,085	2,323	2,739
14	1,925	8,406	1,259	2,085	2,323	2,739
15	1,925	8,406	1,259	2,085	2,323	2,739
16	1,925	8,406	1,259	2,085	2,323	2,739
17	1,925	8,406	1,259	2,085	2,323	2,739
18	1,925	8,406	1,259	2,085	2,323	2,739
19	1,925	8,406	1,259	2,085	2,323	2,739
20	1,925	8,406	1,259	2,085	2,323	2,739

1/ From Computation of Net Cash Increases Table (In US \$)

2/ In US \$000.

3/ From Revolving Fund Cash Flow (In US \$000)

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TABLE 3

PROJECT NET CASH FLOW ASSUMPTIONS

1. The 7 hectare model farm which appears in Table 5 represents the maximum output which can be expected from the inputs provided by this project.
2. This 7 hectare model farm will be the average type of farm to participate in the project, both in farm size and in product mix.
3. The number of farms participating in the project will be 4,367 during the AID Loan Disbursement period (four years). While there will be replication of the benefits of the project to other farmers after the four year period, there will be additional costs to the GOCR and these are not considered in the computation of the financial rate of return to this Project.
4. Net Cash Flows reduced by 25% and 50% are also computed to indicate the Financial Internal rates of return to the Project, since maximum efficiency is unlikely.

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TABLE No. 3

PROJECT NET CASH FLOWS
(US \$000)

Year	Investment	Increase in Farm Income			Net Cash Flows		
		Maximum	75% Efficiency	50% Efficiency	Maximum	75% Efficiency	50% Efficiency
1	2,056	16	12	8	(2,140)	(2,044)	(2,048)
2	2,979	146	110	73	(2,833)	(2,869)	(2,906)
3	2,996	433	325	216	(2,563)	(2,671)	(2,780)
4	2,969	950	712	475	(2,019)	(2,257)	(2,494)
5	-	1,953	1,465	976	1,953	1,465	976
6	-	3,226	2,419	1,613	3,226	2,419	1,613
7	-	4,837	3,628	2,418	4,837	3,628	2,418
8	-	6,527	4,895	3,263	6,527	4,895	3,263
9	-	7,567	5,675	3,783	7,567	5,675	3,783
10	-	8,273	6,205	4,136	8,273	6,205	4,136
11	-	8,406	6,305	4,203	8,406	6,305	4,203
12	-	8,406	6,305	4,203	8,406	6,305	4,203
13	-	8,406	6,305	4,203	8,406	6,305	4,203
14	-	8,406	6,305	4,203	8,406	6,305	4,203
15	-	8,406	6,305	4,203	8,406	6,305	4,203
16	-	8,406	6,305	4,203	8,406	6,305	4,203
17	-	8,406	6,305	4,203	8,406	6,305	4,203
18	-	8,406	6,305	4,203	8,406	6,305	4,203
19	-	8,406	6,305	4,203	8,406	6,305	4,203
20	-	8,406	6,305	4,203	8,406	6,305	4,203

Financial Internal Rates of Return

32.1% 26.5% 19.7%

COMPUTATION OF NET CASH INCREASES
For Typical Farm Size of 7 Hectares
(US\$)

TABLE 4

	<u>Corn</u>	<u>Beans</u>	<u>Coffee, Pejivaye Platano, Banano</u>	<u>Fruit</u>	<u>Vegetables</u>	<u>Macadamia</u>	<u>Pasture</u>	<u>Forest</u>	<u>Debt Services Costs</u>	<u>Net Annual Farm Cash Income</u>	<u>increase in Annual Farms Cash Income</u>
Present Net Cash Generated	168	141	441	24	-	-	435	59	-	1,268	-
Project											
Year 1	174	216	441	24	76	-	435	62	(136)	1,292	24
Year 2	180	291	441	24	152	-	435	65	(136)	1,452	184
Year 3	185	365	441	36	229	-	694	68	(436)	1,582	314
Year 4	185	365	630	48	229	-	694	71	(412)	1,810	542
Year 5	185	365	819	60	229	82	953	71	(388)	2,376	1,108
Year 6	185	365	1,007	72	229	164	953	71	(364)	2,682	1,414
Year 7	185	365	1,007	84	229	246	953	71	(40)	3,100	1,832
Year 8	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 9	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 10	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 11	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 12	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 13	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 14	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 15	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 16	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 17	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 18	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 19	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925
Year 20	185	365	1,007	94	229	329	953	71	(40)	3,193	1,925

Two representative farm models were developed to illustrate the possible impact of this Project on target farms. The two models were developed to represent target farms in the Cartago area, drawing on the experience and judgment of Dr. David Johnston, Agricultural Economist at CATIE, Turrialba, supplemented by data available to the AID Mission on production costs and returns. The farm models represent typical farm organizations of low income farm families in this area, with which Johnston is familiar. The farm organization plans then were redrawn to produce a higher value return from the land, labor and capital.

The budgets represent projected income from the new production plan after the farmer has had a chance to put into operation a higher level of technology than he now uses. For example, yields on corn, beans, and coffee were raised through the use of better cereal seeds, fertilizer and spraying, affecting both income and expenditures. Also, the cost and returns of fruits and vegetables reflect delayed effects after the new plantings are in production and the start-up costs have been amortized.

It is estimated that a typical family of 7 would have sufficient family labor to meet all the labor requirements on the reorganized 3 hectare farm. It was not calculated whether time would also be available by the family for off-farm employment. Hired labor for planting and harvesting the vegetables and harvesting the coffee is included in the reorganized farm plan for the 7 hectare farm.

Low income families in the 10 to 20 ha. farm size target group would need to make more use of idle land and expand cattle activities -- a low labor requirements enterprise -- or shift to dairy, which uses more labor, or expand the tree crops (mainly fruits or nuts). The latter two choices would usually be the more profitable ones for the farmer, as well as promote more employment for the non-farm poor.

These models indicate that it is economically profitable for low income families on the smaller farms to reorganize their farm organization plans, assuming that (1) they are given technical farm management guidance in the process; (2) they receive necessary help in increasing levels of production technology; and (3) they receive sufficient credit.

TABLE 5
COMPARISON OF TRADITIONAL/NON-TRADITIONAL ENTERPRISES

7 Ha. Farm Traditional

<u>Crops</u>	<u>Ha.</u>	<u>Yield</u>	<u>Price</u>	<u>Sales</u>	<u>Non Labor Production Expense</u>	<u>Family Income</u>
Corn	1.75	15.00	62	1,627.50	200	1,427.50
Beans	0.50	14.00	200	1,400.00	200	1,200.00
Coffee	0.30	13.50	1,000	4,050.00	300	3,750.00
Pasture	3.00	3.00 au 1/	2,000	4,000.00	300	3,700.00
Other	0.95	-	-	-	-	-
Fruit	0.10	-	-	200.00	-	200.00
Forest	<u>0.40</u>	-	-	<u>600.00</u>	<u>100</u>	<u>500.00</u>
TOTAL	7.00			11,877.50	1,100	10,777.50 2/

1/ Based on two poor cows, poor management.

2/ Average per capita income (7 family members) \$180, 1977 prices (below \$150, 1969 prices).

7 Ha. Farm Modern Technology and Farm Plan Assistance
8th Year of Production 7/

Corn	1.5	25.00	62	2,325.00	750	1,575.00
Beans	1.0	18.00	200	3,600.00	500	3,100.00
Coffee 1/	0.3	22.50 F	1,000	6,750.00	600	6,150.00
Pejibaye 1/	-	108.7 qq	70	2,283.00	- 3/	2,283.00
Platano 17	-	36.0 R	7	75.00	- 3/	75.00
Banana 17	-	36.0 R	5	54.00	- 3/	54.00
Pasture	3.0	5.0 au 4/	4,340	21,700.00	13,596 5/	8,104.00
Other	0.1	-	-	-	-	-
Fruit	0.3	-	-	1,000.00	200	800.00
Forest	0.4	-	-	700.00	100	600.00
Vegetables 2/	0.2	-	-	2,300.00	350	1,950.00
Macadamia	<u>0.2</u>	100.0 qq	170	<u>3,400.00</u>	<u>600</u>	<u>2,800.00</u>
TOTAL	7.0			44,187.00	16,696 6/	27,491.00

1/ Improved coffee interplanted with pejibaye, platano, banana.

2/ Average of seven vegetable crops.

3/ Costs included in coffee due to interplanting.

4/ Five good quality cows, good management, improved pasture: selling milk and calves.

5/ Includes one hired laborer.

6/ Nature of dairy enterprise allows daily income. Short term production credit assumed to be \$500 outstanding throughout year.

7/ In 8th year medium term credit (\$1,200 in this model) has been fully amortized.

TABLE 6
COMPARISON OF TRADITIONAL/NON-TRADITIONAL ENTERPRISES

3 Ha. Farm-Traditional

<u>Crops</u>	<u>Ha.</u>	<u>Yield</u>	<u>Price</u>	<u>Sales</u>	<u>Non Labor Production Expense</u>	<u>Family Income</u>
Corn	1.75	15.00	62	1,627.50	200	1,427.50
Beans	0.25	14.00	200	700.00	100	600.00
Coffee	0.20	13.50	1,000	2,700.00	200	2,500.00
Pasture	0.40	2.00 au	2,000	1,600.00	100	1,500.00
Other	0.30	-	-	-	-	-
Forest	<u>0.10</u>	-	-	-	-	-
TOTAL	3.00			6,627.50	600	6,027.50

3 Ha. Farm-Modern Technology and Farm Plan Assistance
8th Year of Production

Corn	1.5	25.00	62	2,325.00	750	1,575.00
Beans	0.5	18.00	200	1,800.00	250	1,550.00
Coffee <u>1/</u>	0.2	22.5 f	1,000	4,500.00	400	4,100.00
Pejibaye <u>1/</u>	-	108.7 qq	70	1,522.00	- <u>2/</u>	1,522.00
Platano <u>1/</u>	-	36.0 r	7	50.00	- <u>2/</u>	50.00
Banana <u>1/</u>	-	36.0 r	5	36.00	- <u>2/</u>	36.00
Pasture	0.4	3.0 au	2,500	3,000.00	300	2,700.00
Other	0.1	-	-	-	-	-
Forest	0.1	-	-	150.00	-	150.00
Macadamia	<u>0.2</u>	100.0 qq	170	<u>3,400.00</u>	600	<u>2,800.00</u>
TOTAL	3.0			16,785.00	2,300	14,483.00

1/ Improved coffee interplanted with pejibaye, platano, banana.
2/ Costs included in coffee due to interplanting.

TABLE 7
PER HECTARE COST OF PRODUCTION AND FAMILY INCOME DATA

CROP	YIELD	UNIT	PRICE	UNIT	GROSS SALES	NON LABOR PRODUCTION EXPENSE	FAMILY INCOME
Corn (traditional)	15.00	qq.	62.00	qq.	930.00	100.00	830.00
Corn (improved tech.)	30.000	qq.	62.00	qq.	1,860.00	500.00	1,360.00
Beans (traditional)	14.00	qq.	200.00	qq.	2,800.00	100.00	2,700.00
Beans (improved tech.)	20.00	qq.	200.00	qq.	4,000.00	500.00	3,500.00
Coffee (traditional)	13.5	Fanegas	1,000.00	Fanega	13,500.00	1,000.00	12,500.00
Coffee (improved Tech.)	22.5	Fanegas	1,000.00	Fanega	22,500.00	2,000.00	20,500.00
Macademia (improved technology)	100.00	qq. nuts	170.00	qq.	17,080.00	3,000.00	14,080.00
Coffee Intercrop	22.50	Fanegas	1,000.00	Fanega	22,500.00		
Pejibaye Improved	108.70	qq.	70.00	qq.	7,609.00		
Platano Technology	36.00	Racimos	7.00	Racimo	252.00		
Banano	36.00	Racimos	5.00	Racimo	180.00		
Coliflower	22,500.00	lbs.	0.20	lb.	4,500.00	750.00	3,750.00
Cabbage	325.00	qq.	20.00	qq.	6,500.00	1,000.00	5,500.00
Onions	500.00	qq.	32.00	qq.	16,000.00	4,500.00	11,500.00
Potatoes	24.50	Cargas	800.00	Carga	19,600.00	11,000.00	8,600.00
Beets	43,000.00	Unidad	0.20	Unidad	8,600.00	1,175.00	7,425.00
Tomato	400.00	qq.	40.00	qq.	16,000.00	2,500.00	13,500.00
Carrots	360.00	qq.	25.00	qq.	9,000.00	1,400.00	7,600.00
Average					11,457.14	1,775.00	8,267.86

The cost and return data used here are based upon material from: La Academia de Centro América; Banco Crédito Agrícola de Cartago; Cost of Production Studies by Ministry of Agriculture; Feasibility of Macademia NUT Production as a Small Farmer Crop in Costa Rica, AID/Costa Rica; Report on Feasibility of Small Low Income Farmer Fruit and Vegetable Production, AID/CR; and data supplied by Dr. David Johnston, CATIE, Turrialba. Because the sources represent differing dates, all prices and costs were adjusted as nearly as possible to reflect 1976 levels.

TABLE 8
1973 CENSUS FOR ALL COSTA RICA

<u>VEGETABLE</u>	<u>TOTAL Ha.</u>	<u>IRRIGATED Ha.</u>	<u>NON-IRRIGATED Ha.</u>
CAMOTE	109	0	109
PAPA 1a.	1403	414	989
PAPA 2a.	598		184
AJO	10	0	10
CEBOLLA	331	177	154
REPOLLO	299	99	200
LICHIUGA	49	49	0
REMOLACHA	46	35	11
ZANAHORIA	112	0	112
TOTAL	2948	775	2173

If 4000 small farmers all added 0.05 Ha. of vegetables to their existing systems, Costa Rica would have an additional 200 Ha. of vegetables (7% increase in Production). Production may be able to increase by 10-15 % without causing substantial price reductions but it could not increase 20-25 % without price reductions.

VI. IMPLEMENTATION PLAN

A. Negotiations, Agreements, Conditions and Covenants

It is expected that the Loan will be authorized in September 1977. Given the strong interest in this Project within the MAG, SBN, and highest Goals of the GOCR, negotiation and signature of the Loan Agreement may be carried out before the end of November; and, if the present administration considers this a top-priority item for Congressional consideration, the Agreement could be ratified by year-end.

With the ratification hurdle cleared, the MAG and SBN may be able to meet the various Condition Precedents early in 1978.

These Conditions include the usual boilerplate plus:

1. As a Condition Precedent to the Initial Disbursement of Loan Funds the Borrower will establish within the Ministry of Agriculture a Systems Committee with authority and responsibility to administer the Project; and a Marketing Unit to provide a broad range of marketing information and technology to farmers throughout Costa Rica, with particular emphasis on the needs of the smaller farmers.
2. As a Condition Precedent to the Initial Disbursement of Loan Funds to Finance Credit Operations, the Borrower: (a) will furnish A.I.D. with a statement of the policy the Sistema Bancario Nacional will use in providing short and medium-term credit to farmers participating in this Project; and (b) will confirm that Sistema Bancario Nacional resources equivalent to \$2,000,000 for short-term lending and \$2,285,000 for medium-term lending will be contributed to the credit fund within this Project as part of the Borrower counterpart.
3. The Borrower shall covenant, for a mutually agreed period extending beyond the final disbursement of the Loan, to maintain:
 - (1) the level of the credit fund at the total amount of Loan and counterpart drawn down during the term of the Project, through periodic replenishment of funds; and, if the utility and acceptance of the systems approach is established in the Project,
 - (2) the training, farm management, and research activities at the level achieved in the last year of the Project.

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B. Procurement and Disbursement

1. Procurement

Dollar cost will include equipment, materials, training and services. Local currency procurement will be for goods and services readily available in Costa Rica such as seeds, trees, budwood, rootstocks, tubers, roots, cuttings and other materials. Goods and services will be procured under this Project in compliance with applicable AID procurement procedures.

2. Disbursement

The existing GOCR financial management system, established and required by law, was designed to provide maximum control and thus prevent misuse of funds. It is not an obstacle to large capital projects with long lead times. However, a system with greater flexibility and more rapid response capability is necessary for the type of projects AID usually finances, e.g., provision of assistance and services to small farmers when and where they are needed. The formal financial management system cannot cope with the flow of new plans being cranked out by the planners, even less such fundamentals as planting seasons and weather conditions. In this Project we expect the Systems Committee to overcome these problems. A precedent exists in OCIS, an appendage of the Ministry of Health, created by decree to permit rapid disbursement of funds for special requirements. The legal rationale for OCIS is that the Health Ministry frequently must deal with emergency situations, and therefore requires a more flexible financial system than that provided by the Law of Financial Administration. We will consult with the GOCR to see if an analog to OCIS could be created for this Project, and expect the statement of the Systems Committee's responsibilities and authority to include the control and disbursement of Project funds. This will have to be handled with some delicacy, however, because the Government would not wish to invite criticism that it is seeking to circumvent its financial management law, which Costa Ricans consider protection against waste and corruption.

AID funds will be disbursed through the Systems Committee via the usual mechanisms -- reimbursements to the GOCR,

direct payments, Letters of Commitment -- with the customary certifications. Advances of Loan funds for up to 90 days' Project needs can be authorized.

C. Monitoring and Reporting

1. USAID Monitoring

The USAID Rural Development office will have primary responsibility for monitoring the project's implementation, assisted by the Capital Development Office and the Controller. Officers from each of these divisions will review procurement proposals, plans and specifications for commodity procurement, training and technical assistance. Monthly project status meetings will be held to discuss progress, and to track compliance with the provisions and purposes of the Loan Agreement.

2. GOCR Monitoring

Performance will be monitored through quarterly reports drawn up by the Systems Committee on the basis of data furnished by the participating entities. These will contain information regarding the progress toward completion of design and implementation of farm plans. In addition, monthly information reported by the CARs will be summarized by MAG and included in the quarterly reports.

3. Reporting

The MAG will receive Monthly progress reports on field operations from each CAR, and the Systems Committee will provide Quarterly reports to AID on all Project activities.

Quarterly Shipping Reports also will be provided by the Systems Committee.

4. Audit and Evaluation Schedule

a. Audit

AAG Audits will be requested late in the second year of the Project, when all Loan-funded elements are underway; and early in the fourth year, when substantial progress should have been achieved

in all elements and the Terminal Date for Disbursement is within sight.

b. Evaluation

phases:

Project Evaluation will take place in three

Design and Baseline Survey - Early 1978

This will involve the drawing up of an overall detailed Evaluation Plan and the collection of baseline data for farm, family, and institutional level performance indicators.

Interim Surveys - Years 2 and 3

Project impact surveys based on 500 interviews.

Final Evaluation - End of Year 4

End of Project impact survey, including Estimates of probable incomes from longer term crops.

The scope and estimated costs of this Evaluation schedule are presented in Section VII.

VII. EVALUATION PLAN

Because this Project is concerned with the development of new integrated cropping systems, product diversification, marketing, and processing, all of which are crucial activities in improving the incomes of rural poor and which will be expanded in future sector programs, detailed evaluations of these pilot activities will be done. Much of the Evaluation Plan will be developed with OPISA as part of the Project, although this preliminary Plan will establish measurable indicators of performance, outline the data required to quantify these indicators, and elaborate a data gathering procedure.

A. Measurable Indicators of Project Performance

Measurable indicators of performance may be divided into two categories, impact at the farm or family level and at the institutional level.

1. Farm and Family Level Performance Indicators

At the family or farm level three objectives or measurable indicators of performance are suggested by the log frame:

- a. Increase the net income of the rural poor
- b. Increase employment
- c. Increase the profitability and productivity of small farmer enterprises.

a. In order to measure increased net income, baseline incomes of both project participants and a control group will be determined through a survey and then re-estimated after the 2nd, 3rd, and 4th years of project implementation. In addition, an analytical effort will be made to determine the farm level changes associated with or responsible for the changes in income. These causative factors will be related to the principal segments of the Project in order to determine the apparent contribution of Project activities. Changes in income will be evaluated against such factors as:

- Increased land in cultivation or increased number of animals in production (including inter-cropping, etc.)
- Increased yields per ha. or animal in production
- Cultivation of increased proportion of high value crops (crop mix change)
- Cost minimization
- Obtaining increased unit prices for products or decreasing unit prices for inputs
- Changing on-farm processing or off-farm income sources.

An attempt will be made to identify which of these factors is responsible for what proportion of the income change observed.

One of the principal evaluation problems is the time frame in which farm level income benefits can be expected to appear. Much of the Project is centered on introducing higher value crops which take from 2-8 years to mature, with medium term credit provided to carry the farmer during this gestation period. Surveys of participants during the 2nd, 3rd, and 4th years of disbursement will capture some of these benefits, and a disproportionately high share of the costs.

To overcome this defect, the final evaluation survey will estimate the quantity of long term tree stock which is planted and progressing satisfactorily in each farm in the sample. Estimates from farms with similar crops in current production will be used to project the expected income benefit in the farms where these same crops are only in the formation stage.

b. Employment impact will be measured by the number of person days of employment generated in participant farms in comparison (1) to pre-project employment generated by these same farms and (2) to the control group. An attempt will be made to determine what portion of this added employment accrues to landless poor (non-farm) families. Off-farm employment will also be estimated.

c. Profitability and productivity are per unit concepts measuring efficiency and are shown in the form of ratios. Profitability ratios have net income or profits in the numerator, and productivity ratios have gross value of product in the numerator. The denominators for these ratios should measure investment: arable land and capital in Costa Rica. Four ratios will be used to measure increased profitability and productivity:

- Land Profitability (net profits per ha. of arable land)
- Capital Profitability (net profits per ¢ of capital)
- Land Productivity (gross value of output per ha. of arable land)
- Capital Productivity (gross value of output per ¢ of capital).

Changes in profitability and productivity will be estimated by comparing the project participants during and at project completion with their pre-project performance and with the performance of the control group.

2. Institutional Level Performance Indicators

There are two overall institutional objectives which may be difficult to quantify: to improve the coordination between various rural sector entities and to create in the Ministry of Agriculture a "systems approach" to rural development which focuses on marketing and processing as well as production. Beneath these broad objectives are a series of specific sub-objectives which can to some degree be measured in the evaluation.

a. The evaluation will measure the degree to which technical assistance effectively introduces a higher value mix of crops on small farms and the degree to which farm plans and technical advice are used as a basis for providing credit. The relationship between the amount of technical assistance and changes in income and productivity will be analyzed.

b. The number of target farms given short and medium term credit and the rapidity with which the institutions are able to create and service the demand for credit will be used as

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institutional performance criteria. The number of farmers served and the amount of credit disbursed per colon of institutional overhead cost will be used as a measure of the internal efficiency of the credit system. Most of the credit is to be medium term and it is impossible therefore to calculate recuperation rates in the time frame of the early evaluation. Delinquency rates should nonetheless be computed on the short term credit as an institutional performance measure.

c. The effectiveness of the proposed marketing unit in MAG in obtaining qualified personnel, in conducting relevant studies, and in producing and distributing market and prices news will be used as measures of institutional performance.

d. The amount of credit actually provided for marketing and processing activities, the institutional overhead cost of extending the credit, and the recuperation rates will be used as additional performance indicators.

e. The number of technicians and farmers trained and the relevance of research undertaken will be the principal evaluation indicators for assessing performance of this sub-part of the project.

B. Data Requirements and Data Gathering Procedures for Evaluation

1. Measuring Farm and Family Level Impacts

Since the project goal is to improve target group incomes, no satisfactory evaluation can be done without direct field measurement of net farm and family income. If members of the target group were principally wage earners, it would be easy to estimate income through a simple survey and abbreviated questionnaire aimed at determining salary or wage rates and amount of time employed. Unfortunately, many of the target group are small farmers whose incomes come from the sale of products. Thus in order to estimate net income of a small farmer, it is necessary to estimate his expenses as well as his sales or production. In addition, it is necessary to estimate the volume of home produced consumption since this may be an important real income source for target farmers. Farm level accounts must be obtained and analyzed in order to perform an acceptable evaluation. Surveys of approximately 100 farms in each of the five selected regions will be conducted at the beginning of the Project in order to obtain baseline data. After the

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second and third years of disbursement and upon completion of the Project, follow-up surveys will be done. In order to avoid duplication of effort and cost, these surveys will be coordinated with the farm planning activities contemplated under the Loan. The exact structure of the sample and the questionnaire, as well as the design of the data processing procedures required to arrive at final results, will be designed in collaboration with host country officials.

2. Institutional Performance Data

The information required to evaluate institutional performance is almost identical to that which is required to monitor project implementation. A detailed outline of the accounting and implementation information required for both monitoring and evaluation purposes will be drawn up with MAG officials prior to loan disbursement, probably with the use of grant-funded contractors and Mission personnel. This reporting system will assist in monitoring and evaluating the project, as well as be an instrumental part of improving management in the participating organizations. It should be viewed therefore as a technical assistance activity in its own right.

C. Budget and Manpower Requirements of Evaluation

The Evaluation process is integrally related to the development of farm plans and to the institutional development of participating entities. It is difficult to separate the costs of evaluation from these other activities since the data for measuring farm level impact is generated in part by the farm plant component of the project and the data for institutional evaluation originates in the improved reporting and project monitoring system. Technical assistance to the evaluation processes should be viewed as a part of the overall technical assistance package to MAG.

Budget and Manpower requirements for the evaluation of this Project are as follows:

Pre-Project Baseline Survey (funded through Technical Support)

1.	Design and Field Test Phase (Dec. 77-Feb. 78)	
a.	Sample design, 5 pm tech. assistance	\$ 4,000
b.	Questionnaire Design and Farm Records Planning for Farm Plans, 1.0 pm	7,000
c.	Interviewer & Supervisor Training, 0.5 pm	4,000
d.	Development of Interviewer & Supervisor Manuals, .5 pm	4,000
e.	Misc. Costs (printing manuals & questionnaires, maps, etc.)	3,000
2.	Survey Field Work and Field Revision & Codification (March-April 78) 500 observations at \$30 total cost per observation, of which approximately \$14 is associated with travel and per diem cost of interviewers (10) and field supervisor/coders. Salary costs of these local Extension personnel would be covered outside this project	\$ 7,000
	(Data from baseline survey would be coded but not processed pending the availability of loan funds.)	
	Total Baseline Survey and Evaluation	<u>\$29,000</u>

First Year - no survey or costs

The Mission will conduct an in-house evaluation of initial project implementation.

Second Year - First Annual Project Impact Survey

1.	Sample Update and Questionnaire Modifications and Interviewer Training	\$ 1,000
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2.	Survey:	
	a.	Field Work & Coding 500 observations as \$14 per observation for travel & per diem
		\$ 7,000
	b.	Questionnaire reprintings and misc.
		1,000
3.	a.	Data entry and machine edit (excluding programming)
		6,000
	b.	Programming (one time cost)
		8,000
4.	Data Processing and Statistical Analysis	
	a.	Economist Tech. Assistance, 2 pm
		7,000
	b.	Data Processing Costs
		4,000
	Total Evaluation Cost 2nd Year	
	(Including one time programming costs)	
		<u>\$34,000</u>

Third Year - Second Annual Project Impact Survey

(Costs identical to second year minus one time programming costs of \$8,000 plus minor programming alterations of \$1,000) (\$34,000 - \$8,000 + \$1,000 = \$27,000)

\$27,000

Fourth Year - Third Annual Project Impact Survey and Final Evaluation Analysis

1.	Identical Costs to third year	\$27,000
2.	Additional Analysis for Final Evaluation, 1 pm	4,000
3.	Additional Data Processing Costs	3,000
	Total Fourth Year Evaluation Costs	<u>\$34,000</u>

<u>Budget Summary for Evaluation</u>	<u>Non-Project TA Funds</u>	<u>Loan Funds</u>	<u>Total</u>
Design and Baseline Survey	\$29,000		\$ 29,000
First Project Year	0		0
Second Project Year	0	\$34,000	34,000
Third Project Year	0	27,000	27,000
Fourth Project Year	0	34,000	34,000
TOTALS ALL YEARS	\$29,000	\$95,000	\$124,000

PROJECT TITLE: **Complexity Systems**

Project Title: **Complexity Systems**

Life of Project: **78** to FY **81**
 From **78** to FY **81**
 Total Project Funding: **\$5,500,000**
 Date Prepared: **8/21/77**

ANNEX 1
 Page 1 of 7

NARRATIVE SUMMARY	OBJECTIVELY MEASURABLE INDICATORS	BASIS OF VERIFICATION	ASSUMPTIONS
<p>Program or System Goal: The broader objective to which this project contributes: (A-1)</p> <p>Goal: To increase incomes of rural poor</p> <p>Sub-Goals:</p> <p>(1) To increase the profitability of small farm enterprises.</p> <p>(2) To increase employment opportunities in rural areas.</p>	<p>Measures of Goal Achievement: (A-2)</p> <p>At least 50 percent of the participating small farmers and non-farm poor will have incomes over the poverty line (\$150 p.c. income in 1969 prices) within 10 years. <u>1/</u></p> <p>(1) Participating small farmers will have increased real profits of 25% within 10 years.</p> <p>(2) Agricultural employment on participating farms will increase to near full employment for family members. Additional employment for 4,000 non-farm poor will have been created within 10 years.</p> <p><u>1/</u> AID poverty benchmark of \$150 per capita at 1969 prices.</p>	<p>(A-3)</p> <p>Analysis of End of Project Evaluation Reports as compared to Baseline Studies, Use of Census Data or Special Evaluations.</p>	<p>Assumptions for achieving goal targets: (A-4)</p> <p>That drastic worldwide or local internal disorders of economic, political or social nature do not occur within 10 years.</p> <p>The credit, technical assistance and other incentives included in the MAG program are adequate to motivate farmers and their families to participate</p> <p>That natural disorders do not occur.</p>

ARC 100-10 (11-72)

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: _____
From FY _____ to FY _____
Form No. _____
Date Revised: _____

Project Title & Number: _____

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Purpose: (B-1)</p> <p>Purpose: To install an integrated commodity systems approach into the Ministry of Agriculture's development program.</p>	<p>Conditions that will indicate purpose has been achieved: End-of-Project status. (B-2)</p> <p>(1) MAG will be implementing programs that identify and alleviate vertical and horizontal commodity systems constraints on high-values, high-yielding traditional and non-traditional crops produced by small farmers.</p> <p>(2) Substantial modifications will have been made in farm management, long-term cropping patterns, marketing practices and participation in processing activities of 4,000 small farmer enterprises.</p> <p>(3) Individual and group lending for medium term credit on medium/long term enterprises with supportive short-term production lending as needed, both of which are based on farm plans, will have been instituted in five regions in Costa Rica.</p> <p>(4) Improved coordination and cooperation of national and regional organizations in the conduct of agricultural development programs as reflected by research responsive to needs identified by CAR's; banking system providing credit requirements identified by CAR's; and marketing information flowing between CAR's and Marketing Unit.</p>	<p>(B-3)</p> <p>(1) Annual and final Evaluation of the Project employing a Base-line study.</p> <p>(2) Annual reports of MAG.</p> <p>(3) Monthly Reports of CAR Directors.</p> <p>(4) Contractor Reports</p> <p>(5) Project day to day monitoring.</p> <p>(6) Agricultural Census Data of 1983 and related special studies.</p>	<p>PAGE 2</p> <p>Assumptions for achieving purpose: (B-4)</p> <p>(1) That the elected Government of Costa Rica after 1978 continues to support the planned program with adequate levels of resources.</p> <p>(2) That MAG efforts with their small farmer clients will be effectively linked to the planned central whole-sale market activities of IPAM near San Jose.</p>

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SUPPLEMENT 1

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: _____
From FY _____ to FY _____
Total U.S. Funding: _____
Date Prepared: _____

PAGE 3

OPERATIVE SUMMARY	OBJECTIVE AND MEASURABLE INDICATORS	MEANS OF IMPLEMENTATION	IMPORTANT ASSUMPTIONS
Project Outputs: (C-1)	Magnitude of Output (C-2)	(C-3)	Assumptions for achieving outputs: (C-4)
<p>A. MAG Training Component</p> <p>1. Systems Committee established within MAG and administrative system designed.</p> <p>2. Marketing technology Unit formed within MAG and system designed focussing on resolution of marketing and processing constraints to small farmer crop development.</p> <p>3. Surveys following up baseline study.</p> <p>4. MAG employees trained.</p>	<p>1. By end of year 1.</p> <p>2. By end of year 1.</p> <p>3. End of years 2, 3, and 4.</p> <p>4. a. 200 for period of 50 days each in six or more subject matters.</p> <p>b. 10 MSc level in production, marketing, processing, and related subjects.</p> <p>c. 20 BSc level in production, marketing, processing, and related subjects.</p> <p>d. Four special training contracts with Costa Rican or foreign organizations to provide training to 200 MAG employees.</p>	<p>1. Day to day project monitoring.</p> <p>2. CAR monthly reports.</p> <p>3. Annual Project Evaluations.</p> <p>4. Final Project Evaluation employing baseline study data.</p> <p>5. Contractor Reports</p> <p>6. Reports of SEN and Banco Nacional</p>	<p>1. That appropriate and economical technology can be developed for solving production, marketing and processing problems of small farmers.</p> <p>2. That adequate success be achieved in establishing linkages with private enterprises to assure their involvement in processing and marketing of small farmer products.</p> <p>3. That GOCR domestic price policies will not disfavor small farm producers.</p>

PROJECT DESIGN SURVEY
LOGICAL FRAMEWORK

Life of Project:
From FY _____ to FY _____
Total U.S. Funding _____
Cost Permitted _____

RELATIVE PRIORITY	OBJECTIVES / VERIFIABLE INDICATORS	MEANS OF IMPLEMENTATION	PAGE 2
Project Outputs (C-1)	Indicators of Outputs (C-2)	(C-3)	ASSUMPTIONS
<p>B. <u>Farm Management Component</u></p> <p>1. Farm plans developed and used.</p> <p>2. Training courses, demonstrations, and field days in improved production, marketing, processing technology, and farm management.</p>	<p>1. By 80 farmer groups (1,200 individual) and 2,800 individual farmers.</p> <p>2. At least 100 training courses to 80 farmer groups.</p>		Assumptions for achieving outputs: (C-4)
<p>C. <u>Research Component</u></p> <p>1. Research findings.</p> <p>2. Plant Introduction Center.</p> <p>3. Equipment and facilities for research stations.</p>	<p>1. Non-quantifiable results of investigation with three institutions working cooperatively with MAG, (CATIE, CITA and CIGRAS or other Costa Rican organizations) to conduct studies, research, investigations and development activities in production, marketing, storage, processing of agricultural crops and products for the integrated systems.</p> <p>2. One center established which services at least five regional MAG experiment stations devoted to new crop and product research and development.</p> <p>3. Five research stations.</p>		

Life of Project: _____
 From FY _____ to FY _____
 Total U.S. Funding: _____
 Date of Issue: _____

Project Title Number: _____

PROJECT SUMMARY Project Outputs: (C-1)	INDICATORS OF OUTPUTS Indicators of Outputs: (C-2)	METHOD OF VERIFICATION (C-3)	ASSUMPTIONS FOR ACHIEVING OUTPUTS Assumptions for achieving outputs: (C-4)
<p>4. Pilot activities in solving specific marketing problems of small farmers.</p> <p>5. Local level development projects in production/marketing/processing of new or improved traditional crops.</p> <p>D. Credit Component</p> <p>1. Medium and short-term credit in new and improved traditional crops and products employing farm plans.</p>	<p>4. Ten pilot activities in at least five regions.</p> <p>5. Sixty projects in at least five regions.</p> <p>1. Credit to at least 80 farmer groups (1,200 individuals) and 2,800 individuals in at least five regions.</p>		

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PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: _____
From FY _____ to FY _____
Total U.S. Funding _____
Date Prepared: _____

Project Title & Number: _____

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Inputs: (D-1)	Implementation Target (Type and Quantity) (D-2)	(D-3)	Assumptions for providing inputs: (D-4)
<p>A. <u>MAG Training Component</u></p> <p>1. \$333,000 in AID funds for technical assistance and training of MAG employees in vertical and horizontal commodity systems analysis.</p> <p>2. \$40,000 in GOER funds for Systems Committee and Marketing Unit operating expenses.</p> <p>B. <u>Farm Management Component.</u></p> <p>1. \$584,000 in AID funds for short-term contractors, technical assistance and demonstration plots</p> <p>2. \$455,000 in GOER funds for extension services, operational expenses, vehicles and training of small farmers.</p> <p>C. <u>Research Component</u></p> <p>1. \$1,583,000 in AID funds for improved plant materials, equipment, improvement of station facilities, operating</p>	<p>Personal service contracts - 10 person/months. Short-term contracts - 10 person/months. MS scholarships in production, marketing and processing. Four years of Committee and Marketing Unit operations.</p> <p>15 person/months of short-term contractors. Four years of technical assistance to small farmers by CAR. 50 vehicles. X number of CAR personnel and MAG extension agents participating in farmer training.</p> <p>5 institution contracts with CITA, CIGRAS, and CATIE. 22 person months of personal service contracts \$85,000 in starter plant materials (seed, trees bedwood, root stock, etc.)</p>	<p>1. Loan and Grant Agreements.</p> <p>2. Letters of Implementation.</p> <p>3. Annual Evaluation Reports of Project.</p> <p>4. MAG annual reports.</p> <p>5. CAR Director monthly reports.</p>	<p>1. That the loan and grant agreements are completed according to the Project Paper.</p> <p>2. That MAG budgets and SBM credit plans are approved to provide counterpart funding required.</p>

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.

FAA, 1973 - Foreign Assistance Act of 1973.

App. - Foreign Assistance and Related Programs Appropriation Act, 1974.

MMA - Merchant Marine Act of 1936, as amended.

BASIC AUTHORITY

1. FAA § 103; § 104; § 105;
§ 106; § 107. Is loan being made
- a. for agriculture, rural development or nutrition;
- b. for population planning or health;
- c. for education, public administration; or human resources development;
- d. to solve economic and social development problems in fields such as transportation, power, industry, urban development, and export development;
- 1a. Yes for agriculture and rural development. The purpose of the loan is to increase the profitability of small farmer enterprises and to increase employment opportunities in rural areas, thus contributing directly to increasing the productivity and income of the rural poor. Research will be directed toward specific problems of small farmers in production, storage and processing of agricultural crops.
- b. No
- c. Yes, a part of the loan provides for training in farm management and in agricultural production, marketing and processing technology.
- d. No

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c. in support of the general economy of the recipient country or for development programs conducted by private or international organizations.

e. Yes, to the extent that increased profitability of small farmer enterprises and increased employment opportunities in rural areas contribute to growth of the overall economy.

COUNTRY PERFORMANCE

Progress Towards Country Goals

2. 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. Agricultural output has maintained a steady rate of growth in recent years. This loan provides assistance to increase small farm productivity.

(2) Creating a favorable climate for foreign and domestic private enterprise and investment.

2. Costa Rica maintains an excellent climate for investment and private enterprise. It offers political stability, a democratic process, constitutional guarantees, equal rights for foreigners, and incentives to foreign investors.

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- (3) Increasing the public's role in the developmental process.
3. The public is encouraged to take an active part in development. This loan provides for involvement of the rural poor in the developmental process.
- (4) (a) Allocating available budgetary resources to development.
- 4a. Costa Rica has an active democratic system which exacts government responsiveness to social need. The great majority of Government Budget Funds goes for economic and social development.
- (b) Diverting such resources for unnecessary military expenditure (See also Item No. 20) and intervention in affairs of other free and independent nations.) (See also Item No. 11)
- b. Costa Rica has no army and does not intervene in the affairs of other countries.
- (5) 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.
5. Substantial progress has been and is still being made in the area of tax collection and tax fund redistribution. Basic individual freedoms and free enterprise are respected.
- (6) Adhering to the principles of the Act of Bogota and Charter of Punta del Este.
6. Costa Rica does adhere to those principles.

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- (7) Attempting to repatriate capital invested in other countries by its own citizens.
7. Political stability and a government policy encouraging investment in private enterprise give an incentive to the repatriation of local capital invested in other countries.
- (8) Otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.
8. Costa Rica has a strong tradition of concern for the rural poor, including programs in income redistribution and strong health and education programs.

B. Are above factors taken into account in the furnishing of the subject assistance? B. Yes

Treatment of U.S. Citizens by Recipient Country

3. FAA § 820(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? 3. No
4. FAA § 820(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? 4. No

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5. 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,
5. Costa Rica has not seized or penalized any U.S. fishing boat for fishing in International waters.

a. has any deduction required by Fishermen's Protective Act been made? a. Not applicable

b. has complete denial of assistance been considered by A.I.D. Administrator?

b. Not applicable

Relations with U.S. Government and Other Nations

6. 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?
6. No

ATD 1240-2 (5-74)

7. 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? 7. Yes
8. 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 production during the life of the loan? 8. No such productive enterprise is to be financed.
9. FAA § 620(f). Is recipient country a Communist country? 9. No
10. 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? 10. No
11. 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? 11. There has been no mob action in Costa Rica in recent history against U.S. property.

AID 1240-2 (8-74)

11. 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?
12. Costa Rica participates in the investment guarantee program.
13. 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?
13. No
14. 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?
14. No
15. 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?
15. Costa Rica has diplomatic relations with the U.S.
16. 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?
16. Costa Rica is not in arrears with regard to U.N. obligations to the extent of affecting its voting rights or its continued U.N. assistance.

ATD 1240-2 (5-74)

17. 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 to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?
17. Costa Rica has taken adequate drug control measures.
18. FAA, 1973 § 29. If (a) military base is located in recipient country, and was constructed or is being maintained or operated with funds furnished by U.S., and (b) U.S. personnel carry out military operations from such base, has the President determined that the government of recipient country has authorized regular access to U.S. correspondents to such base?
18. There are no military bases in Costa Rica.

Military Expenditures

19. 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).)
19. Costa Rica has no real military establishment. Negligible amounts of the National Budget and foreign exchange are spent to support the small internal security force.

AID 1240-2 (5-74)

CONDITIONS OF THE LOAN

General Soundness

20. FAA # 201(d). Information and conclusion on reasonableness and legality (under laws of country and the United States) of lending and relending terms of the loan.
20. The loan terms are reasonable for the type of activity involved and legal under the laws of Costa Rica and the U.S.
21. 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 A.I.D. an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?
21. The loan is economically and technically sound as detailed in the loan paper. A loan application with assurances has been received.
22. FAA # 251(b). Information and conclusion on capacity of the country to repay the loan, including reasonableness of repayment prospects.
22. The terms of the loan are within the capacity of Costa Rica to repay and there are reasonable prospects of repayment.
23. FAA # 251(b). Information and conclusion on availability of financing from other free-world sources, including private sources within the United States.
23. Because of the nature of the projects to be financed, it is determined that other sources of financing are not available on reasonable terms.

AID 1240-2 (5-74)

24. 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? 24. Yes
25. 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 purpose of loan? 25. No further legislative action is required.
26. 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? 26. Yes

Loan's Relationship to Achievement of Country and Regional Goals

27. FAA § 207; § 251(a); § 113. 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; 27. The loan encourages local community participation in development activities and contributes to the increased availability of food for internal consumption. Training is provided in farm management, marketing and processing technology. Women will be involved directly in implementation of the project.

AID 1240-2 (6-74)

(c) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or
(f) integrating women into the recipient country's national economy.

28. FAA § 209. Is project susceptible of execution as part of regional project? If so why is project not so executed?
28. The project is local in nature.
29. 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.
29. Activity is fully consistent with the country's principal social and economic priorities: food self-sufficiency and improved distribution of income.
30. 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.
30. Activity will encourage agricultural production and improve the well-being of rural families.
31. 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.
31. The loan is, by its nature, expected to have a primarily local impact.

AID 1:40-2 (574)

32. FAA § 251(g); § 111. Information and conclusion on use of loan to assist in promoting the cooperative movement in Latin America.
32. The loan does not assist the cooperative movement directly.
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 of the latest CIAP Review.
34. 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.
34. The project is of a grass-roots nature and will stimulate community interest and participation.
35. 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 processes essential to self-government.
35. The project responds directly to basic needs of the rural poor. The country's intellectual resources will be well utilized. Training will be provided to field personnel and in some cases to professionals in specialized areas relative to the program.

AID 1240-2 (6-74)

30. 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 initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture, and commerce; and (f) strengthen free labor unions.
36. The project is directed toward increasing the profitability of small farm enterprises, thus fostering private initiative. Provisions are also the technical efficiency of MAG, ITCO and other GOCR institutions working in agriculture.

37. FAA § 619. If assistance is for newly independent country; is it furnished through multilateral organizations or plans to the maximum extent appropriate?
37. Costa Rica is not a newly independent country.

Loan's Effect on U.S. and A.I.D. Program

38. 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.
38. No major effects are foreseen. Procurement will be from Code 941 and thms help the U.S. balance of payments in the long run.
39. 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.
39. No part of the loan is going directly to private enterprise. \$2,500,000 will go to intermediate credit institutions.

40. 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).
40. The loan will not have a large effect on U.S. trade or Investment
41. 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?
41. Not applicable
42. FAA § 602. Information and conclusion whether U.S. small business will participate equitably in the furnishing of goods and services financed by the loan.
42. Yes
43. FAA § 620(h). Will the loan promote or assist the foreign aid projects or activities of the Communist-Bloc countries?
43. No
44. 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
44. Technical assistance for the project will be obtained from private enterprise on a contract basis.

whether they are particularly suitable, are not competitive with private enterprise, and can be made available without undue interference with domestic programs.

Loan's Compliance with Specific Requirements

45. FAA § 110(a); § 208(e). Has the recipient country provided assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the Loan is to be made? 45. Yes
46. FAA § 112. Will loan be used to finance police training or related program in recipient country? 46. No
47. FAA § 114. Will loan be used to pay for performance of abortions or to motivate or coerce persons to practice abortions? 47. No
48. FAA § 201(d). Is interest rate of loan at least 2% per annum during grace period and at least 3% per annum thereafter? 48. Yes
49. FAA § 604(a). Will all commodity procurement financed under the loan be from the United States except as otherwise determined by the President? 49. Yes. Procurement will be from Costa Rica and Geographic Code 941 countries
50. FAA § 604(b). What provision is made to prevent financing commodity procurement in bulk at prices higher than adjusted U.S. market price? 50. N.A.

AJD 1240-2 (874)

51. 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? 51. Yes
52. 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? 52. Not applicable
53. FAA § 604(f). If loan finances a commodity import program, will arrangements be made for supplier certification to A.I.D. and A.I.D. approval of commodity as eligible and suitable? 53. Yes
54. 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. 54. Excess property will be used if it is practical. The standard provision will be included in the Loan Agreement.
55. 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 forth in the Memorandum of the President dated May 15, 1962? 55. Not applicable

AJD 1240-2 (6-74)

56. FAA § 611(a). If contracts for 56. The Loan Agreement will so provide. construction are to be financed, what provision will be made that they be let on a competitive basis to maximum extent practicable?
57. FAA § 612(b); § 638(h). Describe 57. The United States will finance steps taken to assure that, to the costs of the project, and the maximum extent possible, the country host government is making a substantial contribution to the local costs. 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.
58. App. § 113. Will any of loan funds be used to 58. No acquire currency of recipient country from non-U.S. Treasury sources when excess currency of that country is on deposit in U.S. Treasury?
59. FAA § 612(d). Does the United 59. None is owned by the United States. States own excess foreign currency and, if so, what arrangements have been made for its release?
60. FAA § 620(g). What provision is 60. The Loan Agreement will not allow there against use of subject funds to be used for this purpose. assistance to compensate owners for expropriated or nationalized property?

AID 1240-2 (5-74)

61. FAA § 620(k). If construction of productive enterprise, will aggregate value of assistance to be furnished by the United States exceed \$100 million? 61. No
62. FAA § 636(i). Will any loan funds be used to finance purchase, long-term lease, or exchange of motor vehicle manufactured outside the United States, or any guaranty of such a transaction? 62. No
63. App. § 103. Will any loan funds be used to pay pensions, etc., for military personnel? 63. No
64. App. § 105. If loan is for capital project, is there provision for A.I.D. approval of all contractors and contract terms? 64. Yes
65. App. § 107. Will any loan funds be used to pay UN assessments? 65. No
66. App. § 109. Compliance with regulations on employment of U.S. and local personnel. (A.I.D. Regulation 7). 66. Yes, it will be required.

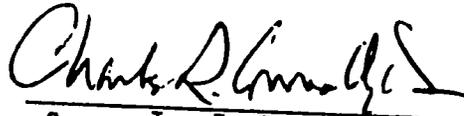
AID 1240-2 (5-74)

67. App. § 110. Will any of loan funds be used to carry out provisions of FAA §§ 209(d) and 251(h)? 67. No
68. App. § 114. Describe how the Committee on Appropriations of the Senate and House have been or will be notified concerning the activity, program, project, country, or other operation to be financed by the Loan. 68. This will be done by AID/W by normal procedures.
69. App. § 801. Will any loan funds be used for publicity or propaganda purposes within the United States not authorized by the Congress? 69. No
70. MMA § 901.b; FAA § 640C. 70a. The loan Agreement will so provide
- (a) Compliance with requirement that at least 50 per centum of the gross tonnage 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 reasonable rates.
- (b) Will grant be made to loan recipient to pay all or any portion of such differential as may exist between U.S. and foreign-flag vessel rates? b. No

Certification Pursuant to
Section 611(e) of the
Foreign Assistance Act
as Amended

I, Joe J. Sconce, the principal officer of the Agency for International Development in Costa Rica, do herewith certify that in my judgment, Costa Rica has both the financial capability and human resources to maintain and utilize effectively, goods and services procured under the Capital Assistance Project entitled "Commodity Systems".

This judgment is based upon the record of implementation of AID-financed projects in Costa Rica and the results of the consultations undertaken during the review of this project.



Joe J. Sconce
AID Affairs Officer
USAID/Costa Rica

September 20, 1977
Date

LOAN APPLICATION

The loan application has not yet been received from the Government of Costa Rica. It will be obtained prior to authorization.

PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

PART II

Name of Country: Costa Rica

Name of Project: Commodity Systems

Number of Project: 515-0134

Pursuant to Part I, Chapter 1, Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a Loan to the Government of Costa Rica the "Cooperating Country" of not to exceed Five Million Five Hundred Thousand United States Dollars (\$5,500,000) the ("Authorized Amount") to help in financing certain foreign exchange and local currency costs of goods and services required for the Project as described in the following paragraph. The Project consists of assistance to the Government of Costa Rica to develop integrated commodity systems and agricultural product diversification (hereinafter referred to as the Cooperating Country) to assist in financing certain Foreign Exchange and local currency costs of goods and services required for the Project. The entire amount of the A.I.D. financing herein authorized for the project will be obligated when the Project Agreement is executed.

I approve the total level of A.I.D. appropriated funding planned for this project of not to exceed Five Million Five Hundred Thousand United States Dollars (\$5,500,000).

I hereby authorize the initiation of negotiation and execution of the Project Agreement by the officer to whom such activity has been delegated in accordance with A.I.D. regulations and Delegations of Authority subject to the following essential terms and covenants and major conditions; together with such other terms and conditions as A.I.D. may deem appropriate.

A. Interest Rate and Terms of Repayment

The Cooperating Country shall repay the Loan to A.I.D. in United States Dollars within twenty (20) years from the date of first disbursement of the Loan, including a grace period of not to exceed five (5) years. The Cooperating Country shall pay to A.I.D. in United States Dollars interest from the date of first disbursement of the Loan at the rate of three percent (3%) per annum during on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

B. Source and Origin of Goods and Services

Except for Ocean Shipping, goods and services financed by A.I.D. under the Project shall have their source and origin in the Central American Common Market or in the United States or in countries included in A.I.D. Geographic Code 941 except as A.I.D. may otherwise agree in writing. Ocean Shipping financed under the Loan shall be procured in any eligible source country except the Cooperating Country.

C. Condition Precedent to Initial Disbursement

Prior to any disbursement, or the issuance of any commitment documents under the Loan Project Agreement, Borrower/Grantee shall furnish in form and substance satisfactory to A.I.D., evidence of the establishment within the Ministry of Agriculture of an Implementation Unit with the authority and the responsibility necessary to administer the Project; and a Marketing Unit to provide a broad range of marketing information and technology to farmers throughout Costa Rica, with particular emphasis on the needs of the smaller farmer.

D. Condition Precedent to Disbursement

Prior to any disbursement or the issuance of any commitment documents under the loan, Borrower shall furnish, in form and substance, satisfactory to AID, a list of the non-traditional commodity systems to be developed through the project, and for each system a detailed work plan covering the first year of project activities, including:

1. a description of all technical assistance, training, research and farm management activities expected to occur;

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2. the timing and interrelationship of these activities; and,

3. the source and use of Borrower and Loan funds to be employed in each activity.

E. Condition Precedent to Disbursement

Prior to disbursement of the issuance of commitment documents for Credit Operations, Borrower shall furnish, in form and substance satisfactory to AID, a statement of the eligibility criteria for sub-borrowers and the policy that the National Banking System will use in providing short and medium term credit to farmers participating in the Project, and a confirmation that Banking System resources equivalent to Two Million United States Dollars (\$2,000,000) for short term lending and Two Million Two Hundred and Eighty Five Thousand United States Dollars (\$2,285,000) for medium term lending will be contributed to the credit fund on a timely basis as part of the Borrower counterpart contribution to the Project.

F. Condition Precedent to Disbursement

Prior to any disbursement for credit for each new crop or technology, the Borrower will present AID with: (1) the research which demonstrates the technological and economic feasibility of the new crop or technology; and (2) the first farm plan covering that crop or technology.

G. Covenants

1. Borrower shall covenant that prior to the beginning of each calendar year, the Government of Costa Rica shall submit, in form and substance satisfactory to AID, a detailed work plan, the same in scope as the plan accepted in compliance with Section D above, for the year's activities.

2. Borrower shall covenant to maintain, for a mutually agreed period extending beyond the final disbursement of the Loan: (1) the level of the credit fund at the total amount of Loan and counterpart drawn down during the term of the Project, through periodic replenishment of funds; and if the utility and acceptance of the systems approach is established in the Project, (2) the training, farm management, and research activities at the level achieved in the best year of the project.

INITIAL ENVIRONMENTAL EXAMINATION

PROJECT LOCATION: Costa Rica
PROJECT TITLE: Commodity Systems
FINDING: FY 1977 Development Loan \$5,500,000
LIFE OF PROJECT: Four (4) years
IEE PREPARED BY: Heriberto Rodríguez
U*AID/General engineer
DATE: August, 1977

ENVIRONMENTAL ACTION
RECOMMENDED:

That the project will not have a significant effect on the environment, and therefore a negative determination is appropriate.

CONCURRENCE: Joe J. Sconce, AID Affairs Officer
USAID/Costa Rica
DATE: August, 1977

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Separate PIDs were previously submitted for the Land Productivity and Rural Employment Loan, and the Small Farmer Income Grant. These two proposals have been combined here into one Commodity Systems Loan. A separate Initial Environmental Examination was done for each PID. An Environmental Threshold Decision (LA/DR IEE-77-24) for Negative Determination was made by the Assistant Administrator for Latin America for the Land Productivity and Rural Employment proposal.

This Project will deal largely with small farmers, providing them with:

- Assistance on farm planning, and crop diversification to improve land productivity and rural employment.
- Information and resources for post-harvest handling, storage, or processing of their products.

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IMPACT IDENTIFICATION AND EVALUATION FORM

Impact Areas and Sub-areas 1/

Impact
Identification
and
Evaluation 2/

A. LAND USE

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

B. WATER QUALITY

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

1/ See Explanatory Notes for this form.

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

IMPACT IDENTIFICATION AND EVALUATION FORM

C. **ATMOSPHERIC**

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

D. **NATURAL RESOURCES**

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

E. **CULTURAL**

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

F. **SOCIO-ECONOMIC**

- | | |
|--|---|
| 1. Changes in economic/employment patterns _____ | L |
| 2. Changes in population _____ | N |
| 3. Changes in cultural patterns _____ | L |
| 4. Other factors _____ | |
| _____ | |
| _____ | |

IMPACT IDENTIFICATION AND EVALUATION FORM

G. HEALTH

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

H. GENERAL

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

I. OTHER POSSIBLE IMPACTS (not listed above)

- | | | |
|-------|-------|-------|
| _____ | _____ | _____ |
| _____ | _____ | _____ |
| _____ | _____ | _____ |

See attached Discussion of Impacts.

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DISCUSSION OF IMPACTS

A. Land Use

Other factors referred to as Little impact: Improve Land Utilization - increased land productivity and protection of the environment.

F. Socio-Economic

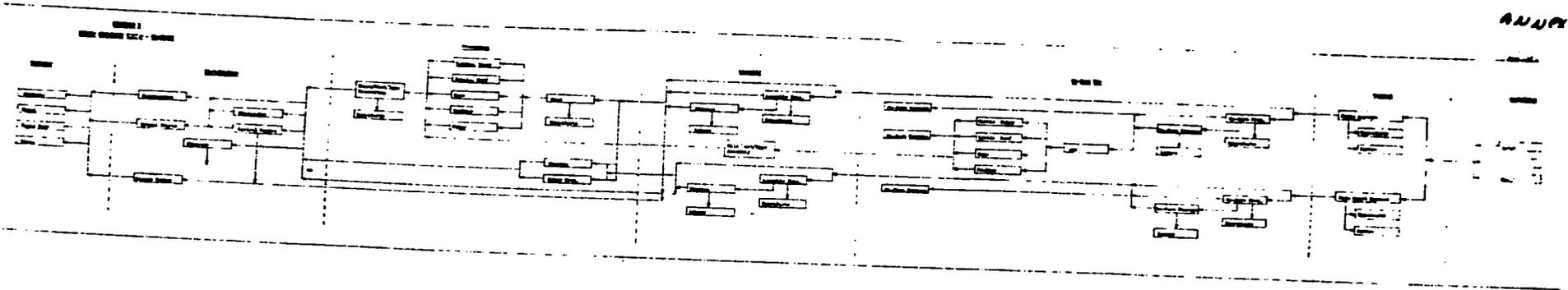
Limited changes in economic/employment patterns: possible increases in employment.

Limited changes in cultural patterns: more employment opportunities for rural women and children.

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ANNEX 7



LIST OF VALUABLE NEW CROPS SUGGESTED FOR INTRODUCTION,
MULTIPLICATION AND DISTRIBUTION

I. Tree Crops (Fruits, nuts, specialty crops, forest species)

A. Citrus Types (Fruits)

1. Orange (Citrus sinensis) - Parson Brown, Valencia, Washington Navel, Texas Navel, Dream Navel, Paradise Navel, Robertson Navel, Trovita, Bahianinha, Summer Navel, Hamlin, Pineapple, Mars, Jaffa.
2. Limes (Citrus aurantifolia) - Key, Mexican, West Indian, Tahiti, Persian, Bears, Enstis, Lakeland, Idemor.
3. Grapefruit (Citrus paradise) - Duncan, Mars Seedless, Thompson, Foster, Ruby, Burgundy Red, John Garner.
4. Tangelo (Citrus Hybrids) - Temple, Minneola, Orlando, Seminole, Thornton, Wekiwa, Webber, The Pearl, San Jacinto, Robinson Osceola, Lee, Chironja, Murcott.
5. Mandarin (Citrus reticulata) - King, Emperor, Willowleaf, Beauty, Dancy, Cleopatra, Kinnow.
6. Citrus Rootstock - Cleopatra mandarin, Trifoliate citrange, Carrizo citrange, sour orange, rough lemon, calamondin.

B. Non-Citrus (Fruits)

1. Mango (Mangifera indica) - Paden, Irvin, Keitt, Kent, Carrie, Edward, Early Gold, Zi/1, Pairi, Fairchild, Lippens, Palmer, Springfels, Bombay, Julie, Sandersha, Maniba, Cambodiana, Cecil, Saigon.

2. Avocado (Persea americana) - Simmonds, Pollack, Catalina, Haas, Puebla, Fuerte, Lula, Choquette, Booth 8, Hall, Collinred, Kampong.
3. Guava (Psidium guajava) - Supreme, Red Indian, Rolfs, Ruby.
4. Rambutan (Nephelium lappaceum) - Leebak-booloos, Seematjan, Seenjonja, Seetangkooweh, Seelengkeng, Seekonto.
5. Sweetsop (Annona squamosa) - various clones.
6. Soursop (Annona muricata) - various clones.
7. Sapodilla (Achras zapota) - Prolific, Russell, Betawi, Koolon, Apel Benar, Apel Leelin, Brown Sugar.
8. Sapotee (Calocarpum App.) - various clones.
9. Papaya (Carica papaya) - Solo, Bluestem, Graham, Betty, Fairchild, Kissimee, Hortas Gold.
10. Bananas (Musa spp) - Gros Michel, Cavendish, Lacatan, Williams Hybrid, Lady Fingers, Date, Apple, Plantain.
11. Coconut (Coco nucifera) - Malaya Dwarf, Jamaican Dwarf (yellow).
12. Mangosteen (Garcinia mangostana) - various clones.
13. Figs (Ficus carica) - Celeste, Green Ischaa, Kadota, Brown Turkey, Preston Prolific.
14. Mamey (Mammea americana) - various clones.
15. Lychee (Litchi chinensis) - Brewster, Peerless, Graff, Mauritius, Bengal.

C. Nut Trees.

1. Macadamia (Macadamia integrifolia) - Ikaiki, Kakea, Keauhou, Wallua, Burdick.
2. Cashew (Anacardium occidentale) - No specific named varieties.
3. Pili Nut (Canarium ovatum) - No named varieties.
4. Sapucacia Nut (Lecythis elliptica) - no named varieties.
5. Pistachio Nut (Pistacia vera) - no named varieties.

D. Specialty Crop Trees.

1. Nutmeg (Myristica fragrans) - No named varieties.
2. Cinnamon (Cinnamomum zeylanicum) No named varieties.
3. Bay (Pimenta racemosa) - No named varieties.

E. Forest Species Trees.

1. Australian Pine (Cassuarina spp.) No named varieties.
2. Ipil-ipil (Leucaena glauca) - No named varieties.
3. Eucalyptus (Eucalyptus spp.) - No named varieties.
4. Mahogany (Swietenia Mahogany) - No named varieties.
5. Teak (Tecanus spp)
6. Bamboo (Bambasa spp). Various species.

7. **Non-Tree Fruits.**

1. **West Indian Cherry or Acerola (*Malpighia glabra*)**
- Sweet Florida, other clones.
2. **Pineapple (*Ananas comosus*)** - Cayenne, Cabezona, Queen, Red Spanish, Pernambuco, Monte Lirio, Abachi, Sugar Loaf, Andina, Francesca.
3. **Grapes (*Vitis spp*)** - Lake Emerald, Blue Lake, Dunstan, Taylor, Red Niagra, Fairchild, Tropics, Everglades, Largo, Tamiami, Black Spanish, Herbemont, Lenoir.
4. **Passion Fruit (*Passiflora edulis* var. *flavicarpa*)**
5. **Raspberry (*Rubus albescens*)** - Mysore, Queensland.
6. **Strawberries (*Fragaria spp*)** - Missionary, Klondike, Ettersburg 121, Marshall, Florida 90, Texas Ranger, Blakemore, Lassen, Solana, Fresno, Torrey, Armore, Daybreak, Brightmore, Klommore.
7. **Pomgranate (*Punica granatum*)** - Wonderful, Paper-Shell, Spanish Ruby, Purple.

G. **Non-Tree Commercial or Specialty Crops.**

1. **Pepper (*Piper nigrum*)** - Balamcotta, Korintji, Djambi, Belantung, Lampong, Muntok, Kalluvalli, Kal-Balamcotta.
2. **Vanilla (*Vanilla planifolia*)** - Bourbon, Javanese.
3. **Tea (*Thea sinensis*)** - Chinese bokes.

H. **Cereal Crops.**

1. **Maize (*Zea mays*)** - various synthetics from CIMMYT (Mexico)
2. **Rice (*Oryza sativa*)** - various cultivars from IRRI (Philippines) and CIAT (Colombia)

3. Sorghum (Sorghum bicolor) - various cultivars from ICRISAT (India)

I.. Food Grain Legumes.

1. Field beans (Phaseolus vulgaris) - climbing and bush cultivars from CIAT.
2. Cowpeas (Vigna unguiculata) - Cultivars from IITA (Nigeria)
3. Chickpeas (Cicer arietinum) - Cultivars from ICRISAT.
4. Pigeon Peas (Cajanus cajan) - Cultivars from ICRISAT, Univ. W. Indies, Puerto Rico.

J. Oil Seed Crops.

1. Peanuts (Arachis hypogaea) - strains from Univ. Fla. Univ. Ga., USDA.
2. Soybeans (Glycine max) - Tropical varieties from Univ. Ill.
3. Sesame (Sesamum indicum) - varieties from Venezuela, India, Univ. Calif.
4. Sunflower (Helianthus annuus) - open pollinated varieties from U.S. and C. American Countries.

K. Rootcrops.

1. Cassava (Manihot esculenta) - (clones from CIAT)
2. Yams (Dioscorea spp. including rotundata, alata, cayenensis, esculenta, bulbifera and trifida) improved varieties from USDA Federal Station, Puerto Rico.

3. Sweet Potatoes (Ipomoea batatas) - improved varieties from Puerto Rico, UWI, Southern U.S. and Central America.
4. Potatoes (Solanum spp.) - varieties from CIP (Peru)
5. Taro or Dasheen (Colocasia esculenta) varieties from WVI, Hawaii.
6. Yautia or Eddoe (Xanthosoma spp.) - varieties from WVI, Hawaii.
7. Yam Beans (Pachyrhizus erosus) - varieties from Thailand, Indonesia.

L. Vegetable Seed (* or plants).

1. Amaranthus * (*Amaranthus gangeticus*) - no named varieties.
2. Asparagus (*Asparagus officinalis*) - Martha Washington, other varieties grown in tropical countries.
3. Beans (*Phaseolus vulgaris*) - Kato, Dade Pole, Alabama No.1, Coffee Wonder, Isbell's Nematode Resistant, Springwater, Wade, Corneli 14, Extender, Blue Lake 231, Harvester, Top Crop, Florigreen, Seminole, Ky Wonder.
4. Beets (*Beta vulgaris*) - Detroit Dark Red, Long Season, Early Wonder, Tall Top.
5. Cole Crops.
 - a. Cabbage (*Brassica oleracea*) (var. *capitata*), Succession, Perfection Drumhead, Wisc. Hollander, Premium Flat Dutch, Wisc. All-season, Badger Market, Ditmarch, Marion Market, Copenhagen Market, Early Flat Dutch, Premium Late Flat Dutch.
 - b. Cauliflower (*Brassica oleracea* var. *botrytis*) - Sutton's Early Patna, Pua Kaa.
 - c. Broccoli (*Brassica oleracea* var. *botrytis*) DeCicco, Texas 107.
 - d. Kohlrabi (*Brassica oleracea*) - green and purple varieties.

6. Cucumber (*Cucumis sativus*) - Table Green, Pixie, Ashe, Polaris, Palmett (6), Ashley, Stono, Palomar.
7. Carrots (*Daucus carota*) - Danvers Half Long, Chatenay, Oxheart.
8. Corn, sweet (*Zea mays*) - U.S.34, Honey June, Deep Gold, Sweet-angold, Asgrow Golden, Golden Security, Calumet, Surecrop.
9. Eggplant (*Solanum melongena*) - Florida Market, Kopek, Rosita, Florida High Bush, Purple Thornless.
10. Lettuce (*Lactuca sativa*) - Head Lettuce varieties: Great Lakes 659 and others, Pennlake, Valverde, Primavera, Kulanui and Leaf Lettuce varieties: Salad Bowl, Ruby, Bath Cos.
11. Muskmelon (*Cucumis melo*) - Smith's Perfect, Georgia 47, Seminole, Edisto.
12. Okra (*Hibiscus esculentus*) - Clemson Spineless, Perkins Spineless, Emerald, Louisiana Market, Gold Coast, Pusa Sawani.
13. Onion (*Allium cepa*) - Texas Early Grano, Excel Bermuda, Eclipse, White Grano, L 36, Red Creole, White Creole, Red Spanish, White Spanish, Yellow Spanish.
14. Peas (*Pisum sativum*) - Burpeeana, Asgrow 40, Canner 75, Greenfeast, Thomas Laxton, World Record, Freezer 37, Alaska, Ronda, Shasta, Surprise, Wando, Manoa Sugar, Dwarf Grey Sugar.

15. Pepper - Bell (*Capsicum annum*) - World Beater, Yolo Wonder, Liberty Bell, Keystone Resistant Grant - Hot (*Capsicum frutescens*) - Tabasco, Anaheim Chili, Mexican, Long Thick Cayenne, Hungarian, Paprika, Spanish Paprika.
16. Popcorn (*Zea mays*) - Purdue 410, Purdue 605.
17. Pumpkin (*Cucurbita* spp.) - Cuban or Camagueyana, Fortuna.
18. Watermelon (*Citrullus vulgaris*) - Charleston Gray, Garrisonian, Hope Diamond, Florida Giant, Purdue Hawkesbury, Blue Ribbon Klondike, Congo, Blackstone.

M. Ornamental Plants.

1. Foliage ornamentals (The wide variety of indigenous ornamental foliage plants as well as those that have previously been imported, provides an excellent base from which collections of foundation parent plants could be established for commercial scale propagation and sale of small, medium and large sized plants.

METHODS OF PROPAGATION

1. Crops propagated by budding, air layering, marcottng or by various grafting methods:

Allcitrus species

mango	sweetsop	lychee
avocado	sapodilla	bay
rambutan	mamey	cinnamon
mangosteen	fig	cashew

2. Crops propagated by cuttings:

sugar cane	passion fruit	acerola cherry
pineapple	sweet potatoes	potato
black pepper	yam	fig
grape	cassava	vanilla
macadamia	tea	

3. Crops propagated by divisions or plantlets:

rasberry	asparagus	bananas
strawberry	plantain	

4. Crops propagated by seed:

most vegetables	cashew	nutmeg
all grain crops	passion fruit	rambutan
all legumes	guava	papaya
sapotee	coconut	soursop
mango	sweetsop	

INCREASING THE PROFITABILITY OF BEAN PRODUCTION FOR FARMERS IN LOS ANGELES

An Example of a Sub-Project

The Setting

The community of Los Angeles is located on the slopes of the mountains about halfway between San José and San Isidro del General. It is a relatively isolated community about 12 Km. off the Panamerican Highway, served by a third class road and without electricity. The majority of the 110 families depend directly on agricultural production for their livelihood, with the principal crops being corn and beans. Eighteen of the families have cows, and slightly more have chickens. It is a very poor community made up of small farmers.

The Problem

The major cash crop for 85 families of the Los Angeles community is black beans.

According to Dr. Pinchinat of CATIE, the variety of black beans produced here are high yielding and have excellent resistance to mosaics and other plant viruses. It is estimated that bean production per hectare in the field is about 1,500 pounds, six hundred pounds above the country average. The problem faced by these farmers comes with the beginning of harvest. These farmers typically cut the entire mature bean plant and hang them in ranchos or at the eaves of their houses to dry. However, drying in this manner is difficult because of frequent rains and an almost constant cloud cover during the harvest months (October-December). As a result, a significant proportion of the beans germinate in the pods and in effect rot. A conservative estimate is that 25% of the beans are lost in this manner. This situation translates into a tremendous economic loss to the 85 farmers who produce beans. This loss is not a "foregone opportunity", but a loss actually sustained after the crop has been produced. To further quantify this problem, the approximately 100 hectares of beans produced in Los Angeles yield about 150,000 pounds in total. The value of the 37,500 lbs. that rot after harvest have a current value of 26¢/lb, or a total value of \$9,750; a loss of approximately \$115 per family.

The Sub-Project Solution

The technical solution for drying the beans in the Los Angeles community is known. The small batch dryer design developed by the IRRU in the Phillipines is suitable with minor modifications. Such a dryer with a maximum capacity of two tons per day could be installed for less than \$2,000; operating cost is estimated to be about \$5/ton. Therefore, it appears to be an economically viable solution.

In order to take advantage of this technology, the farmers would need to organize themselves. The type of organization chosen by the farmers would be their decision, but a cooperative would probably be the most advantageous.

To implement this sub-project, it is envisioned that: (1) the farmers would organize themselves into a cooperative, with assistance from INFO-COOP; (2) the farmers would build a simple rancho or shed as a central place of operations; (3) the Project would secure drying equipment required; (4) the MAG would provide TA for drying operations; (5) Directors and staff of the CARs would stay alert to solve any unforeseen technical problems and carry out the evaluation.

The Expected Result

It is expected that the 85 small farmers producing beans in the community of Los Angeles will increase their cash sales for beans from an average of \$360 each to an average of \$450 each; a proportional increase of more than 30%.

In addition to this short-term benefit to this particular group of farmers, an organization will be in-place through which other cooperative ventures can be launched, e. g. better storage.

The experience gained in this sub-project can also be replicated in other communities by the institutions involved in implementation with resources other than USAID support.

INCREASING THE PRICE RECEIVED FOR CABBAGE BY SMALL FARMERS IN THE COMMUNITY OF ZARCERO

An Example of a Sub-Project

The Setting

The village of Zarcero is located in the mountains about two hours by road northwest of San José. The community is made up of 500 farm families most of whom are small farmers dedicated to the production of cool season horticultural crops. Cabbage is one of the principal crops. Zarcero produces 65 percent of the ten million pounds of cabbage harvested annually in Costa Rica. There are 150 farms in Zarcero devoted to the production of cabbage with an average planting of one hectare each. The average production is 40,000 pounds per hectare and the average farm gate price received is U.S. two cents per pound for a total cash value of \$800 per farm family.

The Problem

The problem for most of the 150 small farmers who wish to increase their incomes from cabbage production in Zarcero is not related to production techniques per se, rather it is a problem of marketing their production. Currently, the retail price of cabbage is about U.S. \$.06/lb. The wholesale price for cabbage in San José is four cents and prices received by farmers is about 2¢ per pound at the farm. These price differences are probably justifiable given the present marketing arrangements and services extended by truckers and intermediaries. Among the major services provided by intermediaries is bearing risk and uncertainty due to the lack of market price and volume information, high spoilage and waste (shrinkage) of cabbage as the product moves through marketing process and transportation. Nevertheless, from the producer point of view there appears to be an opportunity to capture a greater proportion of the wholesale price by (1) modifying the present marketing arrangements, and/or (2) providing some of the marketing services themselves.

The Sub-Project Solution

First of all, there are certain technical innovations that would improve the quality and economic value of the cabbage, e.g. field cooling,

trimming, grading, and crating. Currently, no attempt is made to remove the "field heat" from cabbage, trimming and grading is infrequent, and transport is almost always accomplished by loading the cabbage in bulk (without crates or bags) into stake-bodied trucks. Hence, these practices are responsible for a substantial proportion of the spoilage and waste in the marketing system, the cost of which is reflected in the wide spread between prices paid to farmers and prices paid by consumers. The initiation of these services at the producer level would add value to the cabbage since spoilage and transaction cost would be reduced.

Secondly, the concentration of cabbage production in Zarcero provides a good opportunity for the farmers to organize themselves to overcome their chronic economic impotence as individuals, forced to accept the prices offered by passing truckers. The formation of a cabbage producers cooperative or association would give the farmers a vehicle by which value-adding services could be initiated and the economic returns for such innovations could be captured with modified marketing arrangements. In short, a cabbage producers cooperative with a significant volume and a differentiated product could exercise the market power required to establish more efficient marketing arrangements, i.e. routinize ordering, price quotations on standardized lots and grades, and less labor intensive exchange functions.

To implement this sub-project it is envisioned that: (1) the farmers would organize themselves into a cooperative

(2) the farmers would provide a "packing shed" and simple tables, wooden cooling troughs, and areas for cleaning, grading, and packing; (3) the Project would design and secure crates and other equipment needed to improve handling and transport to market; (4) it also would provide short-term technical assistance in both planning and operations of packing shed activity, and provide specialized training to the cooperative staff and members on proper handling, grading, and marketing of cabbage; (5) the CAR would monitor the planned activities, paying special attention to the commercial arrangements specified in the original plans to detect problems and evaluate impact of the cooperative marketing arrangements.

The Expected Results

As a result of the value adding activities accomplished by this sub-project, the Zarcero cabbage producers will receive U. S. \$.025 per pound, for cabbage instead of only U. S. \$.02 per pound as is the currently prevailing price. This would increase the average farmers cash sales from \$800 each to \$1,000 each; a proportional increase of 25 percent.

The experience gained in this sub-project, if successful, can be transferred to similar groups producing other perishable vegetables.

EXAMPLE

Citrus Processing

Problem: Small farmers in the community of Londres and in other regions of the country produce tons of oranges, lemons and grapefruits. However, because of saturation of the freshfruit market demand during the peak harvest and the resulting low prices, it does not pay to pick the fruit. Large amounts of fruit rot on the tree.

Possible Solution: Milk processing plants distribute "orange juice" throughout most of the Meseta Central. The product they sell is based on imported citrus concentrates.

Processors could improve their raw material supply by providing transportation from growers to a central processing plant, offer prices that would be sufficiently attractive to growers, and push for increased consumption of citrus juices, including grapefruit juice, lemonade and mixed fruit drinks.

Or, depending on cost/volume factors, cooperatives or farmers' associations might assemble and process citrus juices for sale in bulk.

EXAMPLE

Seed Potatoes

Problem: Potato farmers in Zarcero are competing at a disadvantage in the metropolitan market because producers nearer to San Jose enjoy lower transportation costs. The potato market is very competitive, so that Zarcero farmers find it difficult to sell for higher prices.

Solution: One solution for Zarcero producers would be to specialize in the production of seed potatoes which would be marketed at higher prices in production areas. Costa Rica presently imports a large proportion of its needs for seed potatoes from Guatemala and from other countries.

Zarcero farmers already know how to grow potatoes so that much of the sub-project support would be in supplying training to producers to carry out the special harvesting and post-production treatment and handling that seed potatoes require.

To obtain full advantage from this new orientation the producers should organize into a processing, storage, and marketing cooperative or association.

A possible second solution would be for a producers' cooperative or association to set up a small installation to prepare and market potatoes ready for frying. A very good market exists for this product in the many restaurants in the Metropolitan Area.

MAG MARKETING UNIT TASKS

UNCLASSIFIED

I. Composition

Chief - Market Economist	12 pm/yr
Plant Pathologist/Entomologist	12 pm/yr
Plant Physiologist/Agronomist	12 pm/yr
Agricultural Engineer	12 pm/yr
Statistician	12 pm/yr
Secretaries (2)	24 pm/yr

II. Time Allocation to Responsibilities (Estimate)

Planning	10 percent
Research	20 percent
Training	15 percent
Technical Assistance	35 percent
Market Information	10 percent
Administration	10 percent

III. Scope of Work (Examples Only)

A. Planning

- determination of overall work plans
- identification of marketing problems
- design of research work
- determination of training needs
- development of training work plans
- development of T.A. work plans
- planning for market information activities
- development of administrative procedures
- plan future marketing program activities

B. Research (Examples Only)

- conduct market studies in specific commodities
- conduct research in basic grain losses
- conduct research in on-farm handling of basic grains
- conduct engineering/economic studies in grain drying
- conduct studies of mycotoxin incidences and levels
- conduct cost of production studies in non-traditional crops/products
- investigate market potential for non-traditional products
- conduct studies in market losses of fruits and vegetables
- develop improved methods of on-farm handling of selected agricultural products
- develop package/container designs for various products
- investigate economics of improved packing
- conduct economic studies on flow of products from farm to consumer

- conduct studies on transport costs
- conduct studies to resolve specific problems of product losses due to diseases and insects
- develop simple grades and standards for specific products
- develop on-farm facilities/equipment for handling, packing storing
- investigate economics of new products to be marketed
- conduct social research in marketing activities of farmer groups
- investigate potential for on-farm and off-farm processing of selected products
- develop simple conversion/processing methods.

C. Training (of MAG Personnel and Farmers) in:

- grain handling, drying, storing
- economics of handling/drying/storing
- cost of production methods
- assembly of products
- grading, sorting, packing of products
- economics of grades and standards
- container design/fabrication/use
- economics of improved containers
- methods and economics of transport
- methods to employ to reduce losses due to poor varieties, diseases, insects
- design and construction of facilities/equipment to improve on-farm handling/storage
- record keeping
- food processing methods
- farmer market associations
- specific product handling technology
- theory and practice of environmental control (e.g., refrigeration, etc.)
- marketing economics
- crop planning
- crop variety utilization
- harvest estimation techniques
- market outlet sources

D. Technical Assistance (to MAG Personnel and Farmers)

- Ad hoc market problem solving
- Grain handling/drying/ storage
- Grades and standards
- Container utilization
- Transport means/methods
- Collection centers
- Packing shed installation/operation methods
- Market economics
- Refrigerated storage

- Dry storage
- On-farm handling of specific products
- On-farm processing/conversion methods
- On-farm marketing
- Local marketing of produce
- Wholesale marketing of produce
- Crop planning
- Variety utilization
- Farmer group marketing activities

E. Market Information

- Develop methodology for information collection
- Collect data on prices and availabilities of major products daily
- Collate and compile data
- Analyze data
- Prepare data in summary form
- Make data available to PIADIC
- Publish data in newspapers
- Disseminate data over radio, T.V. stations
- Maintain records to show trends over time
- Make long-term recommendations to farmers regarding crop planning
- Distribute information to MAG personnel

F. Administrative Responsibilities

- Develop procedures of operation of Marketing Unit
- Develop procedures for operation of Marketing Information sub-unit
- Establish routine reporting procedures
- Perform ad-hoc administrative responsibilities
- Establish record system of Market Unit

FEASIBILITY STUDIES: SUMMARIES OF FINDINGS

1. The Commodity Systems Approach and the Private Sector, Donald S. Leeper, May, 1977.
2. An Analysis of Agricultural Marketing in Costa Rica, Milton Lobell, March, 1977.
3. Interim Report on the Institute of Lands and Colonies (ITCO), Charles Swett, June, 1977.
4. The Ecological Adaptability of Selected Economic Plants for Small Farm Production in Six Regions of Costa Rica, Leslie R. Holdrige and Joseph A. Tosi, June, 1977.
5. Economic Feasibility of Small Scale Intensive Dairy Production in Costa Rica. George N. Pederson, July, 1977.
6. Report on the Feasibility of Small Low Income Farmer Fruit and Vegetable Production, Processing and Marketing, Miles W. Kratka, July, 1977.
7. Prospects for Tree Production on Small Farms, Donald B. Zeaser, July, 1977.
8. A Preliminary Feasibility Study for the Production and Processing of Exportable Extractives of Annatto and Spices in the Quepos Region, KALSEC, June, 1977.
9. The Feasibility of Macadamia Nut Production as a Small Farmer Crop in Costa Rica, Herster Barres, August, 1977.
10. The Technical and Economic Feasibility of Ornamental Plant and Fern Production at the Level of the Small Farmer, Erick Berlin and Herster Barres, August, 1977.

The Pederson feasibility study was done in the Cartago area which produces about 60 percent of the total milk produced in Costa Rica. About 825 of the present dairy producers (15% of area total) are estimated to qualify as target farmers for this project.

The Pederson analysis is more or less applicable to the central plateau area from Zarcero to Turrialba. The 1972 study by Dr. Louis F. Herrmann indicated that this area had the resources to double its milk production.

Outside this milk zone, the dairy operation frequently is a dual purpose operation. Technically, these areas potentially offer economic opportunities for expanded dairy production if the marketing facilities become available according to Herrmann.

A 5 hectare dairy operation in the Cartago area was budgeted by Pederson assuming improved fertilizer pasture, 12 Jersey cows. Calculating all costs, including interest on the investment in cattle and improvements, but assuming all labor by the family, the results are as follows:

Investment		
12 cows		¢45,600
Building and fences		22,080
	TOTAL	<u>¢67,680</u>
Variable Cost of Production		
Feed, Fertilizer, Medicine		¢10,222
Maintenance		6,825
	TOTAL	<u>¢11,047</u>
Interest of Investment at 8%		6,415
Income		
Milk		¢51,057
Calves		1,040
	TOTAL	<u>¢52,097</u>
Net Cash Flow		
Per year		¢34,636
Per hectare		6,927

4. CONVENTIONAL FRUITS AND VEGETABLES

"Report on the Feasibility of Small Low Income Farmer Fruit and Vegetable Production, Processing and Marketing", by Miles W. Kratka, USAID/Costa Rica, July 1977.

Economic and technical feasibilities were made for producing conventional fruits and vegetables by small farmers in 6 regions of Costa Rica. The crops were evaluated mainly from a product view point rather than from the point of view of the individual producer's feasibility.

Costs and returns were presented for one product, broccoli, data were for one hectare, per planting. (Two or three plantings per year are considered the norm).

Production Costs-Broccoli
Per Hectare, per planting

Materials	\$ 993.00
Transportation	76.79
Labor	409.94
TOTAL	<u>\$1,478.83</u>
Production Income	1,973.40
Net Income	495.57

5. FORESTRY

"Prospects for Three Production on Small Farms - A Feasibility Study of Costa Rica" by Donald B. Zeaser, Consulting Forester, USAID/Costa Rica, July 1977.

Five potential projects were evaluated and their feasibility determined. The project ranged from an improved management system of interplanting with cocoa trees on the Atlantic side to 5 hectare per farm planting in the Turrialba area on otherwise marginal low. Areas where forest development is urgently needed but not now considered a safe investment for small farmers were identified and a program for investigation and extension work outlined for these areas.

Net earnings per hectare were estimated at ₡1,735 to ₡3,945 depending upon location and use made of harvest.

Estimated Costs and Returns on
Fence-Post-Telephone Pole Production in
Turrialba area

	Net Cost Per Ha.	Value of Plantation Per Ha.	Profit Per Year Per Ha.
Fence Posts (8 years)	\$1,112	\$2,735	\$203
Telephone Poles (12 years)	\$1,112	\$4,793	\$462

6. SPECIALTY CROPS

"Specialty Crop Market Report", by KALSEC, USAID/Costa Rica, June 1977.

A total of thirty one specialty crop items were investigated and evaluated as to their promise for small farmer production in Costa Rica. The crops were rated in terms of their probable success in the export trade and finally the crops were listed in order of the best prospects for financial success considering both their production and marketing attributes. The result was a narrowing down to 10 out of the original list of 31.

Prospects were considered excellent for paprika and this crop was costed out for production feasibility.

Projected Cost and Returns from Paprika
for Quepos Area Per Hectare

Production costs	\$1,337	or	¢11,760
Income (11,000 lbs. X 35 ¢)	\$3,850	or	¢32,879
Net profit per hectare	\$2,473	or	¢21,119

Note: The production costs were not broken down fully between labor and materials. However, from the information available it is apparent that a sizable amount of labor is involved. If family labor was the source, then the cash flow to the family would be substantially larger than the profit figure shown above.

7. Macadamia Nuts

"The Feasibility of Macadamia Nut Production as a Small Farmer Crop in Costa Rica", by Herster Barres, USAID/Costa Rica, August 1977.

The present status of production processing and marketing was evaluated along with the comparative advantage of production in Costa Rica relative to Hawaii. The areas of Costa Rica suitable for Macadamia were identified. Following is a summary of the production economics analysis:

Estimated Costs and Returns
with all labor by family
for 1 Hectare of Macadamia

Cash Start Up Cost <u>1st. 4 years</u>	Cash Flow <u>6th. year</u>			Cash Flow 11th year <u>Fully Amortized</u>		
	<u>Income</u>	<u>Cost</u>	<u>Net</u>	<u>Income</u>	<u>Cost</u>	<u>Net</u>
Q8,100	Q11,080	Q6,526	Q4,554	Q21,781	Q2,454	Q16,72

8. Ornamental Plants

"The Technical and Economic Feasibility of Ornamental Plant and Fern Production at the Level of the Small Farmer", by Erick Berlin and Herster Barres, USAID/Costa Rica, August 1977.

The cost and returns from small farmer production were projected along with an outline of the technical requirements for the production of ornamental plants. The potential market demand was evaluated.

Estimated Annual Cost and Return
from 1 acre of Ornamental Plant Production

<u>Cost</u>	<u>Gross Income</u>	<u>Net</u>
\$3,000	\$6,000	\$3,000 (Q50,000 per Mz.)

8. Pejibaye

A considerable number of publications are available at the Mission, giving the history and current status of pejibaye in Costa Rica. The uses, both current and potential are listed. Although the fruit is very nutritious for both humans and livestock, the crop until recently has remained primitive. Yet it

has three times the nutritive value for livestock per hectare compared with corn. The top quality fruits are salable for human consumption in Costa Rica while the poorer quality can be dried and ground for feed.

Cost of establishing a plantation is ₡3,000 per hectare, using family labor. About 7 years are required to get into full production. Once established, the production costs are principally labor for controlling plant and brush growth and harvesting. Using the going wage rates, they would have mounted approximately 16 percent of the value of the harvest in 1975. Again, this could be family labor, since the skills required are not great.

If the processing and the livestock feed market can be developed, the crop obviously has favorable economic feasibility.

Sellers estimated the average gross income per manzana for pejobaye in 1976 was about ₡4,182 per manzana. Using the above cost data, the corresponding cost of establishment per manzana would be ₡2,098. If a good market for livestock feed were developed, the less desirable fruits would then take on an economic value and the gross returns increased.

9. Cacao

"Possibilities in the Production of Cacao", Ing. Garret Britton, Academia de Centro América, February 1970.

With the recent increase in the international price of cacao, interest in this crop is being reviewed. Trade estimates currently place it as one of the more profitable crops in those areas where it is climatically suited.

This study outlines a method of rehabilitating existing Cacao planting, giving costs and expected returns. Data are in 1970 prices. About 60 percent of the first year's costs is in labor--which on a small farm could be supplied by the family at no cash cost. The value of the harvest at the end of the first year was two times that of the cash cost including interest on cash costs. The second year it was over three times the cash costs, and the third year almost four times. The operation was profitable all three years even when a charge was imputed to labor.

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Year	COSTS			Value of Harvest	Net Cash Return	Net Income Return
	Labor 1/	Cash 2/	Total			
1st.	01,048	0603	01,651	01,800	01,197	0 149
2nd.	1,029	600	1,629	2,550	1,950	971
3rd.	1,125	620	1,745	3,000	2,380	1,255

- 1/ Value of labor calculated at prevailing wages.
- 2/ Includes interest on purchase items at 10% per annum.

10. Marañón

"Programa Centroamericano de Cultivo del Marañón", Banco Centroamericano de Integración Económica, November 1972.

This study analyzes the world production and demand for Marañón and the characteristics of the market. The physical conditions for Central America production are evaluated.

Estimated Cost of Establishing 1 Hectare of Marañón

Equipment	35	to	50	Central American Dollars
Materials	35	to	45	" " "
Labor	145	to	195	" " "
Total	215	to	290	" " "

By the fifth year the producer will have a net revenue of 20 \$CA over the amortized cost. By the 13th year, the hectare will be fully amortized, with a return of 100.92 \$CA. These are net return over the imputed value of the labor.