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SUBJECT: INTERIM REPORT and AGRICULTURAL SECTOR ASSESSMENT UPDATE

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AGRICULTURAL SECTOR LOAN II

INTERIM REPORT

AGRICULTURAL SECTOR ASSESSMENT UPDATE

<u>Table of Contents</u>	<u>Page</u>
<u>SUMMARY</u> -----	i
<u>I. INTRODUCTION</u>	
A. Key Events Since January 1975 DAEC Meeting--	I - 1
1. Introduction -----	I - 1
2. Current Economic Conditions -----	I - 1
3. GODR Administrative Changes -----	I - 5
4. Further Sectoral Studies in Agriculture -----	I - 5
B. Responses to DAEC Guidance and Variations from PRP Submission -----	I - 8
C. Mission Strategy -----	I - 14
<u>II. AGRICULTURAL ASSESSMENT, AG SECTOR LOAN 027 EXPERIENCE AND ASSESSMENT UPDATE</u>	
A. Resumé of 1974 Agricultural Sector Assessment -----	II - 1
1. Goals of Agricultural Sector -----	II - 1
2. Resource Base -----	II - 2
3. Policy Formulation, Planning and Budgeting -----	II - 8
4. Performance of Agricultural Sector -----	II - 9

UNCLASSIFIED

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5. Production and Marketing -----	II - 11
6. Economic and Social Constraints -----	II - 12
B. Agricultural Sector Loan 027 (#517-T-027) Experience -----	II - 12
1. Small Farmer Credit -----	II - 14
2. Input Credit -----	II - 17
3. Farm Management -----	II - 17
4. Vocational Education -----	II - 17
5. Professional Education -----	II - 18
6. Market Research -----	II - 18
7. Feeder Roads -----	II - 19
C. Agricultural Assessment Update -----	II - 19
1. Land, Land Use, and Land Tenure -----	II - 19
2. Institutional Infrastructure and the Human Resource Base -----	II - 25
3. Inputs and Input Utilization -----	II - 35
4. Marketing -----	II - 58
5. Analytical Summary -----	II - 61

III. PROGRAM DESCRIPTION

A. Program Goal, Purpose, Design and Target Group -----	III - 1
B. Program Elements -----	III - 3
1. Agricultural Sector Planning, Coordination, and Evaluation -----	III - 3
2. Small Farm Production Support -----	III - 8
3. Farm Service System -----	III - 25
4. Rural Socio-Economic Development -----	III - 31

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IV.	<u>ISSUES</u>	
	A. Contribution Ratio -----	IV - 1
	B. AID Loan Amount -----	IV - 1
	C. Agricultural Credit Interest Rates -----	IV - 2
V.	<u>FINANCIAL PLAN</u> -----	V - 1
VI.	<u>DEVELOPMENT PLAN AND SCHEDULE</u> -----	VI - 1

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SUMMARY

This Interim Report has two purposes: To report on the current status of the proposed Agricultural Sector Loan II and to identify the analytical bases which serve as the underpinnings of the Mission's agricultural efforts. The proposed Loan Program, as outlined in this report, is based on the Mission's approach of assisting the Government of the Dominican Republic to achieve the goal of increasing agricultural production and thereby to improve the quality of rural life. In order to reach this goal, a higher level of agricultural productivity must be obtained, with concomitant increases in employment, income and nutritional levels. Consequently, the Dominican Government with the USAID in support proposes to provide governmental assistance specifically designed to meet the needs of the target group, small farmers and the landless rural poor, through improved governmental support services.

The Dominican Government, supported by the USAID Mission, has sought to learn more about the rural target group and to identify more clearly and precisely the constraints on its development, with a view to more efficient allocation of development resources. In developing the proposed Loan Program, the Dominican Government, aided by the Mission, has utilized the Sector Assessment, related AID Loan 027 implementation experience, and extensive studies and analyses regarding various aspects of the sector. A discussion of the current status of the sector and a review of the evolutionary process from sectoral studies to Loan Program are contained in Section II.

The proposed three-year Loan Program is expected to utilize \$30.0 million in funds, of which one-half would be provided from AID Loan resources and one-half by the Government of the Dominican Republic. The Program will build upon the existing institutional capacity of the Secretariat of State for Agriculture (SEA), the principal executing agency, in an effort to raise the average income and nutritional intake of the approximately 400,000 rural families that comprise the rural small and medium farmers, as well as the landless laborer categories. Program activities have been designed to improve

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small farm productivity as well as expand rural physical and institutional infrastructure, through a broad sectoral approach.

The four proposed Program elements, and the respective GODR and AID contributions to each, are:

Estimated Program Budget  
(In Thousands)

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	GODR	AID	Total
I. Ag Sector Planning, Coordination, and Evaluation	\$ 1,150	\$ 850	\$ 2,000
II. Small Farm Production Support	6,650	7,350	14,000
III. Farm Service System	4,500	3,500	8,000
IV. Rural Socio-Economic Development	<u>2,700</u>	<u>3,300</u>	<u>6,000</u>
Total	\$15,000	\$15,000	\$30,000

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I. INTRODUCTION

A. Key Events Since January 1975 DAEC Meeting

1. Introduction

The Project Review Paper (PRP) for the proposed Second Agricultural Sector Loan to the Dominican Republic was reviewed by the Development Assistance Executive Committee (DAEC) on January 29, 1975. The DAEC granted approval to proceed with intensive review with the understanding that a further review of the loan proposal would be held at a future date. Subsequent communications from AID/W provided general guidelines to the Mission for developing the program.

This document constitutes the interim report requested by the DAEC with respect to progress made during intensive review. In addition, the program described herein carries forward the intent and substance of the loan program as presented in the PRP, and reflects refinements and adjustments based on DAEC guidance, Mission-supported sectoral studies, AID Loan 027 implementation experience, and extensive consultation with GODR officials.

2. Current Economic Conditions

Economic growth in the Dominican Republic, as measured by GNP at constant prices, rose at an average annual rate of 10.4% from 1969 to 1974. The increase in 1975 will probably not exceed 5%, principally because of a severe drought and difficulties with the production and use of electric energy. Consumer prices in Santo Domingo increased at an annual rate of about 16% during 1975.

In the past, rapid growth has been strongly supported by a continuous rapid expansion of exports and public investments. The Dominican economy has been relatively free, but with a substantial portion of its exports concentrated in a few primary agricultural products, it is at the mercy of changes in world prices and market conditions. Commodity exports increased rapidly from \$184 million in 1968 to \$639 million in 1974, and will probably exceed \$900 million in 1975, principally due to

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strong market demand and during recent years to rapidly rising prices, as well as expansion of the mining of ferronickel and gold. Present expectations are that export income will fall, thereby eliminating a traditional stimulus for growth. The demand for imports will continue to grow in response to the needs of an expanding economy. Imports of goods and services constitute on the average about 27% of GNP.

With sugar prices falling, the country basically has two choices: To increase external financing to pay for imports needed for continued growth, or to cut back on imports to prevent a balance of payments deficit thereby risking retarding the rate of growth. The economy will, consequently, become more dependent on public sector investments to maintain continued expansion. 1976 may well be a pivotal year in which management of international and domestic financial policies will undergo revision and change. There are strong pressures to maintain economic and financial stability, already under attack by relatively high rates of inflation.

When Agricultural Sector Loan I (AID Loan 517-T-027) was authorized in June 1974, the Dominican Republic's budgetary situation and foreign exchange position were quite favorable, largely due to high 1974 world prices for sugar, the country's economic mainstay. The real rate of economic growth was 9 percent for 1974, despite a significant increase in the price of petroleum, and the overall balance of payments deficit was RD\$37.1 million. The Dominican Republic was fortunate in selling its 1975 sugar crop at average prices of about 27 cents per pound as compared to the average price during 1974 of about 14 cents. High world market prices for coffee, cacao, and tobacco have also prevailed. Foreign exchange earnings from gold and silver exports and tourism (none of which has yet had a major foreign exchange impact) have been increasingly good. On the basis of this apparently favorable situation, the GODR established a peso fund in the Reserve Bank early in 1975 to retain anticipated windfall tax revenues to be used for economic development programs in agriculture and to avoid further aggravation of the present high rate of inflation. As late as March of this year, the GODR had expected a year-end balance of payments surplus of about 150 million pesos.

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However, several events have since taken place that have resulted in a much less optimistic economic outlook. The possibility of a significant balance of payments surplus is now remote, and tax revenues will not be as great as anticipated. Sugar prices have fallen from a high of about 65 cents per pound in November 1974, to a current level of about 14 cents spot and 12.5 cents futures. The prolonged drought experienced throughout the country during the first half of 1975 was the worst in several decades. Agricultural production was severely disrupted in many areas and the negative effects to some extent will be felt in 1976 output. Yields in 1975 were adversely affected, and planting schedules were often abandoned due to lack of rain. The full effects of the drought and of subsequent periods of heavy rains which caused extensive crop damage to the country, have not yet been fully determined. However, there are obvious negative effects on production and the importation of grains, seeds, and foodstuffs in 1975 and early 1976 will be significantly higher than expected.

Consequently, in spite of a very favorable sugar export market in 1975, the latest Central Bank estimate for the 1975 balance of payments shows a surplus of only RD\$10 million rather than the \$150 million anticipated. The GODR, anticipating a more adverse future economic situation with rapidly declining export prices during the spring of 1975, initiated an austerity program designed to curb credit, limit low priority public expenditures and luxury imports, and to reduce domestic consumption of petroleum. It is expected that the current measures to limit aggregate demand will not be sufficient to completely offset the negative effects on the 1976 balance of payments of the sharp decline in sugar prices. Assuming that the value of imports can be held to a 5 percent increase in 1976, that the average price of sugar will be between 15 cents and 20 cents a pound and that the volume of sugar exports the same as in 1975, there probably would be a balance of payments deficit in excess of \$100 million to be financed externally. Commercial borrowing of this magnitude for one or two years could be arranged, but structural changes in the economy would be necessary to avoid a deteriorating situation in the long-term. The assumed level of sugar prices also implies a significant decline in total export value in 1976, the first decline in several years. Commodity exports have been rising continuously

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from RD\$156 million in 1967 to an estimated \$931 million in 1975. As cited above, exports have been a principal cause of the country's rapid growth rate. The weakening of that stimulus in 1976 points to the need for the Government to rely more heavily on public investment as a means of sustaining economic growth. This also suggests the need for tax reform, which is not likely to occur for political reasons.

The agricultural sector accounts for 20 percent of gross domestic product, approximately 75% of exports, and approximately 54% of the labor force. The sector has been growing quite rapidly at 5.2% per year during the past five years, but far less than the 10.3% average rate of growth of the whole economy. Consequently, agriculture's share of GDP has fallen from 25.9% in 1969 to 19.7% in 1974. Moreover, agricultural production for domestic consumption has increased more slowly than production for export. The lag in output of food for domestic consumption, relative to the growth of demand as fostered by increasing real per capita income, has been reflected in the growth of food imports which increased from RD\$32.7 million in 1969 (15% of total imports) to an estimated \$123 million in 1974 (19.5% of total imports).

Awareness of lagging food production, increasing food imports in the face of growing world shortages and the need to improve the lot of the rural poor were powerful factors in the GODR's concern for agricultural development during the past two years. This increased concern is exemplified in the increased flow of commercial bank credit to agriculture after October 1974, as a consequence of Central Bank encouragement in support of objectives identified in AID Loan 027. Special incentives were made available to the banks in the forms of reductions in cash reserve requirements and rediscount facilities for agricultural lending. Such loans increased by 27.3% during the nine months following initiation of the policy compared to 14.9% during the nine months preceding it. It is also reflected in the sharp 57% rise in total institutional agricultural credit extended between 1972 and 1974 (Table II, C, 2-2). Finally, as is shown in Table A-1 that follows, total agricultural financing appears to have more than doubled during the years 1972-1974, after having increased by only 15% during the preceding three

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years. Most of this sharp increase has been financed through the Central Government budget; the distribution of these expenditures between agriculture (including irrigation) and other sectors is shown in Table I, A-2.

These tables on financial flows make no distinction between operational (consumption) expenditures and investment expenditures. Unfortunately, a breakdown of aggregated public sector expenditures is not available on this basis. The division between Central Government capital and current expenditures in 1974 (Table I, A-2) was as follows: Agriculture-capital RD\$28.8 million, current RD\$11.3 million; irrigation-capital RD\$47.8 million, current RD\$3.1 million. Lack of recent import data has also made it impossible to disaggregate total investment expenditures by sectors. Lack of such import and investment data renders difficult a macroeconomic analysis of the development process by sectors. Nevertheless, it can reasonably be concluded that relatively more investment in the agricultural sector should take place in the future than in the past.

3. GODR Administrative Changes

At the end of July 1975, the Secretary of State for Agriculture, Sr. Carlos Aquino, was granted a leave of absence from his position for health reasons. President Balaguer appointed Sr. Manuel de Jesus Viñas Caceres, former head of the Agrarian Reform Institute (IAD), as Acting Secretary. In late August this appointment was confirmed, and Mr. Aquino was named Agricultural Advisor to the President.

In spite of the complexities of the position, the new Secretary has rapidly become familiar with on-going and proposed activities of the Secretariat of State for Agriculture (SEA). Relatively few staff changes have been made. The present Secretary fully supports the proposed program, and this document reflects considerable Dominican initiative and close cooperation with the SEA.

4. Further Sectoral Studies in Agriculture

Continuing Mission-supported study and research has resulted in a clarification of the findings of the Assessment

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Table I, A-1

Total Agricultural Financing<sup>1/</sup>  
(RD\$ Millions)

	1968	1969	1970	1971	1972	1973	1974
Total Agriculture Financing <sup>2/</sup>	<u>31.8</u>	<u>38.7</u>	<u>35.4</u>	<u>41.7</u>	<u>44.5</u>	<u>59.0</u>	<u>103.0</u>
1. Secretariat of Agriculture	9.9	11.9	12.1	11.6	12.3	11.8	10.8
2. Other Central Government <sup>3/</sup>	11.6	15.6	15.5	18.2	17.5	33.9	80.6
3. Decentralized Agencies	10.3	11.2	7.8	11.9	14.7	13.3	11.6
a. IAD	(0.8)	(1.6)	(1.5)	(1.2)	(3.9)	(5.8)	
b. IDECOOP	(1.1)	(0.4)	(0.4)	(0.2)	(0.1)	(0.2)	
c. Tobacco Institute	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	
d. Valdesia Corporation	( - )	(0.5)	(0.6)	(0.8)	(3.0)	( - )	
e. INDRHI	(0.3)	(0.2)	(0.5)	(0.7)	(1.1)	(0.7)	
f. Inazucar	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)	
g. Banco Agricola	(7.9)	(8.3)	(4.6)	(7.1)	(6.4)	(6.3)	

1/ Expenditures from domestic and foreign resources.

2/ The irrigation component does not match with the breakdown used in Table I, A-1 since minor differences exist between this table and Table I, A-2 due to the fact that figures by agencies do not classify expenditures by sector and the data were calculated from available sources.

3/ Refers to departments within the Executive Branch other than SEA which have made disbursements for agriculture or irrigation. Major Secretariats which did so in 1974 were: Secretariat of the Presidency (RD\$61 million), Secretariat of Finance, and the Secretariat of the Armed Forces.

Source: Ejecuciones del Presupuesto 1968-1974, National Budget Office.

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Table I, A-2  
Functional Classification of Central Government Expenditures 1966-1974  
 (RDS Millions)

	1966	1967	1968	1969	1970	1971	1972	1973	1974
<u>Economic Services</u>	<u>48.0</u>	<u>56.7</u>	<u>59.7</u>	<u>70.2</u>	<u>81.6</u>	<u>108.0</u>	<u>117.8</u>	<u>137.8</u>	<u>205.3</u>
Agriculture	13.5	14.0	18.0	17.1	15.2	15.4	17.5	27.2	40.1
Irrigation	5.7	4.8	3.5	10.4	12.4	14.4	12.3	18.5	50.9
Industry & Mining	1.8	3.9	1.3	1.0	3.1	3.5	2.6	4.5	19.4
Transportation & Communication	24.7	27.9	30.5	34.2	42.0	58.4	49.1	42.5	43.8
Energy	-	-	0.4	1.9	2.7	6.8	4.6	5.0	17.8
Urbanization & Buildings	2.3	4.0	3.6	5.3	5.7	8.2	30.7	39.0	33.0
Other	-	2.1	2.4	0.3	0.5	1.3	1.0	1.1	0.3
<u>Social Services</u>	<u>58.2</u>	<u>60.6</u>	<u>65.7</u>	<u>73.0</u>	<u>87.3</u>	<u>98.5</u>	<u>110.2</u>	<u>128.3</u>	<u>149.1</u>
Education	28.8	28.8	30.4	36.3	41.9	43.9	46.4	58.1	63.0
Health	20.7	21.6	23.9	25.6	29.0	32.3	33.4	38.3	48.9
Housing	0.7	5.0	4.4	5.0	9.1	13.2	13.1	15.3	19.8
Labor	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
Community Development	3.4	0.8	1.1	0.8	2.1	2.5	2.5	2.6	2.6
Water & Sewerage	4.0	3.9	5.3	4.7	4.6	6.0	14.2	13.4	14.2
<u>General Services</u>	<u>91.8</u>	<u>80.8</u>	<u>82.2</u>	<u>92.1</u>	<u>95.9</u>	<u>98.5</u>	<u>106.3</u>	<u>121.3</u>	<u>154.4</u>
Internal Security	17.2	17.2	17.6	17.6	17.0	17.7	18.6	21.0	28.1
Defense	32.8	28.3	28.7	29.8	30.8	31.2	32.5	35.1	48.1
General Administration	19.2	15.4	18.4	20.4	23.2	24.1	29.4	33.9	38.5
Transfers to Municipalities	15.2	13.3	11.0	11.0	9.7	9.3	9.1	10.4	11.2
Debt Service	7.3	6.5	6.5	10.7	11.8	12.3	12.9	14.7	24.3
Other	0.1	0.1	-	2.6	3.4	3.9	3.8	6.2	4.2
<u>Total Expenditures</u>	<u>198.0</u>	<u>198.1</u>	<u>207.6</u>	<u>235.3</u>	<u>264.8</u>	<u>305.0</u>	<u>334.3</u>	<u>387.4</u>	<u>508.8</u>

Source: Ejecución del Presupuesto 1966-1974, National Budget Office.

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and an update of the assessment is included as Part II of this report. Since the January DAEC meeting, the Mission has utilized the assistance of numerous TDY experts in various fields, including: fertilizer, rural credit and savings, extension and research, soils, marketing, inputs, agricultural planning, and economic analysis. Reports submitted by these individuals which have served as the basis for this update, provide insights into problems confronting the agricultural sector in general and the small farmer and rural poor in particular. Furthermore, some of the studies have provided specific findings which have influenced program decisions with respect to the proposed Loan. These new data support the analysis and the small farm strategy called for in the 1974 Agricultural Sector Assessment.

B. Response to DAEC Program Guidance

On January 29, 1975, the DAEC met to consider a PRP for a second agricultural sector loan program for the Dominican Republic. The PRP, as proposed, presented a program which had the following three goals:

- Increase agricultural production through better utilization of existing resources;
- Obtain a more equitable distribution of income and a concomitant improvement in the quality of rural life;
- Achieve an improvement in the level of national nutrition.

1. The PRP Program

The activities to be undertaken within the structure of the program originally included the following:

a. Land Tenure and Utilization

A land sales guarantee/mortgage institution designed to facilitate the transfer of land, particularly to

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small and medium-sized farmers; a land tax institute to achieve equitable land value assessments and the development of a land tax policy.

b. Agricultural Price Policy Strategy and Price Stabilization

Assistance to support the upgrading of INESPRES's staff through technical assistance and training; seed capital to establish more consistent and stable pricing policies.

c. Labor Intensive Rural Infrastructure Development

Technical assistance and budget support to establish a national and local capability to identify and implement projects; start-up funding to assist in the development and implementation of projects.

d. Technology Development and Outreach

Development of a more systematic linkage between Dominican research institutions and international research centers; strengthening the two existing in-country research facilities (CNEICA and CENDA); and establishment of a system of adaptive research demonstration and field trial centers in major production areas.

e. Development of Rural Credit and Savings

Assistance to the GODR in the development of an institutional capability to provide a mechanism for rural capital generation.

f. Economic Analysis and Policy Planning

Limited technical assistance and training to improve SEA's technical competence for formulating and implementing effective agricultural policy.

g. Professional Education

Technical assistance and training to improve the capability of the Dominican Republic to regularly provide

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the required number of professional agriculturists needed to achieve national agricultural development goals.

2. Results of DAEC and Mission Review

The DAEC gave general approval to proceed further with program development, but raised a question as to whether the program might be overly ambitious, given Dominican Government institutional capacity. Additionally, concern was expressed as to the number of different elements proposed, and the relationships between them.

With respect to the Committee's concern regarding implementation capacity, experience to date under AID Loan 027 and other cooperative activities has convinced the Mission that the Government, and specifically the Secretariat of State for Agriculture (SEA), does possess the institutional framework as well as staff capability to implement an innovative and complex program. In any event, the program now proposed has been substantially reduced in complexity and size. Moreover, the activities under each loan element have been specifically redesigned to expand and strengthen existing institutional capabilities rather than to create new institutional elements. The Mission is sensitive to constraints relative to SEA's capability with respect to manpower and management limitations. In formulating the loan program the GODR, with Mission assistance, has endeavored to design a program which maximizes the effectiveness of such personnel by creating programs complementary to existing activities. As a result, the seven elements presented in the PRP have been reduced to four more highly integrated areas of concentration: Agricultural Sector Planning, Coordination, and Evaluation; Small Farm Production Support; Farm Service Centers; and Rural Socio-Economic Development.

The program now constitutes a service-oriented approach to improving the economic and nutritional situation of the small farmer and rural poor. Many of the original components have been preserved, albeit modified and reformulated in response to Washington guidance, and the studies and negotiations undertaken as part of the intensive review process.

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Further, the cost of the program has been reduced from a total of \$58.3 to \$30 million and the ratio of host country to AID funds has been reduced from the anticipated 3:1 to 1:1 as a result of deterioration in the balance of payments situation and the general economic prospects for 1976 and beyond. Thus, the loan program presently consists of the following four elements, each of which is discussed in more detail in Parts II, C and III of this report:

a. Agricultural Sector Planning, Coordination, and Evaluation

During the course of the Mission's review of the GODR's institutional capability, it became apparent that in order to obtain the necessary information regarding the agricultural activities of the small and medium farmer, as well as to formulate specific programs directed to improve his well-being, a strengthened planning, implementation, and evaluation capacity would have to be developed within SEA. Additionally, it was discovered that a good deal of valuable information is in existence, which has been collected by the various GODR agencies within the agricultural sector, but since it is not located centrally nor collated it is not being utilized to its best advantage. Further, data systems used by individual agencies are often not compatible.

The loan program seeks to address the first constraint, planning, through the strengthening and reorganization of SEA's Planning Office. With respect to information systems, it is envisaged that a computerized data collection/evaluation center will be developed, with an information dissemination capacity. Technical assistance will be provided in support of both activities.

b. Small Farm Production Support

This element includes three activities: land utilization, production technology development, and the transfer and utilization of production technology.

As presently constituted, the land utilization activity is an attempt to focus on the proper use of land and its

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productivity potential. This represents a departure from the more narrow land tenure emphasis as originally proposed in the PRP. The reasons for such a change in emphasis lie in the further research which has been accomplished since the DAEC review.

The GODR's Land Tenure Study, received in September 1975, pursuant to the terms of the current AID Loan Agreement Covenant, provided much useful information as well as valuable insights into the present relationship between income, land tenure, employment, utilization of natural resources, nutrition, and production. Studies undertaken as part of intensive review have provided information indicating that the situation of the small farmer relative to the distribution of land is considerably better than was previously believed, and that much of the land previously listed as large farms is actually owned by the Government and being farmed as "collective farms" or is pending redistribution under the GODR's land reform program. This has been relatively successful in distributing land to the rural disadvantaged. It is estimated that by the end of 1975, over 45,000 farm families will have been relocated on Agrarian Reform settlements. This constitutes an estimated 15 percent of the farm population. In view of this increasingly favorable situation, it would be inappropriate to implement a program based on the land sale guarantee/mortgage approach. In addition, the establishment of a land tax institute, as considered in the PRP, would require the enumeration of much new data on land classification and use. It is anticipated that, under the proposed Land Utilization Element, as well as through IDB's ongoing cadastral survey, some of this information will be forthcoming.

The Production Technology Development Sub-Element is composed of crop specific activities including adaptive research, seed and plant multiplication, and specific production packages. As suggested by the DAEC, linkages will be developed with international agricultural research centers.

A third activity, the Transfer and Utilization of Production Technology, essentially consists of a continuation of the vocational and professional education programs begun under Loan 027. A study conducted for the Mission in August, 1975, provided specific information with respect to the supply

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and demand for professional manpower and indicated specific areas of concentration in which the Mission could participate, some of which will be included in this proposed loan program.

c. Farm Service Systems

This proposed element is composed of three areas of concentration. The first, Input Distribution Centers, will build upon experience gained under Loan 027 and expand the network of input centers. The second, Output Marketing, entails an integrated marketing service complex. Although this activity may retain a small, entirely GODR-financed stabilization fund, as originally contemplated in the PRP, AID would not provide any funding for this aspect of the program.

Rural Credit, the third activity under this element, would relate to a proposed IDB loan, and the AID funds would be used to further develop the AgBank's credit delivery system to small farmers. With respect to savings, the program may include a pilot project, but a large scale program as previously foreseen will not be considered at this time.

d. Rural Socio-Economic Development

This element remains essentially unchanged from the PRP presentation, but has been substantially developed and refined. Three integrally related activities are envisaged, and comprise programs in support of broad scale rural development agents, rural infrastructure, and small-scale agribusiness.

The DAEC expressed concern that an unwieldy number of institutions would be involved in the administration of this element. After in-depth consideration of the various possible implementation mechanisms, the Mission will strive to insure that the proposed activities will be placed under SEA's direction. While specific responsibility for some projects may be given to other agencies in certain instances, SEA will retain overall financial and administrative control. Also, to the degree possible, self-financing infrastructure projects will be considered for funding largely on a loan basis. Additionally, this program will allow for "grass roots" participation of the target group in the design and implementation of such projects.

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C. Mission Strategy

The Dominican Government considers the achievement of substantial improvements in the quality of life (as reflected in income, nutrition, etc.) of the rural poor; e.g., small farmers and landless laborers, as an overall goal in agriculture. The Government has determined that a primary means of approaching that goal, consistent with other national priorities, is through assistance to small farmers to improve productivity, while concurrently addressing the socio-economic problems of the landless or non-farm rural poor. Rural equity, therefore, is to be addressed both through production-oriented and socially-oriented programs.

In general, Mission strategy in agriculture is tied to recognition of, and support for the broad sector goal, and is based on a commitment to help the Dominicans develop and employ the means necessary to achieve that goal. Specifically, these means include encouraging the Secretariat of Agriculture in its effort to obtain better financing for the public institutions in the agricultural sector; improving sectoral planning and coordination; enhancing institutional capacities for training, research, and outreach; increasing farm production; and improving rural infrastructure, employment, and income. Specific Mission strategy, therefore, is to assist the GCDR in achieving a sectoral goal of improving the quality of rural life by extending essential services to small farmers and the rural poor. The Mission proposes to do this within a framework of three interrelated, mutually supportive approaches

The first of these is the development of a sectoral policy planning and coordination capability in agriculture, which will serve as a vehicle for dynamic agricultural development and as a management tool for obtaining and administering resources for the sector. The second is to foster a greater allocation of public and private resources to agriculture. The third approach is to bring about those institutional changes that will facilitate the growth of the sector and a greater participation by the target group in the benefits of that growth.

These policies are consistent with the USAID Development Assistance Program (DAP), as articulated in 1973 and

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subsequently elaborated on in the Sector Assessment. Implementation of programs embraced by these policies and proposed in this report is essential to address the rural income and equity issue in the Dominican Republic and to stimulate the regular allocation of additional funds to agriculture.

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II. AGRICULTURAL ASSESSMENT, AG SECTOR LOAN 027 EXPERIENCE AND ASSESSMENT UPDATE

A. Resumé of 1974 Agricultural Sector Assessment

The 1974 Agricultural Sector Assessment prepared by USAID/DR was the first formal attempt in the Dominican Republic to look at the total sector as a basis for determining program priorities and direction. The Assessment had its beginning in late 1973 when much of the basic information was prepared in a preliminary document entitled "Dominican Republic, Sectoral Discussion - Agriculture". This preliminary paper, dated October 16, 1973, also identified many areas where insufficient data existed or additional studies and analyses were needed in order to make a meaningful assessment of the sector. Following this preliminary report, the SEA and USAID/DR gave immediate priority to obtaining the more critical data required. Some of this was obtained and included in the Assessment, completed in March 1974, and some has been completed since that time. The process is a continuing one, as both the Government and the Mission view the gathering and analysis of new or improved information about the agricultural sector as a continuing process.

By and large, the information and conclusions set forth in the 1974 Assessment remain valid. Thus, this section reviews briefly the status of the situation as presented in the 1974 Assessment for the more important areas of the sector where the situation has remained, essentially, in status quo ante. However, in some instance new data has come to light, on the basis of which a better comprehension of the situation does exist concerning, for instance, the rural population, the small farm situation, human resources, research, credit, fertilizers, seeds, and marketing. Where changes in situation have occurred, the nature and implications of these changes will be discussed in part C below.

1. Goals of Agricultural Sector

The goals of the agricultural sector as developed by the SEA to serve as a basis for policy formulation remain unchanged since the 1974 Assessment. These are:

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- a. To achieve a more equitable distribution of income among those who earn their living from the agricultural sector. To improve the quality of rural life.
- b. To provide food and fiber to consumers at reasonable costs.
- c. To provide agricultural products for industrial uses, exportation, and import substitution.
- d. To obtain the kind of agricultural production which will improve national nutritional levels.
- e. To achieve optimum utilization of renewable natural resources.

On the basis of these economic and social goals, as well as their resource limitations, primary production targets were set by the SEA, which were discussed in detail in the 1974 Assessment (see Section VI, pp. 1-50). In general, the production targets were designed to meet internal food needs, increase agricultural exports, and give special attention to fulfilling minimum human nutritional requirements.

2. Resource Base

The major resources available for agricultural development were discussed comprehensively in the 1974 Assessment. As a result of additional research, it would now appear that in some instances the situation is significantly different than was reported in the earlier document. The following summarization of what appeared in the 1974 Assessment remains valid, however.

a. Human Resources

Human resources were dealt with as two groups in the Assessment: The agricultural labor force or rural population, and the technical and institutional staff available to carry out an agricultural development program.

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There are many estimates of the rural labor force, all of which indicate substantial unemployment or underemployment. One such study, the 1969 OAS study, reports that nearly half of the rural labor supply is marginal to requirements. Consequently, in the Dominican Republic the productivity of labor in agriculture is among the lowest in Latin America. The Assessment also noted that generally low nutritional levels among low income rural families has resulted in serious problems of physical and mental development. Basic skills are generally low or lacking in this group, and educational levels and literacy rates are low as well. This situation, of course, has not altered significantly over the past two years, but additional and more current information is now available concerning location, farm size, growth trends by area, etc., of the rural population. This supplementary information is discussed in part C below.

The human resource base for agricultural development, i.e., the technical personnel to do the job, was discussed in very general terms in the 1974 Agricultural Sector Assessment. It was clearly understood then that the shortage of trained personnel was a constraint both at the professional and vocational levels. It appeared at that time, however, that the need would reach a plateau in the near future and that care should be taken to avoid a training program that would result in a serious oversupply. More attention was given in the 1974 Assessment to how to develop trained personnel than to how many should be trained. In 1975, a comprehensive study was made of the professional and middle-level manpower needs and how to fulfill these needs. These new findings, which will be discussed later, significantly alter those which were set forth in the earlier Assessment.

b. Land Resource

The 12 million acres of land in the Dominican Republic were surveyed and given a general classification by the OAS in 1969.<sup>1/</sup> This study indicated that, with the exception

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<sup>1/</sup> OAS, "Study on Development and Planning of Natural Resources", 1969.

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of some of the more arid regions, all lands of acceptable productive capacity were then being used for agriculture or livestock. It also indicated that some steep mountainous land that should be left in forest or other tree crops is being intensively cultivated due to population pressures and that this is creating a threat of environmental deterioration.

Less than optimum land use patterns, resulting from a wide variety of constraints, leave considerable room for production and productivity increases on the present land base under cultivation. There are arid areas some of which could be brought into production with the development of irrigation. A portion of the Yuna River basin and some other smaller areas of river bottom lands presently in Class VI<sup>1/</sup> might be raised to Class I or II<sup>2/</sup> through drainage or flood control work. Increasing the land base through the development of irrigation and drainage works will become increasingly costly, however, although no specific cost estimates are presently available for most of the areas mentioned. Therefore, most significant and low cost production increases will have to come from increased productivity or changing land-use patterns to higher yield crop and livestock enterprises.

This land base situation has not changed since the 1974 Assessment. However, the "management unit" or farm size situation has been found to be significantly different than it was thought to be in early 1974. The publication of revised data and release of some unpublished data from the 5th National Population Census of 1970 and the 6th National Agricultural Census of 1971, and analyses based upon these data have provided a much better insight into the farm population. Also, it has corrected some previous misconceptions concerning the small farm situation.

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- 1/ Lands limited in use by the need for flood control or drainage works.  
2/ Lands suitable for cultivated crops.

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c. Water Resources

Approximately 270,000 acres of agricultural land was under irrigation in 1974 with the expectation of bringing an additional 160,000 acres into production by 1980. Most of the irrigated land is devoted primarily to rice production. There is no rational water use policy and water utilization in general is very inefficient. Upstream lands are often overirrigated while downstream lands have insufficient water due to unnecessarily heavy use upstream. Tariffs on agricultural water are often insufficient to maintain distribution systems which results in rapid deterioration and increased inefficiency.

Some new irrigation projects in the process of development or on the drawing boards are clearly aimed primarily at food production as opposed to industrial export crops. The Tavera-Bao complex is intended to irrigate 48,000 additional acres in the Cibao Valley. Others are being developed in the arid southwest. A serious problem with many of the planned irrigation dams is the potentially short life expectancy due to poor watershed management. Developers are aware of the problem and some remedial steps are being attempted but no substantial results have yet been achieved.

Very little is known to date concerning ground water supplies and no integrated studies are presently under way. The Institute of Hydraulic Resources plans to initiate a study in this very important field.

d. Inputs

The 1974 Sector Assessment dealt with credit and technology separately and did not include them in the inputs section. They will, therefore, be treated in similar fashion in this section.

1) Machinery. The agricultural machinery situation has not changed appreciably since 1974. Small farmers still have difficulty in obtaining machinery services because of the unavailability in time and place of the service that they need. In those instances where these services are available,

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they are still faced with difficulty in obtaining financing (usually credit) to pay for the needed service. The private sector has not moved in to fulfill the need for custom machinery services, probably because this is not a profitable enterprise for private entrepreneurs in view of the shortage of medium or long-term credit to finance the machinery and of competent operators and maintenance personnel. Availability of spare parts is also a problem.

Some larger processors of agricultural products now provide custom services such as land preparation, etc., to their producers and deduct the cost of these services from the value of the products received from the producer. The SEA has attempted to provide machinery services to small and medium farmers in some areas with varied success. The problem seems to be a shortage of skilled operators, inadequate maintenance and unavailability of spare parts.

2) Seed and Plant Materials. Improved seed and plant materials are still in short supply in relation to current demand, except for rice, corn, and cacao. Virtually all of the development and distribution of improved varieties is left to public institutions. Considerable knowledge regarding the introduction, production and testing of improved seed and plant material exists in the country but seed laws, quality standards and controls are inadequate or nonexistent. Lack of an adequate production and distribution system for locally adapted varieties is a primary constraint to increased production and higher incomes in rural areas and will be discussed further.

3) Fertilizer. The distribution system for fertilizer and other agrochemicals was ineffective and information concerning potential returns from the use of these inputs was inadequate. A comprehensive study of the fertilizer situation was completed in June 1975, and the results of this study are discussed later.

e. Agricultural Credit

The 1974 Sector Assessment estimated that credit to the agricultural sector the previous year amounted to

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approximately \$150,000,000 with more than half of this from institutional sources. It further indicated that less than 20% of farmers surveyed had solicited credit from institutional sources in 1973. Those who had not solicited credit gave several reasons for not doing so, the most important of which was the assumption that they would not receive it anyway. The survey also indicated that nearly all farmers could use additional credit but a majority did not indicate a specific purpose or need.

A large increase was reported in institutional credit to agriculture in the few years prior to 1974. It was also noted in the Assessment that interest rates were low in relation to free market rates. The number of loans to small farmers from the Agricultural Bank was increasing appreciably and, in many cases, technical assistance and input availability were being tied to the availability of small farmer credit.

The 1974 Assessment recognized the need of small farmers for additional credit. At the same time, it called attention to the higher risk of small farmer credit in particular, and agricultural credit as a whole, and suggested that interest rates, especially institutional rates, be increased and brought more in line with the risk. The distribution of credit on a timely basis to thousands of widely scattered small farmers is a formidable task. The 1974 Assessment deemed it to be of key importance, however, to the success of many aspects of the development program and to the accomplishment of sector goals.

Since 1974, there have been additional studies of the credit situation as well as other changes that warrant further discussion. These are discussed in part C below.

f. Institutions

The form, structure, and functions of the various institutions that are important to the agricultural sector are described in detail in the 1974 Sector Assessment in Section IV. These lengthy descriptions will not be repeated here. Essentially this section noted that the Secretariat of State for Agriculture (SEA) is legally charged with formulating

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and directing agricultural policy in the country and with the administration of essential services. It also has coordination responsibility for the activities of the decentralized agencies on virtually all aspects of agricultural development. The effectiveness of this coordination responsibility is reduced by the absence of an administrative mechanism to accomplish meaningful coordination. Also, all of the decentralized agencies have resources which do not appear in the national budget and which can be spent on the authority of the head of the institution. In total, these represent considerable resources and result in independence of action not conducive to coordinated development efforts. These public institutions include the Agrarian Reform Institute (IAD), the Institute of Development and Cooperative Credit (IDECOOP), the Price Stabilization Institute (INESPRE), the State Sugar Council (CEA), the Dominican Center for the Promotion of Exports (CEDOPEX), and the Hydraulic Resources Institute (INDRHI). The Superior Institute of Agriculture, a semi-private agricultural secondary school and four-year agricultural college, is also discussed.

The institutional structure per se has not changed significantly since the 1974 Assessment. Changes of effectiveness in specific areas and/or changes in constraints affecting institutions have occurred, however, and will be discussed.

g. Other Sector Services

Some of the more important services to the agricultural sector were discussed under this heading in the 1974 Sector Assessment. These included research, extension, marketing, and transportation. Since the situation with respect to all of these has changed significantly, and additional information has become available, we will defer discussing this topic in detail in this section.

3. Policy Formulation, Planning, and Budgeting

The National Development Commission, headed by the President of the Republic, has the authority to reach policy conclusions and to approve plans and programs before their

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submission to the Presidency. Functionally, the council serves primarily as a forum for discussion of proposals with a view to achieving concensus where possible. Proposed policy decisions often are screened by the Technical Secretariat of the Presidency. This office can be a useful conduit in the decision process as it is concerned with budgetary formulations and disbursements and sometimes gets involved in project execution and evaluation.

The Secretariat of Agriculture, through its Office of Planning, Coordination, and Evaluation, in coordination with the National Planning Office of the Technical Secretariat, has the responsibility for overall planning and evaluation of agricultural sector programs.

At the management level, the Secretariat of Agriculture sits as a member of the Board of Directors of each of the affiliated decentralized agencies discussed in part 2, f, above. Although this contributes somewhat to achieving overall sector awareness, it is not fully effective as a coordinating device.

An important problem in this area is the lack of an adequately defined agricultural development policy and rational allocation of budgetary resources. Consequently, programs are often approved and funds allocated on the basis of emergency requirements (such as shortages of staple crops) or to meet anticipated foreign demand for specific commodities (such as sugar and beef). Concern for short-term objectives, often at the expense of progress toward long-term goals, has thus often been blamed for sharp deviations from stated policy objectives. This may be true. However, it may also be a result of the absence of a single dependable data base and the comprehensive analyses necessary to develop the most rational agricultural policy.

4. Performance of Agricultural Sector

At the time the 1974 Assessment was prepared, it was noted that the agricultural sector's share of the GDP had fallen from 25.3% in 1966 to 22.1% in 1972. Value of agricultural production increased more than 32% during the same period.

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Per worker contribution to GDP in agriculture was apparently only about one-third as much as for workers in industry.

Average family income in the rural sector was reported to be much lower than for those outside the sector. Income within the sector was also badly skewed with rural laborers and very small farmers in the very lowest strata of the total income group. It was estimated in 1974 that farm workers earned between RD\$300 - 500 annually. Average contribution to GDP per economically active worker in the rural sector was approximately RD\$740 in 1970 compared with more than RD\$2,400 for the industrial worker. This situation was believed to be partially attributable to the small average farm size and lack of capital.

Agriculture still accounted for over 70% of all exports in 1973 with sugar maintaining its position as the leading export commodity. Some attention had been given to increasing product elaboration or processing in-country to increase employment opportunities and increase export receipts.

The population situation was and remains a critical element in the development picture. Insufficient up-to-date information concerning population was available in early 1974. However, with the publication of the 5th National Population Census of 1970 (released in 1974), significantly more data is now available.

The 1974 Assessment dealt only with the rural employment situation and not with the total. It has been mentioned that unemployment and underemployment were extremely high. Agriculture accounted for approximately 60% of the labor force. An International Labor Office (ILO) study estimated that about 41% of the 600,000 in the rural labor force was unemployed or underemployed. Basic skills necessary for utilizing this group outside of agriculture were nonexistent. However, promise of public works employment in urban centers often results in accelerated rural-urban migration which only transfers the problem instead of solving it. Many rural centered activities such as more intensive agricultural production, construction of penetration roads, irrigation and drainage works using labor intensive methods, etc., offer possibilities for employment generation.

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The structure of the export-import situation as it related to agriculture was relatively clear in 1974. Agricultural products, which had accounted for 90% of exports earlier had declined to 70% in 1973. This was a result of increased exports of minerals and other products and did not reflect a decrease in the value of agricultural commodities.

5. Production and Marketing

Production and marketing was discussed in the 1974 Sector Assessment on a commodity or commodity group basis. An attempt was made to calculate the 1973 production by commodity or group and to set targets for increasing production by 1980 at two alternative levels. These target levels were determined on the basis of global production needed by crop or group to fulfill minimum nutritional goals assuming perfect distribution. It was understood that perfect distribution would not be achieved but this was deemed a logical method of arriving at realistic minimum production targets.

Once production targets had been established in that Assessment, suggestions were presented for modifying production in each group. Production methods (and, in some cases, production practices) and constraints to modifying these methods were discussed. Where increased production was expected to create a market constraint, possible solutions to this were discussed also. In effect, the production and marketing sections of the 1974 document, represent an outline for a national production program suggesting specific production targets, constraints, and specific steps to be carried out to reach the target.

The production targets set in 1974 were based primarily upon anticipated population increase and on two different nutritional levels. In some cases, these were the goals set by the SEA, which were basically derived in the same manner. These goals have not changed. Also, the strategies suggested for modifying production to attain these goals are still valid. On the basis of changes in the situation, some of the constraints will affect to greater or lesser degrees the success of the efforts. Such changes were anticipated, however, and others are expected to occur in the future.

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No reliable estimate can be made at this time of the progress or lack of progress toward the stated goals. In 1975, the Dominican Republic experienced the most serious and widespread drought in several decades. There were serious disruptions in production programs and severe shortages in the availability of some key commodities. It is unfortunate that this should occur during what is really the first crop year of the six year production effort and it prevents an early appraisal of progress toward the goal.

6. Economic and Social Constraints

Five broad constraints to agricultural sector development were identified in the 1974 Assessment. These were:

- Land, land use, and land tenure.
- Inputs and input utilization.
- Credit, particularly institutional credit.
- Marketing, including access roads.
- Institutional infrastructure and improving the human resource base for agricultural development.

Since these were considered to be the more important constraints in late 1973 and early 1974, it is not surprising that additional study has been done or data collected and analyzed for each of them. The land base, of course, has not changed appreciably. Additional population and small farm information, however, creates a different picture than in 1974. An updating of the situation as it relates to each of these constraints and a restatement of the constraint situation at the present time will be found in part C below.

B. Agricultural Sector Loan 027 (#517-T-027) Experience

The loan, signed on October 16, 1974, supports a Dominican Government program costing \$33.9 million to which AID

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contributes \$12.0 million. This program consists of eight different subprograms formulated to achieve the following objectives:

- Increase agricultural production for domestic consumption.
- Increase the productivity of small farmers.
- Increase employment in agriculture in the rural areas.
- Develop the institutional and human resources needed to sustain agricultural growth and development, and
- Raise and more equitably distribute rural income.

After satisfaction of the several Conditions Precedent to Disbursement and other mobilization efforts involving a total of six different Implementing Agencies, the program became operational during the period from February through June 1975. Since that date, total program disbursements have surpassed the targets set forth in Implementation Letter No. 3 (which provides an operational work plan for CY 1975) due, primarily, to the accelerated rates of disbursement under the Small Farmer Credit Program. Moreover, in general it can be said that overall progress to date has met, if not exceeded, program expectations and projections. To the extent that delays in the initiation of program elements have occurred they have been due in large part to basic structural problems associated with the Dominican agricultural sector which this program is intended to address.

Most of the problems encountered in the start-up phase of Ag Loan I will not occur again since several of the Ag Sector Loan II activities will build upon the foundations established under Ag Loan 027 and will, in many instances, utilize the administrative mechanisms already developed. In those areas where there will be a complete departure from prior activities, coordination difficulties will be minimized because all elements will be implemented through the SEA or will be more directly under SEA's control. Experience with that agency in the

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implementation of Loan 027 and other activities indicates that it has an increasing capability in program coordination and administration.

Small Farmer Credit (SFC)

Approximately 68% of all Loan 027 program resources were allocated to this component. The basic purpose was to get more credit to a larger number of small farmers through a series of program activities. This entailed, among other things, obtaining a series of policy changes in the credit area favoring small farmers. One such measure was a reduction in the Agricultural Bank's lending ceiling to lend encouragement to this institution, the largest agricultural credit source in the country to address the needs of small and medium size farmers rather than to disburse scarce resources among large farmers and processors who have or should have greater access to credit from the private commercial banking community.

Table II, B-1 reflects the number of loans, by size, made by the AgBank from all sources in 1973 and 1974, plus projections for 1975. The number of loans under RD\$10,000 has increased more, percentagewise, than those over RD\$10,000. Extrapolating from Table II, B-1 data it is expected that in 1976 the RD\$0 - 2,000 category will have a greater percentage increase than any other group, since the PIDAGRO funds which created a bulge in the second category will have been substantially disbursed.

Table II, B-1

Loan Size	Number of Loans		
	CY 1973	CY 1974	Estimate CY 1975
RD\$0 - 2,000	37,179	40,747	46,573
RD\$2,001 - 10,000	2,191	3,690	8,554
Over RD\$10,000	376	730	783

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Despite a delay in initiating SFC operations, disbursements have exceeded the expectations and projections incorporated in Implementation Letter No. 3. The performance of the three principal SFC Implementing Agencies, utilizing Loan 027 program funds is as follows:

Agricultural Bank  
(as of November 14, 1975)

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	Number	Amount (RD\$)
CY 1975 Anticipated Disbursement of Program Funds	-	1,980,000.00
CY 1975 Actual Disbursement of Program Funds	-	3,127,000.00
Applications Received	5,799	3,409,270.15
Applications Approved	3,890	2,223,754.40
Applications in Process	873	572,463.45
Applications Turned Down	1,036	613,052.30
Average Loan Size	-	576.00

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SEA Supervised Credit  
(as of October 31, 1975)

	Number	Account (RD\$)
CY 1975 Anticipated Disbursement of Program Funds	-	1,140,000.00
CY 1975 Actual Disbursement of Program Funds	-	3,166,000.00
Applications Approved	6,913	3,240,789.63
Applications in Process	600	300,000.00
Average Loan Size	-	468.80

Dominican Development Foundation (DDF)  
(as of November 19, 1975)

	Number	Amount (RD\$)
CY 1975 Anticipated Disbursement of Program Funds	-	720,000.00
CY 1975 Actual Disbursement of Program Funds	-	1,326,000.00
Applications Approved	2,558	1,956,940.00
Applications in Process	450	271,329.97
Average Loan Size	-	581.19

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The SEA "Custodial Account" small farmer disbursement mechanism has been negotiated and signed by a number of commercial banks, with operations just beginning. SEA was able to obtain funds, on a 1:1 matching basis, from the private participating bank, thereby doubling the resources available under this activity. This was not foreseen at the time of loan proposal and will have the effect of involving private banks more directly in serving small and medium size farmers.

Input Credit

Initial analysis of the input credit activity revealed that a mechanism different than that first planned was essential to meet program objectives, with respect to small farm input needs. After extensive examination of the problem by the GODR and the USAID, with advice from consultants it was agreed to use RD\$2,000,000 originally budgeted for SEA/IDECOOP input purchases to initiate a new inputs distribution system under the SEA's jurisdiction. The system is being closely patterned after the successful Puerto Rican farm input distribution system.

Farm Management

The SEA has established, as planned, a Farm Management Office within the Division of Economics. National and regional staffing is complete. Cost of production studies have begun and five test/demonstration farms (about 30% of the total planned) are in operation. Despite a critical delay in initiating the program, progress is now satisfactory and no serious constraints or problems are anticipated.

Vocational Education

There have been only minor operational problems in the implementation of this element. Of the five farmer training centers planned four are already staffed and in operation. Most of the staff training has been completed and the two year operating plan is complete. Ten groups of 30 farmers each (300 total) are presently in training. It is expected that some 2,000 farmers will receive training in 1976 and that output targets will be accomplished on schedule.

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### Professional Education

At the outset of the loan, considerable difficulty was experienced in achieving the required coordination between the universities involved and SEA. These problems have since been resolved and a SEA/University Coordinating Committee is functioning. A project coordinator has been named, needed technical assistance has been contracted and a complete plan of action has been developed for the entire program. Training of professors and construction of new agricultural laboratory facilities and after a slow start the program is now expected to proceed on schedule.

SEA began this pilot program in November with establishment of a central management office and the opening of five farm service centers at strategic locations. Two consultants who have had extensive experience with the Puerto Rican program has been contracted to provide continuing advisory assistance. The results obtained under this program will be carefully monitored to determine if additional Loan 027 program funds are to be allotted to this activity and to provide the basic framework on which the Ag Loan II input activities will be built.

### Market Research

A 30-month contract between the SEA and the Inter-American Institute for Agricultural Sciences (IICA) was signed June 6, 1975, to provide technical assistance in agricultural marketing to SEA and to other agricultural marketing-oriented institutions (CEDOPEX, INESPRES, etc.). IICA's scope of work with the Marketing Division of SEA includes efforts to (a) develop a general frame of reference through an analysis of existing marketing information, (b) strengthen Dominican institutions working in agricultural marketing, (c) design and execute research/analysis as related to agricultural marketing problems, and (d) develop a National Marketing Plan. This effort has moved ahead on schedule with no serious problems. IICA staff are on board and are making excellent progress toward the stated objectives. The more important specific accomplishments to date are discussed in part C below. A preliminary report, which will provide additional guidance for the marketing aspect of Loan II

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is expected to be completed and submitted to USAID/DR in late December 1975.

Feeder Roads

Twenty-five kilometers of feeder roads have been completed or are under construction. All planning, procurement of right-of-way and budgeting have been completed on another thirty-three kilometers and work will soon begin. After the program started, a review was undertaken of the labor intensity of the construction methods being used. A new, more labor intensive system, based upon the recommendations of a consultant experienced in this type of construction, was developed and is now partially in operation. The results of this new system will be carefully evaluated upon completion of this stage in order to determine its applicability to future efforts. In total, this element is somewhat behind schedule but progressing satisfactorily.

C. Agricultural Assessment Update

1. Land, Land Use and Land Tenure

The 1974 Agricultural Sector Assessment identified the limited land base as a major constraint to agricultural development. In view of the high population growth rate it is one that will become increasingly important. This problem is further complicated by the low average level of productivity for most agricultural commodities and especially for small farmers. Since the 1974 Assessment considerable additional information has been released and analysis of this data provides a significantly better understanding of the population and small farm situation.

The 5th National Population Census (1970), which has been released since the previous assessment was completed, gives a much better picture of the population situation. Indeed, the topic of population was not discussed in detail in 1974 because sufficiently accurate information did not exist in the form needed at that time.

Although the assessment indicated urban population was growing much faster than rural population, and further

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stated that it was deemed important to improve the lot of the small farmer and rural laborer as one means of slowing down rural to urban migration, present data indicate that the movement of rural people to urban centers is taking place even more rapidly than previously believed.<sup>1/</sup> Comparisons of 1960 and 1970 population census data show that total urban population increased 75% from 1960 to 1970. Rural population increased only 15% during the same period. Although rural population was starting from a larger base it is significant that only 31% of the total population increase for the ten year period was in the rural area when sixty percent of the total population was still rural in 1970. (See Table II, C, 1-1 below.)

Table II, C, 1-1

Population 1960 - 1970  
(000 persons)

	Rural	% of Total	Urban	% of Total	Total
1960 Population	2,117.1	69.5	929.9	30.5	3,047.1
1970 Population	2,435.0	59.9	1,626.9	40.1	4,061.9
Increase in 10 Years:					
Number	317.9		697.0		1,014.8
Percent	15%		75%		33%

Source: 4th National Population Census - 1960, and 5th National Population Census - 1970.

<sup>1/</sup> Urban population includes all persons living within the limits of the 98 municipalities. The smallest of these has 760 inhabitants.

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Using population projections based upon the average inter-census rate of population increase, Graber and Warren<sup>1/</sup> projected population growth and distribution through the year 2000. These projections indicate a change from the 60% rural - 40% urban in 1970 to a make-up of 30% rural and 70% urban in 2000.

In addition to the change in the location of the population expected in the year 2000, these projections have serious implications with respect to the land constraint. There are presently estimated to be 6,840,500 acres of land in farms including pasture lands. This is about 0.55 hectares of farm land per person based on 1975 estimates of 4,705,300 total, 2,595,100 rural and 2,110,200 urban populations. Assuming land in farms to be a fixed amount,<sup>2/</sup> on the basis of the above population projections there will be only 0.27 hectares of land in farms per capita by 2000. Only about 42% of farm land was in crops, including sugar, in the 6th National Agricultural Census of 1971; the rest was in pasture.

These projections clearly indicate that the land constraint will become increasingly critical as time passes. The same projections, however, do not imply drastic changes in farm size or in the location of the rural population although increasing rural numbers will undoubtedly continue to reduce the

<sup>1/</sup> Eric Graber and John Warren, "Statistical Analysis of the Agricultural Sector", first draft mimeo USAID/DR, October 1975.

<sup>2/</sup> Some additional land was added to farms between 1960 and 1971 Census reports. The difficulty of increasing land in farms becomes progressively greater each year and insufficient data are available to make meaningful projections in this area.

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size of some of the larger holdings. Heaviest concentrations of rural population will continue to be in areas of high soil fertility. This is not likely to change much except in areas affected by irrigation development or similar projects.

Data concerning the number and average size of small farms in the Dominican Republic has also been improved significantly since the 1974 Sector Assessment. In early 1974 the SEA, using 1960 census data as a base, estimated that there were (in 1974) approximately 455,000 total farms and that 236,510 of these were "sub-family units" of 1.25 has. or less, not large enough to provide an adequate living for the average farm family. This 1960 census defined a farm as one or more "contiguous" parcels of land farmed by the same operator. If noncontiguous parcels were farmed by the same operator they were counted as separate farms.

The 6th National Agricultural Census of 1971 used the same definition for "parcel" as that used in the 1960 census. The definition for "farm" in the 1971 census was changed, however, to count as one farm all contiguous and noncontiguous parcels of land farmed by the same operator. This difference in definition caused an apparent decrease in total farm numbers from the reported 447,098 enumerated in 1960 to only 304,820 in 1971. The greatest change came in the small-farm category<sup>1/</sup> where there were enumerated 236,510 "sub-family" units in 1960 but only 95,592 in 1971 using the new definition. This is a logical result as there is much more parcelization of the landholdings of small farm operators. Also, by combining small farm parcels many of the extremely small operators counted separately in the 1960 census are shown to have more land than was previously presumed.

The difference in the size and numbers of small farms revealed by the 6th National Agricultural Census of 1971 does not eliminate the problem of the small farmer. It does

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<sup>1/</sup> Farms of 1.25 hectares or less.

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give a much more accurate picture of the size and scope of this problem. The Graber-Warren analysis of the agricultural census and other recent surveys and studies, which is still underway,<sup>1/</sup> is providing a lot of additional information about the 49,651 "microfarms" which have less than 0.5 hectares of land. When completed, it is expected to provide additional information about employment, cropping patterns, input use, marketing, livestock production, etc., on microfarms which will assist materially in designing programs and projects to meet the needs of this small farmer and his family.

The Graber-Warren analysis already provides considerable information concerning other-farm sizes and their characteristics but in less detail than is provided for the smallest farm size. The second smallest farm size, those farms with 0.5 to 5.0 hectares, is considered to be of priority importance also. There are 185,292 farms in this size classification and these average 1.8 hectares each. Many of these, in areas suitable to intensive crop production, can, through the use of proper production practices, provide a fair level of living for an average family. On the other hand there are many that will provide only marginal sustenance even using improved methods.

The more recent information now available and the Graber-Warren analysis indicate that significant changes have taken place with respect to land distribution since 1971. Several laws passed in 1972 have broadened the agrarian reform program. Law 290 provided for all privately-owned rice farms over 31.4 has. in size and irrigated by government-built irrigation canals to be turned over to the Agrarian Reform Institute (IAD) for redistribution. Other laws provided for the purchase of vacant lands by the Government and for the recovery of state-owned lands that were being used by private individuals without permission. A total of 226,135 hectares

<sup>1/</sup> Eric Graber and John Warren "Statistical Analysis of the Agricultural Sector", first draft mimeo USAID/DR, October 1975.

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have been acquired by the Government in its land reform program since 1972. Much of it has been redistributed or settled by groups of farmers in a "state-farm" type of operation called "asentamientos" in which the farmer members work the land together and share equally in the proceeds.

A noticeable change has taken place in farm size since 1972. The number of farms of 500 has. or more is declining. Those in the 50 to 500 ha. group are increasing. This is only partly due to the IAD program. SEA officials believe that considerable redistribution of private land holdings is taking place also. This may be caused, in part, by the anticipation of land distribution by IAD. In any event a large group of intermediate sized farms has now come into being where only a few existed prior to 1972.

As previously discussed, the land distribution situation of the small farm sector relative to the larger farm size categories is not as disproportionate as was reported in 1974. This new information, plus the continued changes that have taken place in land distribution and tenure in the Dominican Republic, have changed the picture with respect to the land constraint. The availability of land is still a paramount constraint, and virtually all land that can be used for agriculture without high development investment is already in some form of agricultural production. The other major constraint with respect to land is its utilization. Land productivity is very low, and the large number of widely dispersed small and medium farms makes the extension of improved technology, agricultural inputs and efficient market services a very difficult task. It is probable, however, that most increases in food and fiber production and in the level of living of the small farmer and farm laborer will have to come from increased productivity, which implies more efficient utilization of the land resource.

The seriousness and complexity of the production-marketing system in a situation predominated by small and medium farmers demands special attention. The program proposed herein is designed to ease those constraints that are most adversely affecting farm productivity and farmer well-being. There are 248,000 Dominican farmers with more than 0.5 hectares but less

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than 50 hectares. Three-fourths of these have less than 5.0 hectares. Almost 50,000 other farms contain less than 0.5 hectares each and an estimated 100,000 farm laborers do not own or operate their own farms. These small and medium farmers are the target recipient for this proposed program. The very small farmer and the landless farm laborer also are singled out for special attention and assistance. In addition, it is believed that many of the elements designed to obviate constraints for the small and medium farmer will result in increased employment and other benefits for the very small farm and landless rural families.

Under the Land Utilization element of the proposed program, assistance will be given to expanding soil survey work in priority areas (particularly at the micro level to benefit large numbers of small farmers), developing detailed soil fertility information for important soil groups, and to solving complex soil conservation problems. These activities will enable researchers and extension workers to make meaningful input and land use recommendations to the farmers they contact.

Other elements of the proposed loan, which are discussed later, will be aimed at improving the research capability to address production constraints of the target groups, input and output marketing constraints vis-à-vis the small and medium farmers, and to improve the economic position of those individuals who must obtain their subsistence in the rural areas without the benefit of land ownership.

2. Institutional Infrastructure and the Human Resource Base

a. Institutional Infrastructure

According to the 1974 Agricultural Sector Assessment, a principal institutional constraint to agricultural development has been the multiplicity of agencies, each following its own mandate, somewhat independently, in the absence of an overall unifying agricultural policy and a clearly affirmed and accepted single channel of major policy direction. The unsatisfactory nature of sector planning in agriculture is also

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partly due to the inadequacy of the basic information and analyses that must form the base for sound policy decisions. This inadequacy of a sound planning, coordination, and evaluation mechanism has tended to permit those programs to grow that have had strong leadership. The allocation of resources is usually to the most successful and strongest programs. Importance to overall sector development is not always given adequate attention.

The 1974 Agricultural Sector Assessment recognized the critical shortage of sound data and information concerning a large part of the agricultural sector. At that time, it was suggested that a sectoral planning, coordination, and evaluation office be established in the SEA as a first step toward providing guidance and coordination to the overall agricultural sector program. In late 1973, the nucleus of such an office was formed in the SEA. It is still not fully effective because of inadequate financing, insufficient personnel and unavailability of needed technical assistance.

USAID grant funds have been used since 1974, along with increased support from the SEA, to help meet the need for better data and analyses. Many USAID supported studies have contributed significantly to this interim effort. The marketing study, which is being financed under AID Loan 027, is also providing key pieces of information to improve the planning base. All of these have made important contributions to the improvement of our state of knowledge, but a well organized system of data collection, analysis, and planning still does not exist. As a matter of fact, several of the studies previously mentioned have proposed the establishment of a sectoral office of planning and coordination as a necessary element of an orderly agricultural development effort. A proposed reorganization should help to improve the situation.

An effective Agricultural Sector Planning, Coordination, and Evaluation unit, gathering and analyzing the needed data, providing policy recommendations to decisionmakers, and assisting in the coordination and evaluation of programs, could be a key factor in assuring the effective use of limited resources toward sector goals. Such a unit would permit the objective study of the entire agricultural sector on a continuing

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basis. Constraints could be identified and priorities determined on a more rational basis. Program development would be increasingly oriented toward sector priorities and goals.

The second agricultural sector loan proposes to assist the GODR to address the constraints mentioned above with the improvement of the planning, coordination, and evaluation capability of the agricultural sector. This will be done by providing assistance through the SEA:

- 1) To expand the existing capability for the generation and tabulation of primary level data and to expand and increase data analysis;
- 2) To establish and maintain a sector-wide data bank and agricultural information center; and,
- 3) For technical assistance and management support to assure the successful expansion and increased effectiveness of the agricultural planning capability on a sector-wide basis.

b. Rural Area Infrastructure

The 1974 Agricultural Sector Assessment stated that significant progress probably could not be made in reducing the outstanding volume of rural unemployment/underemployment without creating extensive employment through rural public works -- roads, land development and irrigation systems. A key factor to the inadequacy of rural public works programs and the associated chronic problem of rural underemployment has been the failure of public and private sector infrastructure and institutions to adequately service the rural dwellers -- both on and off the farm. As a result, there is a substantial portion of the rural population which remains beyond the reach of traditional development programs. This segment of rural society is characterized by an almost total lack of command over factors of production except for their own often unskilled and/or unmarketable labor.

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This sub-sector of poor and deprived families, landless laborers, subsistence farmers and youth furnishes much of the fuel for rural-urban migration and many of the statistics for rural underemployment (over 40% of rural labor force is underemployed or out of work) and undernutrition (about 75% of rural families are below "minimum" nutrition levels). These rural landless constitute about 35% of families whose average income is \$420 per year.

Recent efforts directed at non-farm rural development have concentrated primarily on the generation of labor through scattered construction projects to provide schools, buildings, sports facilities, etc. Such activities provide needed community facilities, but often have little affect on the economic well-being of the area. Therefore, the SEA and various other institutions recognize this as a major area for renewed development efforts that foster both social advances and lasting economic impact.

With respect to physical infrastructure, twenty-five kilometers of feeder roads have been completed or placed under construction under AID Loan 027 funding during 1975. After the program started work was temporarily halted in order to review the degree of labor intensity of the construction. A new system, based upon the recommendations of a consultant experienced in this type of construction, is being implemented and results will be carefully evaluated in order to determine its applicability to future efforts. These projects are helpful in improving rural physical infrastructure and in providing short-term employment opportunities for rural dwellers in the vicinity of road building activities.

However, regarding rural institutions, the situation has not changed appreciably, and most rural dwellers remain outside the reach of any institutional structure.

In response to these constraints and GODR initiatives, one proposed loan element is directed at promoting the kind of on-going socio-economic development needed in rural areas. Proposals considered have suggested, and USAID endorses, a coordinated multi-factor approach that addresses both causes

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and symptoms of rural poverty through support for expanding the SEA's Rural Area Agent Program, including additional funding for replicable community infrastructure projects and credit outreach for small non-farm commercial enterprises. Under these activities, the rural development agents that are to be fielded by the SEA will provide organization, technical assistance, and credit needs to participating rural area individuals and committees in identifying and executing infrastructure projects and to individuals or groups contemplating development of cottage industries and other small-scale businesses.

c. Human Resources

The 1974 Agricultural Sector Assessment recognized the problem of human resources and discussed the two facets of it that are most relevant to agricultural development. According to the Assessment, human resources at the farm level were seriously underutilized, due both to over-population on the land and lack of basic skills. At the professional level, the base of well qualified agriculturalists needed to be expanded. The development of the human resource base of Dominican agriculture from the top downward and from the bottom upward was of fundamental concern. To adequately address these constraints required extensive training as well as the provision of improved facilities.

Since 1974 the training or the upgrading of the farmer's capability in his field has been carried out in a number of ways. Under the PIDAGRO program the number of agricultural extension agents has increased significantly. Priority is also being given by these agents to reaching the small and medium sized farmer. The IBRD has embarked on a program to construct five regional farmer-training centers. Personnel to staff these centers and the costs for training the first 2,000 farmers are being funded under AID Loan 027. The first of these centers is operational, and farmers are being selected for training by local agricultural agents. Clearly, a need still exists to reach additional farmers with this essential training.

The second aspect of human resources that is important to agriculture is the availability of technically trained people necessary to implement agricultural development

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programs. In this area significantly more and better information exists at present than was available from somewhat outdated OAS data at the time the Sector Assessment was prepared.

A comprehensive study recently completed by ATAC<sup>1/</sup> indicates that the deficit of university level agriculturists will be much greater for the next decade than was previously anticipated. This new study indicates that during the period 1976-1980 only 505 graduates will be available to meet an estimated need of 891, a deficit of 43%. For the 1981-1985 period, the deficit would remain almost exactly the same percentagewise with 660 graduates available to meet a need of 1,137. The deficit varies widely according to specialization (see Table II, C, 2-1 below). (The deficits indicated would be reduced by 30 in the first period and by 150 in the second period if the new school of agronomy is organized at the Universidad Central del Este as presently scheduled.)

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<sup>1/</sup> I. Asmón, Preparing Professional and Middle-Level Manpower for Agricultural Development of the Dominican Republic, mimeo, 41 pp., USAID/DR, August 1975.

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Table II, C, 2-1

Anticipated Deficit of University-Level Agriculturists and Veterinarians 1976-1985

	1976-1980	1981-1985
Agronomy*	46	178
Agricultural Engineering**	29	+ 31 (Surplus)
Farm Management	151	160
Agricultural Extension	112	97
Agricultural Economics	48	+ 5 (Surplus)
Veterinarian Medicine and Animal Production	0	78
	386	477

\* Includes plant production, plant parasitology, and horticulture.

\*\* Includes irrigation and drainage, soils, and agricultural mechanization.

Source: 1. Asmón, Preparing Professional and Middle-Level Manpower for Agricultural Development of the Dominican Republic, mimeo, 41 pp., USAID/DR, August 1975.

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Projections concerning the availability of middle-level agricultural technicians<sup>1/</sup> indicate that a serious deficit can be expected by 1978 and perhaps sooner. Carefully prepared estimates of need by agency or discipline from 1976 through 1980 shows demand considerably greater than anticipated supply. (See Table II, C, 2-2 below.)

Table II, C, 2-2

Supply & Demand for Middle-Level Agricultural Technicians  
1976 - 1980

	1976	1977	1978	1979	1980
Estimated Demand	112	160	208	215	220
Estimated Supply*	84	82	122	122	122

\* Does not include the new Centro Oriental Agropecuario at El Seibo which will produce about 46 lower-level technicians annually (with two years of agricultural studies beyond primary school, minimum age 18) starting in 1978.

Source: I. Asmón, Preparing Professional and Middle-Level Manpower for Agricultural Development of the Dominican Republic, miemo, 41 pp., USAID/DR, August 1975.

1/ Graduates from agricultural high schools who have not gone on for university training.

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From the total supply indicated in Table C, 2-2, a sufficient reduction must be made for those who will go on for university training. If this is done then the total supply would appear to stabilize at about 94 technicians annually. Thus, unless expansion of training is undertaken, the annual deficit would be about 110-120 technicians annually in the 1978-1980 period.

Actions have been initiated with financing under AID Loan 027 to accelerate the training of professional technicians. New disciplines are being developed at each of the three Dominican universities serving agriculture in order to supply additional and better trained graduates in fields where shortages exist. The ATAC<sup>1/</sup> report, however, indicates that this effort will be insufficient to meet the greater than anticipated demand. That report includes recommendations for action by school and by agency for meeting both the professional and middle-level personnel needs and fulfilling the anticipated deficits at the earliest possible date. These recommendations are sufficiently detailed to serve as a virtual plan of action for meeting training targets by school, by agency, and by discipline. They include suggestions for informal and in-service training as well as for formal and foreign training.

Clearly, the lack of trained manpower will continue to be a constraint to agricultural development unless additional efforts are made to address expected shortages.

The present Vocational Education program initiated under AID Loan 027 is progressing as planned and Dominicans are enthusiastic about its success and desire to extend the program to other areas. It appears that the methods being used are successful in convincing small and medium farmers of the need to accept new or improved technology. However, only continued evaluation and monitoring can determine if they really put into practice on their own farms those things that they appear to accept at the training center.

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<sup>1/</sup> op. cit.

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Because of the apparent success of the pilot effort under Loan 027 and continued need to reach added farmers, it is proposed to provide financing under Loan II for the continued operation of these five centers for three additional years plus the establishment of five new centers. Funds will be provided for salaries, additional training, services and improved materials at the five original centers, permitting the training of an additional 5,000 farmers over the three-year period. Establishment of five new training centers will permit the training of 4,000 additional farmers during the three-year period, for a total of 9,000 additional farmers to be reached under the program.

Regarding mid-level technicians, the GODR and the USAID have determined that farm management training activities initiated under AID Loan 027 and currently in progress will be sufficient to meet the requirements, given GODR efforts to contribute to this program and intent to assume its support unilaterally after loan funding expires.

Under AID Loan 027 funds for Professional Education were allocated for the establishment of a number of new disciplines related to agricultural development in three Dominican universities. The ATAC study completed in 1975 and discussed above indicates that the constraint imposed by the shortage of professional level technicians will worsen from 1978 on unless these training plans are expanded.

As a result of Loan 027 experience and interim study, it is proposed that Loan II help to continue and expand the professional education activity. Assistance will be provided to strengthen or expand those agricultural disciplines in the three universities which will contribute significantly toward meeting the anticipated deficit of professional technicians. Assistance will be in the form of salary support for better qualified or additional staff, for staff training (both academic and short course), materials and equipment, research support and for technical assistance.

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3. Inputs and Input Utilization

a. Agricultural Research

Agricultural research in the Dominican Republic dates only from 1965 and the present formalized research program began with the establishment of the National Center for Agricultural Research, Extension and Training (CNIECA) at that time. Many of the problems affecting the orderly growth and development of a sound agricultural research program are undoubtedly related to the newness of the organization. The 1974 Sector Assessment identified several constraints to agricultural research development and the effective utilization of research results. The organizational structure was incomplete and inadequate. Budget allocations were insufficient and often irregular. The staff was not adequate to the job that needed to be done. Dissemination of results was ineffective partially due to the lack of coordination with the extension service.

Since the 1974 Assessment several actions have been taken to strengthen and to bring more logical order to the research system and considerable progress has been made. The result is a significantly different situation than reflected in that assessment but one still beset with problems.

In 1974 a new research center was established in Santiago in conjunction with the Superior Institute of Agriculture. This National Center for Agricultural Development (CENDA) was created with financial and technical assistance from FAO to give additional emphasis to research affecting the Cibao Valley. It is a part of the national research system, however, which is still headquartered at CNIECA in San Cristóbal.

The entire research organization is more orderly than it was in 1974. Research at CNIECA has been divided into eight divisions, including grains, legumes and oil crops, plant protection and biostatistics. The CENDA organization consists of divisions of phytopathology, cattle production, tropical horticulture, coffee, cacao, tobacco, rice, soils, plant protection, agricultural economics, and irrigation and drainage.

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In addition to the above two centers the research complex of the country now includes seven field centers or sub-stations located so as to cover the principal crop and livestock producing areas of the country. Each of these places primary emphasis on one area of specialization and are concentrating on rice, cacao, coffee, milk, vegetables, pasture and livestock, and fruits.

Steps have also been taken to bring more logical order to the work plan of the research system. In 1974 the Sub-Secretary for Research, Extension and Training ordered a review of all important agricultural commodities. A staff scientist was assigned responsibility for each and information was gathered concerning the history, area under cultivation, volume and value of production and imports, projected demand, product use, production methods, etc. Each leader also developed a list of problems pertaining to that commodity and the roles or responsibilities of research and extension relating thereto. The information thus assembled is being published in a series of "Basic Documents" which will serve as guidelines in the planning and implementation of research and extension programs. It is anticipated that this is a first step toward the improved technical and administrative control and direction that will be required as these programs increase in size and complexity.

At the present time there are a total of 118 researchers working in the SEA research centers. Most work being done is applied research as it probably should be. There is some duplication of effort, some competition between centers or groups and a need for more interchange of ideas and results and more coordination of effort. Despite the deficiencies that exist, however, a program of research and a system to manage the effort administratively are in place and functioning reasonably well.

Research, no matter how well conceived and carried out, can be of little value until results have been analyzed and conclusions made available. Dissemination of research results has improved considerably since the 1974 Assessment was completed but the system still falls far short of meeting the need. The PIDAGRO program has increased the number

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of extension agents and is attempting to strengthen the linkage between research and extension. CENDA has recently appointed three "disseminators" or "communicators" for the same purpose. Specialists at the Rice Research Center in Juma have stated that rice production would be doubled if farmers would only adopt the practices and varieties already recommended. Some evidence exists that a similar situation exists in other commodities as well (see Table C, 2-1 below). Efforts are directed increasingly toward the small and medium sized farmer. The emphasis on this group is of utmost importance for a large number of key crops since, as indicated above, small and medium farmers presently control a large percentage of the land in cultivated crops.

Table II, C, 3-1

Average Yields for Major Crops 1972-1973 Compared to Target Yields*		
Crop	Actual Yield	Target Yield*
	Dom. Rep. (Kilograms/Hectare)	
Rice	2,114.7	3,498.0
Corn	1,091.4	2,168.1
Sweet Potatoes	7,942.8	13,731.2
Cassava	7,227.3	13,009.1
Beans	845.6	1,373.1
Onions	8,318.9	14,093.1
Tomatoes	21,681.2	32,522.7
Plantain	19,923 units	43,725 units

\* Calculated from international averages.

Source: USAID/DR files.

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A study of Crop Research and Its Administration in the Dominican Republic by William C. Kennard,<sup>1/</sup> completed in August 1975, includes recommendations for specific areas of research such as equipment needs, dissemination of research results and suggestions regarding research emphasis. This report also helps to point up the principal constraints that now exist in agricultural research.

One of the principal continuing problems faced by the research organization is still one of lack of adequate budget allocations. This is compounded by the fact that funds budgeted are not always available when and where needed. The importance of timely availability of funds is immediately apparent in times of sudden insect infestations or disease attacks affecting key agricultural commodities.

Obtaining trained personnel is always a problem in research. Although the situation continues to improve it is anticipated that shortages of trained personnel will continue to be a serious constraint for some time even though special efforts are being made to meet the expanding need for trained personnel in the agricultural sector.

Simple resource limitations dictate the need to take maximum advantage of agricultural research work done in other countries. Much of the work done by the various centers in the international agricultural research network is of particular value here. That done at the International Center for Tropical Agriculture (CIAT) in Colombia, which concentrates on production in the lowland tropics is especially important to the Dominican Republic. Frequent contact with these centers on a continuing basis and a constant interchange of ideas, seed and plant material, etc., could assist materially in accelerating the availability of better varieties of rice, cassava, field beans, and corn. Cooperation with other countries such as Puerto Rico, Colombia, etc., could provide similar benefits at a minimal cost.

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<sup>1/</sup> William C. Kennard, Crops Research and Its Administration in the Dominican Republic, mimeo, 33 pages, USAID/DR, August 1975.

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Increased coordination and cooperation with other organizations and agencies will be increasingly important. There are presently about twenty-five entities of one kind or another either conducting or supporting agricultural research. In addition to the governmental dependencies there are various international organizations (including AID) and many private companies. Some aspects of research and extension, such as for sugar, have been left almost entirely to those outside the SEA organization. Because of the diversity of entities involved and the importance of proper utilization of very limited financial and technical resources, it is imperative that procedures be developed that will achieve the greatest coordination possible.

The program proposed in this report contemplates considerable assistance designed to ease the constraints existent in agricultural research. Funds will be made available for an expansion of the adaptive research program of SEA with special emphasis on those commodities of greatest importance to small farmers. Increased cooperative arrangements with the various International Research Centers (IRC's) will be utilized to bring the best possible germ plasm and new techniques to the Dominican Republic. The number of field trials will be increased. Increased coordination with extension and agricultural credit agents and the development of production packages for selected crops will be utilized to increase the dissemination of new practices. The research activity will also be more closely tied to the soil survey and the seed multiplication and distribution elements in order to increase the accuracy and the availability of research results, especially to small and medium farmers.

b. Credit

Agricultural credit availability was considered in the 1974 Agricultural Sector Assessment to be one of the principal constraints to increased agricultural production. Institutional credit was deemed to be in especially short supply and allocations of institutional credit favored the more affluent borrowers. Credit policies were not well articulated and credit personnel were not adequately trained. Credit delivery was often untimely and allocations often were not related to stated national priorities.

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Since early 1974, much additional information concerning the agricultural credit situation has been accumulated and analyzed. Three studies have been completed during this period. One, prepared by the Sectoral Economic Analysis Division of USAID/DR,<sup>1/</sup> contains a factual report of the agricultural credit situation brought up to date as of the date of printing with an analysis of the role of Central Bank monetary and credit policy. The second report,<sup>2/</sup> although it also updates the rural credit situation through 1974, is a more general analysis which takes into account the experience of other lesser developed countries and contains suggestions for altering techniques and makes recommendations concerning possible alternative strategies. As indicated by the title, the Adams report is specifically concerned with directing credit benefits to the rural poor. The difference in emphasis in the two reports makes them complementary. Additionally, a field survey made by the SEA in December 1974, provides more accurate primary information, especially about small farmer credit, than previously existed.

The third report<sup>3/</sup> specifically addresses the financial condition of the AgBank and identifies the main constraints affecting expansion of lending to the agricultural

- <sup>1/</sup> R.E. Holben and H.J. Welhouse, "Agricultural Credit and Agricultural Development in the Dominican Republic", 45 pages mimeo, September 26, 1975, USAID/DR.
- <sup>2/</sup> D.W. Adams and J.R. Ladman, "Assisting Rural Poor Through Financial Market Activities in the Dominican Republic", 79 pages mimeo, September 1975, USAID/DR.
- <sup>3/</sup> Rafael Rosario, Servicios Técnicos del Caribe, "Informe sobre la Evaluación Financiera del Banco Agrícola de la República Dominicana y los Efectos del Establecimiento de Límites Máximos a Prestar", 65 pages, 1975. (In draft.)

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sector. The major findings are: The AgBank must acquire more capital, preferably through long-term borrowing at concessional interest rates and reduce their short-term borrowing from the Central Bank; the AgBank must reorganize traditional operating patterns in order to be more responsive to increased and increasing numbers of small farmer borrowers; the AgBank must have government subsidy to cover continuing operational losses which result from social developmental lending to the agricultural sector, and, that an upward adjustment of interest rates is necessary to offset the decapitalization of the AgBank due to inflation and present negative interest rates. These points are consistent with present USAID advocacy for improving rural credit availability to small farmers.

In 1974 and 1975, a number of actions were taken that were designed to overcome some of the problems mentioned above. The amount of credit available to the agricultural sector increased substantially in 1974 over 1973. Credit availability increased from both commercial bank and institutional sources. In the aggregate, credit also increased in both money terms and in real terms (see Tables C, 2-2 and C, 2-3 below). Data available for the first three quarters indicate similar increases in money terms can be expected for 1975 as well. A significant amount of the additional institutional credit available to the sector results from Agricultural Sector Loan 027 signed October 16, 1974, (AID Loan 517-T-027) which added a total of RD\$16,940,000 from AID and Dominican sources for agricultural credit and credit distribution costs. An additional RD\$6,100,000 was programmed in that loan to expand agricultural input availability to small farmers. Agricultural credit availability has been further augmented since 1973 by the infusion of approximately RD\$17,000,000 of I.D.B. funds through the PIDAGRO program.

Although considerably more credit has been available in both money and real terms, it can be noted from Table C, 2-3 that the real credit available through the Agricultural Bank began to decline in 1972 when the inflation rate exceeded the interest rate for the first time in many years. Only significant additions to the Bank's resources maintained the level of credit availability and resulted in an apparent slight

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increase in 1974 over 1973. Preliminary estimates indicate that 1975 may show another slight increase but, again, due primarily to additions to capital. Adams and Ladman<sup>1/</sup> indicate that in the present inflationary situation maintaining interest rates at present levels contributes to gradual decapitalization of the Bank.

Two other factors were also mentioned by Adams and Ladman as serious contributors to decapitalization. One, the Agricultural Bank still has a problem with uncollectable loans. In mid-1975 the Bank estimated that 10% of its total loans were uncollectable (e.g., about one-third of their loans due). These loans are principally held by persons who have received land under the land reform program. The second problem is the price of consumer goods in the Dominican Republic. Computations made from Central Bank figures by Adams and Ladman indicate the annual rate of change in consumer prices as 7.8% for 1972, 15.1% for 1973 and 12.2% for 1974. (The rate is expected to be 16% or more in 1975.) These figures tend to understate the actual rate of increase in prices for inputs purchased by farmers, particularly those which are petroleum based. Agricultural Bank calculations (previously stated) show that the index for some principal inputs<sup>2/</sup> increased from 117.3 in January 1974 to 201.9 in June 1975. Although official average figures show that in the aggregate credit to agriculture has been increasing in real terms, the farmer's credit peso may be smaller than indicated.

A definite commitment was made by the GODR to reach a greater number of small and medium farmers with credit and other agricultural inputs. The full amount of the funds under AID Loan 027 is specifically directed at farmer loans of RD\$2,000 or less. Funds under the PIDAGRO program are for loans between RD\$1,500 and RD\$10,000. Under both programs credit policies have been clearly articulated and widely publicized.

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<sup>1/</sup> op. cit.

<sup>2/</sup> Includes fuel, farm chemicals, fertilizer and seeds.

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A large number of additional staff members have been employed under both programs in a concerted effort to get credit or extension agents with both money and technology out to the small and medium farmer level. In total more than 375 new employees have been added under Loan 027 and an estimated 40 under the PIDAGRO program.

Table II, C, 2-2

Amount of Formal Agricultural Credit  
In the Dominican Republic, 1965-1974 by Source<sup>a/</sup>

Year	Total	Agr. Bank <sup>b/</sup>	Commercial Banks <sup>c/</sup>	IDECOOP <sup>d/</sup>	DDF <sup>e/</sup>	Financieras <sup>f/</sup>
(In Million Current RD\$) <sup>g/</sup>						
1965	62.0	56.6	5.4			
1966	70.5	58.3	12.2			
1967	71.7	57.8	13.3	.5	.1	
1968	72.6	56.7	15.2	.5	.2	
1969	71.2	57.8	12.7	.5	.2	
1970	78.4	61.2	15.5	1.3	.4	
1971	81.6	62.7	16.2	1.4	.5	.8
1972	82.7	58.7	21.1	1.5	.5	.9
1973	102.5	64.0	34.5	2.1	.8	1.1
1974	130.0	76.6	46.9	2.1	1.6	2.8

<sup>a/</sup> Credit figures are outstanding balances at year end. Information is not reported for La Oficina de Desarrollo de la Comunidad (ODC). This institution has loaned small amounts to agriculture. For the period 1970-1972, a total of 7.2 million was loaned to this sector by ODC.

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- b/ Banco Agrícola de la República Dominicana. Source: Banco Central de la República Dominicana, Boletín Mensual, Dic. 1971; Octubre-Diciembre 1974.
- c/ Banco de Reservas, Banco de Crédito y Ahorros, Royal Bank of Canada, Bank of Nova Scotia, Chase Manhattan, First National City Bank, Banco Popular Dominicano, Bank of America. Source: Banco Central de la República Dominicana, Dic. 1971; Octubre-Diciembre 1974.
- d/ D.W. Adams and J.R. Ladman, "Assisting Rural Poor Through Financial Market Activities in the Dominican Republic".
- e/ Fundación Dominicana de Desarrollo. Source: Fundación Dominicana de Desarrollo. Boletín Estadístico, Vol. VI, No. 4, for all purposes during given year. Most loans were for less than one year and most for agricultural purposes. The percentage of loans granted to farmers has increased over the years from about 80 to 95 percent.
- f/ Compañía Financiera Dominicana. In addition, Corporación Financiera Asociada has made some small loans whose figures are not included.
- g/ The official exchange rate throughout the period equalled \$1 U.S. dollar for each \$1 R.D. peso.

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Table 11, C, 2-3

Real Amount of Formal Agricultural Credit  
in the Dominican Republic, 1965-1974, by Source

Year	Total <sup>a/</sup>	Agr. Bank	Commercial Banks	IDECOOP	DDF	Finance- ras
(Million Constant RD\$ 1974 = 100)						
1965	94.6	86.4	8.2			
1966	109.1	90.2	18.9			
1967	108.8	87.9	20.2	.8	.2	
1968	108.4	84.6	22.7	.7	.3	
1969	108.4	88.0	119.3	.8	.3	
1970	114.9	89.7	22.7	1.9	.4	
1971	114.6	88.1	22.8	2.0	.7	1.1
1972	107.7	76.4	27.5	2.0	.6	1.2
1973	115.9	72.4	39.0	2.4	.9	1.2
1974	130.0	76.6	46.9	2.1	1.6	2.8

<sup>a/</sup> Sum of columns may not equal total due to rounding.

Source: D.W. Adams and J.R. Ladman, "Assisting Rural Poor Through Financial Market Activities in the Dominican Republic".

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The availability of additional funds and the increased number of competent field agents have resulted in some significant changes in the allocation of credit resources of the Agricultural Bank. Incomplete data for 1975 indicate that small and medium farmers will receive a significantly greater proportion of the agricultural credit monies loaned by the Bank in 1975 than previously. More total loans will be made to small borrowers in 1975 despite the need to increase average loan size due to the dramatic increase in input prices since 1973.<sup>1/</sup> (See Tables II, C, 2-4 and 2-5 below.)

Table II, C, 2-4

Percent of Money Loaned by Size of Loan			
	1973	1974	First Nine Mos. of 1975*
RD\$0 - 2,000	47.3	35.5	32.4
RD\$2,000 to 10,000	<u>21.4</u>	<u>22.1</u>	<u>38.0</u>
Subtotal	60.7	57.6	70.4
RD\$10,000 or more	31.3	42.6	29.6

\* The reduction in the percentage of money going to loans below RD\$2,000 and the increase in the RD\$2,000 to 10,000 category is the result of two factors. One is the average size of loan under the PIDAGRO program (RD\$4,500). The other is the inflation factor. Both of these are discussed in the text above.

Source: Agricultural Bank data.

1/ The price index based on a group of key production inputs purchased by farmers increased from 117.3 in January 1974, to 201.9 in June 1975. Based on January 1973 = 100.

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Table II, C, 2-5

	Number of Loans Made by Size of Loan			
	1973	1974	First Nine Mos. of 1975	Estimated CY 1975 *
RD\$0 to 2,000	37,179	40,747	34,361	46,573
RD\$2,000 to 10,000	2,191	3,690	6,316	8,554
RD\$ Over 10,000	376	730	580	783

\* Agricultural Bank estimate.

Source: Agricultural Bank data.

Some evidence indicates that credit for the very small "farmer" may not be as much a constraint as formerly believed. A field survey made in December 1974 indicates that only a very small percentage of those small farmers who solicited credit in 1973-1974 did not receive any credit. Many did not solicit credit because they concluded that they were not likely to get it. Still, a majority of those small farmers who did not apply for credit did not do so because they felt that they did not need any credit. While a precise fix on effective demand is not possible, effective demand would also appear to be smaller than thought heretofore. (See Table II, C, 2-6.)

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Table II, C, 2-6

	Small Farmer Credit Response - 1974		
	H e c t a r e s		
	0 - 0.36	0.37 - 3.1	3.2 - 6.2
Percentage of Producers Who Applied for Credit and Received None	0.8	1.9	4.6
Percentage of Producers Who Did <u>Not</u> Apply for Credit But Who Said They Could Use Credit	42.7	44.4	58.8
Percentage of Producers Who Did <u>Not</u> Apply for Credit Because They Felt That They <u>Did Not Need</u> Credit	57.3	55.6	41.2

Source: SEA - Unpublished survey, 1974.

This information indicates that most small farmers who apply for credit do receive some credit. It also indicates that more than half of those in the 0 - 3.1 hectare group who do not apply feel that they do not need credit. Thirty-six percent of those in the smallest farm size group who did not solicit credit said that they were not farmers. This is not unexpected. There is still insufficient knowledge and data concerning the small farmer. In the absence of accurate data the tendency has been to assume that all rural landowners, even those with less than one acre, were basically farmers. As more information becomes available there is increasing evidence that the primary source of income for many of these is off the farm and that income derived from the "farm" is supplemental to regular income.

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The timeliness of credit availability has improved markedly in the last two years. Much of this improvement can be attributed to the addition of the large number of additional field agents to the credit programs. This larger and better trained staff has also been influential in directing more of the credit for small and medium farmers to uses in line with national production priorities.

Interest rates for agricultural credit are 8 to 12 percent. As previously stated, this is considerably below the inflation rate, which had not exceeded 4.3% from 1965-1971. Institutional interest rates (8 to 10 percent) are traditionally difficult to change even in a highly inflationary economy. Many argue that there are sound political and economic reasons to subsidize credit for selected purposes. Adams and Ladman<sup>1/</sup> in their report make a good case for giving serious consideration to increasing interest rates. They believe that increased interest rates will (1) help to increase mobilization of savings by permitting payment of higher rates on savings, (2) reduce erosion of the credit portfolio, and (3) reduce the amount of loan funds demanded by large borrowers and force them to make more judicious use of borrowed money.

The Holben and Welhouse report<sup>2/</sup> shows how Central Bank policies to reduce reserve requirements and provide special credit advances have provided a strong incentive for commercial banks to increase their loans and apparently have led to a significant increase in the volume of such loans. They also point out the advantages of higher interest rates and show how the 8% ceiling on the Agricultural Bank loans have made it unprofitable for that institution to accept time and saving deposits or sell their securities at competitive rates of return.

A large amount of information is available about agricultural credit at the level of the credit institutions. Less is known concerning the use and effectiveness of credit at the farm level. Even with the improvements that have been achieved to date credit availability is still a serious constraint

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<sup>1/</sup> op. cit.

<sup>2/</sup> op. cit.

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for many. When funds are available, accessibility from a geographic point of view is a serious constraint especially for small or isolated clients. To address the problem of accessibility to credit, the proposed program will establish additional credit outlets and some mobile banks in order to increase credit accessibility in the countryside.

c. Fertilizer

The unavailability of fertilizer to small and medium farmers was identified as a major constraint in the 1974 Agricultural Sector Assessment. Inefficient distribution and delivery systems as well as notably higher prices both contributed to the problem of availability. Also, lack of knowledge concerning recommended use adversely affected demand, especially by small farmers. The 1974 Assessment reflected the paucity of specific information concerning the fertilizer situation at that time. Only general statements could be made based upon the best appraisal of the situation. The Assessment correctly recognized, however, the almost complete lack of fertilizer use by small farmers.

In early 1975 the SEA, through USAID/DR, requested that the International Fertilizer Development Center (IFDC) and the Tennessee Valley Authority (TVA) survey the fertilizer situation, with emphasis on the efficiency of the fertilizer marketing system in servicing small farmers. The study,<sup>1/</sup> now in final draft, helps to identify specific problems and recommends improvements in fertilizer marketing, distribution, and educational systems in the Dominican Republic.

Chemical fertilizer use is fairly new in the Dominican Republic. Until the mid-60's fertilizer use was nominal, erratic, and limited primarily to sugar cane production.

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<sup>1/</sup> J. Free, C. Kresge, T.H. Foster, the Dominican Republic Fertilizer Situation, Draft Report, June 30, 1975, Tennessee Valley Authority for USAID/DR.

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Since 1965, fertilizer use has increased significantly -- from approximately 17,500 tons of nutrients in 1966-1967 to 86,500 tons of nutrients in 1973-1974. All fertilizer is imported. Ninety-five percent is imported as primary materials for blending or for direct application.

Sugar production still utilizes 55% of all fertilizers. Most of the rest is used on crops that are exported or processed. Rice, tobacco, peanuts, and tomatoes are important in this group. Very little fertilizer is used on food crops for domestic consumption or by small farmers. The TVA report<sup>1/</sup> indicates that the smaller one-third of all farms in the Dominican Republic use only 1% or less of the fertilizer. Plantain is the highest fertilizer user among food crops, but less than 10% of plantain production was fertilized in 1974.

The fertilizer distribution system appears to function reasonably well for the commercial farmer group. Smaller or less commercial farmers are inadequately served by the system or are not serviced at all. For a variety of reasons (discussed later), service to the small users is not economical. It was concluded by J. Free, et. al. in the TVA report<sup>2/</sup> that the non-usage of fertilizer by the "non-commercialized farmers and the inadequate or total lack of service to these farmers by fertilizer distributors may, in fact, be a rational response of both distributors and farmers". In the long run, this situation may correct itself. In order to expedite solution of the situation, however, funds were made available under AID Loan 027 for the establishment of a number of agricultural input distribution centers. Five of these are just beginning operations and more are scheduled under that loan. Even if these are successful, as anticipated, they will only fill a small portion of the need and further public sector action will probably be necessary.

As previously mentioned, all fertilizer is imported but most is mixed or blended in-country prior to distribution and use. More than 90% of all fertilizers used are

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<sup>1/</sup> op. cit.

<sup>2/</sup> op. cit.

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imported by the two bulk blending plants. These share the market about equally. The present facilities of the two blending plants appear to be adequate to meet anticipated demand. Their capacity exceeds present use by about 100%. It is felt that present imports of finished materials, although small, should be continued in order to maintain that element of competition in the market place.

The fertilizer marketing system, although functioning with reasonable efficiency for the larger volume buyer, still needs considerable adjustment to meet the needs of the small user. Presently delivery service is offered only to buyers of one ton or more. The smallest bag size available is 100 pounds. Smaller bags and smaller minimums on delivery may not be important to those farmers presently using fertilizer, but these will certainly be necessary to encourage use by smaller farmers, at least in the beginning. It is difficult to service small farmers by breaking 100 lb. bags to sell smaller amounts primarily because this presents the unscrupulous vendor with the opportunity to dilute the fertilizer with inexpensive filler and thus reduce its effectiveness.

This problem, which is one aspect of quality control, is very important to product acceptance. Where an effective system of quality control does not exist, there usually are fears that the industry is supplying off-grade materials, that sack weights are light, etc. Although there are few documented cases in point, these general impressions have been widespread in the Dominican Republic. The effect of such beliefs is reduced acceptance by farmers, especially smaller farmers. The only effective way to eliminate this problem is to develop and implement a national program of fertilizer quality control that will help to promote more orderly marketing.

Soil fertility research conducted in the country has too often resulted in unusable information. The TVA report suggests that excessive variability of research results may indicate inadequate design or poor control of variable factors. Fertilizer recommendations based upon inadequate research often result in loss of confidence by the clientele for whom the work was done.

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There is a need in the Dominican Republic to coordinate and standardize soil research methods used by the different centers and scientists involved. Soil testing procedures and the farmer cost of soil testing services are presently different in the two soils laboratories. There is a need, also, to improve and standardize soils laboratory facilities and equipment.

Laboratory results of the soil testing and fertilizer recommendation program of the country need to be closely linked to an effective soil fertility research program. This activity should apply appropriate statistical techniques to the correlation of fertilizer trial results, soil test results, and soil classification data in an effort to improve the basis for making better fertilizer recommendations. It is probable that some technical assistance will be required to develop this capability.

The integration of research and extension has not been effective. Steps should be taken to assure that research findings from within the country and applicable international research results be made available to extension workers. Coordination must assure that personnel in area offices obtain needed assistance in interpreting and adapting research findings to local conditions and clientele. It should also assure a feedback from farmers and extension agents to the researcher to help determine research priorities.

In the more productive areas of the country, much of the land in cultivated crops is under irrigation. One of the main factors limiting crop response to fertilizer in these areas is inadequate water supply or management. Control of water use is often weak. Allocations are not made on a rational basis and some systems are not efficient. This problem is often beyond the control of the individual producer. It seriously affects fertilizer response, however, and is a factor in decisions about fertilizer use.

Many specific recommendations for improving certain aspects of the fertilizer situation are included in the

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TVA report.<sup>1/</sup> These are too numerous or too technical to include here. In substance, the report indicates that the unavailability of fertilizer in time and place needed is still a critical constraint to increasing fertilizer use, especially by small farmers. Assuming that the problem of physical distribution can be solved, other constraints such as the quality of research and availability of technology to small farmers will increase in importance.

The input distribution centers recently established with funds under AID Loan 027 offer one rational means of supplying the needed inputs to small and medium farmers. It is proposed to increase the number of distribution centers beyond that envisioned in that loan by adding additional financing for that purpose under this program. In order to assure the availability of sound technical recommendations for fertilizer use for principal crops in important soil and climate areas, additional funds will also be made available for increased research and soil fertility work. This work will be closely coordinated with extension efforts. Also, it must be recognized that fertilizer use is only one of many practices involved in obtaining production increases. Responses to fertilizer use are often contingent upon the use of other improved practices as well. This is especially pertinent in dealing with small and medium farmers where the general use of these practices is limited. The so-called "package" program approach involving the minimal number of improved practices necessary to achieve the desired response may offer a more practical means of reaching the very small farmer. Funds will be available under this proposal to implement a package program of limited size in order to adequately test the effectiveness of this concept in the Dominican situation. If small farmers are to increase their demand for fertilizer and other improved practices, they must first be educated as to its value to them as a means of increasing their production and well-being. Reaching small and medium-

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<sup>1/</sup> op. cit.

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sized farmers in the Dominican Republic with new farm input technology is a formidable task for those charged with this responsibility. For many small farmers, however, fertilizer offers one of the more important means to obtain significant increases in yields of his basic food crops.

d. Seed and Plant Materials

High quality seed and plant materials of adapted varieties are an important ingredient to increased agricultural production by small and medium farmers. These are among the most difficult to deliver on a timely basis. The 1974 Agricultural Sector Assessment stated that their unavailability was a constraint to increased income for the smaller farmer. The lack of a seed certification law was mentioned in that assessment as a constraint to the availability of improved seeds.

Since the 1974 Assessment the SEA and USAID/DR have reviewed the entire adaptive research -- seed multiplication -- seed distribution system. This mechanism in the Dominican Republic is a very complex one because it involves a large number of different departments of the SEA. The Research Department of SEA has the responsibility for research on all crops and for the production of foundation seed and maintenance of foundation seed stocks. Within this department, the responsibility for research of the various crops is assigned to a number of teams or sub-stations which function at different levels of effectiveness. Apparently, requirements for improved materials for coffee and tobacco are being fulfilled. Rice is being met to a great extent (partly by the private sector), but there are indications that better varieties might be developed with a little additional effort. Requirements are not being met in cacao because of the continuing need to produce hybrid seedlings. Sugar is an exception, and is handled entirely by the sugar entities. In all other cases, it is likely that inadequate or insufficient research is at least partially responsible for the constraint in this area. As was mentioned in the research section above, the irregularity and uncertainty of budget allocations and releases to research have adversely affected attempts to develop sound, long-range research programs.

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The Seeds Department of the SEA is responsible for seed multiplication, commercial seed production, and seed certification. Although a draft seed law has been written, it has not yet been enacted. Similarly, no present law permits SEA control of seed or nursery stock produced in the country by the private sector. No seed certification program exists and certification requirements have not yet been developed. Importation of seed and plant material, however, is controlled and strictly enforced to prevent the introduction of new disease and insect problems.

In the absence of an effective program of seed multiplication and distribution, some private sector agribusinesses have moved to fill the need. Producers of tomatoes, cucumbers, okra, and other crops for processing or export use primarily imported seeds. Much peanut seed is also imported, but much is also grown in-country by the private sector and with no SEA supervision of quality or control of varieties.

The Development Department of SEA has the responsibility for the promotion and distribution (to the public) of all agricultural seeds and of some fruit and vegetable (such as cassava) plants or planting materials. In the cases of coffee, tobacco, rice, and cacao the distribution of available seed appears to be satisfactory. It is not known whether promotion and distribution would become limiting factors if sufficient amounts of improved seed and plant materials became available. Experience would indicate that this would become a constraint, however. At the present time, somewhat of a stalemate exists. No promotional campaign is informing producers of the varieties that will produce better quality and higher yields because the seeds and plants are not available. And, no seeds and plants of these varieties are being produced because there is no demand.

Despite less than optimum results from research efforts and other important problems there are a large number of pieces of a functional system in place. Much research has been done on a number of good varieties in the country. This can serve as a basis for an effort that will yield early results in some crops. Almost all vegetable seeds for processed and export crops are imported, and probably will

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be for some time. Some of these are quite well adapted. A germ plasm bank of improved varieties of citrus, mango, and avocado exists in-country and these trees will soon be of sufficient size to begin a grafting and distribution program. Good varieties in some crops are completely lacking. The absence of varietal and pest control research has caused serious problems in others.

The overall constraint; i.e., the unavailability of improved varieties at the farm level, still exists. Also, there is still no seed certification law and no law for the internal control of seed and plant material production and distribution. However, because of the many additional pieces of knowledge that now exist, the base for a meaningful, coordinated program is much broader than it was in 1974. In addition, the SEA has indicated a strong desire to improve the seed and plant materials program.

Under the proposed Loan II program, funds are allocated for an expanded and concerted seed multiplication and distribution effort. This will be closely coordinated with the adaptive research program mentioned in "a" above. The distribution will be coordinated with the Input Distribution Centers element of this program in order to give small and medium farmers first priority in benefitting from this effort. Cooperation in the development of production packages will also help to increase the potential success of that program. Maximum participation of the private sector will be sought and encouraged.

In order to achieve optimum results in the distribution of agricultural inputs, the distribution of all key inputs must be closely coordinated so that farmers receive credit, technology, fertilizer, seeds, power, etc., when and where needed. It was mentioned earlier in this paper that the greater improvement in the level of living and the greatest increase in income for the small farmer can come through increasing his level of production (productivity). Input availability is a serious constraint that must be eliminated if this is to be accomplished.

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4. Marketing

According to the 1974 Agricultural Sector Assessment, weaknesses in this area were numerous and complex. The failure of the marketing system was characterized as being based primarily on a lack of market information and marketing skills, plus a lack of sufficient credit for marketing enterprises.

Although not specifically identified in the Assessment, the combination of low farm level prices, high consumer prices, inconsistent product quality, and intermittent supply for many products was indicative of a poorly functioning agricultural marketing system. Since the extent to which a producer mobilizes his land and inputs to create output depends largely on the incentives he perceives in the market, the instability and inadequacy of market systems for farm products represents a serious constraint to increasing food production and farm income.

Furthermore, on the input side, existing commercial marketing structures for agricultural inputs are not adequately serving the small and medium farmers. (This constraint is addressed in greater detail under the discussions pertaining to inputs.)

Since the Agricultural Sector Assessment was completed in early 1974, there has been little change in the methods and systems for marketing agricultural inputs and agricultural products. At that time, the SEA and USAID/DR had a fairly good understanding, from a macro point of view, of the marketing situation. Many of the more serious problems that were recognized then have not changed. However, additional efforts are being made to develop a better understanding of those problems, in the context of the overall marketing situation.

In June 1975, the SEA (with financing through AID Loan 027), signed a contract with the Inter-American Institute of Agricultural Sciences (IICA). The purpose of the project under this contract is to improve the quantity and

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quality of the marketing services available to small farmers, intermediaries and consumers. Specific objectives and tasks to be carried out are numerous. They can be grouped under five headings, however, each of which would include a number of related individual studies or tasks. These five general areas of marketing assistance are:

a. To assist in determining the specific activities and functions, organizational restructuring and the personnel requirements of the Marketing Division of SEA.

b. To assist the Marketing Division of SEA, the Department for Special Studies of INESPRES<sup>1/</sup> and CEDOPEX<sup>2/</sup> in describing and evaluating the methods and systems for the marketing of inputs and of agricultural products, including handling, transport, storage, distribution and processing.

c. To assist the Marketing Division of SEA in selecting a methodology, in training and in the implementation of a continuous system of collection and publication of prices of agricultural products at the farm, intermediate and retail levels.

d. To assist institutions within the marketing subsector in the organization and execution of a training program in marketing at three different levels.

e. To collaborate in the formulation of a national plan to improve the marketing system based upon the results of the above studies.

A number of the basic studies under the above contract have been completed. Others are in progress or are

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1/ Instituto de Estabilización de Precios (Price Stabilization Institute).

2/ Centro Dominicano de Promoción de Exportaciones (Dominican Center for Promotion of Exports).

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scheduled for completion in early 1976. To date, the following activities have been completed:

- A study of the internal marketing of basic food crops; i.e., plantains, cassava, and sweet potatoes.
- A study of the marketing system for coffee.
- An evaluation of the system of collection and diffusion of price information.
- The development of a plan for a price and market information service.
- A field survey of the flow of agricultural products from and to Santo Domingo.
- A preliminary study of the system of weights and measures.
- One short course for training of marketing personnel completed.

Although additional and more reliable information is being collected under the IICA contract, comprehensive analysis of key aspects of the marketing system must await completion of all of the relevant surveys and studies. Available information does, however, provide a general understanding of the different systems that do exist, and it is clear that the marketing system continues to constitute a constraint to increasing small farm productivity.

In the IICA study under Loan 027, priority is being given to those areas most closely related to the marketing of basic food crops and of other commodities most produced by small and medium farmers. It is anticipated that the results of work in these areas will be sufficient to provide more definitive program guidance prior to the preparation of the project paper.

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At the Interim Report stage, however, it is suggested that one key approach to alleviating the constraints bearing on small farm production incentives is to provide access to viable and dependable markets for traditional small farm products. Therefore, it has been proposed to develop a network of output marketing centers located adjacent to the input centers also being proposed under Loan II. Administrative and funding details are not yet firm, but are being discussed among USAID, IICA, SEA, and INESPRES representatives.

5. Analytical Summary

In the previous discussion the impact of new information and AID Loan 027 experience on sectoral constraints was discussed, and related program components were noted. At this stage it is of interest to examine the evolution of the various proposed activities into a coherent sectoral program. The methodology followed was to develop the linkages between identified sectoral constraints, Loan 027 implementation experience, the enlarged data base, and suggested remedial activities -- all within an analytical framework of sector development, considering both the microeconomic and macroeconomic viewpoints.

a. Microlevel Concerns

In examining the strategy implications of a now more extensive data base, it is helpful to consider a micro-model of the farm producer. In a very basic sense, the farmer's productivity can be characterized by the interplay of three factors: Land, inputs, and incentives.

- Land. Tenure arrangements, land capabilities, and land utilization determine the role of land in overall production. Land tenancy arrangements are now under continuous CODR scrutiny and adjustment, and significant portions of the nation's agricultural land are being redistributed through state cooperative farm units and agrarian reform "asentamientos". Also, recent studies show that about 2/3 of "microfarms" are owner operated (with title). For these and other reasons, land tenure is not now seen to be as significant a constraint to equitable

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rural development as it was previously believed to be and it is not addressed in this program.

However, enhancing the contribution of land in increasing farm production -- through identifying its capabilities and improving its utilization -- is an objective of the land utilization activity and of some aspects of the rural infrastructure development activities proposed for Sector Loan II. These activities are based on the findings that more efficient utilization of the land resources in the Dominican Republic requires additional study in soils classification, soil fertility (including microlevel input recommendations), and soil conservation.

- Inputs. The model becomes more complicated with respect to inputs. This aspect encompasses the availability, quality, and proper application of labor, seeds, fertilizers and other chemicals, water, and technology. Credit usually enters the equation at this point, since it may be necessary in order to acquire inputs.

Studies show that an oversupply of labor exists in rural areas. By intensifying the on-farm utilization of other inputs, the demand for labor should increase. Another productivity constraint is the quality of labor on farms, and it is proposed that this aspect be addressed through expanded activities in vocational education of farmers and their families, and through other extension methods.

As discussed in earlier sections, the quality of seeds and plant materials commonly used in the Dominican Republic is generally low. It has been found that yields of many basic small farm products could be vastly increased through limited in-country adaptive research and close cooperation with various International Research Centers (particularly CIAT) that have developed improved varieties for soil and climate conditions similar to those of the Dominican Republic. Mission studies have supported the importance of renewed efforts in this field, and have suggested remedial activities that are incorporated in the loan program.

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Clearly, improving the quality of seed and plant materials should be backed up by efforts to ensure their availability to farmers through multiplication and distribution activities and should be tied to efforts to extend technology to the microlevel, such as production packages, extension outreach, and vocational training of farmers -- all addressed under the proposed program.

Regarding fertilizers and other chemical inputs, it has been found that existing commercial distribution systems are inadequate to serve the non-commercial and small farm needs. Study also suggests that access to needed inputs in required quantities is now a greater constraint to the small farmer than lack of credit. Fertilizer use still offers an important means of increasing small farm production in the Dominican Republic. Increasing its availability through such means as input centers should be augmented and supported by the extension of soil classification and production technology, as proposed in the Loan program.

Recent studies show that land is being placed under irrigation about as fast as the process is economically practical, although production in numerous other areas could be improved by extending irrigation practices. (Other international donors have been active in the expansion of irrigation in the Dominican Republic.) Most areas still depend on seasonal rainfall, and recent droughts suggest that some manner of storing such seasonal rainfall for emergency or other uses should be considered for many of these areas. As one response, assistance to rural communities in promoting the construction of wells, small dams, and terraces is contemplated under one element of the proposed loan.

Regarding technology itself as an input, several shortages in the development of human resources have been identified. Although considerable progress has been made in this area by AID-supported programs -- including AID Loan 027 -- the proposed program envisions a refinement and expansion of related activities -- both at the small farm level through vocational education centers and at the professional level to develop staff and curriculum necessary for the university level

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training of agricultural technicians. The GODR has exhibited the interest and necessary support to take over and expand the farm management activities initiated under Loan 027 to increase the supply of mid-level extension technicians.

Studies in the rural credit and savings field indicate an expanding demand for small farm production credit, plus a need for extending credit facilities into more rural areas. It is proposed that funds be made available to the AgBank through the SEA for operating costs to study the expansion of rural credit and to establish a pilot rural credit program, possibly in conjunction with the farm service center concept.

- Incentives. Incentives largely determine the extent to which farmers mobilize land and available inputs to obtain production. Studies in the Dominican Republic indicate that for small farmers, the most basic production incentive at the present time may be to feed one's family. To progress beyond that basic level, small farmers must be exposed to economic incentives that are based on availability of profitable markets. However, as previously discussed, many small farmers do not now have access to viable markets.

Incentives are indirectly addressed under proposed rural socio-economic development activities, which seek to promote rural industry and employment and improve infrastructure, with consequent increases in both local demand and access to external demand for farm products. The marketing aspects of production incentives are addressed in another element, as an integral part of the farm service center concept.

b. Macrolevel Concerns

Under Section "a", several constraints on small farm productivity were examined within the microframework of three very broad determinants of farm production. Recently developed information was briefly discussed in the context of clarifying existing constraints for the small farmer and suggesting remedial strategies for the Loan program.

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From a macroviewpoint, however, it is clear that the land-inputs-incentives equation, although helpful in examining small farm production constraints, excludes both the landless farm laborer and the broader sectoral aspects of agriculture.

It is unfortunate that information on the landless subsector of the rural economy is so limited but the nature of its existence makes the group difficult to reach through normal survey or census methods. It has been estimated that there are 100,000 landless farm laborers, representing approximately 700,000 rural dwellers. Little else is known, but it is believed that unemployment is high, income and nutrition generally low, and rural-urban migration high, especially among young adults.

The production oriented elements of the proposed Loan program can offer this subsector basically indirect or secondary benefits through increased employment opportunities and rural food supplies. However, the fourth loan element, Rural Socio-Economic Development, was developed with these rural dwellers specifically in mind. Proposed activities under that element are designed to improve rural life and provide individual and group opportunities through extending institutional frameworks to serve rural areas.

A reexamination of the 1974 Sector Assessment, plus interim discussions with CODR officials and USAID consultants, has suggested that a major constraint to progress in the development of the sector is the lack of an integrated planning body with data generation and analysis capabilities, a capacity for information storage and recall, and a sectoral role in policy coordination in agriculture. Sectoral coordination of agricultural programs has been hampered by the lack of consistent statistical data (a constraint which is of diminishing but still critical importance as the USAID-instituted farm production survey continues and expands) and a wide overlap of functions and responsibility among the several public institutions involved in agriculture.

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In addition to sectoral planning, the development of an information center for agricultural production and trade data, census statistics, technological documents, resource surveys, and general agricultural publications is envisioned as a necessary component of the proposed planning, coordination, and evaluation concept.

c. Loan II Framework

The results of Mission experience and continued study of development constraints in agriculture have been analyzed in the context of identifying strategy implications for development efforts. The program implications of that analysis have been linked to the constraints already noted and to the enlarged data base.

The broad implications of this analysis have been interpreted to suggest and support a sectoral approach based on four major program elements which address the major constraints and are based on sound methodology and intensive evaluation. In general terms, the proposed program is composed of the following elements and activities.

I. AGRICULTURAL SECTOR PLANNING,  
COORDINATION, AND EVALUATION

- A. Sector Economic Analysis
- B. Data Collection/Evaluation Center

II. SMALL FARM PRODUCTION SUPPORT

- A. Land Utilization
- B. Production Technology Development  
(including research, seed and plant materials, and production packages)
- C. Transfer and Utilization of  
Production Technology

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III. FARM SERVICE SYSTEMS

- A. Input Distribution Centers
- B. Output Marketing
- C. Rural Credit Activities

IV. RURAL SOCIO-ECONOMIC DEVELOPMENT

- A. SEA Rural Area Agents Program
- B. Rural Infrastructure Development
- C. Small Scale Agri-Business Development

These activities are described in detail in the following section.

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III. PROGRAM DESCRIPTION

A. Program Goal, Purpose, Design and Target Group

The basic Program sector goal remains as set forth in the original Project Review Proposal (PRP), i.e., to improve the standard of living of the rural poor, with emphasis on the small farmer. This directly supports a series of qualitative and quantitative goals set by the Secretariat of Agriculture to be achieved by 1980. These goals were identified and evaluated in the 1974 Agricultural Sector Assessment and were further discussed in Part II of this Interim Report.

The project purpose, while similar to that cited in the PRP, has been modified somewhat as a consequence of experience and study and is now defined as: "To increase food production, agricultural productivity, employment and income among the least advantaged groups of the rural population." This change from the previous focus with somewhat heavier emphasis on institution building is a more ambitious step in terms of verifiable quantification of end of project status, given the three year operational period of the Loan. This change was based on two fundamental considerations: (1) Rather than put predominant effort and time and resources into measuring and evaluating an intermediate objective (e.g., institution building) leading to the desired results (e.g., the revised purpose), efforts might better be spent in evaluating the direct effect on the target group. This approach has the advantage of focusing more directly and immediately on what exactly it is wished to achieve; (2) Given the progress achieved under Ag Sector Loan I, current grant-financed activities and the substantial additional sector planning activity proposed under Ag Sector Loan II should enable the GODR to have the statistical and analytical capability to set goals, record increases in production, productivity, employment and income within the target group and to quantify and evaluate progress during the time frame of Ag Sector Loan II. The quantitative indicators to be employed should, by the end of Loan II, be of sufficient accuracy to clearly suggest the policies, direction and degree of progress towards planned Program objectives. (Part II of this report provides a more

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detailed description of current sector planning activities that will contribute to the GODR's evaluation capacity.)

Implicit in the Program design is the assumption that the planned institution building activities will lead to and bring about the stated purpose. At the project output level, the magnitude of output indicators can easily be identified in relation to the programmatic structure, i.e., the four basic elements around which all planned activities are clustered. This logical, sequential grouping will facilitate evaluation of the many distinct, yet integrated, activities and subactivities under the Program. The four principal output indicators, which the Mission will attempt to quantify in the Project Paper, are:

1. A competent, effective agricultural sector planning, coordination and evaluation organization within the Secretariat of Agriculture.
2. A small farm production support system which will provide the technological, production and educational services required.
3. A small farm service system that will provide the distribution and marketing mechanism needed on the one hand to deliver agricultural inputs and on the other to provide the mechanisms to market agricultural production efficiently and beneficially.
4. A rural, socio-economic planning and implementation capability within the Secretariat of Agriculture that can operate a limited but effective rural development Program.

The Program's composite target group is made up of almost 400,000 rural families and is represented by the following subgroups:

1. 248,000 small farmers with more than .5 hectares but less than 50 hectares.
2. 50,000 microfarmers with less than .5 hectares.
3. 100,000 landless farm laborers.

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It should be noted that two of the four Program elements, "Small Farm Production Support" and the "Small Farm Service Systems" are designed to assist primarily the bottom three-quarters of the subgroup number 1, thereby directly favoring the small, opposed to the medium size farmer. The "Rural Socio-Economic Development Program" element will directly assist the subgroups 2. and 3., i.e., the 50,000 micro farmers and the 100,000 landless rural persons. The "Sector Planning, Coordination, and Evaluation" element, while benefiting the agricultural sector as a whole, will give emphasis to programs beneficially affecting the rural poor and the small farmer. Given the nature of Dominican policy making, the most viable way to influencing a greater allocation of resources towards the lowest segments of the Dominican society is to improve agricultural planning capability. (See Part II for full discussion.)

The Mission has not yet completed the log frame matrix but the outlines are beginning to take shape.

B. Program Elements

1. Agricultural Sector Planning, Coordination, and Evaluation

As discussed in Section II of this report, the development of an even more effective agricultural sector planning, coordination, and evaluation unit -- designed to gather and analyze data, provide policy recommendations to decision-makers, and assist in the coordination and evaluation of programs -- is essential to more effective sectoral development.

Recognizing the importance of having a strong and efficient sector-wide planning unit, SEA is in the process of reorganizing its operational and planning structure. Within the new organizational arrangement a Technical Sub-Secretariat of Agricultural Sector Planning is to be created. It will consist of three operational components: Programming and External Resources, which will be responsible for coordination of external financing and administering such funds, once obtained; a Planning Department with sector-wide responsibility; and a Statistical

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and Computer Information unit which will form a centralized agricultural data collection and dissemination center. Agriculture Sector Loan II will support the latter two activities.

a. Sector Analysis and Planning (\$1,205,000)

The Program seeks to strengthen SEA's Department of Planning in support of SEA's current reorganization effort and to assist it in adequately meeting the demands of sector-wide planning. The sector analysis portion of this effort is designed not only as a means to provide adequate data and pertinent information for planning, but also as a means systematically to test the sectoral impact of various planning concepts and policy alternatives.

With respect to planning, the Loan Program, as presently envisaged, will finance the costs of new personnel, as well as the additional salary costs of present personnel whose positions will be expanded in scope. Both local and overseas training is contemplated for present as well as new personnel in order to provide the necessary expertise for sector-wide planning. Additionally, some office equipment and supplies and a limited number of vehicles will be purchased. Technical assistance will be provided during the life of the Program.

An integrally-related feature of this Program, the sector analysis component, is already being financed in part by AID grant funding. This activity is designed to collect the reliable farm-level data necessary for more effective sectoral planning. Information obtained through surveys and other means will be computerized and later utilized in the sectoral planning process. This continuing systematic approach should provide a more rational means for sound policy and Program decisions.

The following expenditures are currently being considered for financing under this activity:

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Table III - 1

Personnel	\$ 395,000
Equipment	12,000
Vehicles	26,000
Sector Analysis - Survey	55,000
Computer Time	79,000
Technical Assistance	100,000
IRC Linkages	321,000
Training	<u>217,000</u>
Total	\$1,205,000

b. Data Collection/Evaluation Center (\$795,000)

An effective system for collection, storage and retrieval of agricultural data does not presently exist in the Dominican Republic. Instead, individual agencies working within the agricultural sector maintain their own information systems. These are not organized for optimum effectiveness within agencies. Systems used by one agency are usually incompatible with systems used by other agencies. Data processing and analysis in agriculture is presently limited. Bottlenecks caused by the lack of a capacity for keypunching, card verification, and data storage, plus incompatible data systems and unsophisticated processing techniques require extensive manual intervention.

As a result, programs or multi-step activities involving several agencies of government are usually ad hoc. This situation was recognized in a recent study undertaken by the University of Florida which suggested the establishment of a

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broad scale information system, which, using "more advanced mechanical forms of data storage and retrieval, and coupled with a two way process of communication and dissemination would establish a flow of planning for farmers, technicians, and decision-makers".

As previously mentioned, SEA has recently established a Department of Statistics and Computer Information, which will direct and coordinate the Computer Center and Data Bank/Information units. Loan Program support for this newly-organized department is based on the premises that: (1) Reliable data on many specific facets of the agricultural sector in the Dominican Republic are available, but often in incompatible forms or in forms difficult to retrieve; (2) general data useful to individuals or institutions within the Dominican agricultural sector exist, but are not readily available to them; and (3) there is both need and demand for these data and related data services. There is evidence to support all these premises.

As a first step towards eliminating existing constraints, a reorganization of the Computer Center will be undertaken by SEA, including the separation of services offered by the Center for tabulations, tallies, and accounting activities from those of economic analysis and storage. Additional staff and new and different positions will be required. The existing computer system will be expanded by exchanging the present disk units for larger sizes, improving data storage capacity and doubling the memory capacity of the computer in order to run more complicated programs. Other ancillary equipment and physical facilities will be provided in support of this effort. Technicians will be trained in the Dominican Republic and abroad, in various data processing languages, retrieval systems, and simulation methods. Finally, necessary technical assistance will be provided.

With respect to written material, a national documentation center will be maintained within SEA which will include a book depository, seminar room, office and work room, as well as adequate storage center. Staff personnel selected for this activity will be trained in library science in order to adequately manage this unit. The unit will have a direct

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linkage with the Data Bank in that the latter will furnish a considerable amount of raw information for tabulation and processing.

In addition to the development of the Data Bank and Documentation Center, a mechanism for the dissemination of materials gathered is contemplated in order to ensure that such information will reach the widest possible audience for which it is useful. Several alternative approaches have been suggested, such as the creation of reading rooms at each of the seven regional SEA offices, where, in addition to exchanging information with SEA's Centralized Documentation Center, technical reports and data pertaining to the region will be maintained for use by local technicians and the general public. Such an approach would also facilitate the execution of regional planning and evaluation activities carried out through the Regional Coordination Division of the Planning Department.

In order to achieve effectively the collection, analysis, storage, retrieval and distribution of agricultural information, it is foreseen that this activity will be closely coordinated with Plan AGRINTER activities currently being developed by SEA with technical assistance provided by the Inter-American Institute for Agricultural Sciences (IICA). Under this Plan, SEA will inventory published and unpublished materials related to agriculture, introduce data processing procedures into SEA's Computer Center and design a system to catalogue, store and disseminate information by user interest categories. Such complementary activities will enhance SEA's capacity to serve the agricultural sector, and, in particular, the small farmer, by providing more precise base-line data on which to base policy and programmatic decisions.

The following areas are being considered for funding under this activity:

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Table III - 2

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Personnel	\$277,000
Equipment	252,000
Data Collection and Processing Analysis	100,000
Short-Term Technical Assistance	92,000
Training	<u>74,000</u>
Total	\$795,000

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2. Small Farm Production Support

The Dominican Government recognizes that higher agricultural productivity is absolutely essential if the country's present and future food requirements are to be met. In order to accomplish this, a fair economic return must be provided the small and medium farmer as an incentive to higher production. This will lead, presumably, to making food available at more reasonable prices to consumers, and should contribute to raising the low diet levels of poor Dominican families. Accordingly, an integrated approach, including improved land utilization, improved technology, and access to the necessary inputs and a fair market is needed in order to meet the two-fold goals of higher production and social equity within the target group. It is this approach that the GODR and the USAID have adopted in considering our mutual strategy.

a. Land Utilization (\$1,408,000)

Land scarcity is the most limiting factor on agricultural production. Furthermore, this limited resource is being utilized at very low levels of productivity and economic use. The reasons for this are manifold and have been discussed throughout this report. A most basic constraint to increased

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productivity, however, is the lack of more specific field-level data on soil types and soil capability. Such information is vital in order to provide a sound base for cropping and fertilizer recommendations, which, in turn, are essential to persuade small and medium farmers to accept recommendations based on advanced technology. This information is also necessary to the development of technology "packages" for principal crops grown by the target group.

A detailed soil survey of the Cibao Valley was completed by the FAO in 1974. This has proven to be very useful. It included a relatively few large areas of land outside the Cibao which also have a high potential for intensive cultivation. A limited amount of survey work is continuing at present, but is progressing slowly because of lack of funds. It is important that this work be accelerated in those priority areas outside the Cibao Valley with high productivity potential, particularly since virtually all of these lands suitable for intensive cropping are now held by small and medium farmers.

The land constraint continues to force settlement or use of more of the mountainous terrain of the country for agriculture. As mentioned earlier, this is causing serious problems of soil erosion especially in the watersheds of some of the reservoirs which store water for irrigation. The conservation aspects of this situation are complicated by the social constraints that prevent the use of straight forward standard conservation solutions in areas heavily settled by small farmers. The Government is reluctant to forcibly remove squatters from the lands they have occupied.

Under this Land Utilization element of the Loan Program, three priority areas have been chosen for attention:

- 1) An expansion of detailed soil survey work to approximately 21,000 hectares of land in the San Juan de la Maguana valley, in the Azua plains, and along the Atlantic coast. All are suitable for intensive agricultural production. It is envisaged that one existing soils laboratory will be expanded under this activity. Agricultural inputs in the form of seed, fertilizer, pesticides, etc., will be considered for funding,

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as well as some hand tools, other specialized equipment and vehicles. A limited number of additional personnel will be included, as well as short-term training and technical assistance.

2) The development of subgroup data and field-level soil fertility information for important soils groups in selected areas. Approximately 170 field trials using various varieties of seeds, as well as different fertilizer mixes, will be undertaken to assist in the correlation of fertilizer recommendations. Information thus obtained will increase SEA capability to develop cropping and fertilizer recommendations and production packages for small farmers. It is envisaged that a limited number of additional personnel will be funded under this activity as well as agricultural inputs, some specialized equipment, hand tools and vehicles, books and maps, as well as limited short-term training and technical assistance.

3) A study of all aspects of the complex soil conservation problems that exist in a number of selected areas. Based on the information obtained, field studies or pilot projects to test possible solutions to the problem will be carried out in some of these areas. At present, funding is being considered for some additional technical as well as unskilled personnel, a small, combination administration/laboratory field building, short-term training, technical assistance, as well as some equipment, vehicles, printed materials, etc.

The first two areas of activity are closely related with the adaptive research work discussed under Section b, Production Technology Development, which, in turn, is integrally related to the Seed and Plant as well as Specific Production activities. It is anticipated that the Land Utilization activity will be administered by SEA's Division of Research and Extension.

The following categories of expenditures are expected to be financed under this activity within the three year time framework of the Loan Program:

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Table III - 3

Construction and Remodeling	\$ 35,000
Equipment	288,000
Vehicles (including maintenance)	125,000
Inputs (seeds, trees, fertilizer, etc.)	238,000
Miscellaneous (materials, maps, books, office supplies, etc.)	180,000
Personnel	457,000
Training	50,000
Short-Term Technical Assistance	<u>35,000</u>
Total	<u>\$1,408,000</u>

b. Production Technology Development (\$8,500,000)

While poor nutrition and lack of an adequate income undoubtedly affect the small farmers' ability to produce, the unavailability, in time and place of need, of the requisites (or inputs) of improved production is probably the principal constraint to achieving increased productivity. The evidence tends to show, however, that small and medium farmers are aware of the value of many improved production practices and would be willing to use them if they were made available.

An important input in the production of any agricultural commodity is the selection of the right variety; i.e., one adapted to the soil and climate of the area in question. This can only be assured through the use of good quality seed and plant material of varieties adapted to the specific area through careful research and trial. For many crops, including many of those applicable to intensive agriculture,

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adaptive research work in the Dominican Republic has not kept pace with the development of new varieties in other countries. Even where good varieties are available, high quality seed or plant material is often not produced and distributed in quantities and through marketing systems that make it available to the small producer.

In order to help increase the availability of high quality seed and plant materials of improved crop varieties adapted to the various soil and climate areas of the country, the Mission proposes to assist the SEA to carry out the following activities under the Loan Program:

1) Adaptive Research

The SEA's adaptive research efforts will be expanded and special emphasis will be given to obtaining for the Dominican Republic the best possible germ plasm for the high priority crops selected under this activity. The number of field trials will be increased considerably. In order to affect such changes, it is expected that numerous cooperative contracts will be developed with the various International Research Centers (IRC's) such as IRRI, CIAT, and CIMMYT. The research envisioned under this activity would include the adaptation of new varieties and new technology presently existing elsewhere, if deemed appropriate to the Dominican environment. This activity will be closely coordinated with the soil fertility trials mentioned under the Land Utilization activity, as well as with the Seed and Plant Multiplication/Distribution activity.

The selection of crops for priority attention under the Adaptive Research program will be consistent with the goals and objectives of the Program in that emphasis will be given to those crops of most importance to the small and medium farmer. Although this selection has not been finalized, presently under consideration are rice, beans, cassava, plantain, corn, and selected vegetables. Some flexibility will be maintained in this activity to permit adjustments that are expected to be required as more data become available on small farmer marketing or as new research and technology indicates that changes in the production mix would benefit small farmers. This flexibility

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will be extended to permit the introduction (or adaptation) of new varieties or breeds of poultry (such as Khaki Campbell ducks) for areas of low protein intake that may not be suited to high protein crop production. In support of the above Program, it is envisaged that a rice substation will be constructed to carry out research trials. Additionally, equipment such as tractors, rototillers, hand tools, and vehicles will be included, as well as inputs, additional personnel, training and technical assistance.

The following expenditures are expected to be financed under this activity over the life of the Program:

Table III - 4

Construction and Land Adquisition -- Rice Substation	\$ 70,000
Equipment	175,000
Vehicles	91,000
Inputs -- fertilizer, seeds, plants, etc.	279,000
Materials -- books, office supplies, research, etc.	185,000
Personnel	549,000
Training	91,000
Short-Term Technical Assistance	40,000
IRC Linkages	<u>230,000</u>
Total	<u>\$1,710,000</u>

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2) Seed/Plant Materials, Multiplication/  
Distribution

The lack of adequate, certified seed and plant materials in the Dominican Republic poses a serious constraint to higher agricultural production. There presently is no organization, public or private, which produces certified seed in sufficient quantities to meet the nation's current needs, much less its projected future demand. Further, imported seed and plant material cannot always be obtained in sufficient quantities and often are not appropriate for use within the Dominican environment. This situation obviously hampers efforts to stimulate higher production since it is estimated that with the proper seed and plant materials, plus proper input use and cultural practices, output of many crops could double.

This proposed activity will endeavor to institutionalize the process of seed and plant multiplication and distribution in order to create a capacity within the Dominican Republic to produce sufficient quantities of high quality varieties of seeds and plants which have proven to be superior in terms of yield and disease resistance, and to distribute these to small farmers. This process is a logical extension of the Adaptive Research activity described above. It also relates to the Specific Production Packages activity discussed in "3" below, and will provide one of the most vital input linkages in improving farm production.

It is important to note, however, that from the standpoint of timing, the initiation of this activity will not be entirely dependent upon the progress of the Adaptive Research activity. Improved varieties, i.e., those which are superior to types currently used by most small and medium farmers, already exist for most crops, and the propagation and distribution of such varieties can begin immediately, while research and adaptation trials can simultaneously continue to seek even better results.

It is envisioned that this activity will be carried out through a cooperative arrangement between SEA's Seed unit (within the Division of Research) and private producers.

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Under such an arrangement SEA would produce some seed at its own facilities and would also form a contractual relationship with private producers to purchase their production at a specified price. Although details have not been finalized, it is presently anticipated that a revolving fund would be created to finance both the production and marketing aspects of selected seed and plant materials. Under such an arrangement SEA could provide initial production financing to producers, and later purchase their output. Such materials could then be sold through the chain of SEA input stores, and some portion of the proceeds and the loans repaid by producers would be returned to the revolving fund to be applied to finance future seed production and marketing activities. Seed and plant producers would be free to sell their surplus production through private channels.

Initially, a number of varieties of seed and plant stocks will have to be imported. It is anticipated that refrigerated storage facilities and handling equipment will be needed in order to efficiently store and process the materials under the Program. Additional training and personnel support costs will be included, as well as limited technical assistance. The range of specific crops which will receive attention has not yet been determined. Initial indications are that rice, corn, beans, plantains, and cassava will probably be included, since a preponderance of small farmers cultivate one or more of these crops, and since most rural dwellers depend on them for food. However, it will be necessary to maintain considerable flexibility within this area in order to respond to such variables as small farmer acceptance or rejection, development of new varieties, and changing market opportunities.

The following activities are being considered for funding over the three-year life of the Program:

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Table III - 5

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Revolving Fund	\$4,869,000
Initial Plant and Seed Material	1,070,000
Equipment and Facilities	250,000
Personnel	361,000
Training	50,000
Short-Term Technical Assistance	<u>10,000</u>
Total	\$6,610,000

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3) Specific Production Packages

As more improved varieties of seed and plant materials become available for distribution, it is anticipated that a considerable effort will be required to bring about the acceptance of these new inputs by the small farmer. Accordingly, extension-type promotion programs will be required to demonstrate the greater value of new varieties.

Under this proposed activity, after priority crops and areas have been selected for attention, crop-specific "package" programs will be developed, including the necessary inputs, educational materials and technical assistance. It is envisaged that this undertaking, which will be administered through SEA, will be implemented largely with existing personnel and will be closely coordinated with the adaptive research, vocational education, and farm service system concepts being developed under this Program, as well as the supervised credit system already in place. Priority attention will be given to specific regions identified previously as those in which small and medium-sized farms predominate.

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It is currently anticipated that several specific areas of production, i.e., rice, beans, yucca, plantains, and vegetables, will be emphasized, with a Dominican chief agronomist in charge of each crop program. Approximately six major regional meetings per subject will be held in each of the three years of the Program to discuss specific problems and solutions and to familiarize farmers with the new varieties and practices. During the interim periods, the agronomists in charge of the specialized programs will work with extension personnel with respect to problems encountered or with smaller groups of farmers when the occasion requires. Such activities will be tied closely to the Sector Planning element of the Loan Program in that they will benefit from a more highly organized and action-oriented decision making process within the sector. The greatest potential benefit, however, will occur as a result of having established further coordination and improved working relationships among the various institutions concerned with research and outreach within the agricultural sector and particularly within the SEA.

The estimated expenditures to be financed under this activity are the following:

Table III - 6

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Personnel Costs	\$108,000
Training and Travel Costs for Participant	26,000
Demonstration Materials, etc.	<u>46,000</u>
Total	\$180,000

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c. Transfer and Utilization of Production Technology

This Program activity is composed of two sub-activities, Vocational Education and Professional Education, as described below:

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1) Vocational Education

The Vocational Education subelement is basically a continuation of the pilot program initiated under AID Loan 027. The present Program consists of the operation of five regional farmer training centers, the hiring and training of 30 staff members, the development of necessary training materials oriented toward small farmers, the training of some 2,000 farmers during a 13 month-period, and appropriate technical assistance. This Program is progressing as planned and responsible SEA officials are enthusiastic about its success, and desire to expand its reach to other geographic areas under the proposed Loan Program.

Five new centers are proposed under Ag Sector Loan II, to be established in Constanza, Mao, Juma, San Francisco de Macoris, and Santiago Rodriguez. Establishment of these new centers, plus the continued operation of the present five centers, will permit the training of 9,000 additional farmers over a three-year period. Since this represents only about 4.0% of the total number of small farmers in the country, emphasis will be placed on the training of selected farm leaders who can extend the reach of the Program among other small farmers in their areas. Local SEA extension agents will play a key role in the selection of these farmers for training.

The objectives of each new training center, based on the model developed under the current Program, will be as follows:

- a) To develop the production and farm management skills of small farmers which will enable them to improve their standard of living through increased productivity.
- b) To stimulate the formation and efficient operation of farmer organizations.
- c) To broaden the specific technical knowledge of farmers in the following areas:

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- Cultivation practices of selected crops;
- improved livestock practices;
- operation and maintenance of agricultural tools and machinery;
- appropriate drainage and irrigation practices;
- soil conservation practices;
- farm organization and budgeting; and,
- use of agricultural credit.

Based on the existing farmer training centers, the basic operational work plan for each new center would be as follows.

a) To undertake a survey of local farmers and SEA extension agents to determine:

- The most pressing agricultural production problems in the zone of influence of a given center;
- the specific course content to most effectively deal with local problems;
- a profile of the target population for each training center, based on a preliminary selection of farmer participants.

b) Approximately 6 hectares of agricultural land for teaching and demonstration purposes should be obtained for each center.

c) Four instructors and one coordinator should be provided for each 400 farmers to be trained.

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d) The training program should be organized generally as follows:

- Fifteen groups of about 30 farmers to be trained during 13 months at each center;
- each group of farmers to receive three 6-day courses during the year (18 days of formal instruction); and,
- each group to receive a total of 6 days of follow-up field work from center staff.

e) A total of 45 practical courses in eight subject matter areas will be given at a center during one year's operation. Course subjects will include beans (13 courses); corn, cassava, and rice (8 courses each); peanuts, sweet potatoes, and plantain (1 course each); and beef cattle (5 courses).

f) Specialized instruction will also be provided in the production of soybeans, pidgeon peas, Irish potatoes, vegetables, bees, poultry, swine, goats, and rabbits.

g) Follow-up activities by the center staffs will include individual farm visits, demonstrations, workshops, visits to experiment stations, and other training.

h) A typical profile of a farmer training group, based on 1975 surveys of farmers participating in existing training center programs, is expected to be as follows:

- 1/2 own their land;
- 3/4 work on less than 3.1 hectares;
- 3/4 are literate;

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- 2/3 belong to some farmer organization; and,
- 1/2 have not used institutional credit before.

Based on budget and expenditure data derived from AID Loan 027, the total Program cost over a three-year period is estimated at RD\$3,090,000. Tentative areas to be funded are as follows:

Table III - 7

Continued Financing of Existing Centers	\$1,457,000
Establish New Centers	969,000
Personnel/Training	616,000
Short-Term Technical Assistance	<u>48,000</u>
Total	<u>\$3,090,000</u>

2) Professional Education

This subelement is largely a continuation of the Professional Education Program started under AID Loan 027, with several new dimensions. The objective of this Program is to introduce in three participating universities the curriculum needed to meet the country's professional level education requirements in agriculture.

Under the first loan, due to the long-term nature of academic training, it was originally planned to provide the additional resources needed to complete this activity from Ag Sector Loan II. Furthermore, a detailed study completed in

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1975<sup>1/</sup> first discussed in Part II, documented that the constraint imposed by the shortage of professional level technicians is more severe than first estimated and will continue to worsen after 1978 unless present training plans are expanded.

Proposed Loan II activities will rely on the administrative mechanism developed under the first loan; initial organizational and administrative problems should, therefore, be minimal. The Inter-University Coordination Committee, chaired by the SEA Coordinator assigned to the Professional Education subactivity, will be responsible for the overall planning and implementation of the Program.

Subject matter areas now identified for support under the proposed loan are specified below, by school. Quantitative output goals are given where possible. For purposes of illustration, examples are given of the orientation of such instruction, or of supportive activities the participating universities are expected to carry out in conjunction with these new curricula.

a) Universidad Católica Madre y Maestra/  
Instituto Superior de Agricultura  
(UCMM/ISA)

- Farm Management. (Double present student output.) Improve leadership in collective farm management, marketing and small farm organization.

- Agricultural Extension. (Double present output.) Develop and publish low-cost pertinent instructional materials on extension and study and test other communication means for translating research into farm practices.

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<sup>1/</sup> I. Asmón, "Preparing Professional and Middle-Level Manpower for Agricultural Development in the Dominican Republic", 1975, 41 pages, mimeo, USAID/DR.

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established discipline.

- Forestry. Strengthen newly

b) Universidad Autónoma de Santo Domingo (UASD)

- Fisheries. Strengthen discipline at UASD especially as concerns freshwater fisheries.

- Veterinary Medicine. (Double present student output.) Develop capability to grant graduate degree.

Program financing will be made available for limited operational support staff, training (academic, short courses, and observational), procurement of critical equipment and materials, external technical assistance, and some selected research.

Some of the new dimensions of the Program, additive to that now being carried out under AID Loan 027, are the following:

a) Research

Under SEA leadership, an Agricultural Research Council will be established which will examine and approve proposals for applied and adaptive research which, upon approval by the Council, will be carried out by the universities and financed by grants from Program funds.

b) Improvement of Existing Faculty/Curriculum

Up to six months of study will be provided for selected faculty members on the latest research and technology at international research centers such as the following:

- International Center of Tropical Agriculture (CIAT). Cali, Colombia (rice, yucca, beans, beef cattle, corn).

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- International Maize and Wheat Improvement Center (CIMMYT). Mexico (corn, wheat).
- International Institute of Tropical Agriculture (IITA). Ibadan, Nigeria (agricultural systems, food crops).
- Center for Agricultural Technology, Investigation and Training (CATIE). Turrialba, Costa Rica (tropical forestry, coffee and cacao).
- International Rice Research Institute (IRRI). Los Banos, Philippines (rice, small farm tools).
- International Potato Center (CIP). Lima, Perú (potatoes).

c) Professional Associations

Participation of faculty members in regional professional associations such as the Sociedad Americana de Ciencias Agrícolas (SACA) in Puerto Rico, and the Asociación Latinoamericana de Producción Animal (ALPA) in Puerto Rico, as well as active participation in and sponsorship of workshops concerning principal local agricultural products will be encouraged.

Training and participation in external seminars and programs will be subject to approval by a special subcommittee of the Inter-University Coordinating Committee.

Based on budget and expenditures data from AID Loan 027, it is anticipated that approximately \$1,002,000 will be required in support of this activity over a three year period. Tentative areas to be financed are as follows:

Table III - 8

Curriculum Development	\$ 98,000
Materials/Equipment	62,000
Personnel	194,000
Research Fund	600,000
Short-Term Technical Assistance	48,000
Total	<u>\$1,002,000</u>

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3. Farm Service System

Under this Program Element, the farm service activities planned are to provide the small farmer with access to the inputs and incentives needed to increase production, productivity, income, and employment in the rural sector.

a. Input Distribution Centers

This activity consists of a continuation and expansion of the agricultural inputs distribution system initiated under AID Loan 027. It is anticipated that this Program will make available to small farmers, at reasonable cost, inputs such as fertilizers, pesticides, small hand and garden tools, improved seeds, and other needed inputs that can be effectively marketed under a public input distribution system.

As discussed in detail in Part II of this paper, a series of Mission sectoral studies have supported the view that the unavailability of agricultural inputs is a major constraint to small farm production and productivity. Because of the inadequacy of the commercial marketing system in serving small farm input needs in the Dominican Republic, a public inputs distribution system, closely patterned after the successful Puerto Rico system, has been initiated. To date, RD\$2.0 million of AID Loan 027 funds has been made available to begin a pilot public distribution system of agricultural inputs for small farmers. Two international experts with extensive experience in the farm input system in Puerto Rico have been contracted to provide technical assistance to the SEA during the development and implementation of this Program.

Five such input centers have been established and an additional five to ten are planned to begin activity under AID Loan 027 financing. The operation and effectiveness of these initial centers will be carefully monitored and evaluated to determine the most efficient mode of operation for the existing centers and those to be operated under Ag. Sector Loan II funding. Several operational procedures that are currently being utilized in the Program are as follows:

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- 1) Sales are for cash and cash instruments only.
- 2) All outlets are rented except where SEA has an appropriate physical facility available.
- 3) Strict financial controls are used, and cash receipts are immediately deposited at the end of each day to a central account. To date, the majority of sales are authorized by chits or vouchers issued by the Agricultural Bank based on AgBank/SEA approved credit applications.
- 4) Although an intermediary transit warehouse is to be established, major bulk storage will remain in hands of private bulk distributors.

During January 1976, a work plan suggesting the optimum geographic distribution for farm service centers is to be developed. From this plan and an analysis of the actual operational costs of the existing centers, a detailed budget will be developed indicating the number of farm service centers to be funded under the Proposed Loan Program. Preliminary estimates suggest that twenty to twenty-five additional service centers will be initiated under Ag. Sector Loan II. For the start-up costs of these new centers, as well as necessary seed capital for an input procurement revolving fund, RD\$4.0 million is being budgeted (RD\$2.0 million GODR and \$2.0 million AID). Under such a fund the inputs, initially purchased by SEA, will be sold through SEA's input centers, on a cash basis, to small farmers who will use either their own resources or credit slips issued by the AgBank (in the event a particular farmer has an AgBank loan). The credit slips will be returned by SEA to the AgBank for cash which, along with other cash receipts, will be utilized by SEA to purchase additional inputs.

Detailed costing for this activity will be developed after the January 1976, planning and budget exercise. However, tentative areas to be financed are as follows:

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Table III - 9

Revolving Fund	\$3,500,000
Personnel	200,000
Materials/Equipment	260,000
Short Term Technical Assistance	<u>40,000</u>
Total	\$4,000,000

b. Output Marketing Centers

Mission studies have indicated that a key approach to alleviating the constraints on small farm production incentives is to provide small farmers with access to viable and dependable markets for their products. This activity is designed to address this situation through an integrated network of marketing centers which would form part of an overall service center approach to include input centers under activity "a" above, as well as AgBank outlets under activity "c" below. Essentially, the network of approximately eighteen marketing assembly centers would be constructed, each composed of an office and warehouse as well as a loading/unloading area. Each center would also be the focal point for marketing services such as price information, technical assistance, etc., emanating from SEA, its associated agencies and other Dominican institutions. Through the price guarantee fund mechanism, these centers would buy selected commodities, with an emphasis on those selected under the Small Farm Production Support Element of the Loan Program, at guaranteed minimum prices. This fund, which would be entirely GODR financed, would be replenished through INESPRES sales to private retailers (or possibly through its own retail store outlets, if it should choose to open such) in urban areas. Additionally, it is envisaged that other specialized equipment which rural farmers are not able to purchase on their own, such as tractors, harvesters, etc., will be made available on a rental basis.

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With respect to administration, details have not yet been finalized. However, at this time, it is anticipated that each integrated service center complex would be administered jointly by SEA and INESPRES, with the latter charged with purchasing the commodities. Further guidance and technical assistance would be provided by a committee composed of SEA and INESPRES representatives in each of the seven regional SEA offices. Further, storage services and a commodity control system would be established at this level. Finally, at the national level, an integrated committee composed of top SEA and INESPRES representatives would establish overall direction with respect to national priorities, an overall accounting system, and a mechanism for evaluation of the Program.

The marketing system envisaged under this Element will be developed during the remainder of intensive review with SEA, INESPRES, and the Inter-American Institute of Agricultural Sciences (IICA). IICA is currently working on the detailed technical aspects of the Program and will be preparing a progress report in the near future. It is envisaged that needed technical assistance personnel from such institutions as IICA or U.S. universities will be made available during at least the preliminary phase of the Program.

The marketing centers to be financed under this activity represent an important link in the overall GODR marketing system by providing accessible facilities to the farmer and by providing him an economic incentive in the form of viable prices. At the same time, by providing direct linkages to urban distribution centers, agricultural produce should reach urban consumers at lower prices.

Under the Program, the following items are expected to be financed over a three year period:

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Table III - 10

Construction	\$ 384,000
Personnel	618,000
Equipment	360,000
Price Guarantee Fund	498,000
Training	<u>140,000</u>
Total	\$2,000,000

c. Rural Credit and Savings

This activity is based on various studies that indicate a shortage of capital in rural financial markets. The Program envisioned will be administered by SEA, in cooperation with the AgBank. The key to this activity is a proposed \$20 million IDB loan for rural credit, currently in the initial stages of negotiation. Since IDB funds cannot be used for operating and support costs, it has been proposed that approximately \$2,000,000 be made available under this Program to provide rural support facilities so that joint IDB/GODR small loan funds and services can be extended to a greater number of small farmers. Research has shown that one reason for the relatively small amount of marginal farmers seeking institutional credit is the considerable cost to them in time, inconvenience and financial expenditure of numerous trips to the lending institution. As a result, many choose to borrow from non-formal sources.

With respect to savings, recent studies have shown that there is a growing, widespread acceptance of savings on the part of the overall population in spite of relatively low interest rates (generally 4-5 percent in 1974). This suggests that, even within the present context, there may be potential for greater savings in the countryside.

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Under this proposed activity, rural credit (and possibly savings services) will be extended through the integrated service network utilized for input centers and output markets to give farmers one-point access to credit, savings, inputs, markets, and technical assistance. Approximately 40 satellite stations are envisaged.<sup>1/</sup> Additionally, four mobile van units will be utilized, on a pilot basis, to bring improved services to small farmers in more remote areas which do not have sufficient volume to merit a satellite center.

The Mission believes that the Program envisaged will minimize the difficulties involved in delivering credit to the small farmer by providing him the needed services in his own area and on a timely basis. An important spin-off benefit of this Program will be obtained in the form of building on AID's initial investment under Loan 027, as well as an expansion of the philosophy of making further credit available to the target group.

The following represents the current proposed expenditure for a three year period under this activity:

Table III - 11

Construction	\$ 400,000
Office Equipment	85,000
Vehicles (Including Maintenance)	140,000
Personnel	1,275,000
Training	<u>100,000</u>
Total	<u>\$2,000,000</u>

<sup>1/</sup> Due to a higher number of satellite stations, as compared to service networks, a number of satellite stations will be located away from the integrated service complexes.

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4. Rural Socio-Economic Development

As indicated in sectoral studies undertaken by the Mission, a substantial portion of the rural population remains beyond the reach of traditional development programs. In view of this situation, SEA views this as a major problem area and seeks to redouble its development efforts in order to foster social advances and lasting economic impact. This loan element, then, is designed to promote, through a coordinated multi-faceted approach, the kinds of socio-economic development necessary to address these rural needs.

Under this proposed element, it is anticipated that three distinct but coordinated activities will be implemented. Each will be administered by SEA, although it is expected that SEA may delegate limited authority to other public or private entities in certain cases, while retaining overall administrative and financial control. A total of \$6 million will be disbursed under the Loan Program: \$1.5 million for the rural area development agents program; \$3.0 million to fund labor intensive rural infrastructure projects; and \$1.5 million in revolving credit funds for small scale commercial enterprises.

a. Rural Area Development Agent Program

Under this activity, the traditional Dominican concept of extension as primarily an instrument to aid producers is being replaced by the concept that extension should be an agent of change for the entire community. This notion of "total development" which SEA is presently extending through its rural area agent program has been hampered by a lack of necessary financing. It is proposed that this activity support the SEA in the further development of this program by providing funds for short-term training, salaries, and other support costs for approximately 50 new and an estimated 300 current agents.

Rural development agents are expected to live in the area they service. Their mission is to create conditions conducive to the social and economic development of that area by working with existing community development committees (or, alternatively, by assisting in the formation of such committees)

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which constitute a useful "grass roots" institution for the development and coordination of various community development efforts. In addition to providing needed organizational and technical assistance to area inhabitants, the agents will, under the new program, be expected to assist the community in identifying infrastructure projects that can be financed under activity "b", below, and promote the development of small scale rural enterprises by initiating official liaison between potential recipients and administrators of small industry credit under activity "c". As appropriate, specialized technical experts will be made available to the agents to assist them in carrying out their activities. These activities will seek to promote the development of rural area cultural and economic growth and social cooperation by encouraging community organization and self-help attitudes, supported by the technical and material assistance needed to put the projects developed into operation.

Some form of financial incentive may be necessary in order to encourage agents to live in isolated rural areas. Accordingly, the program may include financing for a small housing allowance and travel expenses to augment the basic salary. Also, to insure better operator maintenance of the vehicles which are necessary to give agents an extended outreach capability, a rotating fund for the purchase of small motorcycles will be established. Under this mechanism, the SEA will acquire these vehicles and sell them to rural agents on a concessionary basis. The technician will pay an initial sum and a monthly payment until the amount is repaid. The rotating fund mechanism will be utilized both to maintain and augment the stock of motorcycles.

Under this activity, which will be administered by SEA's Extension Division, approximately \$1.5 million will be expended over the three year period for the following purposes:

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Table III - 12

Salaries for 50 new rural agents at \$250 per month	\$ 450,000
Rent/subsistence allowance for 350 rural agents at \$50 per month	630,000
Rotating fund for purchase of 350 motorcycles at \$300	105,000
Gas and lubricants at \$100 per year/agent	105,000
Office and demonstration materials at \$120 per agent	42,000
Training of 50 new agents and re- training 300 current agents	<u>168,000</u>
Total	\$1,500,000

b. Labor Intensive Rural Infrastructure

Approximately \$3 million in Loan Program funds will be provided under this activity for the construction of productive rural infrastructure projects which will contribute to community social and economic development. It is anticipated that the range of projects will include such things as community centers, community wells, small dams, terraces, water supply or drainage canals, market or storage facilities, etc. Additionally, an expansion of the current feeder roads element under AID Loan 027 is envisaged, with the condition that roads to be financed under the proposed Loan Program will be identified by the SEA under the rural area development agent program. Projects will be identified by the inhabitants of the communities through their local committees assisted by the SEA area agent and, if necessary, civil engineering or other consultants provided

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by the Peace Corps\* or various Government agencies. Resulting proposals will probably require approval by the SEA at both the regional and the sub-secretary levels, and perhaps clearances by other agencies of the Dominican Government.

The projects to be included for funding under this activity will be designed to utilize labor intensive methods of construction to the maximum extent feasible in order to create higher levels of rural employment. The SEA will attempt to undertake projects during "off season" periods in order to avoid competition with respect to employment of rural laborers during periods of major agricultural activity.

Loan financing of projects will be utilized to the greatest extent feasible. The decision as to whether a particular project is grant or loan financed will depend upon consideration of the nature of the project, ability of the community to repay a loan, etc. While the exact nature of the mechanism used to finance this activity has not yet been determined, it has been suggested that the SEA's Extension Division will develop a revolving fund, from which loan repayments will be used to finance additional projects. Regardless of the manner of financing, the necessary technical assistance, materials and equipment will be provided by or channeled through SEA.

Projects financed under this activity will provide short and medium-term employment opportunities as well as replicable skills for rural dwellers, with consequent increases in local income and consumer demand. They will also attack the causes of rural poverty by promoting community

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\* The possibility of close cooperation with the Peace Corps is being carefully explored with respect to this element and it is hoped that a group of volunteers experienced in related activities will be made available within the SEA structure to serve as a resource for area agents and rural community committees.

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self-help for purposes that will enhance the productive and commercial capacity of the area. The proposed expenditures under this activity are budgeted as follows:

Table III - 13

20 community centers at approximately \$5,000 each	\$ 100,000
200 community wells at approximately \$2,500 each	500,000
250 small earth dams at approximately \$2,000 each	500,000
5,000 meters of water supply canals at approximately \$50 per meter	500,000
40 market centers and storage facilities at approximately \$10,000 each	400,000
33 kilometers of rural feeder roads at approximately \$15,000 per kilometer	<u>1,000,000</u>
Total	\$3,000,000

c. Revolving Credit Fund for Small Rural Industries

This activity is seen as directly complementary to others under the Rural Infrastructure element in that it will increase rural employment and income while meeting to some degree both local and urban demand for agricultural products. The types of enterprises considered for financing this program might include cottage industries, handicrafts, fruit and vegetable growing, and processing, fish farming, poultry and rabbit raising, and agricultural supply and marketing enterprises.

SEA rural development agents will promote the establishment of these small industries by providing potential

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credit recipients with necessary assistance in planning, proposal development, organization and, to a limited degree, business management. Proposals for financing will be submitted through the local SEA rural agent and will be approved at the regional level prior to submission for funding.

In order to effect the widest possible impact, projects will probably have a maximum limit of about \$2,000. Since a fairly high level of financial analysis and management is required, it will almost certainly be necessary to draw upon an already established financial entity. While the exact financial arrangements are still under consideration, two possible mechanisms are envisaged: 1) Financing through the Central Bank's FIDE program; or 2) a possible arrangement directly with commercial banks, such as that developed under the Custodial Account activity under AID Loan 027. The Guarantee Loan Fund mechanism, which is expected to be in operation shortly, may also be utilized to encourage private banks to participate.

It is the Mission's judgment that through this proposed cooperative arrangement between the SEA and the private sector, a large number of small agri-businesses can be financed which would directly benefit the target group and the rural sector in general. All projects under this activity will be financed entirely in local currency.

While the exact division of activities will be determined during further Intensive Review, a preliminary estimate of the types of projects to be financed is as follows:

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Table III - 14

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Cottage industries, handicrafts	\$ 300,000
Vegetable growing/processing	200,000
Fruit culture/processing	200,000
Fish farming	250,000
Poultry and rabbit raising	100,000
Agricultural supply centers -- seed growing, processing, etc.	400,000
Short-term technical assistance in support of the above activities	<u>50,000</u>
Total	\$1,500,000

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IV. ISSUES

A. Contribution Ratio

The DAEC guidance message (State 047366 dated 3/4/75) stated, "Given the present economic position of the Dominican Republic, the Mission should consider obtaining a higher GODR counterpart contribution than the 3:1 ratio proposed."

This position, developed in response to Mission representations on the matter, was taken at a time when Dominican economic prospects were substantially more favorable than they are today. As indicated in Section I.A., "Key Events Since Initial DAEC Meeting", the economic situation has changed significantly because of a series of unforeseen setbacks, including a drop in world sugar prices, increased petroleum prices, and abnormal weather conditions. As a result, the economic "wind-fall" to improve the Dominican reserve position which had been expected due to high sugar prices in 1974 did not materialize, and the Dominican Republic has been forced to embark on an imposed austerity program.

Even given the reduced size of the proposed loan Program (\$30.0 million), the added budgetary burden is such that the Mission is of the view that a 1:1 ratio is not only reasonable, but the highest that can be negotiated under current circumstances.

B. AID Loan Amount

The PRP proposed a loan of \$15 million. The DAEC guidance message (State 047366 dated 3/4/75) spoke of a \$11 million loan level, but stated that the final level should be based on the results of the intensive review. Deputy U.S. Coordinator Herman Klein's letter of July 28, 1975, concerning FY-76 and fifth quarter country program levels, while acknowledging the Mission's desire to retain the \$15 million proposed loan amount, indicated the loan would be carried at \$12 million in the Congressional presentation, but added that the precise level of funding would be appropriate for discussion at the time of the Interim Review. The letter also stated that any

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increase would be released only as a consequence of compelling considerations and, further, that such an increase would be subject to the availability of funds.

The Mission's view, based on the results of the intensive review to date, is that the \$30.0 million program is integrated and interdependent warranting the \$15.0 million requested. Since the presentation of the PRP, Mission representatives have worked closely with SEA to reduce the scope of the program as originally envisaged and to refine the various elements in order to achieve the maximum effect of each individual element as well as the program in general. As a result, the program has been pared substantially. The removal of any particular element would entail the failure to address a major problem constraining the development of an important part of the sector. It could adversely affect the rate progress throughout the sector as a whole.

C. Agricultural Credit Interest Rates

During the initial stage of intensive review, the Mission carefully researched the situation with respect to interest rates charged by agricultural lending institutions in conjunction with the Rural Credit Activity. A recent study<sup>1/</sup> indicated that the largest lending institution within the agriculture sector, the AgBank, was decapitalizing at a rapid rate as a result of the negative real rate of interest on its loans. (For example, if the inflation rate reached 16% in 1975, the real return is a negative 8%.)

We note that under the proposed loan Program (Element III-C - Rural Credit), a total of \$2,000,000 would be utilized to expand the outreach facilities of the AgBank to the small and medium farmer target group. This activity, as

<sup>1/</sup> "Assisting Rural Poor Through Financial Market Activities in the Dominican Republic", by D. W. Adams and J. R. Ladman, September 1975.

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previously stated, is integrally related to, and contingent upon a proposed IDB loan of \$20.0 million and a Dominican counterpart contribution of \$15.0 million. During the course of negotiations, both AID and the IDB can jointly press for raising interest rates, possibly on a variable basis, up to the present maximum rate allowable, 12%. Indeed, this has been our position to date. There are indications that the AgBank has become persuaded as has the Secretariat of Agriculture. Both will advocate a change to the President. The issue will be resolved, one way or the other, before Ag Sector Loan II comes on line. An upward adjustment in the interest rate is complicated and sensitive, given the effect on the entire interest rate structure in the Dominican Republic.

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V. FINANCIAL PLAN

The estimated costs of the Program over the 3-year disbursement period, which probably will be included in the Dominican Government's formal loan request, will total \$30 million, as shown in the following table.

Table V-1

Sources of Funds	GODR's Estimated Financial Plan (Amounts in \$1,000 Equivalent)					
	U.S. Dollar		Local Currency		Total	
	Costs		Costs		Costs	
	Amount	%	Amount	%	Amount	%
2nd. AID Loan	\$3,860	12.9	\$11,140	37.1	\$15,000	50.0
GODR Resources <sup>1/</sup>	-	-	15,000	50.0	15,000	50.0
	\$3,860		\$26,140		\$30,000	100.0

<sup>1/</sup> The GODR resources will be provided from the annual funds allotted for investment and operating cost within the central budget of the country, and this contribution will be in addition to the budget and disbursements to the implementing agencies.

As seen from the foregoing table, GODR resources will account for 50% of the costs of the Program. An overall breakdown of the estimated costs of program activities, by element, is shown in the following Table V-2, and an estimated disbursement schedule for program element is shown in Table V-3, below.

It is anticipated that the overall ratio of GODR to AID funds will be a 1:1 basis. The U.S. Dollar costs of training, overseas travel, external technical assistance and other such eligible costs will be assumed entirely by AID. The disbursement of U.S. Dollar costs will be made according to standard AID procedure.

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Table V-2

Estimated Program Budget  
(In Thousands)

Element	GODR	Estimated Costs		Total
		U S A I D		
		Peso	Dollars	
I. <u>AG. SECTOR PLANNING, COORDINATION &amp; EVALUATION</u>				<u>2,000</u>
A. Sector Economic Analysis and Planning	250	-	350	(600)
B. Data Collection/Evaluation Center	900	-	500	(1,400)
II. <u>SMALL FARM PRODUCTION SUPPORT</u>				<u>14,000</u>
A. Land Utilization	228	780	400	(1,408)
B. Production Technology Development	3,000	3,900	1,600	(8,500)
C. Transfer/Utilization of Production Technology	3,422	320	350	(4,092)
III. <u>FARM SERVICE SYSTEM</u>				<u>8,000</u>
A. Input Distribution Centers	2,000	1,970	30	(4,000)
B. Output Marketing Activities	1,500	400	100	(2,000)
C. Rural Credit Activities	1,000	970	30	(2,000)
IV. <u>RURAL SOCIO-ECONOMIC DEVELOPMENT</u>				<u>6,000</u>
A. SEA Rural Area Agents Program	800	200	500	(1,500)
B. Rural Infrastructure Development	1,500	1,500	-	(3,000)
C. Small Scale Agri-Business Development	400	1,100	-	(1,500)
Totals	15,000	11,140	3,860	30,000

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Table V-3

Estimated Disbursement Schedule by Implementing Agency  
(In Thousands)

Implementing Agency	1976			1977			1978			1979			TOTAL			Grand Total
	GODR	A I D		GODR	A I D		GODR	A I D		GODR	A I D		GODR	A I D		
		Pesos	US\$		Pesos	US\$		Pesos	US\$		Pesos	US\$		Pesos	US\$	
<b>S E A</b>																
Planning	150	-	100	500	-	450	320	-	300	280	-	100	1,150	-	850	2,000
Research	250	300	150	1,078	1,930	1,000	1,160	1,430	700	740	1,020	150	3,228	4,680	2,000	9,908
Extension	300	100	100	1,600	680	250	2,000	920	250	1,722	920	250	5,622	2,620	850	9,092
Input Centers	300	70	10	700	800	10	600	600	10	400	500	-	2,000	1,970	30	4,000
Marketing Centers	200	50	10	550	130	35	450	130	35	300	90	20	1,500	400	100	2,000
Credit Systems	100	100	10	400	300	10	400	270	10	300	300	-	1,000	970	30	2,000
<b>S O P</b>																
Feeder Roads	-	-	-	130	130	-	250	250	-	120	120	-	500	500	-	1,000
	1,300	620	380	4,958	3,970	1,755	5,080	3,600	1,205	3,662	2,950	520	15,000	11,140	3,860	30,000

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With respect to peso expenditures, with the exception of the guarantee price fund under Activity III-B, which will be entirely GOCR funded; GOCR and AID contribution to all local cost activities will be made on a proportionate basis and the funds commingled, as is the case under L-027. The local currency disbursement mechanism under the Program will be identical to the present loan in that the respective GOCR and AID peso contributions to the Program will be deposited in a Special Segregated Program Account (SSPA) on a predetermined ratio, with the GOCR funds being placed prior to or simultaneously with the AID contribution.

After fulfillment of conditions precedent, AID will process a first disbursement request for peso costs of the Program, which in concert with GOCR peso funds, will be distributed among applicable sub-implementing agencies to meet approximately three months program requirements. Thereafter, throughout the program the amount of each advance to be allocated to any sub-implementing agency is to be determined prior to each disbursement, based on estimated need and the demonstration of financial and physical progress towards loan targets.

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VI. DEVELOPMENT PLAN AND SCHEDULE

Following the transmittal to AID/W of this document in late December 1975, the Mission will immediately resume review of the proposed loan program, with an anticipated deadline of April 15, 1976, for submission of the PP.

The development of individual loan program elements will require considerable outside assistance, including AID/W and other contractor expertise.

The following specific actions will need to be carried out as part of the intensive review process:

A. <u>Sector Planning</u>	Man- Weeks	Tentative <u>Source</u>
Additional study to determine personnel, equipment, and facility requirements. (Additional internal reorganization and redefinition of responsibility must also be undertaken by SEA.)	2- 3	AID/W
B. <u>Data Center</u>		
To determine personnel and computer needs for data collection and analysis.	2	AID/W or University
C. <u>Land Utilization</u>		
To determine personnel and equipment needs and develop soil survey and conservation activities.	2- 4	AID/W or NCSU
D. <u>Production Technology</u>		
1. Further contact with International Research		

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Centers (IRCs) to determine availability of information appropriate to Dominican Republic.	2	IRCs
2. Determine crop priority for adaptive research, seed and plant multiplication and production package.		
3. Further define responsibilities and linkages, and improve distribution mechanisms for inputs and technologies.	1	AID/W
4. Seeds and plants.	2	Mississippi State
E. <u>Transfer/Utilization of Production Technology</u>		
1. Vocational education - identify preliminary locations of farmer training centers.	1	Mission
2. Professional education - develop priorities for curriculum development, linkage to L-027.	1	Mission
F. <u>Farm Service System</u>		
1. Input Distribution Centers - further refine and expand program developed under L-027.	1	TVA (IFDC)
2. Output marketing centers.	1	Kansas State IICA

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- 3. Rural credit - further discussions regarding the proposed BID/GODR loan.

Mission

G. Rural Socio-Economic Development

Further define rural infrastructure projects and budgets as well as mechanisms of revolving funds for both infrastructure projects and small agro-industry promotion.

2

AID

Total 15-16

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