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

SECTOR LOAN PAPER

Proposal and Recommendations
For the Review of the
Development Loan Committee

COLOMBIA - AGRICULTURE REGIONAL SECTOR LOAN

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A.I.D.
Reference Center
Room 1656 NS

COLOMBIA
AGRICULTURE REGIONAL SECTOR LOAN

Table of Contents

SUPPLEMENTS:

Mission Director's Certification..... C 20

Mission Analysis of Compliance with Presidential
Criteria..... D 1-3

PART ONE - Agricultural Sector Plan and Strategy..... 1

 I - A. The GOC Agricultural Development Plan... 1
 B. AID Agricultural Sector Loan Strategy... 9

PART TWO - The Loan..... 12

 I - Nature of the Loan..... 12
 A. Agricultural Sector to Date..... 12
 B. Description of Loan Assistance Activities 14

 II - Implementation Agencies & Financial
 Information..... 35
 A. Borrower - The Government of Colombia... 35
 B. Sub-Implementing Agencies..... 35
 C. Financial Presentation..... 40

 III - Program Justification and Related Matters... 47
 1. Relationship to Recent Sectoral Studies. 47
 2. Contribution to GOC Development..... 47
 3. Impact on U.S. Economy..... 48
 4. Consistency with CIAP Reviews..... 49
 5. GOC Capacity to Carry Out Sector Plan... 50

PART THREE - Loan Implementation and Evaluation..... 51

 A. Administration and Implementation Plan.. 51
 B. Evaluation..... 55

UNCLASSIFIED

-ii-

AID-DLC/P-964

ANNEXES

I - THE LOAN

- Exhibit 1 - GOC Budgetary Appropriations for Agriculture and National Resources 1969-1972
- Exhibit 2 - Ministry of Agriculture
- Exhibit 3 - Key Personnel Colombian Agricultural Sector
- Exhibit 4 - Production; Area and Yield of Principal Crops 1968-1970
- Exhibit 5 - Production of Minor Crops 1968-1970
- Exhibit 6 - Imports of Selected Agricultural Products for 1967-1969 with Estimates for 1970
- Exhibit 7 - Agricultural Credit in Colombia
- Exhibit 8 - Non USAID Foreign Loans to Agricultural Sector 1967-1970
- * Exhibit 9 - Costs of Employment Analyses
(See Computer Printout: Official Files)
- Exhibit 10 - Number of IDEMA Facilities and Storage Capacity 1964 and 1969 with Projections to 1973
- Exhibit 11 - Present and Proposed Grain Storage Capacity of IDEMA and the Private Sector
- Exhibit 12 - IDEMA Support Prices and Volume of Purchases in Domestic Market 1968-1970
- Exhibit 13 - Export Earnings - Colombia 1968-1970
- Exhibit 14 - Estimates of Annual Increment in Demand for Agricultural Products
- * Exhibit 15 - "Export Opportunities for Colombian Wood Products" by Paul W. Sunaheimer, USAID/Bogotá, April, 1970 (See Official Files)
- Exhibit 16 - INCORA Credit Program Evaluation
- Exhibit 17 - Number of Improved Varieties Distributed to Farmers and their Potential Yield Level in Comparison with National Average Yields 1969
- Exhibit 18 - Production of Improved Seeds 1966-1970
- Exhibit 19 - Percentage of Improved Seeds Certified 1968-1969
- Exhibit 20 - Availability of Improved Seeds, Pesticides, Agricultural Tractors and Fertilizers

II - LOAN AUTHORIZATION (DRAFT)

III - AGRICULTURAL SECTOR OVERVIEW - ANALYSIS AND STRATEGY

* Not attached - Copy available LA/DR Official Loan File

UNCLASSIFIED

UNCLASSIFIED
AID-DLC/P-964

SUPPLEMENT

C-20

CERTIFICATION PURSUANT TO SECTION 6.11 (e) OF THE FOREIGN ASSISTANCE ACT OF 1961, AS AMENDED.

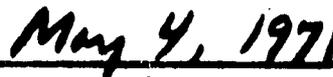
SUBJECT: COLOMBIA - Capital Assistance - Agricultural Sector Loan

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

This judgment is based primarily on the facts developed in the Capital Assistance Paper for the proposed loan of \$31.8 million, which discusses in detail the capabilities of the Ministry of Agriculture, and the various governmental agencies which will implement the loan, and finds that they possess adequate financial and human resources capability (to be supported by technical assistance and training as appropriate) effectively to maintain and utilize the project. The relationship between the proposed loan and prior U.S. assistance to the Colombian Agriculture Sector is discussed in detail in the Capital Assistance Paper.



Marvin Weissman
Mission Director



Date

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UNCLASSIFIED
AID-DLC/P-964
D-1

Mission Analysis of Compliance with Presidential Criteria

For purposes of comparing sectoral expenditure in different time periods we have computed for 1968 through 1973, as shown in Table II-9, the following:

A. All direct program costs of the public entities under the direction of the Ministry of Agriculture. However, for entities which have "commercial operations", e.g. the Caja Agraria, COFIAGRO, and IDEMA, and which engage in the actual purchase and sale of agricultural inputs and products we have excluded the corresponding portion of their budgets.

B. For regional development authorities e.g. CAR and the Uruba and Choco Corporations, which are also titularly under the Ministry of Education, but where only part of this activity relates directly to agriculture, we have calculated and included only a percentage of their budgets.

C. The budgets of certain other government or quasi-governmental entities which, while not under the Ministry of Agriculture in budgeting terms perform a function directly related to agriculture development, e.g. the Federation of Coffee Growers, the National Feeder/Access Road Fund and FEDEGAN. In some instances 100% of the budgets of these entities have been shown; in other cases, e.g. electric power investment, only a percentage.

This method of computing sector investment understates the national total, since we have not been able to show figures for departmental programs and for entities such as the Banco Cafetuo. However, since the concept is unchanged from year to year, it does seem to show the trend in investment as follows:

	<u>Millions of Dollar Equivalent</u>	<u>Percentage Change From Previous Years</u>
1968	378.1	-----
1969	448.8	+ 19.8
1970	428.0	- 4.5
1971	434.7	+ 1.5
1972	467.5	+ 7.6
1973	522.6	+ 11.8

To some extent the fluctuation between 1969 and 1970, as well as the unsatisfactory rate of increase for 1971 and 1970 are due to the operations of one agency, IDEMA, which had a large, foreign financial silo construction program in 1969. The GOC plans to step up the pace of agricultural investment in 1972 and 1973; and if the total change between 1968 and 1973 is calculated it averages about 8% annually.

Table II-8 shows how the above investment was or is planned to be financed from GOC resources, other Foreign Financing, and U.S. assistance. As can be seen, the planned increase is heavily dependent on foreign financing, the GOC inputs in money terms remaining relatively constant. In part this situation results from the GOC's ability to obtain loans for agricultural projects more easily than for other sectors.

(Percentages)

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
AID	10.7	5.1	7.1	8.6	7.4
Other Foreign Financing	7.1	3.5	6.5	8.0	12.9
GOC	<u>82.2</u>	<u>91.4</u>	<u>86.4</u>	<u>83.4</u>	<u>79.7</u>
Totals	100.0	100.0	100.0	100.0	100.0

Since approximately 93% of the proposed loan will be disbursed in connection with the GOC 1972 budget, we have compared the U.S. percentage of the total sector investment for 1972 with the preceding GOC budget year, 1971. When measured in these terms, as shown above, the U.S. share of the total decreases from 8.6 to 7.4%. If the U.S. share is computed against only the GOC financed inputs to the sector (see attached table) the figures are 9.41% for 1971 and 9.34% for 1972.

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I SECTOR TOTAL

	<u>Last Year</u> (1971)	<u>Loan Year</u> (1972)
	(millions of dollars)	
GOC Resources	362.1*	372.7*
US Resources	<u>37.6</u>	<u>38.4</u>
TOTAL	399.7	411.1
% of AID to Total	9.41%	9.34%

II A. NEW ACTIVITIES

	<u>Total of New</u> <u>Activity</u>	<u>AID Support</u> <u>to Activity</u>	<u>% AID Support</u> <u>to Activity</u>
	(millions of dollars)		
Access and feeder roads	2.0	1.0	50
Credit to marketing	2.0	1.0	50
Pilot Area development	3.5	1.5	42.9

B. ONGOING ACTIVITIES

	<u>Change Total</u> <u>Activity 1972</u> <u>Over 1971</u>	<u>Change in</u> <u>AID Support</u>	<u>% Increase</u>
Ministry of Agriculture	-.044	-.588	n.a.
INCORA	3.100	.938	30
INDERENA	0.730	0.225	30.8
ICA	9.700	1.358	14.

* Excluding Foreign Financing.

PART ONE - AGRICULTURAL SECTOR PLAN AND STRATEGY**A. The GOC Agricultural Development Plan****1. Overall Sector Plan and Strategy for Contributing to the Achievement of National Policy Objectives.**

During the past decade Colombia has experienced relative political stability and a sustained period of economic growth. Gross real domestic product has increased at an average rate of over 5.0 percent annually and during the past three years the growth rate has been over 6.0 percent per year. Nevertheless, the distribution of incomes and the access to social services continued to be very unequal among socio-economic groups, and unemployment in urban centers has become a critical issue.

In August, 1970 the National Council for Economic and Social Policy issued a declaration of the new Government's program for social and economic development.^{1/} Of particular significance was the increased emphasis on social reforms that would reduce income disparities and distribute the benefits of economic development more equitably among all segments of the population.

The GOC policy seeks both a continued high level of economic growth and a reduced level of unemployment. The employment issue was identified as the top priority problem. A comprehensive review and evaluation of the Colombia employment problem by an International Labor Office World Employment Program study team provided useful diagnoses and a set of recommendations for improving the employment situation.^{2/}

The Plan for Economic and Social Development 1970-73 prepared by the National Department of Planning and presented to the President and the Congress in December, 1970, outlined a strategy to carry out the broad policies that had been laid down by the National Council on Economic and Social Development. The central goals of the GOC strategy are to increase incomes, reduce unemployment, achieve a more equal distribution of incomes and social services, while maintaining a high rate of overall economic growth.

The Plan emphasizes the acceleration of agrarian reform to create more jobs and better living conditions in rural areas, thus reducing the necessity of migration to the cities.^{3/} Concurrently, policies for urban and regional development call for programs to create jobs and to improve living conditions in the intermediate cities as a means of alleviating

^{1/} Declaration of the National Council for Economic and Social Policy, Government of Colombia, August 21, 1970.

^{2/} International Labor Office (ILO), Toward Full Employment, A Program for Colombia, Geneva, 1970.

^{3/} This strategy was one of the basic diagnostic conclusions of the ILO Task Force. See Chapter 4, A Full Employment Strategy, pp 51-62.

the demographic pressures on the larger cities. Thus, there is a high degree of interdependency between the agricultural and the urban/regional development policies and programs. The stimulation of industrial employment in intermediate cities will in many instances be based upon agricultural product processing activities, or the manufacture and distribution of farm inputs and consumer goods. Education policies and programs will also serve as a critical link in the overall strategy for coordinating rural and urban development. The GOC policy gives major new emphasis to strengthening rural education to prepare youth for more productive employment in rural areas as well as to better prepare them for jobs should they choose to migrate to urban centers. Other GOC programs are directed toward the improvement of the transport, electrical power and communication infrastructure to better integrate rural and urban areas and to facilitate the development of national markets for production resources, intermediate goods and consumer goods.

The goals and objectives of the GOC agricultural sector plan for 1970-73 are supportive of the overall development goals and objectives described above. The agricultural plan objectives can be summarized as follows:

- (a) Increase the level of employment and income in the agricultural sector in such a way as to reduce rural-urban migration, while at the same time increasing total output and production per worker.
- (b) Increase production and improve the productivity of agricultural resources in order to meet internal demands and, where economically feasible, to foment exports.
- (c) More equitable distribution of income and productive resources.
- (d) Improve the marketing system so as to reduce costs and to assure sufficient supplies to satisfy demands for internal consumption and exports.

2. Policies and Programs

The Ministry of Agriculture and its affiliated agencies have primary responsibility for implementation of the agricultural sector plan. The organizational structure and functioning of these various entities were described earlier in the loan paper (Annex III, I-B-1.b). A comprehensive reorganization of the Ministry of Agriculture was begun in 1968 and carried out mainly in 1969. Although some significant adjustments are being made in programming activities, no major institutional changes are associated with the implementation of the 1970-73 Plan.

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-3-

Some of the key policies and programs that are to be carried out by the agricultural agencies include the following:

a. An acceleration of a comprehensive agrarian reform program. This involves higher priority to land redistribution, much lower priority to capital intensive irrigation projects, a further expansion in the INOCRA supervised credit program and continued efforts to support colonization in new agricultural areas. In early 1971, a high level Presidential Committee reviewed the agrarian reform program and offered a number of recommendations, including guidelines on the determination of the adequacy of land utilization and suggested procedures for speeding up land acquisition and redistribution procedures. ^{1/} Land reform continues to be a politically sensitive issue but the GOC has firmly asserted that the program will move forward.

b. A strengthening of agricultural research with greater emphasis on applied studies to develop and adapt "packages of technology" for specific commodities in different regions of the country. These programs involve closer coordination of research and extension workers than has existed in the past. High priority is to be given to research and extension on potential export crops and to expanding extension programs to serve a much larger number of farm families. These expanded extension efforts are to include close coordination with the credit activities of the Caja Agraria.

c. Although total agricultural credit is to be expanded, the GOC credit policies are being reviewed and revised. Some of the largest agricultural borrowers will no longer be able to obtain relatively low cost credit from public credit agencies but rather must compete for credit in the commercial banks. The intent is to shift an increasing proportion of "public" credit toward small farmers and labor-intensive production.

d. Efforts are to be made to increase the use of agricultural inputs. Fertilizer will receive special attention through programs to reduce costs and increase the timely availability of dependable quality levels of fertilizer at local outlets. A special "insurance" fund is to be established on a trial basis to reimburse small farmers who borrow money to purchase modern inputs, but for reasons beyond their control, they realize a sharp reduction in crop yields. The intent is to stimulate the use of modern inputs by reducing the risk confronting small farmers.

^{1/} Informe de la Comisión Evaluadora de la Reforma Agraria, Bogota, January 30, 1971.

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-4-

e. Marketing improvement programs that are identified in the Plan include the establishment of a new line of credit for marketing, the construction of penetration roads, and developmental activities to expand agricultural exports. The price support and stabilization program for storable commodities is to be strengthened as a result of the expansion in storage facilities that is now underway.

f. Natural resource development and utilization is to receive greater support. Much of this support will go toward the further development of the institutional capacity of INDERENA to carry out long-term management and development programs for forest, water and fishery resources. Shorter-run program activities will be directed toward expanding exports of forest products and to increasing domestic production and consumption of fish.

3. Performance Targets

The central performance targets of the 1970-73 Plan are to achieve a 7 1/2 percent annual rate of growth in GDP and, at the same time, to reduce the unemployment rate from 8.4 to 6.4 percent of the total labor force. Within this framework the goal is for agricultural employment to increase by 2.4 percent per year, while total national employment increases 4.4 percent annually. According to the ILO report the rural labor force, assuming no migration, would be growing at 3.5 percent annually, while agricultural employment has recently been growing at about 1.4 percent per year. ^{1/} The achievement of the 2.4 percent rate of growth in agricultural employment would require a significant reduction in rural-urban migration and the creation of about 66,000 new agricultural jobs per year.

The National Department of Planning has estimated that agricultural output will need to increase by 5.5 percent per year to meet the anticipated growth in domestic demand and to expand minor agricultural exports by 20 percent per year. Minor exports now represent about 5 percent of agricultural production, excluding coffee. It is assumed that the aggregate demand for coffee (domestic plus exports) will continue to expand about 2 to 3 percent per year. Currently coffee represents about 12 percent of total agricultural sector output. The 5.5 percent annual increase in agricultural output established as a planning goal compares with an average increase of 5.4 percent over the past three years and a longer term average of about 3.1 percent annually.

^{1/} Ibid. p. 54

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TABLE I-12Projections of Agricultural and Non-Agricultural Output and Employment 1970 and 1973

<u>Sector</u>	Gross Product (Millions of 1958 pesos)		Employment (Thous. persons)		Increase 1970-73	Gross Product per person (1958 pesos)		Rate of Increase in productivity %
	1970	1973	1970	1973		1970	1973	
Agriculture	11,078	13,008	2,671	2,869	198	4,148	4,533	3.0
Non-Agri- culture	27,552	34,982	3,267	3,881	614	8,433	9,009	2.25
TOTAL	38,630	47,990	5,938	6,750	812			

Source: Plan for Economic and Social Development, 1970-73, National Department of Planning, Bogota, Colombia, December, 1970, p. 1.6.

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In order to achieve the 5.4 percent annual increase in output while expanding employment by 2.4% annually, it would be necessary to increase labor productivity by 3 percent annually. It has been estimated that labor productivity in agriculture increased about 2.1 percent annually between census years 1951 and 1964.

The GOC output and employment projections for both the agricultural and non-agricultural sectors are summarized in Table I-12. The GOC Planning document does not provide more detailed performance or implementation targets than those presented above. The targets set forth in this loan proposal were developed through joint analysis and consultation among the National Planning Department, the Ministry of Agriculture, the concerned operating agencies, and the Mission.

4. Financial Requirements to Carry Out the GOC Agricultural Sector Plan

The Three Year Investment Plan was based upon budget requests prepared by the various action agencies. The agricultural agency requests were subjected to review and adjustment by OPSA and the Ministry of Agriculture Directive Council prior to submission to the National Planning Department for further review and adjustment within the constraints of the national budget. The budget projections of the National Planning Department are presented in the Sector Loan paper as the best estimates of the financial requirements to implement the agricultural sector programs.

The total annual GOC investment budget for the agricultural sector has been projected to increase about 19 percent from 1970 to 1973 (Table I-13).

TABLE I-13

GOC Investments in the Agricultural Sector, 1968-70 with Projections for 1971-73.

<u>Year</u>	<u>Million U.S. Dollars</u> ^{a/}
1968	378.1
1969	448.9
1970	428.0
1971	434.7
1972	467.5
1973	522.6

* Strategy calls for achieving such improvement primarily through increased emphasis on the production and marketing of labor intensive crops and commodities.

^{a/} Based upon the following exchange rates: U.S. \$1.00=Col. \$

1968 - 16.38	1970 - 18.48	1972 - 21.10
1969 - 17.36	1971 - 19.79	1973 - 22.60

Source: National Department of Planning

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The above budget data include all direct program costs of the major public agencies. It does not include "commercial" operations of the Caja Agraria and IDEMA where actual purchase and sale of agricultural inputs and products are carried out by divisions within these public agencies. Also, this investment budget does not include departmental programs and the activities of some of the semi-public agencies.

The allocation of resources by implementing agency within the agricultural sector is presented in detail in Part Two C., Table II-9. In general, there is a significant relationship between the pattern of budget increases and the priorities set forth in the Three Year Plan. The projected budgets for INCORA, ICA and INDERENA have been increased substantially above the 1968-69 levels, reflecting the high priorities on accelerating the agrarian reform, increasing employment in rural areas, and improving the management and utilization of natural resources. The percentage increases projected for these agencies for the interval 1969-1972 are as follows:

INCORA	35
ICA	310
INDERENA	262

The GOC projections of sources of funds to finance the agricultural sector program are summarized in Table II-8.

5. Foreign Technical Assistance

The GOC is in the process of making significant changes in its policies for accepting or procuring foreign technical assistance. The Three-Year Plan presented the following GOC policy guidelines:

- (1) To seek diversification of technical assistance sources, including multinational and bilateral arrangements.
- (2) Insofar as possible to obtain technical assistance on a grant rather than a loan basis.
- (3) To establish a systematic procedure for coordinating and controlling foreign technical assistance. Local entities are to originate technical assistance requests which will be cleared through the National Planning Department.

The Ministry of Agriculture and the National Planning Office are responsible for coordinating and planning all foreign technical

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assistance for the agricultural sector. These entities are studying future TA requirements and potential sources. Since it is a basic assumption of the GOC's policy that sufficient grant funds from various sources will be available to fill requirements, the GOC's sector loan application includes a proposal for participant training only, not direct technical assistance.

Since 1966 the bulk of USAID technical assistance and participant training resources (\$2.1 million grant and \$3.30 million loan) have gone to support the ICA-National University effort to provide qualified undergraduate and masters degree level technicians for the agricultural sector. The strategy of this substantial investment was to help enable Colombia to produce its own qualified technicians in the atmosphere and with the problems that are uniquely Colombian and, which cannot be duplicated in foreign universities. Since 1966 Colombian universities have graduated 1,850 students in agricultural sciences, making a total of over 5,000 college degree agriculturists in the country. By the end of the current year ICA-National University will have graduated 74 masters degree agriculturists. More than 135 students have gone to the U.S. for masters and Ph.D. level training under the ICA-Nebraska program. About 96 of these will have returned by the end of this calendar year.

Thus Colombia is in possession of an imposing array of technical talent who are capable of meeting many of the requirements for technical expertise in sectoral development. The principal use for outside technicians will be to assist Colombians in gaining practical experience and advise in specialized areas, and at the planning, policy and implementation level. Colombia is currently receiving technical assistance from the UN, IBRD, BID, Kellogg, Ford, Rockefeller Foundations and various European countries. The largest agricultural technical assistance group, the Nebraska Mission probably will be phased out at the end of 1971 or early in 1972.

It remains to be seen how successfully the Colombian agricultural agencies can carry forward their projected sector plan with indigenous personnel and grant funded foreign technical assistance. The Rural Development and Credit Division of the USAID Mission will be providing some assistance to the Ministry of Agriculture as part of the process of monitoring the AID Sector Loan. This assistance will be mainly in the areas of policy formulation, planning and evaluation and would be effected through the National Planning Office and the Office of Planning in the Ministry. AID will also help arrange specialized assistance through regionally funded contracts and short term consultants.

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B. AID Agricultural Sector Loan Strategy

1. Major objectives addressed by the sector loan within the overall sectoral objectives contained in the GOC agricultural development plan:

While assisting GOC to meet its national objectives as stated in A, 1 above, the 1971 loan progressively will help to meet the crucial requirements of marginal and sub-marginal rural dwellers, increasing social equity, without undue preemption of the flow of resources required to continue the rapid growth in the commercial agricultural sub-sector. However, through improved technology, supervised credit, marketing assistance, and improved farm-to-market roads, small farmers can enter and help broaden the domestic and export marketing of labor intensive crops. The major portion of this loan is directed toward bringing increasing numbers of the sub-marginal class into the economy.

2. Resource allocation of proposed \$28.00 million loan among various activities and organizations:

Organizational allocation by implementation or coordination agency is: (million dollars)

Ministry of Agriculture	1.16
INCORA	15.09
ICA	7.85
INDERENA	1.90
Other	2.00

The proposed activity uses of the loan may be categorized into three groups, not mutually exclusive. Major emphasis is assigned to programs designed to create employment, raise the level of living and increase the productivity of marginal and sub-marginal farmers (Group I). A portion of loan will be directed toward continued support of those agencies and programs essential to overall agricultural development (Group II). An additional amount will be directed toward efforts that will strengthen the base for future development efforts (Group III).

Group I - Increased Employment and Income Redistribution

Supervised Credit

a. INCORA	\$8.53
b. Pilot Areas	1.50
c. Marketing	1.00

Agrarian Reform	6.56
	<u>\$17.59</u>

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-26-

Group II - Continued Support Activities

MINAG - Planning	.26
Vehicles & Equipment	.60
Ag. Extension & quality control	<u>3.04</u>
	\$ 3.90

Group III - To Strengthen Future Development

Natural Resources	1.90
Participant Training	.30
Agricultural Research	3.31
Farm-to-market Roads	<u>1.00</u>
	\$ 6.51

3. Incremental contributions of loan to overall changes and targets sought by GOC agricultural development plan.

Resource limitations created by balance of payments and monetary constraints, together with competing worthwhile demands in other economic and social sectors, impede major additions to domestic resources for the sector in the short and medium term. The purpose of this loan, therefore, is to assist with those incremental contributions that are vital to Colombia's achieving the objectives of its development plan.

Credit programs under the loan will increase by 10% annually the net returns of at least 21,000 small farmers, and generate substantial additional on and off-farm employment (See Performance Target 1). Ten thousand additional land titles per year will be given to new landholders, thus, stimulating additional employment (See Performance Target 2). The loan will help finance "first-step" priority actions to accelerate the exploitation of Colombia natural resources, thus creating new employment and earning scarce foreign exchange (See Operational Target 2B). Other sections in the loan are designed to similarly accelerate growth and development of the sector.

UNCLASSIFIED

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-11-

4. Relationship with Regional and Educational Sector Loans:

The Colombian economy is basically a rural one. Approximately one-third of the GDP is from the agricultural sector and this sector contributes 85% of the country's exports. The makeup of Colombia's total resource picture dictates that industrial development, if it is to be achieved without aggravating balance of payments problems through the need to import primary materials (as happened in the 1950's), must be based on agriculture including forestry and fish.

The education development plan can serve as a complement to the modernization of the agricultural sector since there is planned coincidence in the strategies and in the levels of the programs. In each case the GOC is dealing basically with the same people. Both sectors need to use complementary inputs to increase the productivity of the traditional resources; in both cases supporting services are needed to provide technical assistance and other inputs. Finally, the farmer, the teacher, and the parents of families need the institutional bases which will stimulate the taking of decisions and the adoption of innovation.

5. Performance Targets

This loan is directed toward the accomplishments of three broad performance targets. They are:

Performance Target 1: To increase by 10% annually the net returns to a minimum of 21,250 small farm operators through the increased availability of credit, technical assistance and other agricultural inputs, through improved marketing and through improved planning and management;

Performance Target 2: Accelerate the creation of new work opportunities in rural Colombia through activities which broaden land ownership, develop natural resources and improve rural infrastructure; and

Performance Target 3: Improve the capability of the Ministry of Agriculture, INCORA, INDERENA, IDEMA, ICA and the private sector to plan, program, coordinate, implement and evaluate expanded production and marketing activities in the agricultural sector.

6. Implementation Targets

A series of implementation targets or operational targets have been selected under each performance target. These are described in detail in Part Two, Section I, A, 3 which follows. Progress indicators, also detailed in that section, show some of the criteria that will be used in evaluating results.

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PART TWO - THE LOAN

SECTION I - NATURE OF THE LOANA. Background of the Loan - Evaluation of USG assistance to COC1. Agricultural Sector to Date(a) Grant Financed Technical Assistance

In addition to the loan assistance discussed in detail below, AID has provided more than \$7,200,000 in grant assistance to the Colombian Agricultural Sector since 1961. This assistance has facilitated improvements in agricultural planning and education and has assisted in the training and equipping of technicians concerned with developing Colombia's natural resources.

The Agricultural Planning Project which began in 1961 and is expected to continue throughout the period of the proposed loan, is designed to improve planning and management techniques in the Ministry and the related agricultural agencies dealing with agrarian reform, agricultural credit, and natural resources development, as well as, to improve agricultural storage, marketing and production practices.

To accomplish the targets established for this Project, the Mission is providing assistance to the Ministry of Agriculture Planning Office (OPSA) and to the five principal sector agencies through a combination of direct hire, PASA and contract advisors.

Colombian agricultural education has been receiving AID assistance since 1966. With the cooperation of the University of Nebraska, a graduate school of agriculture has been established to provide training at the Master of Science level in various agricultural fields. In addition, the Nebraska Program has been assisting ICA and the University of Caldas in upgrading and developing extension and home economics programs. AID assistance has been closely coordinated with the Kellogg and Ford Foundations which are financing a portion of the Nebraska contract. The AID portion of the University of Nebraska contract was switched to loan funding in 1969, but AID grant funds totalling \$150,000 supported related participant activities in 1970.

The study of natural resources has been assisted by an AID-financed PASA agreement signed in 1968 with the Inter-American Geodetic Survey. Through this agreement technicians have been provided in the fields of aerial photography, topography, soils and water studies, forestry and industrial activities. Specialized equipment also has been purchased from the U.S. and Colombian technicians have been sent abroad for training.

UNCLASSIFIED

-13-

INCORA has received assistance since 1969 via grant-funded contracts. One training project developed a small corps of rural instructors to promote community development activities within INCORA projects. The contractor was the International Development Foundation (IDF). This contract was phased out in February, 1970. The other project developed a training center, courses and local faculty to train managers and administrative staff of INCORA irrigation districts. The contractor was Utah State University (USU). This contract was phased out in February, 1971.

(b) Development Loan Assistance

(1) Financial - Development loan 051 signed 7/15/68 provided \$15 million (\$14,409,000 disbursed to date); loan 053 signed 5/19/69 provided \$15 million (\$13,087,000 disbursed to date balance committed); and loan 060 signed 6/11/70 providing \$15 million (\$1,500,000 disbursed to date, balance almost entirely committed).

Loan 051 enabled the GOC to carry out improved policies and programs, provided dollar cost funding for U.S. imports, generated local currency to finance high priority agricultural programs, and provided advisory and technical services for research, extension and graduate and undergraduate education from the University of Nebraska. Loan 053 served essentially the same purposes. Loan 060 enabled the GOC to continue to finance dollar costs of imports, to continue a high level of advisory and technical services and to finance innovative and expanded agricultural development programs with emphasis on the needs of small farmers.

The agricultural portion of the GOC investment budget has increased significantly each year from 1969 to 1971 and a large increase is planned for 1972. (See Annex I, Exhibit 1). Of the total agricultural investment budget, sector loan assistance contributed 3.2% in 1969, 3.4% in 1970, and is planned to drop back to 3.2% in 1971. This does not include other U.S. assistance (e.g. PL 480 counterpart) going to the agricultural sector.

(2) Implementation - Agricultural development program implementation has proceeded in accordance with the agreed upon goals. The Ministry has reorganized and developed sufficient planning competence to prepare a sectoral plan. INCORA has received first priority in sector funding and has performed well; I.C.A. (research, extension and training) has been substantially strengthened and is more broadly effective; IDEMA (marketing) has developed the necessary policy and the implementation means to effect substantial improvements; and INDERENA (natural resource development) has pulled together and assortment of smaller agencies and can now more effectively proceed with natural resource development and exploitation.

UNCLASSIFIED

UNCLASSIFIED

-14-

Basic problems such as unemployment, unequal income and wealth distribution, and high production costs remain. The means for steady progress in resolving those problems exist and funding provided under the proposed loan will accelerate this progress. The critical issues with regard to the sector are to maintain agricultural sector growth at a level sufficient to meet domestic and export needs, to increase employment in agriculture and agro-industry and to increase productivity, especially of small farmers, so as to obtain for them a higher level of living and increasing economic and social opportunities.

B. Description of Loan Assistance Activities

1. Objective of Sector Loan

Support the initiative of the Government of Colombia to improve the management and operational capacity of the agricultural sector to:

(a) Expand employment opportunities through land reform, diversification, and increased attention to orderly marketing, while maintaining a minimum annual increase in total agricultural production of 5.5%.

(b) Improve the quality of life for rural people by increasing production and bringing about a more equitable income distribution.

(c) Strengthen the institutional capacity of both public and private sector entities to more effectively respond at the operational as well as the national levels to the development requirements of rural people.

2. Loan Strategy

Strategy for achieving the objectives of this loan call for (1) supporting, with a diminishing relative share of U.S. inputs, the continued progress of policy, institutional and program development initiated under past sector loans, and (2) stimulating further decentralization of effort through horizontal programming in order to utilize timely inputs from the various specialized public and private sector agencies, focusing on a limited number of well-defined pilot areas, for a coordinated development effort that may later be extended to other areas and ultimately to the entire country.

(a) Assessment of GOC Contributions to Sector

The figures for agricultural and natural resources investment in 1970, 1971 and 1972, according to their plan document, and the relationship to current and proposed U.S. inputs are:

UNCLASSIFIED

UNCLASSIFIED

<u>C. Y.</u>	<u>Total Ag. Sector Investment</u> ^{1/}	<u>U.S. Assistance</u> ^{2/}	<u>U.S. Assistance as % of Total</u>
1970	428.0	30.3	7.08
1971	434.7	37.6	8.65
1972	467.3	34.6	7.40

The proposed loan does not finance over 50% of any single activity. The percentage of the total sector investments corresponding to U.S. inputs would have been smaller were not the GOC faced with critical resource limitations brought on by urgent and unpostponable increases in operating expenses (e.g. teachers salaries), falling coffee prices and disaster relief costs which have accentuated its always tight fiscal problems. These limitations, plus competing high priority demands in other economic and social sectors, impede all the necessary additions to domestic resources for the sector in the short and medium term. The purpose of the proposed FY 1971 loan, therefore, will be to enable the GOC progressively to meet more fully and effectively the crucial requirements of marginal and submarginal farmers without undue preemption of the flow of resources required to continue rapid growth in the commercial agricultural sub-sector.

(b) Consequences of Non-Approval of Proposed Loans and Relationship to Sector Investment.

The 1970-73 Economic and Social Development Plan contemplates continued U.S. assistance as an integral, although diminishing, part of financing sectoral development. Should this planned input not be forthcoming, accomplishments would be reduced far more than would seem indicated by the percentage of loan funds to total sector investment. Several key elements in the GOC development objectives would be greatly reduced or eliminated. For example, over twenty thousand small farm operators probably would not receive new credit; land titling would be reduced by 10,000 farmers per year; pilot area programs would probably not be initiated; improvement of the planning effort might well lag; natural resources potential would probably develop more slowly; and agricultural research and extension would fall further behind the pressing requirements of the farm population.

^{1/} The 1971 figure includes estimates of planned supplemental budgets. The 1972 figure also represents a planned but not formally budgeted amount. Therefore these figures should be regarded as tentative.

^{2/} Includes PL 480 generations and counterpart from existing Program Loans.

UNCLASSIFIED

-16-

(c) Proposed Disbursement Plan for Loan Generated Funds

All loan generated local currency will be included in the GOC investment budget. The Ministry of Agriculture will coordinate disbursement of combined other budgetary and loan generated local currency funds to the implementing agencies. Releases from the Treasury will be made in accordance with regular GOC procedures. The initial disbursement of loan funds will be on an advance basis.

Subsequent disbursements will be on the basis of program progress. (See Part Three, Section A for details).

(d) Discussion of Overall Strategy

The export farmer and large commercial farmer components of the agricultural sector have been steadily modernizing their activities during the past several years and have contributed the major portion of the rapidly expanding non-traditional exports. By so doing, they have achieved major gains in productivity, income, and well-being. The small farmers who produce for domestic consumption, and who constitute a vast majority of all Colombian farmers, are still employing mostly traditional methods of production. This results in low productivity, low income and misery. Yet the experience of other countries, notably Japan, Korea, Taiwan and the countries of Northern Europe, as well as the experience of Colombia's own small coffee producers, demonstrates that small farmers can substantially improve their productivity, income and the quality of their lives, while at the same time measurably increasing national production, through the proper use of fertilizers, improved seed and pesticides.

Through improved technology, supervised credit, marketing assistance, and improved farm-to-market roads, small farmers can enter and help broaden the export marketing of labor-intensive crops, while at the same time providing increasing amounts of commodities for the domestic market. The major portion of this loan is directed toward bringing increasing numbers of these sub-marginal people into the economy.

In order to carry out the objective set forth in Section B. 1. (a) of this chapter, the GOC plans to increase its emphasis on those programs which will create employment, raise the standard of living, and provide needed assistance to marginal and new farmers. These efforts are specifically designed to assist those farmers to increase the production of deficit crops with good market potential. They are also intended to accelerate settling and titling activities of the agrarian reform organization. These increased efforts aimed at the traditional agricultural sub-sector are not intended to be "welfare type" efforts, but are intended to bring the marginal farmer rapidly into the economy and "graduate" him to a more regular position,

UNCLASSIFIED

UNCLASSIFIED

-17-

requiring less special assistance.

The increased emphasis on programs for small, traditional farmers will have to be accomplished without a reduction in the effort directed toward the relatively efficient commercial farmers. As previously mentioned, it is crucial to Colombia's overall development goals that agriculture be able to meet internal demand and external opportunities. Failure to continue to meet these minimum needs will create excess demand pressures which in turn will manifest themselves either through higher agricultural prices, with resultant regressive income effects, or in adverse balance of payments consequences affecting Colombia's ability to secure inputs required for development. From the overall viewpoint, failure to maintain and increase current production levels will adversely affect efforts to assist marginal or small farmers as well as other segments of the economy.

Previous agricultural sector loans have provided assistance to the support and improvement of key agencies in the agricultural sector and to those programs essential to over-all agricultural development. These efforts will be continued by the GOC, with diminishing relative inputs from loan funds.

Continued emphasis will be given by the GOC to efforts that will strengthen the base for future agricultural and natural resource development. Studies needed for policy determinations will be continued and training and research capability will be stressed as in past loans.

The sector will devote as much effort as possible to increasing employment and productivity in the rural areas so as to slow down rural-to-urban migration and, thereby, help to cope with the demographic problem. This will include cooperation with agro-industry in the production of primary materials.

The implementation of the above strategy and of the development program will require some change in direction and in priorities. Improved and increased inter-agency coordination and cooperation will be essential. The Ministry of Agriculture will have to strengthen its performance as a program coordinator and as a supervisor of program and project implementation.

An important prerequisite to improved coordination and supervision by the Ministry is the development of a system of feedback of information from the different agencies that will permit a continuing evaluation of these agencies' program planning and implementation performances.

Some steps have been or are already being taken toward the accomplishment of the objectives outlined above. Increased emphasis is being placed on agricultural extension and on providing technical and financial assistance at

UNCLASSIFIED

UNCLASSIFIED

-18-

the farm level, especially for marginal and new farmers. Further improvement will have to be made quickly in backstopping farm level agents (including those working for agencies other than ICA, such as INCORA credit supervisors Coffee Federation agents, etc.) with adaptive research, logistical support and improved subject matter information.

A key factor to the success of the entire agricultural development effort will be the timely availability of the necessary financing. Expanded sectoral needs as projected cannot be met by the GOC without additional AID assistance. A projection of anticipated needs through CY 1973 are shown in Table II-9 of this paper. This includes the best current estimate of possible sources of funds to meet these needs.

(e) Inter-Relationship Between Activities

Since reorganization of the agricultural sector in 1968, the principal sector agencies have developed rapidly in infrastructure and technical capability. They have, to a considerable extent, however, fallen into the trap of vertical programming. This is a common error when agencies are adequately financed and operating under general policy guidelines. The agencies have further fallen somewhat short of carrying out the decentralization objectives visualized in the 1968 reorganization. The strong Ministry of Agriculture planning, implementation, and evaluation capacity visualized in the reorganization has not developed its capability to the full extent hoped for. Ministry of Agriculture and National Planning officials are keenly aware of these problems and have built into their loan request activities designed to help correct them.

GOC agricultural policy now calls for major emphasis on agrarian reform and for further decentralization of effort by the sector agencies to the departmental level. Development committees will be established at this level composed of a chairman appointed by the Minister of Agriculture, a representative of each agency operating in the area and a representative of the association of campesinos. Through these committees, backed up by the national agricultural committee, each organization will concentrate on its specialized portion of a unified development effort. This idea will be tested fully in the pilot areas (see Operational Target 1. A.) and further include inputs from other agencies, i.e. public health, education, public works, etc. Coordination of efforts by the sector agencies and inter-relationship between these agencies and others for all the targets will be handled by the Ministry of Agriculture through OPSA, (see Performance Target 3).

UNCLASSIFIED

UNCLASSIFIED

-10-

3. Loan Definition

The operational targets described immediately below indicate in each case the physical result to be achieved over the period of loan disbursement and also show the approximate amount of loan proceeds which would be comingled with GOC funds to achieve the target. It is not intended that performance monitoring would take the form of focusing on U.S. inputs, but rather would review the total investment identified in terms of either total GOC individual agency budgets or major subdivisions of those budgets as set forth in normal GOC budget documents, as appropriate. Performance would be monitored in terms of physical accomplishment as well as in fiscal terms; allowing for some shifting of U.S.-financed inputs as circumstances may justify.

Performance Target 1:

To increase by 10% annually the net returns to a minimum of 21,250 small farm operators through the increased availability of credit, technical assistance and other agricultural inputs and by improved marketing and improved planning and management.

Operational Target 1A:

To extend supervised credit to a minimum of 13,750 newly titled small farm operators in the agrarian reform program by providing approximately US\$8.53 million equivalent in pesos to INCORA to increase its loan portfolio for this purpose.

As of January 1, 1971, INCORA had made loans to a total of 45,000 borrowers and had a total of \$40,000,000 dollar equivalent in credit outstanding. The number of borrowers currently in the program is 39,000. Six thousand have graduated, voluntarily dropped out, or failed to qualify for additional credit.

During 1971-1972 loan proceeds will provide needed funds for credit and accompanying technical assistance to approximately 13,750 new farm families. Other INCORA sources of credit funding (repayment rollovers, bond

UNCLASSIFIED

UNCLASSIFIED

200

monetization and interest) are adequate: (a) to satisfy the credit needs of 20,000 "old" borrowers; (b) share with the Caja Agraria the credit servicing costs of 9,900 borrowers expected to leave the INCORA program (3,600 graduates plus 6,000 others not wanting or not capable of using additional credit); and (c) to cover the credit needs of 8,800 "old" borrowers during their transition to becoming Caja Agraria clients.

The INCORA credit program is well administered and produces significant developmental results. Procedures for lending to sub-borrowers are well established. Records show that \$2,500 loaned over a five-year period generates 2 1/2 man years of on or off-farm paid employment, and an increment of \$3,400 in the value of gross product sold. Cash income generated is sufficient to repay about two-thirds of the borrowings in a five-year loan period and net worth grows at a rate of over 9% per year in terms of constant peso values. (See Annex I, Exhibit 16.)

Sector loan disbursements will normally be on a semester basis to conform to seasonal variations of borrower needs. The first disbursement is planned for the second semester of 1971. Prior to this first disbursement of the funds for this element of the loan, INCORA will be requested to provide the Ministry of Agriculture and Planeación Nacional (DNP), for transmission to USAID, information on:

- (a) The make up and spread of the present loan portfolio for supervised credit.
- (b) An indication of how credit use will be oriented to contribute to national policy objectives of labor intensity as well as concentration on priority deficit or export crops.
- (c) An approved plan showing national policy objectives for the structure of interest rates on loans.

Operational Target 1B:

for up to

To provide production credit / 7,500 small farm operators in selected pilot development areas by providing the peso equivalent of approximately \$1.5 million through ICA to establish a revolving fund for the initiation of pilot credit programs.

The Caja Agraria has expressed a keen interest in the program and has agreed to allocate \$2.0 million from its own portfolio to the loan fund for this program. Of the sector loan peso generations, approximately \$1.0 million will be required for credit operations. The remaining approximately

UNCLASSIFIED

UNCLASSIFIED

-21-

\$0.5 million will be used by ICA for the necessary training and concentration of additional personnel required for close farmer supervision. The sub-loans will be insured up to the amount of non-traditional inputs used by the borrower.

Many of the marginal farmers in Colombia do not have access to the credit, technical assistance and other inputs that are necessary to improve significantly their economic and social conditions. INCORA is providing these requisites to approximately 10-15 percent of the marginal farmers. The extension service, which has the capability to be more effective is handicapped by the smaller farmer's inability to obtain sufficient credit or other inputs on a timely basis in order to follow the agent's recommendations.

ICA officials have developed a long-range plan for increasing assistance to small farmers. They proposed reaching 25,000 borrowers in 1971-72 by utilizing the full force of 62 field extension offices throughout the country. In intensive review, however, it was deemed more prudent for the first year to reduce the target to 7,500 borrowers. Efforts will be concentrated in four to six areas covering seven to ten municipalities each. The GOC plans to direct to these areas through OPSA as the coordinating agency, other elements of the program described in this loan proposal, plus resources from other public sector agencies and resources of the private sector, in a unified effort for area development.

ICA has already initiated studies in three potential areas in order to establish benchmarks before launching the program. Areas will be chosen with a view to gaining experience for future expansion, taking into account the diverse crops and varied climatic conditions of Colombia. ICA's stated objectives for the program are: (1) to increase in a short time the level of production of basic crops that are used by the people for food, (2) to introduce better sources of nutrition and income for the small farmers who are now using traditional methods that only produce a subsistence level of living, (3) to increase employment opportunities and establish policies that will develop services such as education, housing, health and recreation, and (4) to acquire experience and knowledge to assist in the identification and handling of problems in limited areas in order to prepare for a country-wide program. Before loan disbursements are made, detailed plans of action will be developed by participating agencies and coordinated by the Ministry of Agriculture.

The following should be well advanced by the time of the first disbursement of funds for this project:

UNCLASSIFIED

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(a) A memorandum of agreement between ICA and the Caja Agraria stipulating the responsibilities of each agency in the implementation of the program.

(b) Determination of the eligibility criteria for borrowers, the interest rates, the loan terms and conditions, crops and commodities to be financed, etc.

(c) Selection and definition of the areas of concentration and development of cooperation or coordination arrangements with OPSA and others working in the same areas.

(d) Working out of cooperative arrangements with Caminos Vecinales, through the Ministry of Agriculture, for road construction in the selected areas, and with IDEMA for marketing assistance needed.

(e) Assignment (reassign or hire) of sufficient field staff and backstopping personnel to the areas of concentration to assure the successful implementation of the program.

Performance Target 2:

Accelerate the creation of new work opportunities in rural Colombia through activities which broaden land ownership, develop natural resources and improve rural infrastructure.

Operational Target 2A:

To increase the rate of land titling by INCORA from about 18,500 per year (1969 and 1970) up to 25,000 per year in 1971 to 1973, by providing the peso equivalent of approximately \$1.87 million to accelerate the titling program.

Up to the end of 1970 INCORA had issued 8,251 titles on acquired lands and had 8,341 titles in process. The titling of national lands has been moving forward at about 16,000 titles per year. The rate of land acquisition has been increasing and the rate of titling of these lands should be increased proportionately. The rate of titling of national lands can and should also be accelerated. Funds from this loan will be directed toward accelerating the issuance of land titles in the areas where increases in the number of titles issued can be achieved most rapidly so as to regularize the land tenure situation for the maximum number of small or new farmers between July, 1971 and December, 1972.

UNCLASSIFIED

UNCLASSIFIED

Prior to the first disbursement of loan funds for this project INCORA must provide to DNP and the Ministry of Agriculture for transmission to USAID an approved plan for accelerating titling. This plan should show the number of titles (expected to be on the order of 30,000 annually) that could be issued on acquired lands and on national lands with the increased funds available and the proposed use of the loan funds.

Operational Target 2B:

To complete the following "first-step" priority actions so as to accelerate the proper exploitation of Colombia's natural resources potential by providing approximately \$1.9 million to assist INDERENA in carrying out the following programs:

Forestry

- (a) Complete a forest inventory covering 200,000 hectares.
- (b) Conduct four studies to determine natural regeneration following cutting and forest growth as a basis for sustained yield management.
- (c) Determine physical characteristics and uses for 20 new species of wood, the information to be used in developing the marketing new products.
- (d) Train 30 forest technicians in 1972 at the Universidad Nacional for later service with INDERENA and wood-using industries.
- (e) Improve and expand the capacity of the wood technology laboratory at Venado de Oro, to speed up development of uses for woods available in the timber base. (The implementation of this activity will relate to recommendations by an advisor under a grant funded program, requested by Departamento Nacional de Planeación, November 13, 1970.)

Fish and Wildlife

- (a) Initiate studies to determine farming methods for 3 species of wildlife that now have export markets.
- (b) Initiate studies of wild populations of 4 species of wildlife which are now in the export trade and for which controls will be needed to achieve sustained production.

UNCLASSIFIED

UNCLASSIFIED

-24-

(c) Initiate construction and betterment of 5 fishery stations for investigations of aquacultures of continental species of fish in the principal life zones of the country.

(d) Initiate investigation of 5 new continental fish species and a species of fresh water shrimp for aquaculture.

(e) Initiate 3 fish farming pilot plant projects as guides for commercial developers and campesinos.

Colombia has approximately 61,500,000 hectares of forest land of which 25,000,000 are classified as commercial forest. It is estimated that by 1985 the annual domestic needs will be 12,000,000 M³ of round wood. The timber resource base could provide an additional 4,800,000 M³ annually worth US\$100,000,000 for exportation primarily to the United States and Canada. Market studies indicate that in the future these countries must rely heavily on tropical hardwood sources to fill their needs. Colombia's timber resource could sustain the level of production indicated.

An annual production of 16,800,000 M³ (roundwood) in wood products could generate at least 200,000 jobs distributed throughout all levels of manufacturing, services and supply and land management inputs. The conversion value of timber going into the export market could also be increased considerably by greater product elaboration; i.e., manufacturing and selling more small products like furniture parts, dowels, etc., instead of lumber to be manufactured into these products in a foreign country.

Colombia can also become self-sufficient in long fiber wood pulp for paper and save approximately US\$20,000,000 per year in foreign exchange. It has land available for the production of suitable timber which could best come from exotic conifers in plantations. An industry built on this source could also add significantly to the employment base.

Colombia has about 3,700,000 hectares of continental waters in lakes, ciénagas and rivers. A conservative estimate of 150 lbs. per acre for half this area indicates a very significant protein supply awaiting development. Modern cultures are now developed to make possible production of 2,000 to 10,000 lbs. in ponds or waters that can be controlled.

In addition to continental waters, Colombia has good coastal fisheries on the Pacific and Atlantic coasts. Some of the estuaries offer promise for aquaculture. Ciénaga Grande is the best known and one estimate

UNCLASSIFIED

UNCLASSIFIED

indicates a potential annual yield of US\$7,000,000 worth of oysters for the export market. Salinity and contamination, however, need to be controlled to achieve optimum production. Shrimp cultures are also good possibilities for the future.

Commercial development of fish resources for food and exports would provide substantial employment. It is feasible to develop fish production on a family scale for campesinos at low cost.

Various species of live animals, birds, fish and hides are providing annual exports valued at US\$6,900,000 from existing wild populations. There is doubt whether the present stock of some species in various regions can sustain the present annual harvests. One possibility is to develop "farming" methods which in some cases, could increase production or maintain present levels of harvest. Species of alligators and crocodiles, ornamental fish, chigüiro, perro de agua and nutria deserve consideration for farming. Secondly, the wild population also needs to be subjected to management techniques for control of use and protection consistent with productive capacity of each species.

The national park system is in its infancy. In addition to providing recreation, cultural and conservation education facilities to Colombians, part of the system can provide an important and integral part of the development of the north coast of Colombia, especially for tourism.

FAO estimates that a minimum of 423 professional foresters and over 2,000 technicians will be required by 1985 to administer and develop forest resources in Colombia. In addition, specialists in various aspects of fish and wildlife production, recreation and soils and water management will be needed but are now lacking in Colombia.

INDERENA and the natural resource based industries could accelerate development and proper exploitation of the natural resources by taking maximum advantage of the knowledge and experience of professionals available from other governments and private industries in other countries interested in this development.

Prior to the first disbursement of loan funds, INDERENA must provide to DNP and the Ministry of Agriculture for transmission to USAID a schedule showing the distribution of comingled loan and GOC funding for each study and the timing of needed AID releases.

UNCLASSIFIED

UNCLASSIFIED

Operational Target 2C:

To construct or improve up to 250 km. of farm-to-market roads, with priority given to the pilot development areas, using high labor input methods, by providing the peso equivalent of approximately \$1.0 million to support the cost of construction or repair.

One of the most critical bottlenecks to increasing the productivity and well-being of marginal farmers in the pilot areas is the lack of access roads. A means to market produce and deliver timely inputs is vital if benefits foreseen in this program are to be realized. Conversations with the National Planning Office and Caminos Vecinales have disclosed a keen interest in building more access roads, utilizing to the maximum extent feasible picks and shovels. They plan to complete in the near future studies on roads now under construction, in distinct topographic and climatic areas, to determine the cost comparison between labor-intensive and equipment-intensive methods. These studies should provide good cost figures and indicate the optimum mix of machinery to be combined with a large ^{labor} component in access road construction. This program will be coordinated by the Ministry of Agriculture and Planeacion Nacional and will utilize the full cooperation of Caminos Vecinales. Every effort will be made to secure the maximum input from the people who will primarily benefit from the roads. This input may vary from area to area but it is believed that the approximately \$1.0 million programmed for this activity will go a long way toward reaching the target of 250 kilometers.

Performance Target 3:

Improve the capability of the Ministry of Agriculture, INCORA, INDEMA, INDERENA, ICA and the private sector to plan, program, coordinate, implement and evaluate expanded production and marketing activities in the agricultural sector.

Operating Target 3A:

Strengthen the planning and management capability of the planning office of the Ministry of Agriculture (OPSA) and expand its role to provide coordination and evaluation of field level programs by providing the peso equivalent of approximately \$0.26 million to be used to contract for special studies by Colombian universities and to increase the quality and/or quantity of staff.

UNCLASSIFIED

UNCLASSIFIED

27-

The Ministry of Agriculture, in addition to its planning and policy responsibilities, also has clearly defined coordination mechanisms at three distinct levels: (a) with agencies outside of agriculture, to insure coordination of agricultural policy with overall development policy; (b) with agencies within the sector, and (c) with farm groups and produce associations. For these reasons the Ministry is clearly the indicated agency to play a key role in several of the activities under this loan.

The ICA Extension Service will be the principal on-the spot implementer and have field level direction of the pilot projects under the small farmer productivity program. The Ministry of Agriculture, however, through its Planning Office (OPSA), will take an active role in directing the efforts of both public and private sector organizations in these areas of concentration. For example, the Ministry must, in close coordination with DNP and Caminos Vecinales, assure itself of the order of priority of the access roads to be constructed, guide the initial study to determine the optimum labor-machinery mix, determine the extent of local participation, disburse funds, and evaluate results.

The Ministry, through OPSA, will have the rather complex task of coordinating and directing the technical assistance and participant training requirements for the entire sector. It will work closely with the Department of National Planning in the utilization of \$0.3 million from this loan for participant training for the agricultural sector. The participant training in the U.S. or third countries for the sector will probably be implemented through ICEPEX in coordination with OPSA.

In order to assure effective Ministry planning coordination, evaluation and budget allocation functions, \$0.26 million from this loan will be used by the Ministry of Agriculture to upgrade the technical capability of OPSA and to contract for special studies that will assist in the fulfillment of these responsibilities. Prior to the initial disbursement of loan funds for these purposes, the Ministry with the approval of DNP, must provide to USAID their proposed organization and staffing of OPSA, their training and reorganization proposals, a list of priority studies to be contracted and their plans for managing the participant training program.

Operational Target 3B:

To accelerate the availability of critical adaptive agricultural research information for selected agricultural commodities by providing the peso equivalent of approximately \$3.31 million to ICA to augment its research budget and construct vital physical facilities.

UNCLASSIFIED

UNCLASSIFIED

26-

ICA has made significant progress in the past five years in the upgrading of its technical personnel and the expansion of its research program. USAID has provided technical assistance through the Nebraska University contract and financial assistance through previous sector loans to the research programs. ICA is presently operating twenty-five research stations in different soil, climatic and altitude areas and has in progress hundreds of research studies. It is of critical importance to continued agricultural development in Colombia that the quantity and quality of research information adapted to the different production zones of the country continue to increase. The GOC three-year development plan states that the continued improvement of agricultural research and extension services should be the top priority in the agricultural sector. The IBRD's latest comprehensive study supports this statement.

ICA policy calls for continued expansion of the agricultural research program with (1) increased emphasis on adaptive research efforts, (2) increased coordination with CIAT (Central Internacional de Agricultura Tropical), and (3) increased efforts to base research programs on the priority needs of farmers through the establishment of a mechanism to assure that the problems of field-level technicians and farmers are given priority attention in selecting research projects.

In order to continue to expand and improve the quality of the research program, the peso equivalent of approximately \$3.31 million from this loan will be utilized for research or development in agronomy, animal sciences, agricultural economics, agricultural education, social sciences, technical information, establishment and operation of experiment stations and construction of physical facilities.

Before the disbursement of loan funds for these purposes ICA will furnish to DNP and the Ministry of Agriculture for transmission to USAID the details of the proposed expenditures for the above purposes.

Operational Target 3C:

To increase the ability of the extension service to respond effectively to the problems of rural people through the expansion of the number of agencies and the initiation of a subject matter specialist system by providing the peso equivalent of approximately \$2.54 million to ICA to augment the extension budget.

UNCLASSIFIED

UNCLASSIFIED

-29-

The improvement of the agricultural extension service is one of the top priority needs mentioned by the World Bank in their most recent report on the agricultural sector. This is also a key point in the GOC Three-Year Plan. The ICA extension service has been growing rapidly but is still small in comparison to country-wide requirements. Despite the fact that more research information is needed in some areas, there is sufficient knowledge presently available to more than double agricultural production of many crops and enterprises. The extension of this knowledge, coordinated with the availability of inputs, is essential to the continued growth of the agricultural sector and to the development and improvement of marginal farmers.

The extension service of ICA will have expanded responsibilities under the current agricultural development program, especially in the pilot area program. (See Target 1B) Additional agents are needed at the field level. All agents are in need of better technical backstopping and plans call for the addition of twenty-one subject matter specialists to the extension staff within the next 18 months. These specialists will backstop other field-level workers such as Coffee Federation agents and INCORA field workers, as well as ICA extension agents.

Because of the critical need to rapidly increase the size and the capability of this service, approximately the peso equivalent of \$2.54 million will be allocated to the extension portion of the ICA budget for this purpose. Priority in the use of these funds will be given to the establishment of a group of extension subject matter specialists to provide technical backstopping to field agents. Priority will also be given to the assignment or reassignment of adequate staff to the areas of concentration as defined under Operational Target 1B above.

The first disbursement from loan funds will be contingent upon the development by ICA and submission to DNP and the Ministry of Agriculture for transmission to USAID: (1) an operations plan for fielding subject matter specialists in CY 71 and CY 72; (2) a staffing plan adequate to meet the needs of Operational Target 1B.

Operational Target 3D:

To improve the efficiency of the marketing system through the development of a supervised credit program for private sector retailers, wholesalers and processors of agricultural commodities by providing approximately the peso equivalent of \$1.0 million to help the Ministry of Agriculture establish through a yet to be selected GOC agency a revolving fund for that purpose. The revolving fund will have an initial capital of \$2 million (peso equivalent) with 50% being provided by the GOC.

UNCLASSIFIED

UNCLASSIFIED

-30-

"Improvement in Marketing" is one of four principal agricultural policy objectives set forth in the GOC, 1970-73 plan for Economic and Social Development (Chapter VIII, p. VIII-13.) The importance of marketing in the coordination and stimulation of economic activity is also recognized in the GOC policies for regional and urban development (Chapter V, p. V-12). More recently, a committee appointed by President Pastrana to evaluate "agrarian reform" offered a number of policy recommendations among which was a strongly-worded statement on the need for improvements in market organization and institutions as one of the means of improving farmer incomes, reducing costs of food to urban consumers and expanding market outlets for agricultural products in both the domestic and export markets.

Semi-public corporations have recently been organized in both Bogota and Cali to carry out coordinated food marketing programs, which include the construction of new wholesale market facilities, the development of more efficient systems of wholesaling and retailing and better coordinated commodity assembly systems for products flowing to these large urban centers. A substantial market facility program is also under way in Medellin, and other cities are interested in organizing programs to improve food marketing. Within this overall framework, an approximately \$2.0 million (peso equivalent) supervised credit fund will be established with \$1.0 million from GOC sources and \$1.0 million through this loan to stimulate the development of private sector food marketing firms, especially wholesalers and retailers in the larger cities and related assembly and packing operations in rural supply areas. In some instances the rural assembly operations may be necessary to the development of export markets for selected products. Special attention will be given to market organization in the pilot project areas mentioned in Target 1B. Local technical assistance will be provided by personnel of the regional marketing corporations such as have been organized in Cali and Bogota. Final decisions on the institutional arrangements and detailed plans and procedures for this program will be developed and presented to DNP and the Ministry of Agriculture for transmission to USAID before loan disbursement.

Operational Target 3E:

To increase quality control checks, with emphasis on crop production inputs (seeds, fertilizers, pesticides, etc.) by providing ICA the peso equivalent of approximately \$0.5 million for that purpose.

The Regulatory Division of ICA has been organized in its present form for a little over two years. Considerable progress has been made in the quality control of agricultural inputs, for both livestock and crop production and in the control of pesticide residues in edible crops. Quality

UNCLASSIFIED

UNCLASSIFIED

-31-

control for animal drugs, serums, animal feed additives and other inputs into livestock production expansion and improvement will receive assistance under an IDB loan that is presently being negotiated.

The number of quality control checks on crop production inputs (fertilizers, pesticides, seeds) and the pesticide residue checks on edible crops has been increasing. However, additional and more accurate checks are required in order to assure that farmers and consumers are receiving quality products. This department also has the responsibility for the certification of agricultural seed and for the supervision of foundation seed production programs.

ICA plans call for the expansion of the quality checking program. Seed certification is planned to increase by almost 50% in CY 71 over CY 70. New, modern laboratory equipment (costing about US\$230,000) is budgeted from other sources to modernize the laboratory for testing fertilizers, pesticides and pesticide residues. Plans call for additional training for quality control technicians both in Colombia and abroad.

In recent years, more emphasis has been given to quality control affecting livestock production. Present GOC policy, however, calls for increasing attention to improving the lot of the marginal farmer. Assurance of the quality of critical crop production inputs is essential to the success of these programs. Therefore, ICA plans to increase the number of quality control checks on crop production inputs and the availability of certified seed. Approximately \$0.5 million (peso equivalent) will be made available from the loan for these purposes.

Before disbursement of loan funds, ICA will furnish to DNP and the Ministry of Agriculture for transmission to USAID targets for quality control checks to be made and detail as to quantities and varieties of priority national interest in the certified seed program.

Operational Target 3F:

To expand the technical administration of the INCORA supervised credit program through the addition of approximately 176 zone chiefs and supervisors by allocating approximately \$1.90 million (peso equivalent) for this purpose.

Effectiveness of the credit program depends heavily upon credit supervisors and zone chiefs. Expansion of the number of families receiving credit increases the work load on the field force. As of January, 1971,

UNCLASSIFIED

UNCLASSIFIED

-32-

there were 250 zones, 206 chiefs and 518 supervisors. Projections for the end of 1973 call for 330 zones, 270 chiefs and 630 supervisors -- a gross increase of 64 chiefs and 112 supervisors. About 20% of the \$1.90 million proposed for loan funding is required for initial and complementary training for the currently existing complement of field personnel. The remaining 80% of the loan funding will cover the costs of credit personnel and administration in the 80 new zone offices to be opened by 1973. Costs of maintaining a zone chief for one year is \$4,700 and a supervisor is \$2,800.

The loan funding of approximately \$8.53 million for supervised credit to 13,750 additional families served by 112 supervisors implies about 120 families per supervisor, nearly double the present country-wide ratio. However, most of the 13,750 families will be concentrated in parcelizations more easily accessible on somewhat higher quality land and with much less diversity in production patterns. Therefore, it is believed that the increase in ratio is attainable.

Operational Target 30:

To support INCORA programs to accelerate settlement of new lands through colonization and to improve the lands acquired by INCORA by providing approximately \$2.79 million (peso equivalent) for access roads, rural infrastructure and irrigation application.

Spontaneous migration of families to the colonization fronts increases steadily. The rate will accelerate as rudimentary access roads and infrastructure is provided so that credit and basic production inputs can catch up with and maintain pace with /^{the} steady advance of the settlement frontier.

Improvements to acquired lands enhance their productive capacity with drainage, irrigation and farm unit access. Most lands being improved are in irrigation districts and a small, though increasing amount of lands, are being acquired to provide concentrated parcelizations. In irrigation districts considerable investment has been made. Loan funding to complement that activity would be principally utilized for meeting needs for water application at the farm level and related infrastructure. In areas of concentrated parcelization the abrupt change of the tenural structure and the concomitant conversion from extensive to intensive farming requires that some physical improvements be made to facilitate the transition such as access to fields, changing their boundaries, realignment of water courses or drainage, and other works which convert grazing land to cropping.

INCORA, through the DNP and the Ministry of Agriculture for transmission to USAID, will specify the amounts of funding for the above-mentioned activities and the areas in which they will be undertaken. Loan funds for the activities and areas proposed will be approved by USAID prior to disbursement.

UNCLASSIFIED

UNCLASSIFIED

-33-

Operational Target 3H:

To accelerate the training of key staff members of ICA, INCORA, INDERENA, IDEMA, OPSA, and other departments or agencies of the Ministry of Agriculture by allocating approximately \$0.3 million to the Ministry of Agriculture for this purpose.

As stated in Operational Target 3A above, the Ministry of Agriculture and the DNP are the agencies responsible for coordinating and planning all training and technical assistance for the agricultural sector agencies. They will seek the assistance of ICETEX for administration of the funds after candidates have been selected. Selection will be based on the priority requirements of the several agencies. This loan provides approximately \$0.3 million for short-term and academic training.

For the past several years (since 1966) the bulk of the USAID technical assistance and participant training resources (\$2.1 million grant and \$2.69 million loan) have gone to support the ICA-National University effort to provide qualified undergraduate and masters degree level technicians for the agricultural sector. More than 135 students have gone to the U.S. for advanced degree training under this program. Approximately 96 will have returned by the end of CY 71 and will be absorbed into the ICA or ICA-National University programs.

Outstanding progress has been made in the development of technical capability in ICA and the National University through the Nebraska contract. There is a critical need, however, for the various other agricultural agencies to upgrade the technical quality of their staffs, by sending participants to the U.S. or third countries for training not currently available in Colombia. The estimated number of qualified trainees who will be able to begin out-of-country programs under this loan in 1971-72 is estimated at 18 to 20 academic programs and 15 to 20 short-term programs. Disbursement will be subject to a USAID-approved training program for priority sector positions.

Operational Target 3I:

Supply approximately \$0.6 million to the Ministry of Agriculture for vehicles and other essential equipment required to facilitate execution of the expanded sector program.

Training materials and reliable transportation are vital to the success of the projects. Before equipment is ordered each participating agency will fully justify to the Ministry and DNP their requirements, their ability to provide proper maintenance and the status of existing equipment in inventory,

UNCLASSIFIED

UNCLASSIFIED

-34-

approximately \$0.6 million from this loan will be utilized for the procurement of needed vehicles and equipment. The Ministry, through OPSA, will coordinate and implement the procurement and assure itself of the proper utilization of the commodities procured.

UNCLASSIFIED

UNCLASSIFIED

-35-

SECTION II - IMPLEMENTATION AGENCIES AND FINANCIAL INFORMATION

A. Borrower - The Government of Colombia

The Borrower will be the Government of the Republic of Colombia, which is authorized, after approval by its Economic and Social Policy Committee and its Interparliamentary Committee, to enter into the Loan Agreement without further congressional ratification.

The implementing agency will be the Ministry of Agriculture acting through its Office of Agricultural Planning (OPSA) and the following semi-autonomous agricultural agencies: Colombian Agricultural Reform Agency (INCORA), Institute for Development of Natural Renewable Resources (INDERENA), Colombian Agricultural Institute (ICA), Caminos Vecinales, and a yet to be determined entity for the provision of marketing credit.

B. Sub-Implementing Agencies

1. Ministry of Agriculture

a. MINAG Structure

The Ministry of Agriculture was restructured in 1968, and effectively reorganized during 1969, into an agricultural planning, policy and coordination organization. A group of semi-autonomous agencies and organizations, responsible to the Minister of Agriculture, are charged with program and project implementation. An organizational chart showing these agencies and organizations and their place in the Ministry is attached as Annex I, Exhibit 2. For a detailed narrative description of MINAG organization, responsibilities and mode of operation see Annex III, I, B, 1, b.

b. MINAG Key Personnel

Key personnel of the Ministry of Agriculture and its principal agencies and departments are shown in Annex I, Exhibit 3.

UNCLASSIFIED

UNCLASSIFIED

-36-

c. Summary of MINAG Costs

TABLE II - 1

(Millions of Dollars)

	<u>1971</u>		<u>1972</u>		<u>TOTAL</u>	
	<u>US\$</u>	<u>L. Cy.</u>	<u>US\$</u>	<u>L. Cy.</u>	<u>US\$</u>	<u>L. Cy.</u>
Proposed AID Loan	.890	--	.900	0.260	1.790	0.260
Current Counterpart Agreements	--	.758	--	--	--	.758
GOC Budget & Internal Credit		.909	--	1.801	--	2.710
Other Non-Loan Related GOC Inputs	--	2.788	--	2.938	--	5.724
Other Donor/Lender Assistance	--	--	--	--	--	--
Sub-Totals	<u>.890</u>	<u>5.053</u>	<u>.900</u>	<u>4.999</u>	<u>1.790</u>	<u>9.452</u>
TOTAL	<u>5.343</u>		<u>5.899</u>		<u>11.642</u>	

Note: For this and for the following tables (2,3,4, and 5):

- a. Any amounts shown for proposed AID Loan Disbursements for 1971 apply only to second semester 1971.
- b. Figures shown for Current Counterpart Agreements are counterpart funds, including those generated by PL 480 agreements and from commodity imports financed under previous sector and program loans and which have already been programmed.

UNCLASSIFIED

UNCLASSIFIED

-37-

(1) Past Expenditures - MINAG

Actual expenditures of the Ministry of Agriculture prior to its reorganization in 1969 cannot be compared in a meaningful way with present Ministry expenditures. Ministry expenditures in 1969 and 1970 are shown in Table II-9 in this section. It is important to note again that the Ministry has in reality been transformed into a planning, policy formulation and coordinating agency for the agricultural sector. Most of the sector program or project implementation responsibility have been assigned to operational agencies such as ICA, INCORA, INDERENA, Caja Agraria, IDEMA, etc.

Most of the Ministry budget since the reorganization has been utilized for program planning and coordination. The dollar amounts budgeted from loan funds above are for participant training and vehicles and other essential equipment for the implementing agencies.

(2) Budget Projections - MINAG

Budget projections for the Ministry of Agriculture through 1973 are shown in Annex I, Exhibit 1. MINAG expenditures are expected to increase only slightly, as priority will be given to the allocation of agriculture sector funds to the operational agencies for project and program implementation.

2. Semi-Autonomous Agencies of MINAG in Sector Program

a. INCORA - Summary of Costs

TABLE II-2
(Millions of Dollars)

	<u>1971</u> ★	<u>1972</u>	<u>TOTAL</u>
	<u>L. Cy. Use</u>	<u>L. Cy. Use</u>	<u>L. Cy. Use</u>
Proposed AID Loan	1.516	13.590	15.106
Current Counterpart Agreements	13.012	--	13.012
GOC Budget & Internal Credit	42.900	35.311	78.211
Other Non-Loan Related GOC Inputs	23.517 ^{★★}	23.977 ^{★★}	47.494 ^{★★}
Other Donor/Lender Assistance	<u>5.947</u>	<u>10.180</u>	<u>16.129</u>
TOTALS	86.892	84.058	169.933

★ All allocations to this activity in 1971 and 1972 were for peso use.

★★ Includes credit roll-over, bond amortization, interest and bond monetization.

UNCLASSIFIED

UNCLASSIFIED

-38-

(1) Past Expenditures - INCORA

INCORA expenditures for the 1968 to 1970 period are presented in Table II-9 of this Section. These figures show about a 70% increase in the three year period. Only about five percent of the INCORA budget has been used for administration.

(2) Budget Projections - INCORA

Budget projections for INCORA through 1973 are shown in Table II-9 of this Section. These figures indicate plans for an accelerated agrarian reform effort. Additional emphasis is expected to be given to land titling and to supervised credit. Emphasis on costly land improvement projects will be reduced until and unless the land constraint becomes more serious.

b. INDERENA - Summary of Costs

TABLE II-3
(Millions of Dollars)

	<u>1971</u> *	<u>1972</u>	<u>TOTAL</u>
	<u>L. Cy. Use</u>	<u>L. Cy. Use</u>	<u>L. Cy. Use</u>
Proposed AID Loan	--	1.896	1.896
Current Counterpart Agreements	1.671	--	1.671
GOC Budget and Internal Credit	3.336	3.747	7.083
Other Non-Loan Related GOC Inputs	.892	.986	1.878
Other Donor/Lender Assistance	--	5.000	5.000
TOTALS	<u>5.899</u>	<u>11.7</u>	<u>17.528</u>

* All allocations to this activity in 1971 and 1972 were for peso use.

UNCLASSIFIED

UNCLASSIFIED

-39-

(1) Past Expenditures - INDERENA

INDERENA's expenditures more than doubled from 1968 to 1970, as shown in Table II-9 of this Section. Regularly a major portion of the budget is spent in forestry, fishing and the auxiliary services departments. The latter includes the Conservation Officer Service which protects fish, game and forests, and administers national parks.

(2) Budget Projections - INDERENA

Plans call for an additional 65% increase in INDERENA's budget from 1970 to 1973 (See Table II-9). Increasing emphasis will be placed on studies and actions that will tend to accelerate the proper exploitation of Colombia's vast forest reserves and fishing potentials.

c. ICA - Summary of Costs

TABLE II-4
(Millions of Dollars)

	1971 [*]		1972		TOTAL	
	L.	Cy. Use	L.	Cy. Use	L.	Cy. Use
Proposed AID Loan	--		7.850		7.850	
Current Counterpart Agreements	5.002		--		5.002	
GOC Budget & Internal Credit	12.936		10.267		23.203	
Other Non-Loan Related GOC Inputs	2.476		2.512		4.988	
Other Donor/Lender Assistance	<u>13.563</u>		<u>5.246</u>		<u>5.246</u>	
TOTALS	<u>20.447</u>		<u>25.875</u>		<u>46.307</u>	

* All allocations to this activity in 1971 and 1972 were for peso use.

(1) Past Expenditures - ICA

ICA expenditures doubled between 1968 and 1970. Largest increases were in agricultural extension and in education. The extension service has grown rapidly since responsibility for it was given to ICA in the 1969 reorganization of the Ministry of Agriculture. The proportion of the budget for education has increased with the development of the graduate school at Tibaitatá.

UNCLASSIFIED

UNCLASSIFIED

-40-

(2) Budget Projections - ICA

The ICA budget for each year from 1970 to 1973 is almost double the 1970 expenditures. A large portion of this increase will be for the extension service, which expects to field its staff of subject-matter specialists and increase the number of agents, and for the implementation of the four to six pilot area efforts described in Operational Target 2B. Increased funds also are being allocated to research to accelerate work on problems of importance to the pilot areas.

3. Other Sub-Implementation Agencies

Data similar to that presented for the Ministry of Agriculture agencies is not shown here for the access and feeder road program and for the marketing credit program. In the case of the road program, Caminos Vecinales regular funds will not be involved and matching funds will come from local-level entities. In the case of the marketing credit, the implementing agency is not yet known, but, in any case, will be required to provide matching funds.

C. Financial Presentation

1. Summary of Sector Loan Costs

The following three tables (5, 6 and 7) summarize proposed AID inputs by: (1) performance target; (2) operational targets within implementing agencies; and (3) by operational targets. It should be noted, however, that each piece of the loan package is aimed at achieving the objectives discussed earlier in this paper. Approximately \$11.00 million of the loan is allocated to supervised credit for INCORA, for the pilot areas or for marketing. The marketing assistance is essential to the success of the other two credit programs. Roads and the availability of quality inputs are also critical factors to area development (for which supervised credit will be a principal tool). Accurate research information and the ability to "deliver" it in a timely manner with credit funds is the essence of a supervised credit program. Training and logistical support are recognized prerequisites to any meaningful effort. Sound planning and the timely coordination of the many facets that combine to achieve program objectives are essential factors of the strategy.

UNCLASSIFIED

UNCLASSIFIED

-41-

TABLE II-5

Financing by Performance Targets
(Millions of Dollars)

	1971		1972		TOTAL	
	US\$ Use	L. Cy. Use	US\$ Use	L. Cy. Use	US\$ Use	L. Cy. Use
<u>TARGET 1 - Increase Production Through Credit & Support Activities</u>						
Proposed AID Loan	--	1.753	--	8.277	--	10.030
Current Counterpart Agreements	--	3.537	--	--	--	3.537
GOC Budget & Internal Credit	--	16.866	--	9.590	--	26.456
Other Non-Loan Related GOC Inputs	--	8.145	--	8.740	--	16.885
Other Donor/Lender Assistance	--	1.805	--	1.439	--	3.244
<u>Target #1 Sub-Totals</u>	0	32.106	0	28.046	0	60.152
<u>TARGET 2 - Employment Creation & Income Redistribution</u>						
Proposed AID Loan	--	.303	--	4.467	--	4.770
Current Counterpart Agreements	--	4.551	--	--	--	4.551
GOC Budget & Internal Credit	--	10.959	--	18.616	--	29.575
Other Non-Loan Related GOC Inputs	--	1.608	--	6.892	--	8.500
Other Donor/Lender Assistance	--	--	--	6.347	--	6.347
<u>Target #2 Sub-Totals</u>	0	17.421	0	36.322	0	53.743
<u>TARGET 3 - Actions to Strengthen Future Agricultural Development</u>						
Proposed AID Loan	.890	.354	1.200	12.746	2.090	13.100
Current Counterpart Agreements	--	11.642	--	--	--	11.642
GOC Budget & Internal Credit	--	17.509	--	22.635	--	40.144
Other Non-Loan Related GOC Inputs	--	6.498	--	7.972	--	14.470
Other Donor/Lender Assistance	--	17.618	--	10.887	--	28.505
<u>Target #3 Sub-Totals</u>	.890	53.621	1.200	54.240	2.090	107.861
TOTALS	.890	103.148	1.200	18.608	2.090	221.751

UNCLASSIFIED

UNCLASSIFIED

-42-

TABLE II-6Loan Allocation by Agency

	<u>Millions of U.S. Dollars</u>	<u>Millions of Col. Pesos *</u>
<u>INCORA</u>	<u>15.09</u>	<u>318.40</u>
1A Supervised Credit	8.53	180.00
2A Titling & Legal	1.87	39.00
3F Agricultural Development	1.90	40.00
3G Infrastructure	2.79	58.87
<u>ICA</u>	<u>7.85</u>	<u>163.63</u>
1B Pilot Development Area	1.50	31.65
3B Research	3.31	69.84
3C Extension	2.54	53.59
3E Quality Control Inputs	0.50	10.55
<u>MINAGRICULTURA</u>	<u>1.16</u>	<u>22.37</u>
3A OPSA Staff & Contracts	0.26	5.49
3H Training	0.30	6.33
3I Vehicles & Equipment	0.60	10.55
<u>INDERENA</u>	<u>1.90</u>	<u>40.00</u>
2B	1.90	40.00
<u>OTHER</u>	<u>2.00</u>	<u>42.20</u>
2C Roads	1.00	21.10
3D Marketing Credit	1.00	21.10
<u>TOTALS</u>	<u>28.00</u>	<u>588.60</u>

* \$1.00 = 21.1 Pesos

UNCLASSIFIED

TABLE II-7

Loan Allocation by Targets

<u>Operational Target</u>	<u>Type of Program</u>	<u>Millions of U.S. Dollars</u>	<u>Millions of Col. Pesos*</u>	<u>Implementing Agency</u>
1A	Supervised Credit	8.53	180.00	INCORA
1B	Pilot Dev. Area	1.50	31.65	ICA/CITA AGRICOLA
2A	Titling & Legal	1.87	39.46	INCORA
2B	Natural Resources	1.90	40.00	INDERENA
2C	Roads	1.00	21.10	OPSA/CV
3A	OPSA Staff & Contracts	0.26	5.49	OPSA
3B	Research	3.31	69.84	ICA
3C	Extension	2.54	53.59	ICA
3D	Credit for Marketing	1.00	21.10	N. A.
3E	Quality Control Inputs	0.50	10.55	ICA
3F	Agricultural Development	1.90	40.00	INCORA
3G	Infrastructure	2.79	58.87	INCORA
3H	Training	0.30	6.33	MINAG
3I	Vehicles & Equipment	.60	10.55	MINAG
		<u>28.00</u>	<u>588.60</u>	

* \$1.00 = 21.1 Pesos

UNCLASSIFIED

-44-

2. U.S. Financial Role in Agricultural Sector Support

a. Past Support

The U. S. has supported the agricultural sector at levels of approximately 6.68, 5.12 and 7.08 percent in 1968, 1969 and 1970 (See Table II-8). This assistance consisted of a \$15.0 million sector loan in each year, plus counterpart generated from program and PL 480 loans. This past support has been directed primarily at the development of infrastructure and of the technical capability to proceed with a sound agricultural sector development effort with the minimum requirement for outside assistance.

b. Future Support Expectancy

As mentioned in the Congressional Presentation, it is expected that the agricultural sector of the Colombian economy will require and would justify a sector loan of approximately \$25.0 million in FY 1972. It is also anticipated that approximately \$9.5 million of PL 480 counterpart will be available for allocation in CY 1972. Estimates of needed support beyond CY 72 or CY 73 are difficult at this time, because they are so highly dependent upon largely exogenous factors such as coffee prices and the level of progress which results from macro-economic and sectoral efforts in the meantime.

Table II-8 shows total resources to the GOC agricultural and natural resources sector and the portion of those resources provided by U.S. assistance. The share of these resources provided from AID funds was a higher portion of the total in 1971 than in 1970. The U.S. share of the total, however, will diminish in 1972 and is expected to be reduced still further in 1973 and subsequent years.

3. Past Expenditures - Colombian Agricultural Sector

Total expenditures by the principal agencies and organizations in the agricultural sector are shown in Table II-9. These show an increased investment or planned investment in dollar terms from 1968 through 1973, except for a small decline in 1970 following an exceptionally large increase from 1968 to 1969. In total the real increase from 1968 to 1973 is 38.2%, or an average of about 7.6 percent annually since 1968.

Those agencies or organizations which show the largest percentage increases during this period are INCCRA 35%, INDERENA 262%, the Livestock Bank 121%, and ICA 310%.

UNCLASSIFIED

UNCLASSIFIED

-45-

4. Budget Projections - Colombian Agricultural Sector

Budget projections for the agencies and organizations in the agricultural sector show continued emphasis, but at a reduced rate of increase, on those efforts or projects which the Mission considers to be of high priority. Funds within agency budgets for CY 1972 are, as shown in this paper, earmarked to make the maximum contribution toward the objectives outlined in Part Two, Section I, B, 1. It is expected that the 1973 budget will be even more clearly directed to accomplish these sector objectives. It is anticipated that sector analysis capability will be improved and that better analysis, coupled with linear programming techniques, will improve GOC ability to identify alternative investment opportunities in terms of their priority objectives.

TABLE 11-8

Total Resources to Colombian Agricultural/Natural Resources Sector by Source of Funds

(Millions of Dollars)

<u>C. Y.</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>Total</u>
Total U.S. Assistance	40.4	23.0	30.3	37.6	34.6 ^{1/}	169.7
Other Foreign Financing	27.0	15.7	27.9	35.0	60.0	165.6
Colombian Resources	<u>310.7</u>	<u>410.2</u>	<u>369.8</u>	<u>362.1</u>	<u>372.6</u>	<u>1825.5</u>
TOTAL	<u>378.1</u>	<u>448.9</u>	<u>428.0</u>	<u>434.7</u>	<u>467.2</u>	<u>2760.8</u>
U.S. Assistance as % of Total	10.68	5.12	7.08	8.65	7.40	

^{1/} Includes \$3 million of matching funds for marketing credit and feeder roads not included in GOC resources.

TABLE II-9
Total Resources to Colombian Agricultural Sector By Implementing Agency
 (Millions of Dollars)

	<u>1968</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>
Ministry of Agriculture	6.1	5.6	5.7	-	5.9	4.4
Ministry of Development	5.4	1.7	.6	5.3	1.0	1.0
INDERENA	2.1*	3.7*	4.5	1.0	1.0	1.0
ICA	7.1*	11.6*	15.6*	5.9	11.7	7.6
INCOBA	72.8*	81.2*	79.9	20.5	30.2	29.1
IDEMA	60.1*	89.6*	45.2	80.9	84.0	98.4
Agricultural Credit Bank	174.2	182.3	191.2	39.0	41.3	34.2
Livestock Bank	24.8	43.9	46.0	191.1	193.8	222.7
FEDEGAN (1)	.5	.5	.4	45.8	50.3	54.7
INAGRARIO (1)	.8*	1.2	2.0	.4	.3	.3
VECOL (1)	1.5*	.8*	1.2	3.5	3.1	1.5
COFIAGRO (1)	1.9*	2.2	2.5	1.3	1.5	1.6
Baradelmas	--	--	--	4.0	2.6	27.4
Electric Power (2)	4.4*	2.5*	4.1	.5	--	--
SCMH	--	--	--	4.1	4.0	3.2
CAR (3)	--	--	--	1.2	1.3	--
Corchoco	1.7*	2.2*	2.0	3.0	2.1	1.9
Empresas Varias de Medellin (4)	--	--	--	.9	1.3	--
Meteorological & Water Resources Inst.	.3	1.2	.3	.9	.5	.4
Geodetic Institute (5)	--	.5*	1.0	1.2	1.0	1.7
Uraba Corporation	3.4*	4.5*	4.3	5.8	4.7	5.3
Choco Corporation	--	--	.2	.6	.6	1.9
National Feeder/Access Road Fund	--	.7	2.7	.9	1.2	1.5
Coffee Diversification Fund	8.5*	8.0*	15.4	15.3	18.1	16.2
Private Investment Fund	2.5	2.8	3.2	3.4	8.3	7.6
TOTAL	<u>378.1</u>	<u>448.9</u>	<u>428.0</u>	<u>434.7</u>	<u>467.5</u>	<u>522.6</u>
Exchange Rate Utilized:	16.38	17.36	18.48	19.79	21.10	22.60

Actual Budget Expenditures

- (1) FEDEGAN - Livestock Federation.
 INAGRARIO - Semi-official institute for promotion of storage and warehouse facilities.
 VECOL - Colombian Veterinary Products.
- (2) COFIAGRO - Semi-official corporation for promotion of agro-development and marketing.
 Electric Power - 7% of totals for electric power entities corresponding to rural and natural power resource programs.
- (3) CAR - 50% of the budget of Regional Corporation for Development of Water Resources in Bogota and Neighboring
- (4) Empresas Varias de Medellin - 30% of the budget of Medellin Public Services Agency.
- (5) Geodetic Institute - 70% of the budget of the Instituto Geografico Agustin Codazzi (National Geodetic and Cadastral Institute).

UNCLASSIFIED

-47-

5. Other Donor/Lender Assistance

The allocation to the agricultural sector by year of disbursement of foreign lender assistance other than AID is shown in Table II-8 above. A listing of loans to the sector showing the source of funds and purpose from 1961 through 1970 and those presently under consideration are in Annex I, Exhibit 8.

It has proved extremely difficult to obtain accurate and detailed information about the level of grant assistance to the agricultural sector by other countries and organizations. Total assistance to the sector from other donors, however, has been considerable. Annex I, Exhibit 8, although not entirely complete, shows a large part of other donor assistance from 1961 to the present.

III. PROGRAM JUSTIFICATION AND RELATED MATTERS

1. Relationships to Recent Sectoral Studies

The Loan Committee has carefully examined the IBRD agricultural development policy paper and the recently completed ILO report "Towards Full Employment". The agricultural sector loan is substantially in agreement with the analyses presented in these reports. The analysis, in the resulting loan strategy, is in consonance with the latest CFS and also conforms with the GOC's Development Plan. In this regard, the programs under the loan have undergone review in close collaboration between the Mission and Colombian Government officials.

2. Contribution to GOC Development

In a country in which 30 percent of GDP and 85 percent of foreign exchange earnings are derived from the agricultural sector and approximately half of the labor force is employed in agriculture, the importance of the sector to the health of the economy is obvious. Recognizing the sector's importance, the Government of Colombia has provided constantly rising allocations of available resources to encourage production increases. Apace with these efforts have been programs designed specifically to raise the income and productivity of the small farm operators. Despite these past efforts, the Colombian agricultural sector still contains a sub-sector of substantial size which is unable to produce at the potential that modern production methods would yield. Colombia cannot adequately meet her rapidly rising needs for agricultural production with a portion of the sector operating with traditional, inefficient production methods. Moreover, concepts of social justice and political necessity require the Government to play an increasingly active role both in expanding employment opportunities available in rural areas as well as assuring those in agricultural pursuits somewhat more than a subsistence income.

UNCLASSIFIED

UNCLASSIFIED

-48-

The importance of the subsistence agricultural sector must not, however, obscure the role that is played by commercial agriculture in the nation's economy. The assistance granted the commercial sector must be continued particularly in such areas as research and extension if this sub-sector, which provides the bulk of the nation's agricultural output, is to be able to fulfill its economic role.

The Colombian Planning Office has calculated that a minimum 5.5 percent annual rate of agricultural growth must be maintained if Colombia is to be assured adequate production to fill both her domestic and export demands as well as to be able to provide a substantial share of the jobs required by the rapidly-expanding rural population. Without this growth agricultural prices will rise, in turn increasing the cost of living, and making both agricultural and agriculturally dependent industrial products less competitive on world markets.

While the proposed agricultural sector loan is directed primarily toward programs designed to assist the small farmer in increasing his productivity and income, the justification for the loan must be viewed in the broader context of allowing the multiple needs of the subsistence and commercial agricultural sector to be met simultaneously.

3. Impact on U. S. Economy

The impact of the proposed loan may be seen through an examination of the loan's effects on U.S. and Colombian trade patterns. Loan financing will stimulate U.S. exports to Colombia, directly through the procurement of loan related U.S. goods and services, and indirectly through the increased demand for imports into Colombia resulting from the stimulation provided the Colombian economy by loan-financed expenditure flows. Imports into the U.S. will be affected by the loan to the extent that programs financed under the loan stimulate the production of Colombian agricultural products able to compete in the U.S. markets.

Of the total amount of the loan, \$0.9 million will be utilized for the purpose of commodities and technical services. While this procurement may be made from any of the Geographic Code 941 countries, it is anticipated that the bulk of these funds will be utilized in the U.S. The remainder of the loan funds, \$28.0 million, will be utilized in the financing of local costs.

The impact of loan-financed local costs on the U.S. balance of payments will be affected by a recently negotiated change in disbursement procedures. As was the case in previous sector loans, Colombian imports will be stimulated through the injection of loan funds into the Colombian economy and the resultant trade stimulus these funds provide through the marginal propensity to import. This increased import demand will be met in part through

UNCLASSIFIED

UNCLASSIFIED

-49-

the use of the loan provided dollars, and imports from the U.S. and from Colombia's other trading partners will be greater than they would be in the absence of the loan.

It is anticipated that the shift in disbursement procedures (See Part Four, A, 4) from a commodity import program to a direct purchase of local currency will reduce the total impact of the loan as regards imports from the U.S., since for the first time procurement will be completely untied and special credit facilities to importers will not be provided. The current U.S. share of total Colombian imports is about 45 percent. The U.S. share of the commercial import market (excluding AID, Ex-Im, and PL 480 financed imports) is presently about 38 percent. The degree to which elimination of the commodity import program and its related credit program will reduce the U.S. market share below 45 percent depends, to a great extent, on the durability of buying habits developed over the past four years of the commodity import program, and the ability of U.S. suppliers, in part assisted by other U.S. institutions such as the Ex-Im Bank, to become more aggressive salesmen, as well as to provide sufficient inducements to hold U.S. customers. While a fall to a 38 percent purely commercial market share is not anticipated, some reduction in the relative U.S. share of the total market may result.

The effects of the loan program in stimulating the production of agricultural products entering the U.S. market is similarly difficult to judge. Since assistance is granted to agricultural institutions rather than to specific crops, the precise long run production implications of the assistance are imprecise. It should be noted, however, that the bulk of the loan will support activities directly related to assisting the low income farmer and that, historically, the production of such farmers is destined almost exclusively to the domestic market. On the other hand, one of the objectives of the Colombian agricultural policy we are supporting is to increase non-traditional agricultural exports. As modern agricultural practices become disseminated throughout Colombia, the sector's ability to compete on a world-wide basis and to shift production patterns as world market conditions change will improve. The overall effect on agricultural trade with the U.S., in the immediate future, at least, is apt to be quite limited.

4. Consistency with CIAP Reviews

The agricultural sector loan addresses one of the major findings and recommendations made by the sub-committee of the Inter-American Committee on the Alliance for Progress (CIAP) in its February 1971 review of the Colombian economy.

In this review, CIAP expressed its concurrence and support of the Colombian 1970-73 Social and Economic Development Plan's emphasis on the inclusion of agriculture as one of the primary objectives for Colombian

UNCLASSIFIED

PART THREE : LOAN IMPLEMENTATION AND EVALUATIONA. ADMINISTRATION AND IMPLEMENTATION PLAN1. Execution Plan

Major execution steps of the Program are described below. The Loan Agreement and basic Implementation Letter No. 1 will state the conditions which must be fulfilled by Borrower prior to any disbursement.

USAID/Colombia will ensure that the loan procedures considered acceptable as conditions precedent and the covenants contained in the Loan Agreement are in fact being followed. USAID personnel will make periodic inspections and reviews of the Program, assisted by contract and AID/W personnel, as and if required.

Until the loan is repaid in full, audits of the loan will be made by AID at such times as may be deemed appropriate.

2. Loan Monitoring

Implementation responsibility for the Program will be under the primary control of the Ministry of Agriculture. The primary responsibility for fulfilling A.I.D.'s part of the implementation functions rests with USAID/Colombia, assisted by AID/W personnel as appropriate. Disbursement requests will be reviewed by the USAID Agricultural, Capital Resources Development, and Controller Divisions. Qualitative progress of the Program will be monitored principally by the USAID Agricultural Division.

At the highest administrative levels the National Monetary Board has review authority over all fiscal operations of the GOC. The National Department of Planning has established budgetary procedures for monitoring the financial operations of all GOC investment projects. The Budget Control section in DNP requires the implementing agency to submit projected budget expenditures by trimesters broken down by three sources of funds -- GOC funds, external credit and other funds. As the year progresses actual expenditures are compared with projections. Needed adjustments in program activities are then identified and corrective actions initiated. In the Ministry of Agriculture the OPSA group coordinates with the DNP budget control section. Progress on agency programs is monitored by OPSA and on the AID sector loan activities reports are to be rendered to AID through the DNP. In addition the individual agencies within the Ministry have established procedures for program planning, review of progress and budget control. Finally, inter-agency coordination and monitoring of program implementation is also carried out through the periodic meetings of the Directive Council composed of agricultural agency directors and chaired by the Minister of Agriculture.

The AID sector loan will provide supplemental resources to strengthen the staffing of the Ministry planning units. Furthermore, these units will be given additional responsibility for monitoring implementation of agricultural program activities including those for which sector loan funds are planned.

3. Disbursement Plan

Disbursements of the Sector Loan are planned to be effected over an 18-month period, subsequent to the signing of the Loan, in accordance with the Sector Plan. We now estimate that to start up the \$ 31.8 million Loan Program, approximately \$ 1.25 million will be disbursed upon fulfillment of conditions precedent within a total of \$ 2.5 million during the last half of CY-1971, and with the balance of \$ 29.3 million disbursed during CY-1972. These amounts may vary somewhat in their actual utilization. The amounts and timing of disbursement releases will be determined as described in Disbursement Procedures below.

4. Disbursement Procedures

a. U.S. Dollar Costs

U.S. dollar disbursements will be made using standard A.I.D. procedures by issuance of Letters of Commitment and making payments through the use of Letters of Credit or otherwise for Dollar Costs of goods and services procured for the Program in accordance with the terms of the Loan Agreement. Disbursements of Dollar Costs will be made exclusively to finance the procurement for the Program of goods and services having both their source and origin in countries in Code 941 of the A.I.D. Geographic Code Book as in effect at the time orders are placed or contracts are entered into for such goods and services. All ocean and air carrier shipping financed by Dollar Costs under the Loan shall have its source and origin in countries included in Code 941 of the A.I.D. Geographic Code Book as in effect at the time of shipment.

b. Local Currency Costs (Colombian Pesos)

(1) The Loan agreements will continue to be denominated in United States dollars insofar as repayment to the U.S. is concerned, but will clearly state that (except for US\$ amounts set aside for procurement of goods and services directly related to the sector program) the US\$ are being loaned for the purpose of converting them into pesos so as to satisfy stipulated peso needs of the sector programs. The agreement will also indicate the uses for which the pesos are destined, the executing agency which will be responsible for expending them, and the time period over which they are to be expended. In conformity with this, the agreement will provide that peso disbursements will be released to a given sector in concert with the program of the specified activities in that sector and evidence of satisfactory progress.

(2) Peso Generation Procedure: To implement the direct conversion procedure, the following system would be employed:

(a) Upon satisfaction of conditions precedent, Borrower would request disbursement for the Local Currency Costs of goods and services procured for the loan program in accordance with the terms and conditions of the Loan Agreement by submitting to AID such supporting documents as the Mission would prescribe in Implementation Letters.

UNCLASSIFIED

-53-

- (b) Approximately two weeks in advance of the date on which local currency payments are to be made to the GOC, the USAID/Bogota will send the following information to AID/W by telegram: (a) The amount of the payment in pesos; (b) the date of the payment; and (c) the approximate dollar equivalent of the peso amount.
- (c) AID/W will pass this information on to Treasury.
- (d) Treasury will send to the U.S. Embassy in Bogota dollar checks in various amounts which cover, in total, the peso payment. These checks which Treasury calls "pre-position checks" are payable to the Regional Disbursing Officer, and are endorsed, in substance, as follows:

"Payable only to the Central Bank of Colombia for the purchase of pesos for deposit to the account of the Regional Disbursing Officer, Department of Treasury in the First National City Bank, Bogota."

- (e) On the date the payment is to be made:

Alternative A: The Embassy will present ^{the} checks in an appropriate amount to the Central Bank which will credit to the account of First National City Bank with the equivalent amount of pesos, and City Bank will credit these pesos to the account of the Regional Disbursing Officer. The Embassy (or USAID Controller) will present to City Bank Treasury Form WR-DP127, which requests and authorizes City Bank to issue a draft in pesos, to the GOC entity to which the payment is to be made.

Alternative B: The Embassy will present checks in an appropriate amount to First National City Bank which will credit the dollars to the account of the Central Bank. The Central Bank will credit the account of City Bank with the equivalent amount of pesos and account of the Regional Disbursing Officer. The Embassy (or USAID Controller) will present to City Bank Treasury Form WR-DP127, which requests and authorizes City Bank to issue a draft, in pesos, to the GOC entity to which the payments should be made.

- (f) The dollars will be paid or credited to the Central Bank, the peso draft issued, and the loan charged, all at the same exchange rate and on the same day.

UNCLASSIFIED

UNCLASSIFIED

-54-

(g) To minimize delays in the availability of the pesos above generated for implementation of designated sectoral programs, (and to minimize a float of loan disbursements in the Cuenta General del Tesorero), the Loan Agreement (to which the Ministry of Hacienda will be a signator) will contain standard Loan provisions for "disbursement for Peso Costs" and "Other forms of Disbursement" with the addition of language to the effect that "Procedures for the making of disbursements hereunder immediately available to the agencies in question shall be more fully described in Letters of Implementation.

(h) At such time as AID may specify in Implementation Letters, the GOC Sector central implementing agency shall provide evidence satisfactory to AID of its receipt of loan generated pesos from the Treasury of the Republic. Upon receipt of pesos allocated to the GOC sector Borrower's Representative, the funds will lose their separate indentify and be marged with other funds of that entity.

(i) At such time as AID may specify in Implementation Letters, the Sector implementing agency shall furnish evidence satisfactory to AID of the total budgetary flow of the comingled peso funds of the sector, and of each of the sectoral program's operating agencies, in accordance with the sectoral plan agreed upon in the Loan Agreement.

(j) The purchase and release of pesos will be on an advance basis, equivalent to the estimated needs of given activities for mutually agreed periods to permit oportune application of resources.

(k) Justification for advances, after the initial ones, will be reports showing progress on overall execution of the specified activity as evidenced by disbursement of comingled funds reported in (g) above.

(l) The timing of disbursement will be reflected by sector needs and requirements, and such disbursement will be approved subject to (1) GOC's requests for disbursements based on needs, and (2) USAID/C's careful periodic review of these needs and overall sector fiscal and qualitative performance.

5. Procurement Procedures:

Standard AID rules of procurement will apply. All procurement items are estimated to be ordered or contracted for by the end of CY 1972.

6. Small Business Notification:

In order that all United States firms shall have the opportunity to participate in furnishing goods and services to be financed under the Loan, Borrower shall furnish to AID such information with regard thereto, and at such times, as AID may request in Implementation Letters.

UNCLASSIFIED

UNCLASSIFIED

-55-

7. Shipping and Insurance:

a. Goods financed under the Loan shall be transported to Colombia on flag carriers of any country included in Code 935 of the AID Geographic Code Book as in effect at the time of shipment.

b. At least fifty percent (50%) of the gross tonnage of all Goods financed under the Loan (computed separately for dry bulk carriers, dry cargo liners and tankers) which shall be transported on ocean vessels shall be transported on privately-owned United States flag commercial vessels unless AID shall determine that such vessels are not available at fair and reasonable rates for United States flag commercial vessels. No such goods may be transported on any ocean vessel (or aircraft) (i) which AID, in a notice to Borrower, has designated as ineligible to carry AID-financed goods or (ii) which has been chartered for the carriage of AID-financed goods unless the charter has been approved by AID.

c. Marine insurance on Goods may be financed under the Loan with disbursements made pursuant to the U.S. Dollar Disbursement procedures of the Loan Agreement provided (i) such insurance is placed at the lowest available competitive rate in a country included in Code 941 of the AID Geographic Code Book as in effect at the time of placement, and (ii) claims thereunder are payable in freely convertible currency. If in the connection with the placement of marine (or aircraft) insurance on shipments financed under United States legislation authorizing assistance to other nations, Colombia, by statute, decree, rule, or regulation, favors any marine (or aircraft) insurance company authorized to do business in any state of the United States of America, goods financed under the Loan shall during the continuance of such discrimination be insured against marine (or aircraft) risk in the United States of America with a company or companies authorized to do a marine (or aircraft) insurance business in any state of the United States of America.

B. EVALUATION

Successive evaluations of the Loan Targets and current status of each group objective will be made by USAID/C's Implementation and Evaluation Committee (I & E) at each of the following steps:

- a. At the time the CFS (or its equivalent) is developed.
- b. When IRR's for possible future loans to the Agriculture Sector are prepared, and
- c. When Intensive Review of a possible future Capital Assistance Paper is undertaken for the Agriculture Sector.

Since it is current practice and policy of USAID/C to develop the above-mentioned documents with the GOC in line with the "mature partnership" concept, the GOC and its implementing agencies will be participants in all such evaluations.

UNCLASSIFIED

UNCLASSIFIED

-56-

In addition to the above it is considered to be highly important to help the national planning office and the Ministry of Agriculture further develop their capability for evaluation. They have expressed interest in this type of assistance and wish to establish systems of continuous evaluation and sector analysis. (See Section I, G of Annex III for further description.)

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ANNEX I

Exhibit 1, Page 1 of 1

GOC BUDGETARY APPROPRIATIONS FOR AGRICULTURE AND NATIONAL RESOURCES 1969-1972

(Col. \$ 000,000)

	1969*	1970**	1971**	1972**
Ministry of Agriculture	18.1	29.0	33.0	38.0
National Access/Feeder Roads Fund	97.1	110.0	110.0	157.9
Agrarian Reform Institute	575.1	737.2	722.3	824.3
Agricultural Research Institute	165.2	308.0	355.0	409.8
Agricultural Marketing Institute	38.0	46.8	60.0	66.0
Agricultural Credit Bank	.1	-	-	-
Livestock Producers Bank	30.0	41.0	34.0	40.0
Cattle Producers Federation	7.0	7.0	7.0	7.0
Electric Power Entities <u>2/</u>	23.9	26.2	31.4	34.0
Natural Resources Institute	45.7	83.3	99.1	121.0
Regional Development Corporation, CAR <u>3/</u>	.5	2.0	2.0	4.0
Meteorological & Water Resources Inst.	10.0	15.0	24.0	28.0
Geodetic Institute <u>4/</u>	65.5	72.5	71.8	84.7
Uraba Corporation	-	3.5	5.0	6.0
Ministry of Development <u>5/</u>	21.0	12.0	20.0	20.0
Medellin Public Services Agency <u>6/</u>	15.0	4.0	-	-
Total	1,112.3	1,497.5	1,574.5	1,840.7

1/ Total Resources allocated to the sector by the GOC are shown in Part II, Section II, C, 4.

2/ 7% of Budget

3/ 50% of Budget

4/ 70% of Budget

5/ Budget for Regional Development

6/ 30% of Budget

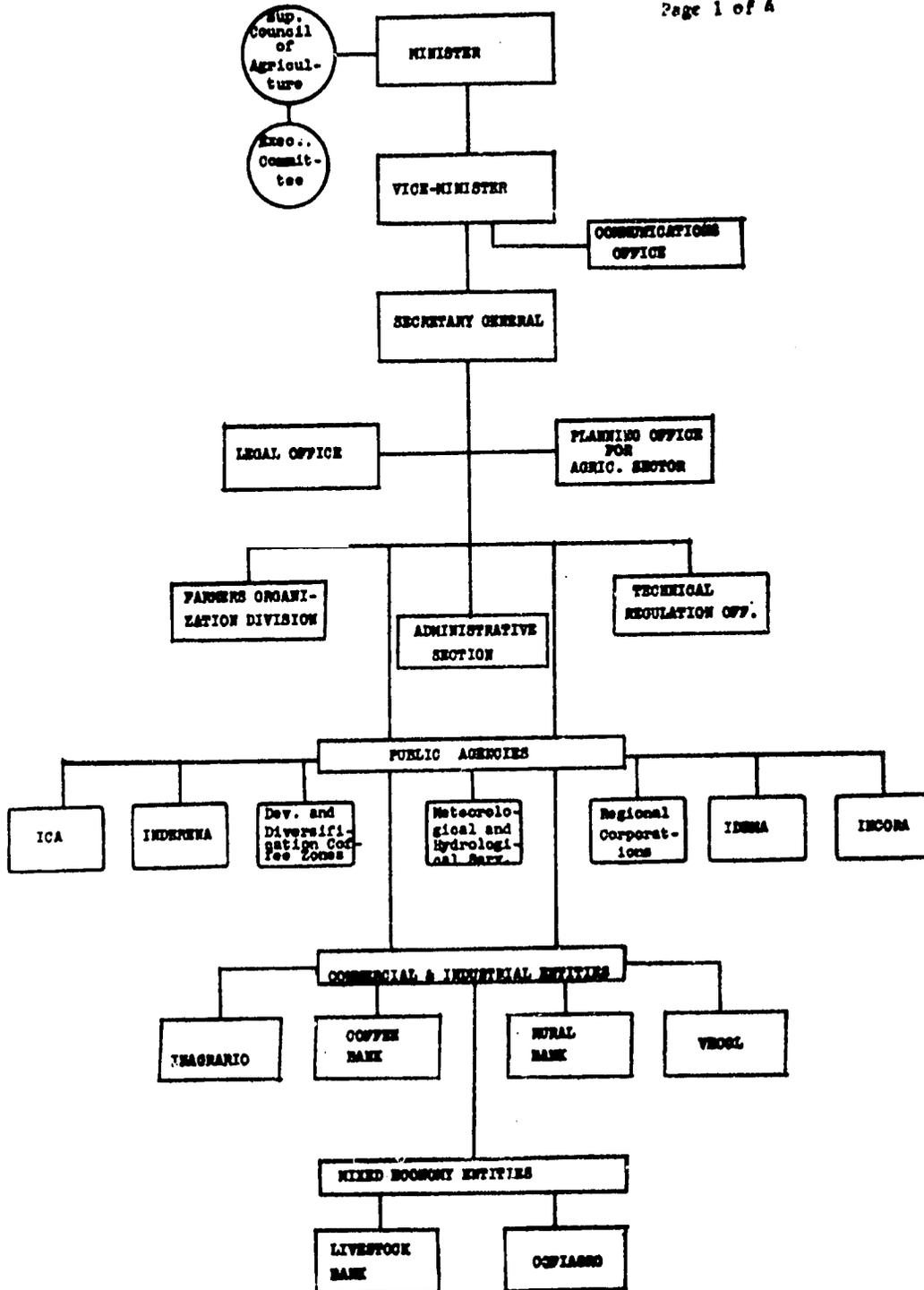
Sources: * 1969-73 Development Plan, National Planning Office
** 1970-74 Development Plan, National Planning Office

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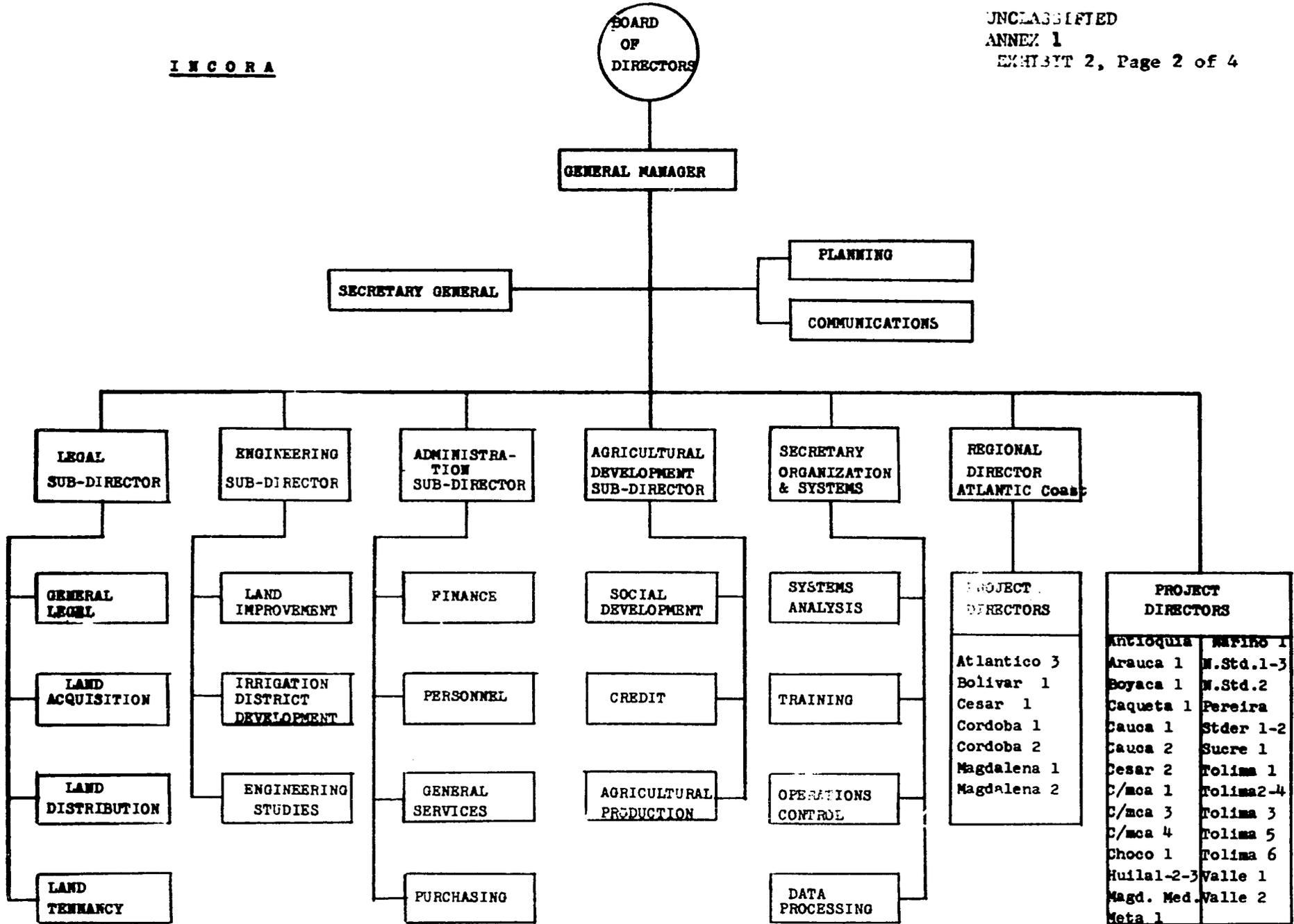
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ANNEX I
EXHIBIT 2
Page 1 of 4



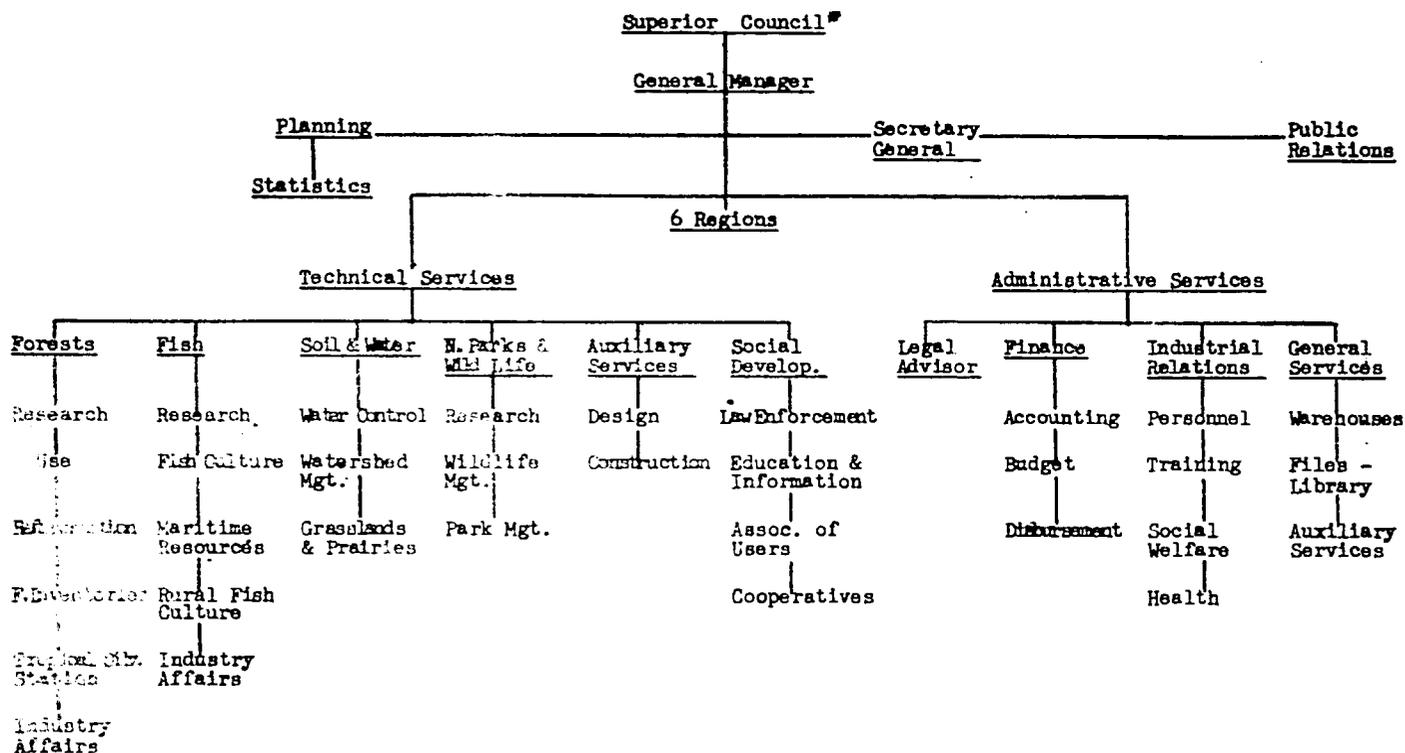
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Instituto De Desarrollo De Los Recursos Naturales Renovables

I N D E R E N A

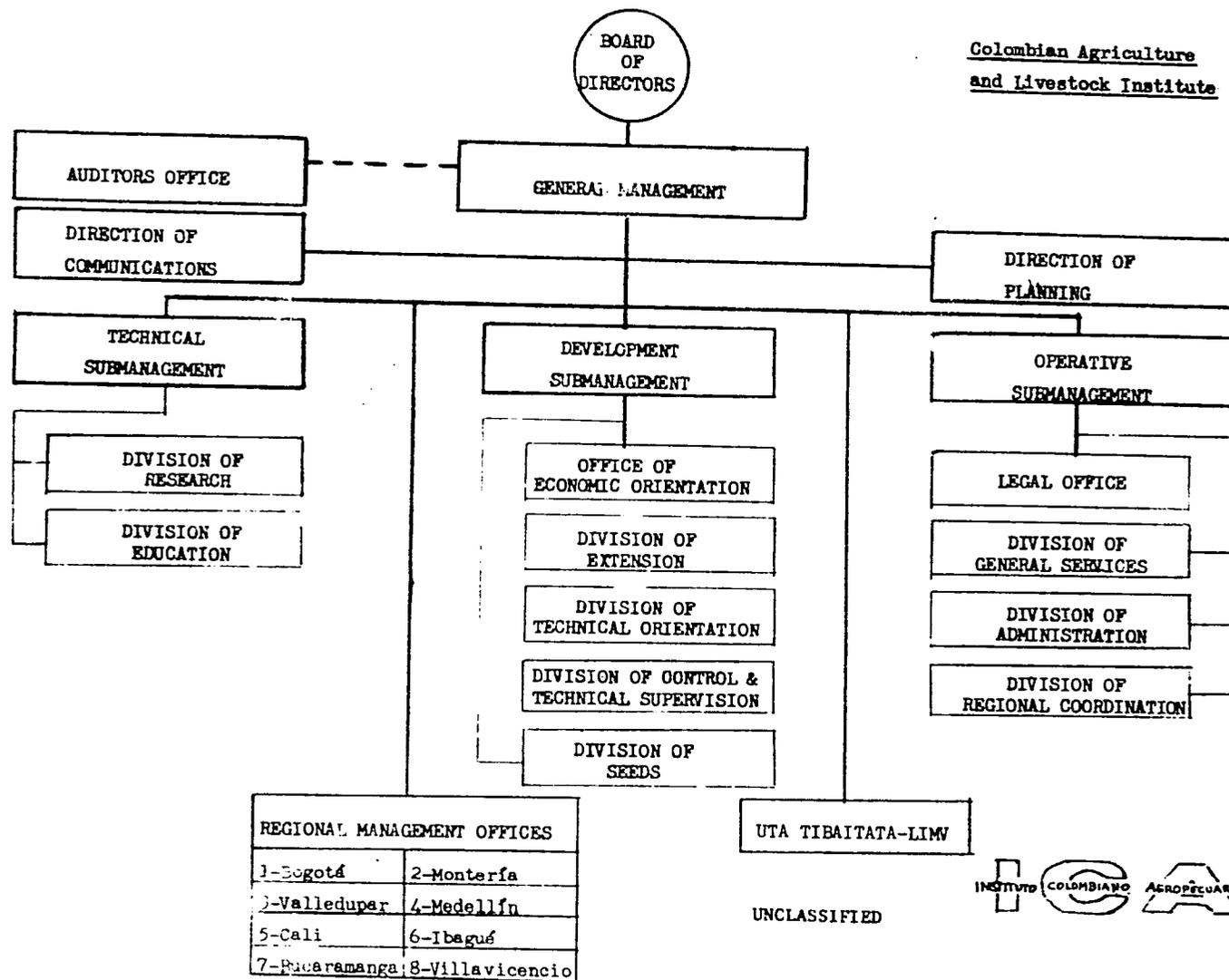
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ANNEX 1
EXHIBIT 2, Pa.



*Consists of representatives of Minister of Agriculture, Agricultural and Rural Bank, Institute of Agrarian Reform, Agricultural and Livestock Marketing Institute, Agricultural and Livestock Institute, Assoc. of Users, one additional person appointed by the President.

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Colombian Agriculture
and Livestock Institute



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KEY PERSONNEL COLOMBIAN AGRICULTURAL SECTOR

MINISTRY OF AGRICULTURE (MIN-AG)

Minister: J. Emilio Valderrama
Vice Minister: Joaquin Vanin Tello *
Chief of Planning: Alberto Garcia

AGRICULTURAL BANK (CAJA AGRARIA)

General Manager: Jose Vicente Vargas
Credit Manager: Jaime Velez
Development Manager: Ricardo Villa

COLOMBIAN INSTITUTE OF AGRARIAN REFORM (INCORA)

General Manager: Antonio Barberena
Development Manager: Hernando Durana
Legal Manager: (Vacant)
Engineering Manager: Carlos Gutierrez

COLOMBIAN LIVESTOCK AND AGRICULTURAL INSTITUTE (ICA)

General Manager: Jorge Ortiz Mendez
Technical Manager: Alvaro Gartner
Chief of Planning: Hernan Chaverra

INSTITUTE FOR THE DEVELOPMENT OF NATURAL RESOURCES (INDERENA)

General Manager: Daniel Gonzalez Plata
Technical Manager: Oseas Porras
Chief of Planning: Carlos Orozco

LIVESTOCK PRODUCERS BANK (BANCO GANADERO)

General Manager: Arturo Bonnet
Assistant General Manager: Gustavo Lozano
Chief, Technical Asst.
Department: Roberto Torres

AGRICULTURAL MARKETING INSTITUTE (IDEMA)

General Manager: Ariel Armel
Asst. Manager: Rodrigo Hernandez
Chief Planning: Fernando Villamizar

LIVESTOCK PRODUCERS FEDERATION (FEDEGAN)

General Manager: Miguel Santamaria D.

GRAIN WAREHOUSE AND DEPOSITS (INAGRARIO)

General Manager: Armando Carbonell

COLOMBIAN VETERINARY PRODUCTS MANUFACTURING CO. (VECOL)

General Manager: Gabriel Baraya

AGRICULTURAL AND LIVESTOCK CORPORATION (COFIAGRO)

General Manager: Aurelio Correa Arango

REGIONAL CAUCA VALLEY CORPORATION (C. V. C.)

General Manager: Henry Eder

GEOGRAPHIC INSTITUTE AGUSTIN CODAZZI

General Manager: Julio Carrizosa

METEOROLOGICAL AND WATER RESOURCES INSTITUTE (S. C. M. H.)

General Manager: Gabriel Echeverri Ossa

REGIONAL CORPORATION OF SAVANAH OF BOGOTA (CAR)

General Manager: Jorge Torres Lozano

* Expected to assume position week of May 3, 1971.

PRODUCTION; AREA AND YIELD OF PRINCIPAL CROPS, 1968-1970 1/

CROP	Production *			Area *			Yield *		
	1968	1969	1970	1968	1969	1970	1968	1969	1970
	(000 tons)			(000 Hasc)			(kilos per hectare)		
<u>Group 1</u>									
Coffee	480.	480.	570.3	816	809.6	1,069	588	592	534
<u>Group 2</u>									
Yuca	886	950	1,200	152.3	155	150	5,817	6,126	8,000
Beans	40.3	40	40	70	66	66	576	606	606
Platano	1,600	1,650	1,690	230	240	240	6,957	6,875	7,042
Panela	700	720	755	240	245	247.5	2,909	2,938	3,051
<u>Group 3</u>									
Corn	886.6	850	800	818	780	700	1,083	1,089	1,143
Potato	850	900	900	81	84	90	10,493	10,714	10,000
Wheat	125	75	50.4	108	58	42	1,157	1,293	1,200
Tobacco	43	44.5	44.9	23.3	24	24.3	1,845	1,854	1,848
<u>Group 4</u>									
Banano	700	780	780	58.5	59.2	58.5	13,162	13,175	13,333
Cacao	18	18.5	19	39	41.3	49	462	448	388
<u>Group 5</u>									
Cttn. Fbr.	120.2	125.3	127.8	201.4	236.1	267	597	531	479
" Seed	200.8	213.5	224.8				997	905	842
Rice	780	714	672	265.7	280	223	2,935	2,550	3,017
Sugar	665	708.6	709	99.9	100.2	90	6,656	7,025	7,878
<u>Group 5A</u>									
Sesame	12	60	25.2	15	86	36	800	697	700
Barley	74.8	76.5	90.0	46.8	49	50	1,598	1,561	1,800
Soybeans	101	120	120.	50.5	58	60	2,000	2,068	2,000
Sorghm.	110	100	140	49.3	44.5	65	2,231	2,247	2,121

* Preliminary Estimate

1/ Estimates made by Ministry of Agriculture as continuation of Series in "Changes in Agricultural Production and Technology in Colombia", L. Jay Atkinson, FAER, No. 52, USDA.

PRODUCTION OF MINOR CROPS, 1968 - 1970 1/

C R O P	1968	1969	1970
	-----1,000-----		Metric Tons
Garlic and Onion	36.1	40.0	41.8
Arracacha	131.0	130.0	133.0
Arveja	27.2	29.0	29.3
Rubber	0.5	0.8	0.9
Copra	1.5	1.5	1.6
Coco verde	10.1	10.1	10.2
Fique	33.9	35.0	37.9
Fruits	585.2	600.0	620.5
Vegetables Various	27.7	29.1	30.5
Name	227.5	257.6	301.7
Millo	9.0	9.8	10.6
Tomato	47.5	50.0	51.7
Other roots	42.4	43.7	45.5

* Preliminary estimates

1/ Estimates made by Ministry of Agriculture as continuation of series in "Changes in Agricultural Production and Technology in Colombia", L. J. Atkinson, FAER No. 52, USDA.

Imports of Selected Agricultural Products for 1967-1969

With Estimates for 1970 ^{a/}

(Millions of Dollars)

<u>Products</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970 ^{b/}</u>
Wheat	12.7	16.2	16.5	20.0
Tobacco	0.2	3.2	5.8	8.4
Cocoa	2.6	5.5	6.3	8.2
Wool	5.0	7.6	8.1	8.1
Tallow	5.1	5.3	5.1	5.6
Rubber	3.6	1.8	4.9	5.2
Barley	0.5	1.6	2.8	3.7
Hops	0.9	0.6	0.8	1.7
Lentils	- -	0.5	- -	1.6
Cotton	0.5	0.9	1.0	1.5

a/ Items in this table are different from those in table 7.

b/ Mission estimates

SOURCE: DANE

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Agricultural Credit in Colombia, Number and Value of New Loans Granted
and Value of Outstanding Loans by Major Institutions - 1966 - 1970

<u>Year</u>	<u>Institution</u>	<u>New Loans Granted</u>				<u>Outstanding Loans on December 31</u>			
		<u>Number of Loans</u>	<u>Value (Col. \$000)</u>	<u>Percent Change</u>	<u>Value (US \$000)</u>	<u>Value (Col. \$000)</u>	<u>Percent Change</u>	<u>Value (US \$000)</u>	<u>Conversion Rate</u>
1966	Agr. Rural Bank 1/	309,530	1,710,185	-	-	2,338,745	-	-	-
	Private Banks 2/	56,718	1,597,534	-	-	1,476,780	-	-	-
	Livestock Bank 1/	2,623	181,560	-	-	285,291	-	-	-
	Incora 1/ 4/	11,257	134,650	-	-	173,656	-	-	-
		<u>380,128</u>	<u>3,623,929</u>		268,439	<u>4,274,472</u>	-	316,628	\$13.50/1.00
1967	Agr. Rural Bank 1/	306,333	2,062,395	21	-	2,805,843	20	-	-
	Private Banks 2/	56,808	1,784,478	12	-	1,566,340	6	-	-
	Livestock Bank 1/	5,459	240,759	34	-	427,314	60	-	-
	Incora 1/ 4/	18,937	198,495	47	-	289,372	67	-	-
		<u>387,537</u>	<u>4,286,127</u>	18	290,979	<u>5,088,869</u>	19	345,477	\$14.73/1.00
1968	Agr. Rural Bank 1/	365,742	2,795,753	36	-	3,583,940	21	-	-
	Private Banks 2/	58,110	1,820,515	2	-	1,614,061	3	-	-
	Livestock Bank 1/	5,388	263,647	10	-	554,585	30	-	-
	Incora 1/ 4/	24,129	191,729	-3	-	372,863	29	-	-
	Cofiaagro 1/	11	24,376	-	-	19,480	-	-	-
		<u>453,380</u>	<u>5,096,020</u>	19	311,112	<u>6,144,929</u>	21	375,148	\$16.38/1.00

(Cont...)

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Year	Institution	New Loans Granted				Outstanding Loans on December 31			
		Number of Loans	Value (Col. \$000)	Percent Change	Value (US \$000)	Value (Col. \$000)	Percent Change	Value (US \$000)	Conversion Rate
1969	Agr. Rural Bank <u>5/</u>	348,146	3,443,491	23	-	4,316,526	20	-	
	Private Banks <u>2/</u>	58,032	2,015,029	11	-	1,759,831	9	-	
	Livestock Bank <u>1/</u>	5,588	401,106	52	-	780,786	41	-	
	Incora <u>4/ 5/</u>	31,700	192,786	1	-	428,929	15	-	
	Cofiaagro <u>1/</u>	49	90,093	270	-	75,445	287	-	
		<u>443,515</u>	<u>6,142,505</u>	21	353,831	<u>7,361,517</u>	20	424,051	\$17.36/1.00
1970	Agr. Rural Bank <u>5/</u>	348,134	3,398,272	-1	-	4,542,110	5	-	
	Private Banks <u>3/</u>	57,818	1,864,502	-7	-	1,819,385	3	-	
	Livestock Bank <u>1/</u>	5,755	446,824	11	-	998,350	28	-	
	Incora <u>4/3/</u>	25,000	187,800	-35	-	497,000	10	-	
	Cofiaagro <u>1/</u>	187	209,794	133	-	125,027	166	-	
		<u>436,894</u>	<u>6,107,192</u>	- .6	330,476	<u>7,981,872</u>	8	431,919	\$18.48/1.00

1/ Annual Reports

2/ Tables 13c and 14 - Revista Banco de la República - Oct. 1970

3/ Mission estimates based data available for time six months 1970.

4/ Includes only loans under Supervised Credit Program; other loans included under Rural Bank and Livestock Bank, who used own funds for INCORA programs.

5/ Personal information

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UNCLASSIFIED
ANNEX I
Exhibit 7, Page 2 of 2

Non USAID Foreign Loans to Agricultural Sector, 1967-70
(millions of Dollars)

<u>Year</u>	<u>Source</u>	<u>Colombian Entity</u>	<u>Purpose</u>	<u>Amount</u>	<u>Total Loans for the Year</u>	
1967	I B R D	INCORA	Colonization and Irrigation	9.0	23.5	
	Cont. Moss	IFA	Cotton	2.3		
	I D B	Caja Agraria	Farm Machinery	<u>12.2</u>		
1968	I D B	Banco Ganadero	Livestock Production	10.7	12.0	
	N I O	Banco Ganadero	Dairy Production	<u>1.3</u>		
1969	I B R D	Caja Agraria	Livestock Production	18.3	77.3	
	I D B	IDEMA	Grain Storage	13.7		
	I D B	INCORA	Colonization	10.8		
	I B R D	MINAG	Sector Loan	17.0		
	I B R D	INCORA	Farm Credit	<u>17.5</u>		
1970	IDB (Vatican)	INCORA	Rural Development	<u>1.0</u>	1.0	
	I D B *	Camino Vecinales	Penetration Roads	17.0		
	I D B *	ICA	Animal Health and Extension	20.6		
	I B R D *	INCORA	Colonization	8.1		
	Suppliers*	Caja Agraria	Farm Machinery	5.0		

*Loans requested or under consideration.

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OTHER DONORS GRANT ASSISTANCE 1/
(Thousands of Dollars)

Great Britain (1915-71)	701.5
France (1966-71)	1,012.9
West Germany (1962-71)	2,420.0
USDA (1961-67)	652.0
UN (1966-71)	15,219.3
Ford Foundation	9,271.4
Rockefeller Foundation (1960-71)	260.0
Kellog Foundation (1966-71)	792.4
OAS	<u>2/</u>

1/ Incomplete List.

2/ Information available does not permit estimate of monetary value.

NUMBER OF IDEMA FACILITIES AND STORAGE CAPACITY 1964 AND 1969 WITH
 PROJECTIONS TO 1973

	<u>1964</u> ^{/a}	<u>1969</u> ^{/b}	<u>Projected 1973</u> ^{/b}
No. of facilities	27	45	69
Capacity (metric tons)			
Bag storage	93,003	159,806	159,823
Silos	<u>30,586</u>	<u>63,278</u>	<u>178,278</u>
Total	123,589	223,084	338,101

^{/a} Weitz-Hettelsater Engineers, "Marketing and Storage Facilities for Grain and Storage Crops - Colombia", 1965 p. 125.

^{/b} IDEMA, "Producción, Mercadeo, Precios, Almacenamiento, Tratamiento y Comercio Exterior de Productos Agropecuarios, 1959-1969", 1970.

PRESENT AND PROPOSED GRAIN STORAGE CAPACITY OF IDEMA
 AND THE PRIVATE SECTOR

In Colombia, 1970
 (In Metric Tons)

<u>Zone</u>	<u>IDEMA</u>		<u>Expected, 1973</u>		
	<u>Present</u>	<u>Planned Increase</u>	<u>IDEMA</u>	<u>Private Sector</u>	<u>Total Colombia</u>
Atlantic	91,411	20,000	111,411	232,100	343,511
East Central	97,289	46,000	143,289	462,600	605,889
West Central	75,051	30,000	105,051	56,000	161,051
South Western	75,585	29,000	104,585	251,200	355,785
TOTAL	<u>339,336</u> =====	<u>125,000</u> =====	<u>464,336</u> =====	<u>1,001,900</u> =====	<u>1,466,236</u> =====

Source: IDEMA - Planning Division

IDEMA SUPPORT PRICES, MARKET PRICES AND VOLUME OF IDEMA PURCHASES IN DOMESTIC MARKET, 1968, 1969 and 1970

(current peso prices per metric ton)

Commodity and years	IDEMA Support Price /a	Average Wholesale Price /a	Lowest Monthly Average Wholesale Price /a	Total National Production (DANE) Thous.Tons	IDEMA Purchases /b Thous.Tons	IDEMA Purchases as of Total Production
Rice-Type I-A						
1968	2050	2040	1850	786	70	8.9
1969	2000	1790	1620	680	145	21.3
1970	2250	1920	1780	727	61	8.4
Corn (White)						
1968	1220	1530	1390	1040	55	5.3
1969	1300	1520	1420	940	68	7.2
1970	1300	1740	1630	931	19	2.0
Beans (Type II)						
1968	6800	5380	4430	55	7.2	13.1
1969	4500	4990	4460	48	6.4	13.3
1970	4500	5230	4720	47	0.5	1.1
Wheat						
1968	2100	2140	2090	105	18	17.1
1969	2100	2090	1800	80	32	40.0
1970	2100	2110	2080	69	23	33.3
Potatoes						
1968	/c	1120	780	1020	7.4	0.7
1969		1670	890	1000	2.3	0.2
1970		1510	1050	1117	6.0	0.5

/a IDEMA, "Producción, Mercadeo, Precios, Almacenamiento, Tratamiento, y Comercio Exterior de Productos Agropecuarios, 1959-1969".

/b IDEMA, Office of Planning

/c Potatoe prices are not announced in advance.

UNCLASSIFIED

UNCLASSIFIED
ANNEX I
Exhibit 12, Page 1 of 1

EXPORT EARNINGS, Colombia, 1968-70

	<u>1968</u>	<u>1969</u>	<u>1970</u>
	(000 Dollars)		
A. Nontraditional Exports			
<u>Agricultural, Fishery and Forestry Products</u>			
Bananas	15571	18559	17704
Cotton, raw	33695	36413	38646
Textile coniections	16043	15132	21820
Sugar	22035	17495	21837
Tobacco	7072	9145	8799
Lumber	5647	7204	6341
Cattle & Beef	4471	10970	29273
Other Animals	4388	6524	1157
Hides and Leather	6276	8658	7010
Seafood	<u>2295</u>	<u>4560</u>	<u>4989</u>
Subtotal	117493	134660	157576
<u>Manufactured and Other Products</u>	60941	72537	79435
<u>Total Minor Exports</u>	178434	207197	237011
B. Traditional Exports			
Coffee	314144	332853	387471 ^{1/}
Petroleum	<u>- 36334</u>	<u>56671</u>	<u>55439^{1/}</u>
Subtotal	350488	389524	442910
C. Total Export Reintegros	528922	596721	679921

1/ Preliminary

Source: Banco de la Republica (BOR)

COLOMBIAN EXPORTS AND IMPORTS, ALL AGRICULTURAL, COFFEE, AND NON-COFFEE - AGRICULTURAL EXPORTS COMPARED WITH AGRICULTURAL IMPORTS - 1961-69 AND ESTIMATE FOR 1970
(Millions of Dollars)

Year	All Registered Exports	All Registered Imports	Agricultural Exports 1/	Ag. Exp. as percent of Total	Coffee Exports	Non-Coffee Ag. Exports	Agricultural Imports 2/	Imports of Technical Farm Inputs 3/	Agricultural Balance of Trade	Total Balance of Trade
1961	434.5	557.1	342.8	78.9	307.8	35.0	51.6	63.4	227.8	- 122.6
1962	463.4	540.4	373.5	80.6	332.0	41.5	60.3	64.7	248.5	- 77.0
1963	446.7	506.0	341.3	76.4	303.0	38.3	47.2	48.8	245.3	- 59.3
1964	548.1	586.3	428.6	78.2	394.2	34.4	62.0	37.8	328.8	- 38.2
1965	539.1	453.5	404.9	75.1	343.9	61.0	52.8	47.5	304.6	85.6
1966	507.5	674.1	380.6	75.0	328.2	52.4	83.4	76.6	220.6	- 166.6
1967	509.9	496.9	390.1	76.5	322.4	67.7	42.3	49.6	298.2	13.0
1968	558.3	643.3	447.5	80.2	351.4	96.1	53.0	72.6	319.9	- 85.0
1969	607.5	685.3	451.7	74.4	343.9	107.8	64.0	87.0	300.7	- 77.8
1970 4/	693.9	875.0	593.9	85.6	466.4	127.5	81.7	116.4	395.8	- 181.1
1969-70	144.9	142.2	146.0	--	126.6	307.6	130.2	158.8	146.2	- 129.7
1961-62										

- 1/ The classification system used for Agricultural Exports was based upon that used by Henry Hopp, former Agricultural Attaché with the American Embassy in Bogotá. (See Table 5)
- 2/ Major items included in this category are wheat, cigarettes, cocoa, wool, tallow, rubber, barley, seeds, hops, and lentils.
- 3/ The principal items are fertilizers, other agricultural chemical, veterinary medicines, agricultural machinery including tractors, and agricultural product processing equipment. (See Table 11)
- 4/ Mission estimates.

Sources: DANE, Anuarios de Comercio Exterior, 1961-64
DANE, Computer Tabulations of Exports and Imports 1965-69.

UNCLASSIFIED

ESTIMATES OF ANNUAL INCREMENT IN DEMAND FOR AGRICULTURAL PRODUCTS - COLOMBIA

	E _T	Production-Consumption, 1969			Rate of Growth - Annual		
		Consumption Domestic	- Import + Export	Production Domestic	Consumption Domestic	- Import + Export	Production Domestic
		1000 MT	1000 MT	1000 MT	----- per cent -----		
Potato	.2	900	-	900	+ 3.7	-	+ 3.7
Platano	.1	1,650	-	1,650	+ 3.5	-	+ 3.5
Yuca	.2	950	-	950	+ 3.7	-	+ 3.7
Arracacha	-0-	130	-	130	+ 3.2	-	+ 3.2
Mane and other roots	-0-	301	-	301	+ 3.2	-	+ 3.2
Sub-Total		3,931	-	3,931	+ 3.6	-	+ 3.6
Rice (Paddy)	.3	683	+ 31	714	+ 4.0	+ 10.0	+ 4.3
Wheat	.3	300	- 40 $\frac{1}{2}$	75	+ 4.0	- 9.0 $\frac{2}{2}$	10.0
Barley	.3	119	- 43	76	+ 4.0	+ 25.0 $\frac{3}{3}$	26.7
Milo	-0-	10	-	10	+ 3.0	-	+ 3.0
Beans	.3	40	-	40	+ 4.0	-	+ 4.0
Sub-Total		1,152	- 268	915	+ 3.9	-	+ 5.0
Corn - human	-0.1	680	+ 31	850	+ 3.0	-	+ 7.4
Other		170	-	100	+ 25.0	-	+ 25.0
Sorghum		100	-	100	+ 25.0	-	+ 29.2
Soybeans		100	+ 20	120	+ 20.0	+ 50.0	+ 20.0
Sesame		60	-	60	+ 3.2	-	+ 3.2
Copra		2	-	2	+ 10.0	+ 20.0	+ 11.9
Cotton Seed		174	+ 40	214	+ 11.1	+ 36.7	+ 11.9
Sub-Total		1,286	+ 60	1,346			

	E I	Consumption	- Import	Production	Consumption	- Import	Production
		Domestic	+ Export	Domestic	Domestic	+ Export	Domestic
		1000 MT	1000 MT	1000 MT	----- per cent -----		
Cotton fiber		65	+ 60	125	+ 4.0	+ 20.0	+ 11.7
Wool		1	-	1	+ 10.0	-	+ 10.0
Figue		35	-	35	+ 10.0	-	+ 10.0
Rubber		1	-	1	+ 15.0	-	+ 15.0
Tobacco		32	+ 13	45	+ 3.2	+ 5.0	+ 3.7
Sub-Total		134	+ 73	207	+ 5.5	+ 17.3	+ 9.7
Coffee	-0-	88	+ 392	480	+ 3.2	+ 2.0	+ 2.2
Cacao	.8	19		19	+ 5.2	-	+ 5.2
Sugar - Refined	.2	524	+ 185	709	+ 3.7	+ 10.0	+ 5.3
Sugar - Panela	.1	720		720	+ 3.5		+ 3.5
Sub-Total		1,263	+ 185	1,448	+ 3.6	+ 10.0	+ 4.4
Bahano	.4	440	+ 340	780	+ 4.2	+ 5.0	+ 4.5
Fruit - various	1.0	600	-	600	+ 5.7		+ 5.7
Sub-Total		1,040	340	1,380	+ 5.1	+ 5.0	+ 5.0
Garlic and Onion		40		40			
Peas		29		29			
Tomatoes		50		50			
Coco-nut - green		10		10			
Vegetables - various	.5	29		29			
Sub-Total		158		158	+ 4.5	-	+ 4.5
Meat ^{4/}							
Beef	.7	700	+ 78	778	+ 5.0	+ 20.0	+ 6.5
" Pork	.8	110		110	+ 5.2		+ 5.2
" Mutton-Goat	.5	23		23	+ 4.5		+ 4.5
" Poultry	1.0	74		74	+ 5.7		+ 5.7
Sub-Total		907	+ 78	985	+ 5.1	+ 20.0	+ 6.2
Milk	1.0	1,500		1,500	+ 5.7		+ 5.7
Eggs	.6	101		101	+ 4.7		+ 4.7
Sub-Total		1,601		1,601	+ 5.6		+ 5.6
TOTAL		11,560	891 ^{5/}	12,451	+ 4.8		+ 5.4

- 1/ From carryover, adjustment, replaced by imports in 1970
- 2/ Represents annual increment (increase) in wheat imports
- 3/ Represents annual decrease in barley imports
- 4/ Live weight.

5/ Net export including coffee

Source: 1969 Production data from the Ministry of Agriculture.

Note:

Estimates are based on production, domestic consumption and imports-exports for 1969. Rate of growth expressed as a percent of appropriate 1969 base figure. For example demand for domestic consumption of rice is estimated to increase at a rate of 4% of 1969 consumption; rice exports demand is estimated to increase annually at 10% of 1969 rice exports; the resulting increment in production of rice is shown at 4.3% of the 1969 production.

Domestic human consumption estimates are based on an assumed 3.2% annual increment in population, 2.5% annual increment in real per capita income, and indicated income elasticity of demand.

Estimates of export demand increments are based on subjective evaluation of export potential and production capability. Similarly estimates of demand increments for industrial use (fibers, rubber, livestock feed) are based on subjective evaluation of market potential and domestic production capability. Generally it is assumed that production can and will approximate the demand: i.e. that the demand estimates are feasible.

INCORA CREDIT PROGRAM EVALUATION

SUMMARY

The Mission has completed its evaluation of INCORA's supervised credit program, using sample data selected by INCORA and the IBRD. The first part of this Annex contains our conclusions resulting from the evaluation, and the last section describes the sample and analytic procedures used in arriving at these conclusions.

The borrower universe for which the 542 borrower sample is representative consists of 23,300 families who had a total of 76,500 farm plans. The 23,300 families comprising the universe studied closely approximate the rate of expansion of credit program coverage through the period 1964-1969. The percentage of borrowers eliminated from the sample closely approximates the percentage of borrowers who actually left the program. (All peso amounts in summary are deflated.)

The substantive conclusions of the study are:

1. The credit provided with supervision has a strong positive effect upon employment generation. The average farm plan financed by 8,500 pesos (i.e. in constant peso terms = \$ 835 U.S.) generates .407 man years of off-farm and .258 man years of on-farm employment. By implication credit effects reduce or eliminate underemployment on the farm. In aggregate terms, the borrower universe generated 26,400 man years of off-farm and 15,500 man years of on-farm employment or a total of 41,900 man years through lending a total of 638 million pesos, of which 205 million pesos were recovered in loan repayments, leaving a net credit outstanding of 433 million pesos. From the aggregate calculations just over 10,000 pesos of credit outstanding generate a man-year of employment, which is 1,000 pesos greater than the minimum rural wage, but 2,000 pesos below the average urban labor rate.
2. The gross value of product sold increases substantially as a result of credit. The average increase per plan is 8,700 pesos. In terms of aggregates, the increment of product value amounted to 664.9 million pesos over the pre-credit base of 817.7 million pesos. The production increase is generated by the same credit quantities as noted above. The increment of production is 1.5 times the net credit outstanding which certainly indicates a counterinflationary pressure.
3. Income distribution is favorably altered through credit effects upon employment external to the farm and by substantial increases in income, wealth and level of living of the farmer borrowers. The average increase in farm and family cash from operations is 2,200 pesos per plan, which converts almost entirely to debt reduction which increases net worth.

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ANNEX I

EXHIBIT 16, Page 2 of 23

The family level of living increases by 2,450 pesos per plan.

4. Measures of farmer progress are highly favorable. Those measures are developed to show average rates of progress in the sequence of plans in composite form (See tables 6, 6a, and 6b). The results are shown graphically on Chart 1.

Farm and family resources generated rise from a pre-credit level of 11,418 pesos to 35,178 pesos through successive plans. The family living level rises from 3,984 pesos to 7,797 pesos, expenditures for labor rise from 1,996 pesos to 6,428 pesos and inputs purchased rise from 3,876 pesos to 13,357 pesos. Farm and family cash residual rises from 1,562 pesos to 7,596 pesos, over a four-fold increase.

5. The foregoing shows a transformation from a nearly subsistence level of operations to an increasing involvement in commercial operations and gives some insights into the behavioral pattern of borrowers. The modest increase in the family living level indicates a rather strong propensity to save and/or to capitalize. The increasing use of labor and inputs, encouraged by credit supervision and farm management advice, certainly creates the opportunity for the steadily increasing rate of cash return. That return is, for the most part, converted into increasing net worth via debt retirement and capitalization. The tendency is toward increasing commercialization coupled with indications of a propensity to save and capitalize. These are essential attributes to carry the borrowers through the transition from subsidized credit support to self sufficiency via internal savings.

6. Relationships between credit extended, production and cash income generation and repayment capacity show favorable possibilities. Table 7, 7a and 7b provide a schematic presentation of those relationships which are shown graphically in Chart 2. In terms of credit received, incremental amounts decline steadily while the outstanding debt rises and then declines as cash availability from operations increases. It is notable that the farmer cash availability at the end of the 1968-69 period is 110,000,000 pesos an amount equal to 25% of the net debt outstanding. To the extent that the borrowers continue to move along with the established tendencies they will have achieved the goals of the program.

7. There are two negative factors that arise as a result of this evaluation. First, the credit is clearly a subsidy with the time costs of money borne by the GOC through INCORA. The costs of acquiring the funds and administering or supervising them are high, particularly when inflation erosion is considered. The time cost to the borrower in real terms is negative. Secondly, the length of the recovery period ties up the portfolio for long periods of time. The credit works well with the borrowers but imposes a heavy burden of time costs and the relatively slow rate of portfolio recovery denies other farmers the opportunity to follow the equivalent development path. During the next year INCORA plans refinements in program operations which add to credit efficiency without deterring borrower progress while expanding program coverage.

UNCLASSIFIED

DEFLATED PESOS (1)

CHART 1 - PROJECTION OF BORROWER PROGRESS THROUGH SUCCESSIVE PLANS
(Data from Tables 6, 6(a), and 6(b) in Annex)

UNCLASSIFIED
ANNEX 1
EXHIBIT 16
Page 3 of 23

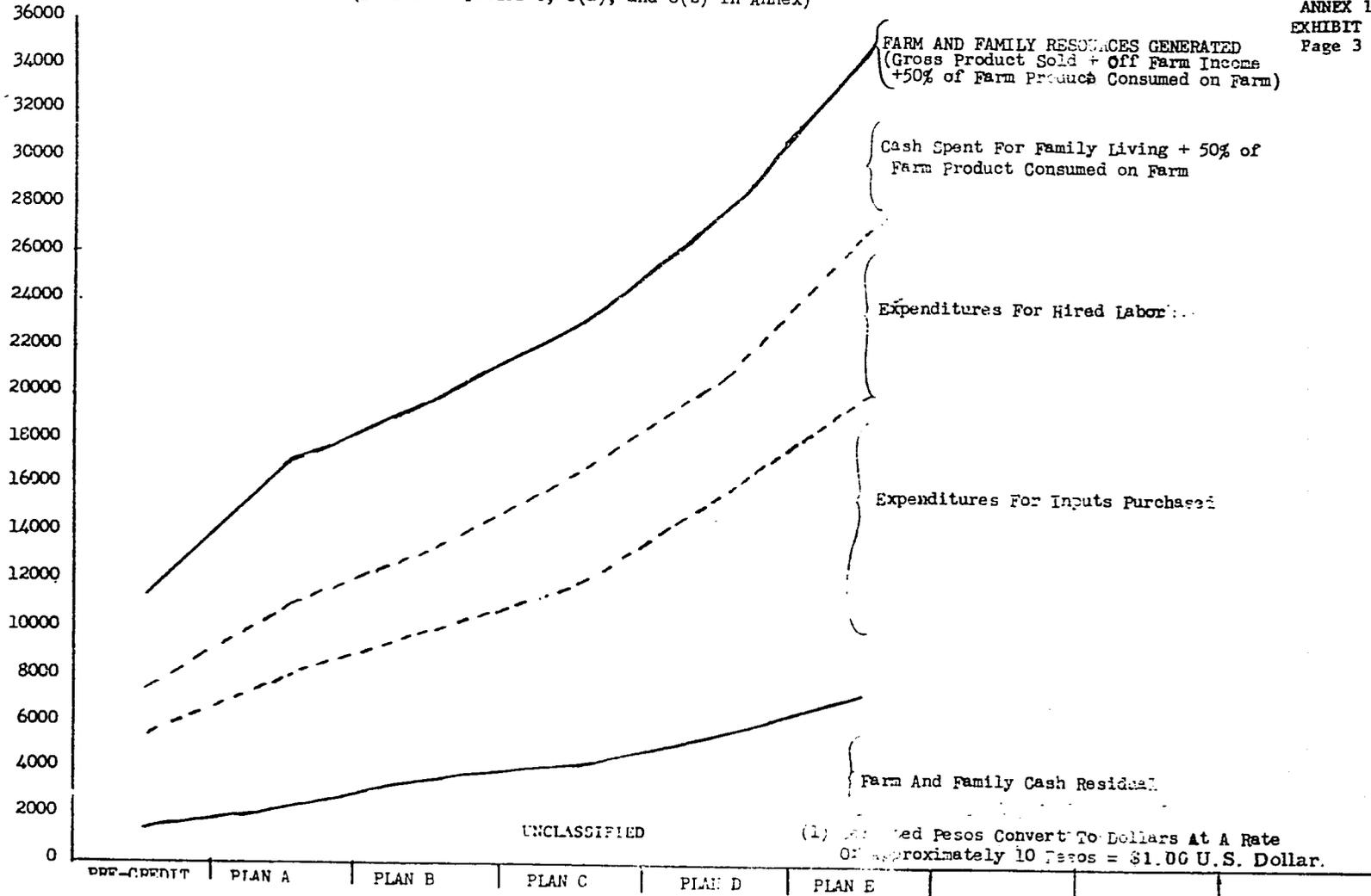
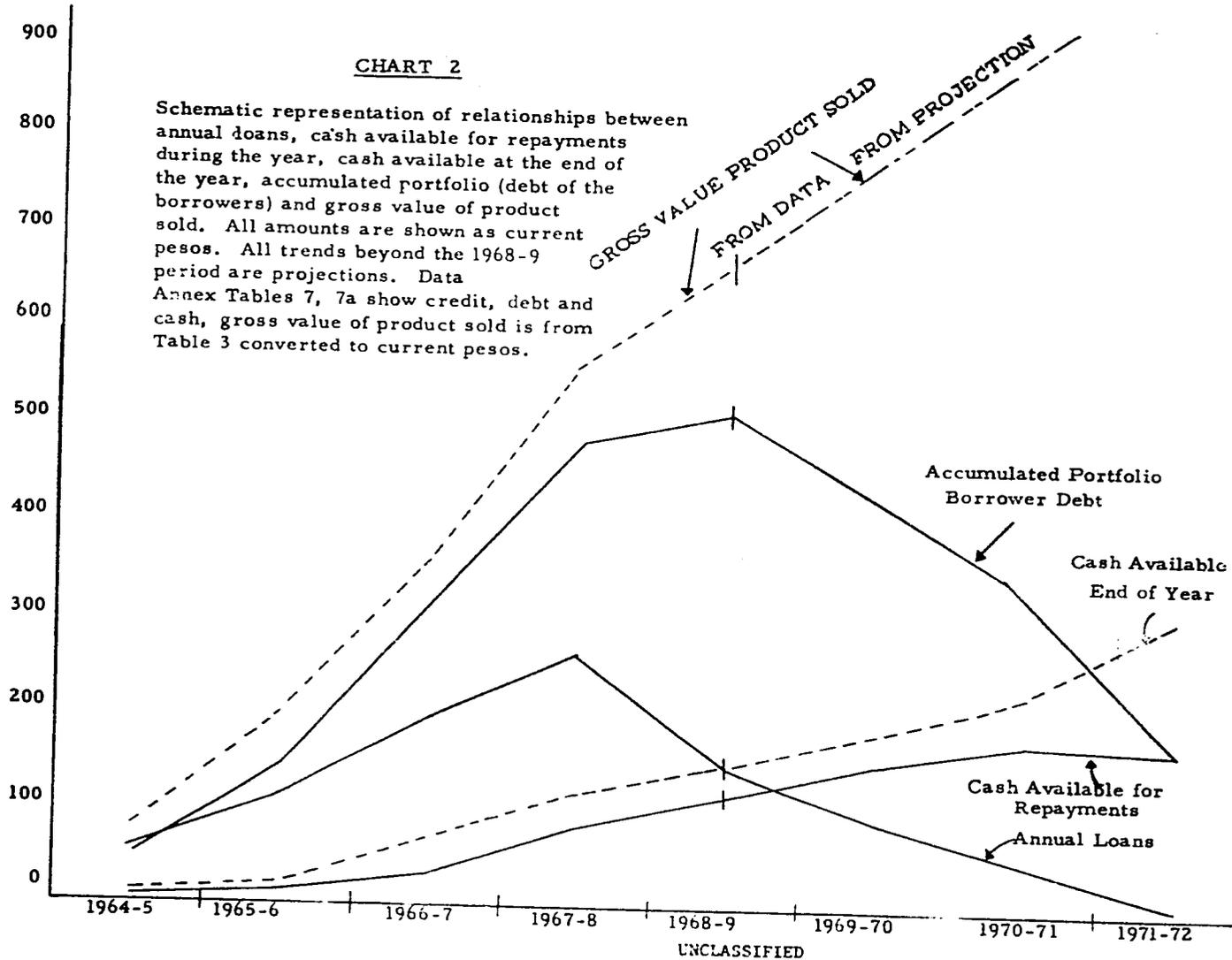


CHART 2

Schematic representation of relationships between annual loans, cash available for repayments during the year, cash available at the end of the year, accumulated portfolio (debt of the borrowers) and gross value of product sold. All amounts are shown as current pesos. All trends beyond the 1968-9 period are projections. Data Annex Tables 7, 7a show credit, debt and cash, gross value of product sold is from Table 3 converted to current pesos.



Sample Data and Analytic Procedures

1. Sample of Borrowers

In 1967 INCORA and IBRD drew a random sample of borrowers (1,300) from 26 projects who had farm plans in effect at the time of sampling. Lists of selected borrowers were sent to INCORA project directors requesting information on the farmer's situation in the year prior to entry into the program and his situation as a result of credit as of the end of his last completed farm plan. INCORA retained the data provided, and IBRD in report No. TO-611, dated October 1967, page 33, cited the following comparison made from a portion of the data:

"Quite remarkable were the results which the program achieved in raising gross output and net income of participating farms. A random sample of 20 percent of the farms participating in four projects which have been in operation for more than two years showed the following results:

	<u>Credit</u> <u>Received</u>	<u>Gross</u> <u>Income</u>	<u>Net</u> <u>Income</u>
	-----pesos per farm-----		
Before entering program	3,600	9,400	1,500
After 1 year participation	13,510	18,210	4,110
After 2 years participation	9,320	22,180	6,210

"These figures show that with intensive credit assistance, gross income of farms almost doubled in the first year and net income (after debt service) nearly tripled. In the following year credit assistance could be reduced while gross and net income continue to grow. This indicates that the program is serving its intended purposes and that a further extension of the program is justified".

Those are the only known analyses of the data as of 1967.

In 1969 INCORA and USAID reviewed the sample group data and sent a field team of 8 projects to fill in all data gaps in the historical sequences of farm plans of the selected borrowers. The projects (Boyaca and Cundinamarca; Caqueta and Meta; Tolima and Valle; and Cordoba and Santander) are generally representative of borrowers in the Andean region, the colonizing Llanos, the inland river valleys and the Northern region. Table 1 shows the sample characteristics:

TABLE 1
SAMPLE CHARACTERISTICS

I	-	Total original sample (1967) 26 projects	1300
II	-	Total historical sample (1969) 8 projects	659
III	-	Total historical sample data used	542 (82%)
		Borrowers with 2, 3, 4 or 5 plans completed	
		(i) Borrowers with 5 plans	31
		(ii) Borrowers with 4 plans	93
		(iii) Borrowers with 3 plans	185
		(iv) Borrowers with 2 plans	<u>233</u>
IV	-	Discrimination of Borrowers Eliminated from analysis	117 (18%); % of Total
		(a) Deficiency of data	36 6%
		(b) Retired voluntarily	40 6%
		(c) Borrower default	39 6%

Sample data were tabulated from borrowers records in the field offices and copied on individual sheets which were returned to Bogota. A total of 117 were screened out because they (a) had only one initiated or completed farm plan (32), (b) had voluntarily retired from the program prior to 1969 (40), (c) had abandoned the farm or were delinquent in loan repayments (39) and (d) had died or divided original property among heirs (6)(these were included in the deficient data category of Table 1.)

2. Definitions of Concepts for Evaluating

a. The farm plan consists of 5 parts; a request for credit, a determination of the appropriate amount and uses of the credit, a schedule of disbursement of credit, a schedule of repayments and a formal accounting of the results of credit use "realizations" done at the completion of the plan. Usually "completion of the plan" is the date at which the next plan is requested or, in the absence of a request, within 2-3 months after final disbursement of plan credit. Plan terms vary from a minimum of 6 months to up to 2 years, but average about 1.3 years in duration. In some instances a farmer may have 2 plans in effect at a given date, in other instances consecutive plans may be 6-8 months apart. Realizations of the plan are jointly determined by the farmer and the credit supervisor and are considered to be reasonably accurate data. Only very sketchy data are available for describing the farmers situation prior to entry in the program. In the evaluation, progress resulting from credit is measured from an estimate of the farmer situation in the period prior to his entry in the program and also from the actual results achieved during his first plan as compared to subsequent plans.

b. Deflation of monetary data presented a problem because of the variable terms of the farm plans and of the fact that farm plans are initiated and completed throughout the year. There are several indices prepared by GOC agencies which were considered for use in deflating monetary data into constant pesos. None were considered as being better than the average rate of inflation which is about 8% per year. The actual deflators used were 1964-1965 = 100% of pesos amounts, 1965-66 = 92%, 1966-67 = 85%, 1967-68 = 78%, 1968-69 = 72% and in the case of the estimates for the operational period prior to farmer entry in the program 1963-64 = 108%. Those deflators were used through the analyses except

in Tables 7 and 7a where credit relative to repayments were compared. In that comparison credit data and repayment data are shown in current pesos.

c. The historical data used and not used, Chart 3 a, b, c, gives a fair approximation of the quantity and categories of data available from the records of the 542 borrowers. It was decided at an early stage that manual analysis of a limited scope would proceed and that a complete electronic data processing (EDP) analysis would be necessary to handle the mass of data and to develop a comprehensive evaluation. To date no EDP results are available.

The manual analyses have produced some relevant conclusions with respect to the following: (a) measuring average rates of borrower progress by time in program and as extrapolated from the sample to the borrower universe, (b) estimates of the macro effects of credit on all program borrowers upon employment generation, income distribution and inflation, (c) estimate of credit costs relative to production effects and repayment capabilities and, (d) some insights regarding behavior of small farmer borrowers as he progresses as a consequence of the credit program.

The data used by plan period for the manual analyses include accounts showing the value of farm produce sold (minus) cost of labor hired (minus) the cost of inputs purchased (plus) income not apart of farming operations (minus) cash cost of family living, leaving a residual of cash available from farm and family operations. One account, farm produce consumed on farm, is tabulated separately but is considered as 50% counted in gross value of product sold and 50% as non-cash increment to cash costs of family living. Two other accounts, net worth and farm unit size, are accounted separately.

Data available in the sample but not included in the manual analyses are size of farm family, asset and liability accounts, value of family farm labor, all credit data (amounts, uses, terms, repayments, etc.) cropping patterns, or livestock vs. crop enterprises. In other words the evaluation from sample data is in a strictly accounting format as simplified as possible. Credit data as relevant averages, when used, were derived from central office files.

3. The Evaluation Process

Stage 1 Classification and Preliminary Aggregation.

Field data arriving from project areas was first screened to remove eliminated borrowers. The useable sample was sorted by number of completed plans of the borrowers. Each different strata of completed plans was tabulated in the sequence described for data used. For example Tolima #3 had 5 borrowers with 5 plans, 9 borrowers with 4 plans, 13 borrowers with 3 plans and 17 borrowers with 2 plans. Each account (e. g. gross value product sold) was summed separately by strata and each sum then deflated by the percentage appropriate for each plan type. For each strata the accounting elements were then divided through by the number of borrowers in each strata to provide per farm averages. The field data, individual project data summaries and evaluation done to this point are on file in the Mission and INCORA and are not included in this annex.

Stage 2 - Aggregation of Sample Accounts.

This stage aggregated each account total from all 8 projects by plans completed strata as shown in Table 2.

Stage 3 - Projection of Sample Aggregates to Borrower Universe.

Since the sample aggregates are representative of the borrower (credit program) universe, this third stage of aggregation expands the sample aggregates to the universe aggregates with stratification maintained. The results are shown in Table 3. An expansion factor was determined for each strata by dividing the number of borrowers in the sample by the number of borrowers in the program (the number of borrowers in the program for each successive time period is a close approximation of the rate of expansion of the credit program coverage.) Thus for the 5 plans, strata 31 sample items are .0075% of the 4200 borrowers coming into the program during 1964 and part of 1965.

Stage 4 - Establishing Bases from which Progress Can be Measured.

One obvious base against which progress could be measured would use plan A (i. e. first completed plan) results as the base. Its advantage is that it is determined directly from sample data. It has two distinct disadvantages. First, the sample has data from 1548 plans of which 1,006 are not plan A's. In other words, the credit effects of about one-third of the plans would be built into the base against which progress of two thirds of the plans would be measured. Second, between one-third and one-half of borrowers coming into the program had been farm workers or colonos totally without farm operations accounts. In addition, as cited earlier in this annex, the IBRD reported a doubling of gross income in the first year of credit, i. e., precredit performance 50% of Plan A. Moreover, all plans subsequent to Plan A show positive progress so it could hardly be assumed that Plan A results were negative. Thus some base lower than Plan A results is more realistic so as not to understate the rate of progress from subsequent plans by having an unduly augmented base level.

In view of the foregoing a base of Plan A-1 was estimated as 62% of Plan A accounts deflated (multiplied by) 108% or 67% of the Plan A level. It is recognized that this is somewhat arbitrary as to the amount and also as applied to the different account components. In the absence of better or more complete data, this base A-1 is considered as the best approximation of the pre-credit situation. Table 4 shows the comparison of compound rates of change in accounts by strata and in total for the program universe.

Stage 5 - Coefficients of Employment Generation

Table 5 follows through the estimation of increment to all accounts relative to the base Plan A-1 level and in lines 17 and 18 shows the aggregate increment per plan by account and the employment generation generated by account per plan.

Stage 6 - Measures of Borrower Progress Per Plan

At this stage the aggregated data from Plan A-1 and on for

successive plans are rearranged to illustrate progress per plan. That rearrangement is shown in Table 6, summarized as Table 6a, and further consolidated in Table 6b. Those rearrangements, summarization and consolidation are the basis for Chart 1 in the Summary statement of this Annex.

Stage 7 - Tables 7, 7a, and 7b, show respectively, the adjustments of calendar years with plan terms and relates central office credit and number of families data as adjusted to plan terms. Table 7a is a schematic approximation of lending, repayments, portfolio change and borrower cash availability as applicable to the study data and projected. Table 7b is a conversion of the loan value, repayments, portfolio and available cash into constant pesos.

CHART 3 a

INCORA Division of Credits		ECONOMIC STATUS OF BORROWERS IN SUPERVISED CREDIT PROGRAM SAMPLE						
Date	Project	Code	None	Code				
Borrower Name:							Code	
Farm Cropping	Principal							
	Secondary							
C O N C E P T S		Year Prior to entry	A	B	C	D	E	F
1) Number of Persons	Active	Over 16 Years						
		Under 16 Yrs.						
	In- active	Over 16 Years						
		Under 16 Yrs.						
2) Labor	Without food							
	With food							
3) Farm Size and Ten- nancy	a) Owned							
	b) Rented							
	c) Parcelization							
	d) Cplonization							
	TOTAL							
	e) In pasture							
	f) Economically Exploited							
	g) Non Cultivat ble							
4) Assets	a) Real Estate							
	b) Animals							
	c) Machinery							
	d) Crops harvested but not sold							
	e) Crops growing							
	f) Shares in cooperatives							
	g) Other Assets							
	h) Number of cattle							

CHART 3 b

CONCEPTS		Year Prior to entry	FARM PLANS						
			A	B	C	D	E	F	
5) Liabilities	a) Mortgage Debt								
	b) Collateral Loans								
	c) Taxes								
	d) Other Debt								
	e) Family Debts								
6) Total Assets	a) Begin. of Year								
	b) End of Year								
7) Total Liabilities	a) Begin. of Year								
	b) End of Year								
8) Net Worth	a) Begin. of Year								
	b) End of Year								
9) Production	a) Total value of Production								
	b) Value of Farm Consumed Product.								
	c) Value of Prod. Sold								
10) Costs of Operations	a) Labor	Hired							
		Family							
	b) Inputs in other costs								
	c) Interests								
TOTAL									

TABLE 2

**AGGREGATES OF SAMPLE DATA STRATIFIED BY PLAN YEARS
OF BORROWERS IN PROGRAM ALL MONETARY DATA DEFLATED
(000 PESOS)**

**UNCLASSIFIED
ANNEX I
EXHIBIT 16 page 15 of 23**

SAMPLE		ACCOUNT DATA PER PLAN TERM								Accumulated Data ^{1/}	
Year	Number of Borrowers	Completed Plan	Gross Product Sold	Labor Hired	Inputs Purchased	Off-Farm Income	Family Living Costs	Cash Residual	Farm Produce Consumed	Net Worth	Hectares Farmed
1964-5	31	A	591	121	247	23	157	89	60	1246	774
1965-6	31	B	679	122	297	17	165	112	74	(130)	(21)
1966-7	31	C	759	187	281	39	169	161	73	(114)	(60)
1967-8	31	D	881	199	328	35	198	191	85	(267)	(-39)
1968-9	31	E	905	199	414	42	208	126	67	(-158)	(130)
TOTAL		5 plans	3815	828	1567	156	897	679	359	1599	948
1965-6	93	A	1555	293	695	36	502	101	162	3542	2062
1966-7	93	B	1929	328	764	69	559	347	179	(303)	(36)
1967-8	93	C	2128	378	909	106	573	374	184	(94)	(13)
1968-9	93	D	2239	371	894	71	531	514	207	(174)	(171)
TOTAL		4 plans	7851	1370	3262	282	2165	1336	742	4112	2282
1966-7	185	A	2575	484	959	132	771	493	396	6153	6628
1967-8	185	B	2826	547	961	176	781	713	428	(431)	(176)
1968-9	185	C	3173	568	918	172	820	1039	413	(1407)	(161)
TOTAL		3 plans	8574	1599	2838	480	2372	2245	1237	7091	6985
1967-8	233	A	3131	632	906	283	1253	623	464	8490	9801
1968-9	233	B	3648	870	957	256	1216	861	534	(1090)	(447)
TOTAL		2 plans	6779	1502	1863	539	2469	1484	1098	9580	10248

^{1/} NOTE: For each strata Plan A shows end of plan net worth and hectares farmed, for subsequent plans numbers in parentheses shown increase or decrease relative to Plan A. Base. Line Heading: TOTAL shows end of last plan total.

UNCLASSIFIED

TABLE 3

SAMPLE DATE FROM TABLE 2 PROJECTED TO BORROWER UNIVERSE

ALL MONETARY DATA DEFLATED (000,000 PESOS)

ACCOUNT DATA PER PLAN TERM

Completed Plan	Sample Number of Borrowers	Universe of Borrowers	Factor	Gross Product Sold	Labor Hired	Inputs Purchased	Off Farm Income	Family Living Costs	Cash Residual	Farm Produce Consumed	ACCUMULATED DATA		
											Net Worth	Hectares Farmed	
1964-5	A	31	4,300	.00738	80.1	16.4	33.5	3.1	21.3	12.0	8.1	168.8	104,900
1965-6	B				92.0	16.5	40.2	2.3	22.4	15.2	10.0	(17.6)	(2,800)
1966-7	C				102.8	25.3	38.1	5.3	22.9	21.8	9.9	(15.4)	(8,100)
1967-8	D				119.4	27.0	44.4	4.7	26.8	25.9	11.5	(36.2)	(-5,300)
1968-9	E				122.6	27.0	56.1	5.7	28.2	17.0	9.1	(-21.4)	(17,600)
TOTAL	5				516.9	117.2	212.3	21.1	121.6	91.9	48.6	216.6	128,100
1965-6	A	93	5,400	.01728	90.3	17.0	40.4	2.1	29.2	5.8	9.4	205.7	119,700
1966-7	B				112.0	19.0	44.4	4.0	32.5	20.1	10.4	(17.6)	(2,100)
1967-8	C				123.6	22.0	52.8	6.2	33.3	21.7	11.3	(5.5)	(800)
1968-9	D				130.0	21.5	51.9	4.1	30.8	29.9	12.0	(10.1)	(9,900)
TOTAL	4				455.9	79.5	189.5	16.4	125.8	77.5	43.1	238.9	132,500
1966-7	A	185	6,500	.02845	90.5	17.0	33.7	4.6	27.1	17.3	13.9	216.2	232,900
1967-8	B				99.3	19.2	33.8	6.2	27.4	25.1	15.0	(15.0)	(6,200)
1968-9	C				111.5	20.0	32.3	6.0	28.8	36.4	14.5	(4.4)	(6,400)
TOTAL	3				301.3	56.2	99.8	16.8	83.3	78.8	43.4	280.7	245,500
1967-8	A	233	7,200	.03236	96.8	19.5	28.0	8.7	38.7	19.3	14.3	262.4	302,900
1968-9	B				112.7	26.9	29.6	7.9	37.6	26.5	16.5	(33.7)	(13,800)
TOTAL	2				209.5	46.4	57.6	16.6	76.3	45.8	30.8	228.7	289,100
TOTAL ALL PLANS					1,483.6	294.3	559.2	70.9	407.0	294.0	165.9	1,032.3	822,800

TABLE 4

**COMPOUND RATES OF CHANGE BY TIME IN PROGRAM STRATA
AND AS AGGREGATED FROM BORROWER UNIVERSE ALL MONETARY AMOUNTS DEFLATED
(000,000 PESOS)**

UNCLASSIFIED
ANNEX I
EXHIBIT 16 Page 17 of 23

ACCOUNT DATA PER PLAN TERM

L I N E	B A S E	ACCOUNT DATA PER PLAN TERM					ACCUMULATED DATA				
		Gross Product Sold	Labor - Hired	Inputs Purchased	+ Off-Farm Income	Cash Family Living - Costs	CASH RESIDUAL	Farms Produce Consumed	NET WORTH	HECTARES FARMED	
5 Plan											
1.	Borrowers Est. Base B	53.4	10.9	22.3	2.1	14.2	5.1	5.4	112.5	69,900	
2.	Borrowers Plan A - Base A	80.1	16.4	33.5	3.1	21.3	12.8	8.1	168.8	104,900	
3.	Final Plan	122.6	27.0	56.1	5.7	35.5	17.0	13.5	216.6	128,100	
4.	Rate Line 1 to Line 3	18.1%	19.9%	20.2%	22.3%	14.7%	16.9%	11.0%	14.0%	12.8	
5.	Rate Line 2 to Line 3	11.3%	13.3%	13.8%	16.4%	7.3%	9.1%	3.0%	6.4%	5.1	
4 Plan											
6.	Borrowers Est. Base B	60.2	11.3	26.9	1.4	19.5	3.9	6.3	137.1	79,800	
7.	Borrowers Plan A - Base A	90.3	17.0	40.4	2.1	29.2	5.8	9.4	205.7	119,700	
8.	Final Plan	130.0	21.5	51.9	4.1	38.8	11.7	15.7	298.9	152,500	
9.	Line 6 to Line 8	21.2%	17.5%	17.8%	30.8%	12.1%	15.0%	17.5%	14.8%	13.5%	
10.	Rate Line 7 to Line 8	12.9%	8.1%	8.8%	25.0%	1.8%	50.0%	8.5%	5.1%	3.4%	
3 Plan											
11.	Borrowers Est. Base B	80.3	11.3	22.5	3.1	18.1	11.5	9.3	144.1	155,300	
12.	Borrowers Plan A - Base A	90.5	17.0	33.7	4.6	27.1	17.3	13.9	216.2	232,900	
13.	Final Plan	111.5	20.0	32.3	6.0	28.8	36.4	14.5	280.7	245,500	
14.	Rate Line 11 to Line 13	22.7%	20.9%	12.8%	24.8%	16.8%	46.8%	16.0%	24.9%	16.6%	
15.	Rate Line 12 to Line 13	10.0%	8.4%	Negative	14.2%	3.1%	45.1%	2.1%	13.8%	2.7%	
2 Plan											
16.	Borrowers Est. Base B	64.5	13.0	18.6	5.8	25.8	12.9	9.5	174.9	201,900	
17.	Borrowers Plan A - Base A	96.8	19.5	28.0	8.7	38.7	19.3	14.3	262.4	302,900	
18.	Final Plan	112.7	26.9	29.6	7.9	37.6	26.5	16.5	296.1	316,700	
19.	Rate Line 16 to Line 18	32.2%	43.8%	26.1%	16.7%	20.8%	43.3%	31.9%	30.1%	25.2%	
20.	Rate Line 17 to Line 18	16.4%	37.8%	5.7%	Negative	Negative	37.3%	15.3%	12.8%	4.2%	

UNCLASSIFIED

TABLE 4 (Continued)

<u>ALL PLANS</u>											
21.	Borrowers Est. Base	B	238.4	43.5	90.3	12.4	77.5	36.5	30.5	568.5	506,900
22.	Borrowers Plan A = Base	A	357.7	69.9	135.6	18.5	116.3	54.4	45.7	853.1	760,400
23.	Final Plans		476.8	113.4	169.9	23.7	125.4	109.8	52.1	1,032.3	822,800
24.	Rate Line 21 to Line 23	B	23.9%	46.1%	21.6%	22.1%	16.0%	40.7%	18.4%	20.2%	16.1%
25.	Rate Line 22 to Line 23	A	13.8%	15.0%	10.7%	11.8%	3.5%	37.4%	6.1%	9.0%	3.6%

TABLE 5.
DETAIL ON COMPUTATION OF BASE B WITH ESTIMATE OF FARMER
SITUATION PRIOR TO ENTRY IN PROGRAM EQUAL TO 67% OF PLAN A RESULTS
(000,000 PESOS)

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	Gross Product - Sold	Labor Hired -	Inputs Purchased +	Off Farm Income -	Family Living - Expend.	Cash Residual	Farm Produce Consumed	Net Worth ^{1/}
1. 5 Plan Borrowers Base B	53.4	10.9	22.3	2.1	14.2	8.1	5.4	112.5
2. First Yr. in Prog.	80.1	16.4	33.5	3.1	21.3	12.0	8.1	216.6
3. 4 Plan Borrowers Base B	60.2	11.3	26.9	1.4	19.5	3.9	6.3	137.1
4. First Yr. in Prog.	90.3	17.0	40.4	2.1	29.2	5.8	9.4	238.9
5. 3 Plan Borrowers Base B	50.3	11.3	22.5	3.1	18.1	11.5	9.3	144.1
6. First Yr. in Prog.	90.5	17.0	33.7	4.6	27.1	17.3	13.9	280.7
7. 2 Plan Borrowers	64.5	13.0	18.6	5.8	25.8	12.9	9.5	174.9
8. First Yr. in Prog.	96.8	19.5	28.0	8.7	38.7	19.3	14.3	262.4
ESTIMATE OF BASE B TOTALS ALL BORROWERS								
9. Line 1 x 5 (Plans)	267.0	54.5	111.5	10.5	71.0	40.5	27.0	N.A.
10. Line 3 x 4 (Plans)	240.8	45.2	107.6	5.6	78.0	15.6	25.2	N.A.
11. Line 5 x 3 (Plans)	180.9	33.9	67.5	9.3	54.3	34.5	27.9	N.A.
12. Line 7 x 2 (Plans)	129.0	26.0	37.2	11.6	51.6	25.8	19.0	N.A.
13. TOTAL BASE B	817.7	159.6	323.8	37.0	254.9	116.4	99.1	
DERIVATION OF INCREMENT, TOTAL ALL BORROWERS MINUS BASE B								
14. Total All Borrowers All Plans	1,483.6	294.3	559.2	70.9	407.0	294.0	165.9	1,032.3
15. Minus Total Base B Line 13 above	817.7	159.6	323.8	37.0	254.9	116.4	99.1	568.6
16. Increment	665.9	134.7	235.4	33.9	152.1	177.6	66.8	463.7
DERIVATION OF INCREMENTAL EMPLOYMENT GENERATED PER PLAN (PESOS)								
17. Increment per plan (76,500 plans)	8,700	1,800	3,100	400	2,000	2,200	900	6,100
18. Employment per plan man/years	.242 ^{1/}	.200 ^{2/}	.052 ^{3/}	.022 ^{4/}	.033 ^{2/}			.116 ^{5/} .665m/y

- NOTES: ^{1/} Lines 2, 4, 6 and 8 are net worth last year in program.
^{2/} 36,000 Ps. of product sold at farm price = 1 m/y off farm employment
^{3/} 9,000 Ps. of labor hired = 1 m/y on farm employment
^{4/} 60,000 Ps. spent for retail purchases = 1 m/y off-farm employment
^{5/} 18,000 Ps. received as off farm income = 1 m/y off farm employment
^{6/} 60,000 Ps. spent for capital improvement = .5 m/y off farm and .5 m/y on farm employment

TABLE 6
COMPOSITE ACCOUNTS BY STRATA AGGREGATES AND PER PLAN
TABLES 6a SUMMARIZES AND 6b CONSOLIDATES DATA
(000,000 PESOS)

Number of Plans PLAN	23,300 A - 1	23,300 A	23,300 B	16,100 C	9,600 D	4,200 E
<u>GROSS PRODUCT SOLD</u>						
5 Plan Borrowers	53.4	80.1	92.0	102.8	119.4	137.5 ^{1/}
4	60.2	90.3	112.0	123.6	130.0	-
3	60.3	90.5	99.3	111.5	-	-
2	64.5	96.8	112.7	-	-	-
TOTAL	238.4	357.0	416.0	337.0	249.0	137.5
Per Plan Per Farm (Pesos)	10.232	15.323	17.854	20.988	25.980	32.738
<u>LABOR HIRED</u>						
5	10.9	16.4	16.5	25.3	27.0	27.0
4	11.3	17.0	19.0	22.0	21.5	-
3	11.3	17.0	19.2	20.0	-	-
2	13.0	19.5	26.9	-	-	-
TOTAL	46.5	69.9	81.6	67.3	48.5	27.0
Per Plan Per Farm (Pesos)	1.996	3.000	3.502	4.801	5.052	6.428
<u>INPUTS PURCHASED</u>						
5	22.3	33.5	40.2	38.1	44.4	56.1
4	26.9	40.4	44.4	52.8	51.9	-
3	22.5	33.7	33.8	32.3	-	-
2	18.6	28.0	29.6	-	-	-
TOTAL	90.3	135.6	148.0	123.2	96.3	56.1
Per Plan Per Farm (Pesos)	3.876	5.819	6.352	7.652	10.031	13.357
<u>OFF FARM INCOME</u>						
5	2.1	3.1	2.3	5.3	4.7	5.7
4	1.4	2.1	4.0	6.2	4.1	-
3	3.1	4.6	6.2	6.0	-	-
2	5.8	8.7	7.9	-	-	-
TOTAL	12.4	18.5	20.4	17.5	8.8	5.7
Per Plan Per Farm (Pesos)	532	794	876	1,087	917	1,357

^{1/} Gross product sold plan E is adjusted upward by 12% because 5 of the 5 plan borrowers (16% of the 31 in the sample) had severe crop loss. For the 5 borrowers Plan D results in the terms of gross product sold was carried forward to Plan E.

TABLE 6 CONTINUED

Number of Plans Plans	23,300 A - 1	23,300 A	23,300 B	16,100 C	9,600 D	4,200 E
FAMILY LIVING COSTS						
5 Plan	14.2	21.3	22.4	22.9	26.8	28.2
4 Plan	19.5	29.2	32.5	33.3	30.8	-
3 Plan	18.1	27.1	27.4	28.8	-	-
2 Plan	25.8	38.7	37.6	-	-	-
TOTAL	77.6	116.3	119.9	85.0	57.6	28.2
Per Plan Per Farm	3.330	4.991	5.145	5.280	6.000	6.714
FARM PRODUCE CONSUMED						
5 Plan	5.4	8.1	10.0	9.9	11.5	9.1
4 Plan	6.3	9.4	10.4	11.3	12.0	-
3 Plan	9.3	13.9	15.0	14.5	-	-
2 Plan	9.5	14.3	16.5	-	-	-
Per Plan Per Farm	1.309	1961	2.227	2.217	2.447	2.167
50% to Family Living	654	980	1,113	1,108	1,223	1,083
50% Counted in Gross Prod. Sold	655	981	1,114	1,109	1,224	1,084

TABLE 6a

SUMMARIZATION BY PLAN ACCOUNT AVERAGES (PESOS)						
GROSS PRODUCT SOLD	10,232	15,323	17,854	20,988	25,980	32,738
<u>MINUS</u> LABOR HIRED	1,996	3,000	3,502	4,801	5,052	6,428
<u>MINUS</u> INPUTS PURCHASED	3,876	5,819	6,352	7,652	10,031	13,357
<u>PLUS</u> OFF FARM INCOME	532	794	876	1,087	917	1,357
<u>MINUS</u> CASH COST FAMILY LIVING	3,330	4,991	5,145	5,280	6,000	6,714
<u>EQUALS</u> FARM AND FAMILY CASH RESIDUAL	1,562	2,307	3,731	4,342	5,814	7,596

TABLE 6b

CONSOLIDATION OF ACCOUNT DATA (PESOS)

Number of Plans Plans	23,300 A - 1	23,300 A	23,300 B	16,100 C	9,600 D	4,200 E
GROSS PRODUCT SOLD	10,232	15,323	17,854	20,988	25,980	32,738
PLUS: OFF FARM INCOME	532	794	876	1,087	917	1,357
PLUS: 50% OF FARM PRODUCED FOOD	654	980	1,113	1,108	1,223	1,083
A. EQUALS: Farm and Family Resources	<u>11,418</u>	<u>17,097</u>	<u>19,843</u>	<u>23,183</u>	<u>28,120</u>	<u>35,178</u>
CASH FOR FAMILY LIVING	3,330	4,990	5,145	5,280	6,000	6,714
PLUS: 50% Farm Produced Food	654	980	1,113	1,108	1,223	1,083
B. EQUALS: Family Level of Living	<u>3,984</u>	<u>5,971</u>	<u>6,258</u>	<u>6,388</u>	<u>7,223</u>	<u>7,797</u>
C. LINE A - Line B Residual to Operations	<u>7,434</u>	<u>11,126</u>	<u>13,585</u>	<u>16,795</u>	<u>20,897</u>	<u>27,381</u>
D. LABOR HIRED	1,996	3,000	3,502	4,801	5,052	6,428
E. LINE C MINUS LINE D	<u>5,438</u>	<u>8,126</u>	<u>10,083</u>	<u>11,994</u>	<u>15,845</u>	<u>20,953</u>
F. INPUTS PURCHASED	3,876	5,819	6,352	7,652	10,031	13,357
G. FARM AND FAMILY CASH RESIDUAL	<u>1,562</u>	<u>2,307</u>	<u>3,731</u>	<u>4,342</u>	<u>5,814</u>	<u>7,596</u>

TABLE 7 CURRENT PESOS EXCEPT AS NOTED
 RELATIONSHIPS BETWEEN CREDIT, DEBT, REPAYMENT CAPACITY
 AND FARMER CASH POSITION. BORROWER DATA STRATIFIED

UNCLASSIFIED
 ANNEX I
 EXHIBIT 16 Page 23 of 23

CALENDAR YEARS:	APPLICABLE TO STUDY DATA					STUDY DATA PROJECTED			PROJECTED TOTALS
	1964	1965	1966	1967	1968	1969	1970	1971	
Actual Families Benefitted	2500	7600	11600	17800	26400	34900	45000	-	
Annual Increase of Families	2500	5100	400	6200	8600	7500	10000	-	
Annual Loans Made (000,000 Ps.)	27.5	82.7	146.0	247.2	279.1	345.6	318.5		
As Adjusted to Conform to Farm Plans	1964-5	1965-6	1966-7	1967-8	1968-9	1969-70	1970-1	1971-2	
Number of Families Entering	4200	5400	6500	7200	Total :	23000	In Study Universe		
Value of Loans Made (000,000 Ps.)	55	114	197	263	147	95	50	17	938

TABLE 7A SCHEMATIC APPROXIMATION OF LENDING, REPAYMENTS, PORTFOLIO CHANGE AND FARMER CASH (000,000 Pesos)

(a) 4200 Borrowers at 13,100 Initial Loan	55	37	30	22	5	-	-	-	149
Repayments = Past Year Residual Cash	8	12	17	26	33	24	29	-	149
Portfolio Change	+ 47	+ 25	+ 13	- 4	- 28	- 24	-29	-	-
Cash Residual Current Year	12	17	26	33	24	39	45+10=55	55+53 108	108
(b) 5400 Borrowers at 14,200 Ps. Initial Loan		77	67	55	20	10	-	-	229
Repayments = Past Year Residual Cash		4	6	24	28	42	48	55	207
Portfolio Change		+ 73	+ 61	+ 31	- 8	- 32	- 48	- 55	(22)
Cash Residual Current Year		6	24	28	42	48	55	64	64
(c) 6500 Borrowers at 15,400 Ps. Initial Loan			100	65	50	35	10	-	260
Repayments = Past Year Residual Cash			13	20	32	51	58	67	241
Portfolio Change			+ 87	+ 45	+ 18	- 16	- 48	- 67	(19)
Cash Residual Current Year			20	32	51	58	67	78	78
(d) 7200 Borrowers at 16,800 Ps. Initial Loan				121	72	50	40	17	300
Repayments = Past Year Residual Cash				15	25	37	42	49	168
Portfolio Change					+106	+ 47	+ 13	- 32	(132)
Cash Residual Current Year					25	37	42	49	57
Annual Portfolio Change	47	98	161	178	29	- 59	-127	-154	307 1/
Cumulating Portfolio	47	145	306	484	513	454	321	173	173
CONSTANT PESOS	TABLE 7B CONVERSION TO CONSTANT PESOS (000,000 Pesos)								
Annual Value of Loans	55	105	167	205	106	Sum 638	NOTE 1/ : 307,000,000 is		
Annual Value of Repayments	8	15	31	66	85	Sum 205	Projected Farmer Cash		
Cumulating Portfolio	47	137	273	412	433	Sum 433	Available		
Cash Residual Available for Following Year					111	Sum 111			

UNCLASSIFIED

NUMBER OF IMPROVED VARIETIES DISTRIBUTED TO FARMERS AND THEIR
POTENTIAL YIELD LEVEL IN COMPARISON WITH NATIONAL AVERAGE YIELDS
1969

CROP	Number of varieties distributed	Yield levels		
		National Av. all varieties Kgs.	Improved varieties ^{1/} Kgs.	Percent Incrs. Imprvd. Varts. %
Corn	42	1,089	4,500	313
Wheat	12	1,293	3,500	171
Potatoes	9	10,714	30,000	180
Beans	9	606	2,000	230
Rice (irrigated)	6	3,400	7,000	106
Sugar Cane	6	69,470	250,000	260
Cocoa	6	448	1,200	168
Barley	3	1,561	3,200	105
Soybeans	2	2,068	3,000	45
Peas	2	460	1,800	291
Sorghum	2	2,247	4,000	78
Cotton	<u>2/</u>	1,512	3,000	98
Sesame	<u>2/</u>	697	1,000	44

Source: Instituto Colombiano Agropecuario - ICA

^{1/} Commercial yields with high level technology
^{2/} No information given

PRODUCTION OF IMPROVED SEEDS, 1966 - 1970

CROP	1966	1967	1968	1969	1970
	----- tons -----				
Cotton	5,655	5,422	7,725	8,248	8,900
Rice	9,300	9,892	15,186	15,300	14,244
Sesame	-	70	63	25	400
B ar ley	3,495	3,300	-	-	9,189
Beans	309	548	948	686	533
Corn	2,164	2,062	3,851	4,124	5,391
Peanuts	-	29	28	2	27
Potatoes	-	317	540	1,410	1,536
Sorghum	309	502	280	539	1,563
Soybeans	3,290	3,131	2,588	4,908	5,512
Wheat	3,114	3,845	4,940	4,057	5,403
Cacao*	989	1,345	1,900	2,500	3,081

* Data given in thousands of seeds.

PERCENTAGE OF IMPROVED SEEDS THAT WERE CERTIFIED
 1968 and 1969

C R O P	1968			1969		
	All Imprvd. Seeds (Tons)	Certified Seeds Amount. (Tons)	% Imprvd.	All Imprvd. Seeds (Tons)	Certified Seeds Amount (Tons)	% Imprvd.
Wheat	4,940	4,940	100	4,057	4,057	100
Soybeans	2,588	481	19	4,908	4,908	100
Beans	984	582	59	686	686	100
Potatoes	540	540	100	1,410	900	64
Corn	3,851	3,365	87	4,124	2,926	71
Rice	15,187	138	1	15,300	660	4

UNCLASSIFIED

AVAILABILITY OF IMPROVED SEEDS, PESTICIDES, AGRICULTURAL TRACTORS AND FERTILIZERS IN COLOMBIA

1966 - 1970

	<u>1966</u>	<u>1967</u>	<u>1968</u>	<u>1969</u>	<u>1970</u>
Improved Seeds (m.t.) ^{1/}	N.A.	N.A.	34,292	35,061	45,236
Pesticides, active ingredient (m.t.) ^{1/}	N.A.	11,575	12,809	14,979	16,432
Imported Agricultural Tractors (units) ^{2/}	N.A.	1,764	3,143	3,244	3,070
Fertilizers: ^{2/}					
Nitrogen: imported (m.t.)	9,756	2,886		5,165	26,868
locally produced (m.t.)	34,189	43,039	43,426	45,554	49,205
P ₂ O ₅ : imported (m.t.)	38,157	39,485	43,367	43,770	41,832
locally produced (m.t.)	5,549	7,867	6,496	8,982	8,983
K ₂ O : imported (m.t.)	30,765	28,581	29,914	30,123	39,176

SOURCE:

^{1/} ICA - Agricultural Inputs Control

^{2/} Ministry of Agriculture - OPSA

LOAN AUTHORIZATION
(DRAFT)

Provided from: Alliance for Progress Funds
COLOMBIA: Agriculture Regional Sector Loan

Pursuant to the authority vested in the Administrator, Agency for International Development ("A.I.D."), by the Foreign Assistance Act of 1961, as amended, and the delegations of authority issued thereunder, I hereby authorize the establishment of a loan ("Loan") pursuant to Part I, Chapter 2, Title VI, Alliance for Progress of said Act, to the Government of Colombia ("Borrower") of not to exceed twenty-eight million United States dollars (\$28,000,000) to assist in financing the foreign exchange and local currency costs of goods and services needed to support Borrower's program ("Program") directed toward solving problems of the agriculture sector including, but not limited to, helping maintain agricultural sector growth, increasing employment in agriculture and agro-industry, and increasing the productivity of small farmers. More specifically, and as further described in the Loan Paper, the Loan shall finance activities to be implemented by (a) the Colombian Agrarian Reform Institute ("INCORA") in the amount of approximately fifteen million United States dollars (\$15,000,000); the Colombian Agricultural and Livestock Institute ("ICA") in the amount of approximately eight million United States dollars (\$8,000,000); the Natural Resources Institute ("INDERENA") in the amount of approximately two million United States dollars (\$2,000,000); and the Ministry of Agriculture and other agencies in the amount of approximately three million United States dollars (\$3,000,000). The Loan shall be subject to the following terms and conditions:

- 2 -

1. Interest and Terms of Repayment: Borrower shall repay the Loan to A.I.D. in United States dollars within forty (40) years from the first disbursement under the Loan, including a grace period of not to exceed ten (10) years. Borrower shall pay to A.I.D. in United States dollars, on the disbursed balance of the Loan, interest at the rate of two (2) percent per annum during the grace period, and three (3) percent thereafter.

2. Other Terms and Conditions:

(a) Except for marine insurance, goods and services financed under the Loan shall have their source and origin in Colombia or any countries included in Code 941 of the A.I.D. Geographic Code Book as in effect at the time of placement. Marine insurance financed under the Loan shall be placed in Colombia or any country included in Code 941 of the A.I.D. Geographic Code Book as in effect at the time of placement; provided, that such insurance may be financed under the Loan only if it is obtained on a competitive basis and any claims thereunder are payable in convertible currencies. Ocean shipping financed under the Loan shall be procured in any country included in A.I.D. Geographic Code 941.

(b) United States dollars utilized under the Loan to finance local currency costs shall be made available pursuant to procedures satisfactory to A.I.D.

- 3 -

(c) The Loan shall be subject to such other terms and conditions as A.I.D. may deem advisable.

Administrator

Date

UNCLASSIFIED

-1-

AGRICULTURAL SECTOR OVERVIEW - ANALYSIS AND STRATEGY

I - STRUCTURE AND ROLE OF AGRICULTURE AND NATURAL RESOURCES

A. The Role of Agriculture

Agriculture plays a critical role in the Colombian economy, contributing approximately 30% of the gross domestic product, employing more than half of the country's labor force and providing about 85% of the value of exports, excluding petroleum. The sector is not, however, developing its full potential. Despite an annual rate of growth of approximately 5.4 percent since 1968, agricultural production is barely keeping pace with domestic and export demands. It is crucial to Colombia's overall development goals that the agricultural sector continue to supply the output required to meet internal demands inflated by the needs of a rapidly growing population and, at the same time, provide expanding quantities of exportable surpluses so that the sector can continue its role as a generator of foreign exchange. Colombia is in a unique position to expand non-traditional exports. It is a member of LAFTA and the Andean Group. Its climate and geographic location are extremely favorable for producing and exporting agricultural and agro-industrial products of interest to the U.S., Puerto Rico and Europe. In addition, the sector must increasingly provide certain primary materials for development if the country is to avoid a repetition of the situation in the 1960's when the need to impose import restrictions caused a decline in industrial development, most of which depended heavily on imported raw materials or intermediate products.

The greatest problem facing the agricultural sector (and Colombia) is the approximately 3.3% rate of growth of the population and the resulting increase in the demand for food and fiber and for employment. Official estimates ^{1/} show that approximately 853,000 additional males between 15 and 55 years of age are expected to be added to the labor force between 1970 and 1975. About half of this increase will originate in rural areas and will be potential rural-to-urban migrants. It is recognized, of course, that under no circumstances can the agricultural sector be expected to meet the country's increasing demands over the long run unless demographic programs now underway are successful in reducing the rate of population growth.

1/ Using the median projection - low increase rate from Revista de Planeación y Desarrollo Vol. 1, Dec. 1969 No. 4, Published by the National Planning Department.

UNCLASSIFIED

UNCLASSIFIED

-2-

The high rate of population growth combined with myriad other problems has resulted in a situation where unemployment and underemployment, inequitable land distribution and social inequity, e.g. access to education, are causing growing unrest. Despite considerable progress in general agricultural development and substantial efforts at land distribution in recent years, the pressure continues to mount. The GOC recognizes, as we do, that land distribution and land reform alone cannot remove the causes of rural poverty nor meet the total needs of the increasing rural population. It can and must, however, contribute materially to immediately reducing unemployment pressures and to the eventual solution of the entire employment problem.

Inadequate land utilization at present leaves considerable room for continued increases in production. A portion of the land presently being used extensively (primarily for livestock) could be used for more intensive purposes with little or no improvements. Most of the land presently shown as being in intensive commercial crops could yield relatively easy increases in production through the use of simple improved practices such as fertilizer, better varieties, double cropping, better marketing practices, etc.

Price policies and the marketing system (except for coffee) are geared principally to domestic markets. While such policies yield fast short-run returns, the need to enlarge and diversify the export base dictates the need for a world market outlook. Although there will be a continuing need to utilize as much labor as possible in both the production and marketing systems, Colombia must be on guard against maintaining inefficient agricultural and agro-industrial sectors concerned primarily with protecting local production at relatively high prices for the domestic market. Efficiency for those commodities that offer export potential must be increased sufficiently to compete in world markets.

The government has demonstrated its interest in agriculture by increasing each year over the last five years, in real terms, the total cash investment budget allocated to the sector. Also the total GOC investment budget allocated to agriculture has risen in real terms each year from 1967 to 1971. (See Annex I, Exhibit 1). Although agricultural credit availability dropped in real terms from 1965 to 1966 increasing amounts of credit have been made available to the sector each year since 1966.

Estimates of the National Planning Department indicate that Colombia's annual population growth of 3.3% coupled with a projected annual growth in disposable per capita income of 3.6%, implies an increase in the internal demand for agricultural products of 5.2 percent. When the export potential for agricultural products is added to this, the resultant required minimum rate of growth reaches 5.5 percent. Such a high rate of growth will not be achieved or sustained unless present or higher rates of investment (including private investment) for the agricultural sector can be maintained over time. With the proper assistance, agricultural sector growth could be

UNCLASSIFIED

UNCLASSIFIED

-3-

adequate in the medium term even with high population growth.

Colombia is presently near the "take-off" point in agricultural development. Land and water resources are excellent although better flood control and conservation measures are urgently needed. Forest resources are abundant. The GOC has demonstrated its ability to manage well large financial resources (including heavy lending from international agencies and organizations.) Finally, the reorganization of the public agencies dealing with agriculture, which took place largely in 1969, reduced the number of agencies, consolidated functions in the remaining agencies and eliminated certain unproductive entities in the Ministry of Agriculture. The Ministry, working through the Superior Executive Advisory Committee of Agriculture, has become the central policy body for the sector and is providing much better coordination among the agricultural agencies than has ever existed before.

B. Structural Factors

1. Institution and Structure

a. Major Functions

The Ministry of Agriculture is the GOC agency chiefly responsible for influencing change in the agricultural sector. The Ministry develops agricultural policy, coordinates planning and budgeting of the semi-autonomous agencies in the sector and is increasingly involved in the coordination of agricultural program implementation. The Ministry was reorganized drastically in 1969 (See Organization Chart in Annex I, Exhibit 2 and the Section on Institutional Structure in Annex III, Section II, A, 8).

Coordination of the activities of the various public agencies within the sector is encouraged by a system of interlocking boards of directors of the semi-autonomous public sector agencies. The present Ministry organization and mode of operation and coordination is described in detail in Section b, 1 - Ministry of Agriculture, below.

The budgetary procedures for agricultural sector agencies changed in 1969, concurrently with the reorganization. Those sector agencies that receive funds from the National Government now submit their proposed budgets to the Planning Office of the Ministry (OPSA) for approval. OPSA reviews all project and agency budget proposals, assembles them into an agricultural sector budget proposal and forwards it to the National Department of Planning. Under this system appropriations for the agricultural sector are made only after different proposals and projects are evaluated on the basis of agricultural sector priorities and in the light of alternative

UNCLASSIFIED

UNCLASSIFIED

-4-

opportunities for resource use. This discipline in planning is a new requirement for sector agencies, but agency performance in compliance with this requirement is improving continuously.

b. Major Entities

(1) Ministry of Agriculture

The restructuring of the agricultural sector, specified in Extraordinary Decrees Nos. 2420 and 3120 of 1968, transformed the Ministry of Agriculture into an agency responsible for the development, coordination and implementation of agricultural policy for Colombia.

For this purpose, coordination mechanisms were established at three clearly-defined levels:

- With agencies outside of agriculture to insure the coordination of agricultural policy with overall development policy;
- With agencies within the agricultural sector, and
- With farm groups and producers associations.

a. Coordination with agencies outside of agriculture

A close relationship has been achieved between the Ministry of Agriculture and the Ministry of Finance, the Ministry of Development, the National Planning Office, and the Colombian Institute of Foreign Trade, with regard to functions such as developing recommendations for tax and foreign trade policies for encouraging increased production and improved marketing of agricultural products.

The formulation of agricultural and credit policy is coordinated with the "Junta Monetaria" (The Monetary Board) and agreement also has been reached on the kind and source of specialized technical assistance needed to assure the efficient utilization of credit.

The Minister has responsibility for developing policy for the export of agricultural products, establishing price policy and presenting recommendations for prices of specific commodities to the "National Superintendency of Prices". He has, therefore, the authority to integrate agricultural price, foreign trade, tax and credit policies, and so harmonize the various agricultural programs within the sector as well as promote their consistency with overall national development policy.

UNCLASSIFIED

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-5-

b. Coordination of agencies within the agricultural sector

The restructuring of the agricultural sector simplified the administrative functions of the Ministry, leaving as an integral part of the Ministry only those operational programs related to campesino organization and the preparation of technical regulations on standards, qualities, and sanitary aspects of agricultural products and inputs. (See Organizational Chart in Annex I, Exhibit 2).

Thus, for all practical purposes, the Ministry has been transformed into a planning, policy formulation and coordinating agency for the agricultural sector. Its organization consists of: The Office of the Minister, the Vice-Minister and the Secretary General; two Divisions, "Organización Campesina" and "Regulación Técnica", plus a Legal Office and Planning Office (OPSA). Many activities previously carried out directly by the Ministry of Agriculture were assigned to newly created or existing decentralized agencies, with the Ministry retaining planning, budgeting, supervision and coordination responsibilities. Moreover, the new Decree assigned clearly to each agency its functions and responsibilities. This helps to prevent conflicts or duplication which previously were common in the agricultural sector.

The following systems have been established to assure coordination among the various agencies:

(1) Establishment of an Executive Committee, composed of the Minister, Vice-Minister, Secretary General and the Directors or Managers of the main agencies of the agricultural sector, including the Banco Ganadero, Caja de Credito Agrario, Industrial y Minero; Federación Nacional de Cafeteros; Instituto Colombiano Agropecuario (ICA); Instituto Colombiano de la Reforma Agraria (INCORA); Instituto de Mercadeo Agrícola (IDEMA) and the Instituto de Desarrollo de los Recursos Naturales Renovables (INDERENA). The Head of the National Planning Office also attends the meetings of this Committee with a right to voice and vote. Officials of other administrative and technical agencies and representatives of the agricultural sector can be invited.

This Committee is responsible for the following:

i) Analysis of plans, projects and budgets of each of the agencies in the agricultural sector;

ii) Evaluation of credit, price and marketing policies;

iii) Assessment of action programs proposed by each of the agencies of the sector, and

iv) Review of requests for financing to be submitted to the National Planning Department.

UNCLASSIFIED

UNCLASSIFIED

-6-

The proper functioning of the Executive Committee insures that no agency can develop a program independent of other activities in the sector, for each agency must have the approval of the Executive Committee prior to its initiation of a program or the budgeting of funds.

(2) Review of Plans and Projects. Prior to the reorganization of the agricultural sector each agency presented its plans, projects and budget directly to the National Planning Department. After approval by this agency, they were then sent to the National Budget Directorate for budget allocation.

Under the new law the budget procedure has been changed. Agencies must first submit their program and budget proposals to OPSA for its approval. OPSA then compiles the programs and budgets from the various agencies into an overall budget for the agricultural sector and presents this to the Executive Committee. This Committee considers this combined budget and once agreement is reached, it is sent to the National Planning Office for its consideration.

(3) Composition of Governing Boards. The Minister of Agriculture presides over all the Boards of Directors of the agricultural agencies. In addition to the Minister, the Managers or Directors of the five main agencies (Caja Agraria, INCORA, IDEMA, ICA and INDERENA) are members of the Boards of Directors of each of the other agencies. In this manner each Manager has on its Board the other four Managers. Since these managers are also members of the Executive Committee, decisions approved by the Executive Committee normally will be commonly understood and accepted by each of the agencies.

c. Coordination of Producers Associations

National Commissions attached to the Ministry of Agriculture, can be established for each agricultural product. These commissions are composed of representatives of small, medium and large producers of the corresponding product. The purpose of these commissions is to consult with the Ministry of Agriculture and provide permanent dialogue between the Ministry and interested producers each time a new policy is to be formulated or an existing policy modified. Representatives of the various producers associations may be appointed to serve on the boards of several of the agricultural agencies and be invited to the meetings of the Executive Committee. The Minister of Agriculture obtains legal status for the producers' associations and supervises their activities. The Ministry can contract with such associations or farm groups to assist in executing general campaigns for agricultural development or in efforts to increase the production of selected products.

UNCLASSIFIED

UNCLASSIFIED

-7-

(2) INCORA

INCORA (Instituto Colombiano de la Reforma Agraria), the Colombian Agrarian Reform Agency, created as part of the Agrarian Reform Law 135 of 1961, has statutory responsibility for administering the land tenural restructuring provisions of that Law plus those of Law 1 of 1968 extending coverage to renters and sharecroppers. Law 135 authorized INCORA to initiate proprietary activities such as farmer credit, land improvement and social development. By statute INCORA must be authorized annually an appropriation of no less than the peso equivalent of US\$15 million and US\$10 million in the form of Class A Agrarian Bonds, the latter to be exchanged for lands acquired or retained by the Agency, but in either case to be amortized, with interest payments, by the GOC. The Agency has steadily expanded its programs from, initially, distribution of public lands to redistribution of private lands, and complementary investments in credit, land improvement and social development. Geographic coverage has also greatly increased. Funding availability has grown apace; in 1971 less than half of INCORA's expenditures were financed from national budgetary appropriations.

INCORA's board of directors represents a wide range of private groups and public agencies. The General Manager is executive head over five functional divisions of the central office staff: (legal, engineering, agricultural development, organization and systems and administration). He has responsibility for executive regional operations and for 36 projects (areas) throughout Colombia. Project budgets support a mix of programs administered by the project director. The Agency is characterized by centralized programming and decentralized operations. It is a young and vigorous entity which seeks to take a pragmatic approach to its statutory obligations. Key personnel are listed in Annex I, Exhibit 3.

As the executor of agrarian reform, INCORA is subject to constant public scrutiny and debate. Its critics range from those totally opposed to reform to those who advocate the most radical redistributive measures. Despite occasional spectacular controversy, INCORA goes about the business of carrying out its legal mandate within the limits of its resources, and under close guidance of the Minister of Agriculture and the President. The stated policy of the present Colombian Government is to accelerate land reform and the provision of supporting services to the extent possible under prevailing law, and to seek changes in the law if necessary to increase the momentum of reform.

UNCLASSIFIED

UNCLASSIFIED

-8-

Most of INCORA titling has been of public land. There is a small, but growing volume of private acquisition. In acquisitions, a distinction is made between "adequately" and "inadequately" exploited lands, based upon the concept that lands must serve a "social function". Until recently acquisitions reached only "inadequately" exploited lands. But now "adequately" exploited lands are acquired under special circumstances. The distinction between "adequately" and "inadequately" has not been clearly defined.

INCORA has emphasized settlement and titling of public domain, a relatively inexpensive process. There are pressures on the agency to acquire better lands in settled areas with developed infrastructure, which is a slower and costlier process. Colonization efforts in the eastern plains region are increasing, although the construction of primary and penetration roads is costly and lags behind settlement. INCORA provides credit and basic farm supplies to the settlers.

The Agency is generally well administered. It promotes colonization efforts, encourages intensification of land use in settled areas, provides credit to farmers, and organizes cooperatives for farm supplies and marketing of products.

(3) ICA

The Instituto Colombiano Agropecuario (ICA) is the agricultural research, education and extension organization of the Colombian Government. It was established in 1963. In recognition of ICA's seriousness of purpose, the quality of its technical personnel and its generally high prestige, the Government assigned it heavy additional responsibilities in 1968, including supervision of credit in pilot areas of concentrated development, surveillance of technical assistance, control of agricultural input quality and development and distribution of certified seed.

ICA's research program covers the full range of agricultural disciplines. Work is presently in progress at 25 research stations in virtually all soil and climate areas of Colombia. Increasing emphasis is being placed on adaptive research and on the economics of alternative technologies. There are 62 agencies of the Extension Service distributed throughout the country. They promote "associations of users" and work with farmers and cattle breeders, housewives and farm youth. Plans call for increased emphasis on extension, especially for small farm operators.

UNCLASSIFIED

UNCLASSIFIED

-9-

ICA, in cooperation with the National University, has established a graduate school which is presently capable of granting MS degrees in Animal Sciences, Agronomy, Agricultural Engineering, Agricultural Economics and Veterinary Medicine. More than 70 M.S. degrees will have been awarded by the end of 1971, even though the graduate school is less than five years old.

(4) INDERENA

The Instituto de Desarrollo de los Recursos Naturales Renovables (INDERENA) was created by Decree, September 24, 1968, and activated January 1, 1969. Under supervision of the Ministry of Agriculture, it is responsible for the regulation, administration, conservation, and development of maritime and continental water fisheries, national parks, hydrographic basins, national reserves, communal grasslands and national prairies. Major emphasis for development is being placed on forests and fisheries and, to a lesser extent, on national parks and wildlife. Forest products constitute one of the greatest potentials for exports, and INDERENA will have a key role in both the exploitation and conservation of Colombia's vast timber resources. INDERENA's area of jurisdiction covers the entire country except for small areas administered by specialized regional development agencies.

(5) IDEMA

IDEMA (Instituto de Mercadeo Agropecuario) is a semi-official national agency with broad responsibilities for the pricing and marketing of agricultural products. The agency's principal activities center around an agricultural price support program, which includes the purchase and sale of storable commodities. It is also the exclusive import agency for basic agricultural products in deficit--principally wheat-- and for exporting surpluses. In addition, to control retail food prices, IDEMA operates a number of retail stores, including mobile truck-stores which are spotted in a different location each day of the week. IDEMA also has responsibilities for improving the market for agricultural products, through controlling grades and standards, provision of market information, etc.

In late 1969, IDEMA undertook a program to expand grain storage capacity by nearly 50 percent over the next three years. This entails a US\$27 million project, with US\$ 13.7 being financed by an IDB loan. The balance (US\$13.3 million) is to be financed in part with U.S. counterpart funds (PL 480). When the project is completed, IDEMA and its storage affiliate INAGRARIO will be able to store about 20 percent of the annual production of the major grain crops.

UNCLASSIFIED

UNCLASSIFIED

-10-

(6) Caja Agraria

The Caja Agraria is a development bank (the largest in Colombia) with 650 banking branches, 13 distribution centers and 435 farm supply stores throughout the country. The Caja principally provides credit services and technical assistance to farmers, cattlemen and small industry for the purchase of machinery, farm supplies and rural housing, and for the development of farmer cooperatives.

In CY 1970 the Caja Agraria granted 348,134 loans totalling \$3,398 million pesos and completed the year with outstanding loans totalling \$4,542 million pesos. This constituted 52.8% of the loans to agriculture and 58.0% of the value of outstanding loans to agriculture in 1970.

The Caja is one of the eight organizations which are authorized to produce and distribute improved and certified agricultural seed. In 1969 the seed department, called CRESEMILLAS, produced and distributed 15,000 metric tons of improved seeds for seeding 415,000 hectares of which about 90 percent was certified.

The agricultural supply division of Caja Agraria was created to make supplies and equipment available to isolated areas and to control prices on major agricultural inputs. Sales through the 435 Farm Supply Stores have increased from approximately US\$12.5 million in 1966 to US\$20.4 million in 1969. Largest sales gains were in improved seeds and machinery, with agricultural chemicals (fertilizers, pesticides, and drugs) also showing a large increase (59%). Several problems resulting in inefficient management reduce the effectiveness of these stores. Indeed, when the credit is contingent upon purchase of the inputs from Caja Agraria stores and items are out of stock, the existence of the store may have a negative net effect.

Caja Agraria also provides credit for rural housing construction, but these loans have only averaged about 1,000 per year from 1966 to 1970.

(7) Agricultural Education Institutions

Agricultural university education is relatively new in Colombia, with the majority of schools established since 1955. Only National University's Agronomy Faculty at Bogota and the branch at Medellin existed before that time. Currently, the National University has major campuses at Bogota, Medellin and Palmira, which give degrees in Agronomy, Veterinary Medicine, Animal Husbandry, Agricultural Economics and Agricultural Engineering. However, all branches do not give degrees in all disciplines.

UNCLASSIFIED

UNCLASSIFIED

-11-

In addition to National University, there are agronomy schools under state-sponsored universities at Ibague, Pasto, Santa Marta, Montería, and Manizales. Schools of Veterinary Medicine are at Manizales and Montería, and the University of Caldas grants home economics degrees. Forestry degrees are granted by the District University in Bogota, by the University of Tolima at Ibague and National University at Medellin. AID is supporting a joint Colombian Agricultural Institute (ICA)-National University program to expand and improve National University agricultural undergraduate faculties at Bogota, Medellin and Palmira. AID assistance is provided under a contract between ICA and the University of Nebraska and is coordinated with the Kellogg and Ford Foundations, which participate financially in the program. Graduate education programs which enroll 110 students are underway at the ICA-National University Graduate School in Veterinary Medicine, Animal Sciences, Agricultural Economics and Agricultural Engineering.

In addition to University-level training, practical courses are given by the National Apprenticeship Service (SENA). This is a semi-autonomous organization within the Ministry of Labor which trains young people in the trades and agriculture and adults for jobs in industry and commerce. SENNA is the largest and best financed non-formal training organization in the country.

Also, the Ministry of Education operates a number of agricultural high schools (ITA's).

(8) Livestock Producers Bank (Banco Ganadero)

The Banco Ganadero is a credit institution whose shares are held by the GOC, the Agriculture and Livestock Bank (Caja Agraria) and private subscribers. Founded in 1956 as a division of Caja Agraria with a capital of US\$8 million equivalent, the Colombian Congress made the Bank a separate institution three years later. Two AID project loans totalling US\$12.0 million were made to the Bank for livestock production credit and a third project loan, for US\$2.1 million, was made in 1970 for slaughterhouse expansion and modernization. The Bank has 69 branch offices mostly in livestock producing areas.

In 1970 the Bank made 5,755 new loans and increased its total portfolio to US\$66.2 million, an increase of 47% in constant pesos over the previous year. On December 31, 1970 the Bank had 26,535 outstanding loans.

Of the new loans, almost half were made at terms of five years or more. Prior to AID's financial assistance the Bank made no loans of five years or more.

UNCLASSIFIED

UNCLASSIFIED

-12-

(9) Banco Cafetero

The Banco Cafetero (Coffee Growers' Bank) was created in 1953 by the National Federation of Coffee Growers, its sole stockholder, with an authorized capital of 50 million pesos. It was empowered to engage in all commercial banking operations, and was subjected to all laws and taxation applicable to commercial banks. Its principal object is to finance the production, transport and exportation of coffee and other agricultural products, as well as to assist in the general development of the coffee zones. Through the establishment of the Fondo Rotatorio de Crédito in 1960, the Bank began to operate more or less as a private development bank. As such, it is now subject to the provision of Law 26 of 1959 which requires commercial banks to loan 15 percent of their demand and time deposits for the development of agriculture, cattle raising, and fish culture. The Bank's authorized paid capital is now 200 million pesos. As of December 1969 total assets exceeded 4 billion pesos and it had more than fifty branches.

(10) Instituto Geografico Agustin Codazzi (IGAC)

IGAC is responsible to the Ministry of Finance and is the official map-making agency and geographer for Colombia. It conducts surveys in soils, land classification and capability, erosion control and to some extent in forestry. It also operates a soil testing laboratory which serves farmers, other GOC agencies and IGAC itself. Its major activity is the operation of an extensive cadastral program which includes inventorying, listing and appraising private lands for taxation purposes and preparing accurate property maps. Property values determined by the IGAC program are used by GOC agencies as a basis for purchasing or expropriating lands.

AID recently authorized \$3.6 million loan to IGAC for accelerating and completing the on-going cadastral program, including the expansion of facilities and services of the soils testing laboratory.

(11) Producers Federations and Associations

There are several farmers' federations and associations which are concerned primarily with the promotion, production or marketing of specific crops or commodities. Their main objectives are: (a) to act in behalf of members before the national government and other public and private entities; (b) to assure that effective technical assistance is received from public and private sources; (c) to assure adequate supply of agricultural inputs, and (d) to assist in agricultural marketing. The major organizations are the Coffee Growers' Federation, the Cotton Growers' Federation, the Sugar Cane Growers' Association, the Potato Growers' Federation, and the Poultry Producers' Association.

UNCLASSIFIED

UNCLASSIFIED

-13-

(12) Camino Vecinales

Camino Vecinales is a key segment of the Ministry of Public Works with responsibility for supervising the building and maintenance of rural access roads and other secondary roads. Camino Vecinales will supervise the construction of up to 2,500 kilometers per year for the next four years under an \$18 million IDB loan. It will also implement the section of this loan dealing with farm-to-market roads with emphasis on the pilot areas.

2. Land Tenure

About one fourth of Colombia's land is used for agricultural purposes with land ownership concentrated in the hands of relatively few people. Over two thirds of the remaining land, if colonized, would greatly increase the producing area.

Land tenure forms in Colombia include royal grants, titles, escrituras (a form of title), rental and sharecropping contracts. De facto tenural forms growing out of custom, tradition and squatter rights are common. The consequences of these arrangements generally are a deterrent to development.

See Section II A 2 on Land Area, Use, Distribution and Tenure for more detailed information.

3. Location and Structure of Production

Most agricultural and livestock production in Colombia is in the fertile Cauca and Magdalena river valleys, the mountain plains and the flat, low regions bordering the Caribbean Sea. The three large mountain ranges and the low altitude valleys have widely varying climates.

Location of production is most uniform throughout the country. The total national area is about 284 million acres. Only 130.9 million acres are settled, of which about 68.5 million acres are usable for agricultural purposes. The unsettled areas total about 153 million acres and include mainly the Pacific Coast Plain and the Eastern Llanos.

In 1970, about 8.7 million acres were planted to major crops, covering only 12.7 percent of the area considered usable in the settled area. Coffee accounted for about 30 percent of the area in major crops. Other major crops included corn, platano, potato, cotton and rice. (See Annex I, Exhibit 4.)

Minor crops representing about 10 percent of the value of agricultural crops were also planted, but there are no reliable estimates as to the area planted.

UNCLASSIFIED

UNCLASSIFIED

-14-

Livestock production occupies much of the settled areas. About 20 million hectares are estimated to be in pastures in the settled areas, with about 92 percent of the national herd. Most of this area is natural pasture. An additional 15 million hectares in natural pastures are in the Llanos, which has a small percent of the national herd. ^{1/}

The structure of Colombian agricultural production can also be viewed in terms of the degree of technology used in production. Exhibit 4 mentioned above and Exhibit 5 in Annex I contain Atkinson's breakdown into 5 major categories, plus minor crops. ^{2/} The first group, coffee, merely recognizes the importance of that crop in the Colombian economy. The second group includes traditional crops grown mostly by small farmers using hand cultivation. The third group includes products which have shown little growth or even some decline during the past few years. These products are produced by small traditional farmers as well as large commercially-oriented growers under varying degrees of technification. These crops have become commercially significant, but the increased production has been on the larger, more-technified farms. The fourth group consists of crops produced in plantation-type enterprises. The fifth group includes three of the most important crops, cotton, rice and sugar cane. Less significant though important crops are included in Group 5A. Group 5 crops are grown mostly by large commercial farmers using a fairly high degree of capital-intensive technology, with the exception of rice and barley, where traditional producers contribute a significant share of total production.

Crop yields and farm size are important to the production structure. Based on a 1966 DANE sample census survey Atkinson reached these conclusions:

Coffee yields averaged higher on larger farms than on small farms, but with considerable variation. Differential technologies did not appear to be closely related to the size of coffee farms. Crops in Groups 2 and 4 showed no significant relation between farm size and yield. Crops in Group 2, furthermore, are grown in very small areas per farm, even on large farms. Results were mixed for Group 3 crops. Corn showed the least increase in yields as farm size increased. Tobacco yields showed no relationship to size of farm up to farms larger than 1,355 acres. In the case of potatoes, wheat and barley (Group 5A) these showed a considerable rise in yield with increase in size of farm. Relative area planted to these 3 crops increased significantly with the farm size, suggesting, in Atkinson's view, association with better technology.

^{1/} Banco Ganadero "Solicitud de Empréstito al BID", Bogota, 1967

^{2/} Jay Atkinson "Changes in Agricultural Production and Technology in Colombia", USDA FAE Rep. 52.

UNCLASSIFIED

-15-

Crops under Group 5 and 5A, mostly commercial, showed similar behavior. Yields were much higher on the very large farms than on small farms. There is, as mentioned above, considerable dualism in sugar and rice yields, the two grown by both traditional as well as modern farmers. In the case of sesame, there is no clear relationship between farm size and yields. Sesame yields are, however, substantially higher on farms larger than 494 acres. The reverse occurs in sorghum production. In general for crops listed in groups 5 and 5A, farms larger than 25 acres showed yields which almost doubled those on smaller farms.

4. Marketing Systems and Pricing Policies

a. Introduction

Most agricultural marketing activities are carried out by the private sector, although there are many public regulations and much public intervention in marketing operations.

The domestic exchange system for food and other basic consumer goods has evolved from the market days and the plaza type markets introduced by the Spanish. Market days are still common in rural trading centers. Even in larger cities there are still plaza markets where much of the wholesaling and retailing of perishable foods takes place. Most of the assembly, wholesaling and retailing functions of food products is handled by a large number of small firms. There are still very few integrated wholesale-retail food chains. In some commodity processing lines there are a few relatively large firms---textiles, chocolate, milk, vegetable oils, fruit and vegetable canning refined sugar, cigarettes.

The marketing system for coffee is highly developed. The Federation of Coffee Growers operates an integrated program including production research, technical assistance, credit, distribution of inputs, purchase of coffee from farmers, classification and grading, storage, merchandising and promotion. The export activities are further coordinated through the International Coffee Agreement. The Cotton Growers Federation has developed a similar but less fully integrated program to coordinate production and marketing activities.

b. Pricing Policies and Regulating Activities

The GOC carries out an extensive program of price supports to farmers. There are also price and margin regulations on a wide range of products at the processor and consumer level. Through IDEMA (described in Section I. B above) a farm support price is announced at planting time for rice, sesame, barley, edible beans, corn, sorghum, soybeans, wheat, potatoes, cotton and anis. Through purchase and storage operations, IDEMA and an affiliated storage agency, INAGRARIO, carry out the price support activity.

UNCLASSIFIED

UNCLASSIFIED

-16-

The Superintendent of Price Regulation has broad powers to regulate prices on agricultural products for which the government has compulsory absorption quotas for processors, or where there are producer associations that control a large share of the output (cotton, sugar). The Superintendency also regulates processing margins for commodities where there are relatively few processing firms buying from a large number of unorganized producers (milk). Retail prices for food products of "prime necessity" are fixed by the Superintendent of Price Regulation. The list of products subject to retail price regulation is further extended by municipal agencies. Enforcement activities are usually initiated by local authorities who have the power to impose fines or to close retail outlets for specified periods of time. The retail price controls are reinforced by an "anti-speculation" law. In addition, prices for selected agricultural inputs (pesticides, feed concentrates and certain types of machinery) have been frozen as of specific dates. Changes in prices may be made by the Superintendency in response to petitions by manufacturers who must provide evidence to justify a price increase.

c. Direct Intervention by Public Sector Agencies

The national marketing agency, IDEMA, is directly involved in the purchase, storage and distribution of basic food products as a means of carrying out national price policies. In 1969, IDEMA purchases were approximately 11 percent of the value of national production of the products for which the Institute has responsibility and about 3 percent of the value of total national production of all agricultural products. The distribution of IDEMA's 1969 purchases of five principal Colombian produced food products were as follows:

	<u>Percent</u>
Rice	55.8
Corn	19.8
Wheat	14.9
Beans	8.6
Potatoes	0.9
	<u>100.0</u>

IDEMA is also the official importer of food and feed grains. Wheat is a major import item (See Annex I, Exhibit 6) with occasional feed grain imports to alleviate critical shortages. IDEMA is also involved in a program to expand beef exports which has included an IDEMA contract to deliver live cattle to the Government of Peru. The Institute has also carried out some experimental subsidized exports of rice and corn.

UNCLASSIFIED

UNCLASSIFIED

-17-

At the municipal level there are publicly-owned food wholesaling and retailing facilities. The municipal government typically provides a plaza type market where space is rented to private stall operators. In larger urban centers there may be several public markets. The municipality usually owns and in many instances operates a livestock slaughtering facility. A livestock market is frequently provided as a complementary facility to the slaughterhouse. A large regional livestock marketing facility located in Medellin is operated as a municipal enterprise.

d. Other Regulatory and Facilitating Activities of the Public Sector.

There is a rather complex set of national and municipal legal procedures for the licensing of plants producing processed foods, animal feeds, pesticides and fertilizers. Most of the supervision of sanitation practices in food handling, especially for milk, is carried out by local health agencies. Quality control for fertilizers, animal feeds, and pesticides is being supervised by ICA, the national agency for agricultural research, extension and education.

In mid 1970, IDEMA stimulated and supported by AID efforts, initiated a program to expand and improve the usefulness of their market news service. Wholesale prices are now being collected for 20 commodities in the four largest cities. The dissemination system for this information is still being developed. Major improvements in crop and livestock statistics are being achieved by DANE, the national statistical agency. Official estimates of crop production are now being issued semi-annually. This expanded program of market information and crop forecasting should improve the performance of both public and private sector marketing activities.

5. Infrastructure

a. Transportation

The three Andean Mountain ranges extending from Southern Colombia to the Northern Coastal Plains have made it difficult and expensive to develop an integrated national market. However, over the past twenty years the GOC has given high priority to the construction of a national highway network and improved rail, water and air transport facilities. About two-thirds of the public investment in transport has been allocated to highway development. Included in total outlays have been large loans from the World Bank and more recently from the Inter-American Development Bank.

Colombia has about 45,000 km. of roads. About 19,000 km. are part of the national highway network, 19,000 are departmental and 7,000 municipal. About 20 percent of the national highways and 5 percent of the

UNCLASSIFIED

UNCLASSIFIED

-18-

departmental roads are paved. The trunkline highway network now connects the main centers of population. Secondary and tertiary roads link nearly all smaller urban centers to the primary highway network. Since 1961, the GOC has had a program to construct "feeder roads" in rural areas, directed by the National Feeder Road Fund. About 2,500 km. of feeder roads have been built and 7,800 km. more are planned. Between 1970-73 IDB is loaning US\$17 million for this program. The main purpose of the feeder road activity is to provide access roads for areas with significant agricultural development potential. Road building and improvement programs have also been carried out by INCORA and through "Accion Comunal" in order to lower transport costs for small farmers in isolated communities.

The Colombian truck fleet has been increasing at about 4 percent per year. Ninety-five percent of the trucks are single axle vehicles. In 1968 the average truck age was about 12 years. Over 90 percent of vehicle owners have only one truck, and 99 percent have less than four. Overloading of trucks is common. Hauling charges vary and are subject to negotiation on individual shipments. During harvest periods trucks are frequently in short supply and tariffs go up. The National Transport Institute (INTRA), the regulatory agency for the trucking industry, is trying to establish and enforce loan limitations and other operational requirements.

Much of the Colombia rail network was built to complement the water transport system connecting interior cities with ocean ports. This preceded the highway system which expanded rapidly after 1950. For many years there were several more or less independent regional rail sub-systems, which in 1954 were consolidated into a national company, National Railroads (FCN). In 1961, the Atlantic Coast rail connection was completed linking the interior rail system to the north coast port of Santa Marta.

Currently the FCN operates a narrow gauge (36 inch) system of 3,436 km. During the past ten years railroads have faced increased competition from a rapidly improving highway-truck transport system, competition complicated by unrealistic gasoline and diesel prices. Programs have been initiated to convert to diesel power, to increase the number and quality of rail cars, to improve rail roadbeds and to revise the system for assessing freight charges. Nevertheless, the FCN will continue to face operational problems due to the mountainous terrain in which it operates.

Agricultural commodities make up nearly one-half of the total ton-kilometers handled by the railroads. Coffee moved from the interior coffee production zone to the port cities of Buenaventura and Santa Marta accounts for 13 percent of the railroads ton-kms. Wheat and fertilizer are important back hauls toward the interior. Sugar, cotton, barley and cattle are also significant sources of freight revenue.

UNCLASSIFIED

UNCLASSIFIED

-19-

Colombia has four main seaports. Buenaventura on the Pacific Coast is the largest and handles about two-thirds of the export tonnage and 40 percent of the imports moving through the four ports. North Coast ports of Cartagena, Barranquilla and Santa Marta handle about one-third of the exports and 60 percent of the imports. Over the past ten years the North Coast ports have increased their share of the total tonnage of imports and exports from 22 to 52 percent. This shift is largely due to the completion of the Atlantic Coast railroad and better highways between Medellin and Cartagena. The National Marketing Agency (IDEMA) is currently constructing bulk grain silos, including ship loading and unloading facilities in Santa Marta and Buenaventura. The GOC continues to invest in port improvements. During 1971-73 investments of 325 million pesos (about US\$15.5 million) are planned.

Colombia has relatively well developed air transportation. Ten major airports have jet runways. Three new airports are under construction --Cali, Bucaramanga and Ocaña-- to replace existing facilities. Seven additional airports are being improved. The GOC has projected a 1970-73 investment of US\$16.5 million for air transport facilities.

Air cargo service is readily available but its growth rate has been slow. Domestic air shipments of agriculturally-related products have been limited. However, exports of cut flowers have been increasing rapidly and consideration is being given to air shipment of perishable fruits and vegetables. There are also occasional air shipments of beef to external markets, especially Peru.

b. Land Development, Reclamation, Irrigation and Drainage

Colombia has identified 8 land development zones with an area of 7 million acres. As of 1966 448,000 acres of this area had been improved; 380,000 acres through irrigation and 68,000 by drainage. 139,000 acres of this total was improved through public investment projects and 509,000 acres through private investment. INCORA is developing about 15,000 acres per year through irrigation and about 15,000 acres annually of drainage works to increase the availability of improved lands.

There is a tendency to slow public efforts in irrigation, while drainage and flood prevention are receiving increased attention. However, some additional funding for irrigating primarily farm level works will be required in the future.

UNCLASSIFIED

UNCLASSIFIED

-20-

c. Rural Electrification

In the Sevilla-Caicedonia (Department of Valle) area a rural electric cooperative was developed with funds provided under a \$1.3 million AID project loan approved in 1964. A total of 270 miles of line have been installed serving 7,075 members, and the number is expected to increase to over 9,000 members by 1976. Utilization of electric power in the area keeps up with increasing availability. U.S. technical assistance for the project was provided by National Rural Electric Cooperative Association advisors.

Other rural electrification efforts are being made by INCORA through loans to associations of beneficiaries and regional development associations.

The concept of rural electrification in Colombia is not yet well developed. The demand for other infrastructure such as farm access roads exceeds the immediate demand for electrification; access roads have a quicker economic return and require less long term investment.

C. Financial Information - Agricultural Funding

The 1970-74 Development Plan calls for an annual increase in total public investment in the agricultural sector for each year from 1970 through 1972. Table II-9 in Part Two, Section II, C. of this paper shows the total public sector resources available to the sector 1968 to 1973. GOC budgetary appropriations by organization for the years 1969-1972 are shown in Exhibit 1 of Annex I.

Allocation of public sector financing by major function entails considerable research and some arbitrary classification because of the overlapping of activities by the different agencies. It can be concluded, however, that agricultural credit availability through public programs as well as from the private sector has continued to increase in real terms from 1968 to the present and is expected to increase further in 1972-1973. (See Annex I, Exhibit 7). Total private credit to agriculture is difficult to determine, although the Agricultural Development Fund (Fondo Financiero Agrario), established in 1966, has increased the private banks' participation in agricultural lending by requiring them to provide from private credit sources 39.4% of the funds for all loans made through the Fund.

Resources available to ICA, largely for research and extension, more than doubled in 1971 over the previous year. A slight reduction is planned for 1972. Resources available to INCORA, the land reform agency, increased significantly in 1970, and will increase further through 1973. According to INCORA, resources have been sufficient to meet the supervised credit, land titling and parcelization goals established for 1971 by the GOC in the Memorandum to IBRD, dated May, 1970.

UNCLASSIFIED

UNCLASSIFIED

-21-

Some segments of the agriculture sector fall short of their needs from time to time, but, in general, the sector needs are being met increasingly well each year.

D. National Agricultural Plan, Priorities and Program

The GOC Plan for Economic and Social Development, 1970-73, is directed toward reducing unemployment and achieving more equal income distribution and social services, while maintaining a 7 1/2% rate of growth in gross domestic product. The agricultural sector plan supports these goals through increased emphasis on programs to expand rural employment and to increase income of medium and small farmers, while maintaining a 5 1/2 percent rate of growth in total agricultural output. Specific plan targets are to increase agricultural employment by 2.4 percent or about 66,000 new jobs each year and to expand minor exports by 20 percent a year.

The agricultural program in combination with a strong effort to improve rural education, and an urban-regional program to stimulate industrial activities in intermediate cities is intended to reduce migration to the large cities, to stimulate more productive utilization of existing human capital and land resources and ultimately to improve living conditions for the entire population.

Some of the specific programs that are to be carried out in the agricultural sector are as follows:

- (1) An acceleration of agrarian reform through land redistribution, colonization and supervised credit for small farmers;
- (2) Promotion of farmer organization at both the local and national level, as a means of stimulating development;
- (3) Intensification of applied agricultural research and substantial expansion and strengthening of the agricultural extension program;
- (4) Revision of the agricultural credit system to shift large producers away from subsidized credit and to increase the availability of credit to small and medium sized farmers;
- (5) Stimulation of the use of modern agricultural inputs, especially fertilizer, through soil testing services, improved quality control and increased availability of credit;
- (6) Stabilization of prices for basic agricultural products through price support and storage programs and stimulation of private sector marketing improvements through new lines of credit, and,

UNCLASSIFIED

UNCLASSIFIED

-22-

(7) Development and expansion of programs to utilize existing natural resources as a means of expanding employment, increasing exports of forest products and domestic supplies of fish. (Other programs are directed toward long-term management of water and forest resources.)

E. External Assistance

Assistance to the agricultural sector from external sources (other than AID sector loans) is shown in Table II-8 of Part Two, Section II, C. of this paper. A breakdown by loan and showing the source of this financing is shown in Annex I, Exhibit 8.

F. Recent Progress and Trends

The GOC has made considerable progress in implementing its agricultural development policies, including the following:

a. A sweeping reorganization of the public agencies dealing with agriculture, was decreed late in 1968, and implemented largely in 1969 and 1970. The reorganization reduced the number of agencies dealing with agriculture, consolidated functions in the remaining agencies and eliminated certain unproductive entities in the Ministry of Agriculture. The Ministry, working through the Superior Executive Advisory Committee of Agriculture, has become the central policy body for the sector and provide better coordination among agricultural agencies. The increased emphasis on technology in the agricultural sector also has continued through the recent change in government, and has brought about marked improvement in the formulation and implementation of agricultural programs. Both reorganization and increased technology have contributed to production increases of 5.4% annually for the past three years, as compared to 3% prior to 1968.

b. The GOC has provided increasing amounts of credit to the agricultural sector, through the rediscount resources of the Bank of the Republic and through budget resources. Efforts are being continued to introduce more and improved technology to the agricultural sector through the requirement of technical assistance as a requisite for loan approval.

c. More Caja Agraria loans are being channeled to small entrepreneurs based on their productive capability and debt-service potential, rather than the traditional guarantees of commercial banks. Credit to large and medium size farmers is being oriented to the commercial banks, limiting to 100 hectares the maximum area to be financed by the Caja Agraria through the Fondo Financiero Agrario. Total new credit for the sector increased by 20% in real terms from 1966 to 1969.

UNCLASSIFIED

UNCLASSIFIED

-23-

d. Law 135 of 1961, which created INCORA, gave major emphasis to land reform and the means to effect it. Programs of supervised credit and land improvement were initiated in 1964. Social programs for health and community action were added later. Law 1 of 1968 required INCORA to rectify tenural relations of renters and sharecroppers. Programs are operating in all departments and accessible intendencias.

e. Land titling, parcelization and supervised credit programs will reach the goals established for 1971 by the GOC in its Memorandum to the IBRD, dated May 7, 1970, according to preliminary information provided by INCORA.

f. INDERENA has moved ahead in its programs to develop, manage and administer forest, fish, wildlife, parks, water and soil resources. Its budget has been increased annually. Expansion of effort is heaviest in the forest and fish areas which make a significant contribution to food and shelter needs in the country, and to the export program. The reforestation program continues to show an increase in coniferous species as an eventual substitution for paper and pulp needs now imported. INDERENA is faced with a vast problem to properly educate the local people in the value of natural resources and in the control of their use according to laws and regulations. It has embarked on a recruitment and training program for conservation officers, expecting to have a force of over 2,000 officers by 1975, INDERENA has also improved its work in developing maritime and inland water fisheries. Forest inventories have been increased, but are still moving at a pace inadequate to complete them in a reasonable time. There are also industrial and marketing problems to be analyzed. It has made a good start in defining a park and recreation management program. INDERENA, which has been in existence 16 months, is undergoing a reorganization as a result of its initial experience and is preparing to meet expanded needs with improved programs.

g. ICA has continued developing plans for expansion and organization of extension agencies, which now total more than 63. Training courses for technical assistance personnel of other agencies and from the private sector have increased steadily. Decentralization within ICA is being carried out through the organization of regional offices. Research is being oriented to include more emphasis on tropical as opposed to temperate zone production. The seed certification program has increased the number of varieties of certified seed. Technical assistance has been provided to more than 18,000 hectares for seed production, which benefitted more than 420,000 hectares of crops during 1970.

n. IDEMA is developing, as scheduled, a national program for grain storage and handling, partially financed by the IDB.

UNCLASSIFIED

UNCLASSIFIED

-24-

i. Feasibility studies are being conducted for construction of central food marketing facilities at Barranquilla and Bogota; Medellin and Cali have already begun construction of similar facilities.

j. Creation of mechanisms such as the Export Promotion Fund (PROEXPO) and improved incentives such as the Certificate of Export Tax Credit (CAT) have stimulated the development of export programs. During 1969 agricultural exports (excluding coffee) amounted to a total of US\$120 million in comparison with US\$62 million in 1966.

G. Efforts and Experience to Improve Management

Major aspects of management functions are reviewed in Section C, 1.a. above. The following are selected examples of current efforts to improve data, analysis, and evaluation.

1. Collection of timely data. With technical assistance furnished under the USDA/PASA and as required by the previous sector loans, DANE is now publishing timely data on agricultural output. Twice a year DANE publishes a report on area, production and yields for the major crops. These reports include forecasts for the current semester, preliminary estimates for the previous semester, and revised estimates for the corresponding semester of the previous year. The quality of the data is rapidly improving as is its acceptability and use. DANE has also begun to publish timely series on livestock numbers and slaughter. In 1972, DANE expects to publish estimates of area, production and yield for major crops by Departments as well as national totals.

2. Analysis and evaluation of existing and possible alternative policies and programs.- at the national level, a modus operandi has been established whereby all investment plans are developed with the participation of the action agency involved; to the extent possible, planning should originate from that action agency. This policy has required close cooperation between the National Department of Planning and lower level planning divisions and creates constant demands on all levels of government to improve planning capability.

At the request of the Minister of Agriculture, or the Superior Council of Agriculture, or on its own initiative, OPSA analyzes and evaluates existing programs in relation to alternative courses of action. OPSA also tries to keep abreast of the manner in which projects are being executed by the various agricultural agencies to assure that funds are being used as specified in the budget.

The planning mechanism has been strengthened through bi-weekly meetings of the heads of the planning office of the various agricultural agencies. These meetings are held after the regular meetings of the Executive Committee and participants move to carry out decisions of the Committee.

UNCLASSIFIED

UNCLASSIFIED

-25-

Progress has been made in incorporating the planning process at the departmental and local level. "Consejos Seccionales" have been created in 14 Departments and include the participation of the various sectoral agencies operating in these areas. The "Consejos" have the following functions:

Analysis of development plans, programs and budgets for each agency operating in the area for the purpose of determining how these programs relate to both local needs and national policies, plans and budgets. The "Consejos" report their findings to the Superior Council of Agriculture, the Governor of the Department and the agency involved.

As these "Consejos Seccionales" have just recently been organized, it is too early to assess their effectiveness.

3. Mechanisms for Monitoring Implementation

At the highest administrative levels the National Monetary Board has review authority over all fiscal operations of the GOC. The National Department of Planning has established budgetary procedures for monitoring the financial operations of all GOC investment projects. The Budget Control section in DNP requires the implementing agency to submit projected budget expenditures by trimesters broken down by three sources of funds -- GOC funds, external credit and other funds. As the year progresses actual expenditures are compared with projections. Needed adjustments in program activities are then identified and corrective actions initiated. In the Ministry of Agriculture the OPSA group coordinates with the DNP budget control section. Progress on agency programs is monitored by OPSA and on the AID sector loan activities reports are to be rendered to AID through the DNP. In addition the individual agencies within the Ministry have established procedures for program planning, review of progress and budget control. Finally, inter-agency coordination and monitoring of program implementation is also carried out through the periodic meetings of the Directive Council composed of agricultural agency directors and chaired by the Minister of Agriculture.

The AID sector loan will provide supplemental resources to strengthen the staffing of the Ministry planning units. Furthermore, these units will be given additional responsibility for monitoring implementation of agricultural program activities including these for which sector loan funds are planned.

UNCLASSIFIED

UNCLASSIFIED

-26-

II. AGRICULTURAL SECTOR ANALYSIS

A. Constraints Analysis

1. Employment

At a conservative estimate, half a million Colombians, out of an active urban labor force of some 3 million, are seeking work but unable to find it. In the country-side, open unemployment is less common, but hundreds of thousands work for such low wages, or earn so little on their own small holdings, that they must be considered underemployed.

The critical nature of the employment problem in Colombia has made it a primary focus of the government's economic development efforts. Existing rates of open urban unemployment reach 8.5 percent of the labor force and substantial numbers of people are engaged in work activities which can be classified as disguised unemployment. In addition, large numbers are underemployed, especially in the agricultural sector, where the structure of production and land tenure are such as to make disguised unemployment and underemployment very difficult to identify and measure.

The economic development policy of the Colombian Government, as presented in the three year plan, has been formulated with maximization of employment as a major goal and attainment of specified minimum levels of production growth as a basis for employment creation.

Magnitude of the Problem in Agriculture

The problem of estimating unemployment and underemployment rates is particularly difficult in the case of agriculture. In 1970, DANE estimated the open unemployment rate in the rural sector at 3.7 percent. No estimates were made of underemployment.

The rate of agricultural growth of recent years has been insufficient to provide jobs for the rapidly growing population. Except for heavy rural-urban migration, the rural labor force would have been growing at annual rates of some 3.5 percent (about 100,000 new workers annually) while available data indicate that the actual expansion rate of

UNCLASSIFIED

UNCLASSIFIED

-27-

rural jobs was only about 1.7 percent. Part of the reason for the insufficient rate of employment generation in agriculture results from the fact that much of recent agricultural growth has occurred in the modern sub-sector where capital/labor ratios are probably higher than would be the average for Colombian agriculture.

The unabsorbed rural labor surplus has been reflected in relatively high rates of rural-urban migration. Indeed, large Colombian cities have been growing at about 7 percent annually, more than twice the estimated current population growth rate. It is clear that the rate of job creation in rural areas must rise substantially if migrant pressures on the urban job market are to be reduced.

Major Determinant Factors

Agricultural employment and unemployment levels, of course, reflect the supply of and demand for labor in the Colombian agricultural sector. On the supply side, the main determinant is clearly labor force growth, which is, in turn, derived from past levels of net population growth and migration patterns. To a lesser extent the size of the active labor force (those working or seeking employment) is also affected by supply response to wage levels and traditional or changing participation rates. Rural-urban migration has reduced the Colombian rural labor force significantly. The Colombian Planning Board considering out-migration estimated that 40,000 people joined the rural labor force in 1970 ^{1/}.

Demand for rural labor is affected mainly by the growth level achieved by the agricultural sector as well as by the technical coefficients of production as reflected in capital/labor ratios and productivity coefficients. None of these factors affecting demand should be considered alone. Production growth per se can no longer be thought of as a sufficient condition to increased levels of employment and general welfare of the masses. The employment effects of increased production will be determined by who produces and by how

1/ NDP - Revista de Planeacion - Dec. 1969, Vol. 1 No. 4

UNCLASSIFIED

UNCLASSIFIED

-28-

this production is realized. If fast increases in output originate in a commercial sub-sector where it is reflected in fast growth of productivity per man resulting from high capital/labor ratios, then the potential employment and consequent income distribution effects of such production increases are small. 2/

The GOC agricultural policy identifies small producers as the main focus of its strategy for maximum employment and production. Increased flow of investment resources to this group is considered essential to take advantage of the employment effect derived from increasing their production and income levels. This effect would result from their preference for labor intensive methods and also from the additional demand for products which are labor intensive in production. A close relationship between expected changes in demand structure and the most desirable labor-intensive crop mix for small farmers to produce will be one of the essential prerequisites of a small-farm strategy.

Implementation of such a policy, of course, will be hampered by political, administrative, and technical constraints, which are discussed below. However, the first question which must be examined is whether increased investment in labor intensive production is feasible in terms of demand and profitability. This is explored in the following section.

Costs of Employment Generation in the Agricultural Sector

In Colombia as elsewhere, it is not meaningful to speak of the costs of employment generation in agriculture as if there existed sufficient similarity between the various segments of the sector to allow general

2/ The case of Mexico is symptomatic. A sustained 5% annual growth rate of agricultural production during 20 years failed to improve the lot of a large segment of the rural population. The number of landless laborers in rural Mexico increased from 2.3 million in 1950 to 3.3 million in 1960. Only 3% of producers accounted for 80% of the increased production levels showing high capital/labor ratios.

UNCLASSIFIED

UNCLASSIFIED

-29-

treatment of the average agricultural costs of providing additional work-places. The inter-commodity variation in the proportion of total production costs going to labor in Colombia would appear to be at least as large as 5,000% meaning that it would take 50 times more investment in production of certain agricultural commodities to create the same direct labor demand as others. Given the urgency of employment generation in rural Colombia and the scarcity of capital resources with which to create additional work-places, it is of central importance to explore the directions for agricultural development indicated by these vast differences in the costs of job creation.

Before proceeding to the analytical portion of this Section, it is important to explain what is not attempted. The analysis attempts to relate the observed costs of production on INCORA-financed farms and integrate only capital and demand constraints. It is not suggested that these are the only relevant constraints or that other constraints could not be dealt with. Given the limited time and personnel for this analysis the results at the time of drafting of this paper had only reached the present stage. Other important constraints not explicitly included are:

- 1) Skilled, technical and administrative labor availability for production, processing, and marketing;
- 2) availability of marketing channels and infrastructure
- 3) availability of processing-packing capacity
- 4) availability of land of requisite quality and quantity
- 5) availability of the physical inputs required, i. e., fertilizers added machinery, nursery stock, etc.
- 6) intertemporal lags of various types.

Assumptions which are implicit but need to be made explicit include the following:

1. **Additionality.** This assumes that this credit is really additional credit and not simply a substitution of other public credit or private credit.

UNCLASSIFIED

UNCLASSIFIED

-30-

2. That the production created by the credit will be additional and not simply substitution for other production that was to have been undertaken.
3. That the increment of production demand during the year of disbursement is a reasonable measure of the minimum available market for the production.
4. That the historical data of INCORA (particularly for 1970) is a reasonable measure of the inputs required and the outputs produced by similar credit to similar farmers.

Only broad directions for adjustment are indicated by the analysis which follows. Given the large number of important constraints which are not explicitly included, and knowing that redirection and restructuring of production are very difficult and lengthy processes, it should be indicated at the outset that long run directions often do not explain in detail the immediate steps which need to be taken. What is indicated is where it would be advantageous to be, but exactly how to arrive there is not fully examined. There may be many good reasons for investment allocations which do not fit within the directions indicated by this analysis, but to the degree that there is a commitment to the generation of employment those reasons should have to be well defended in the light of these preliminary results.

Table I-1 has been elaborated using the labor portion of total costs of production as an indication of the cost of providing direct increases in employment. Due to the focus of this loan on small farms, the production data used to derive the labor coefficients was based on production costs for the small farms where INCORA placed supervised credit in 1970.

UNCLASSIFIED

UNCLASSIFIED

-31-

TABLE I - 1LABOR COEFFICIENTS AND COSTS OF DIRECT EMPLOYMENT
CREATION *

<u>Commodity Group</u>	<u>Labor Coefficient Labor % of Total Costs</u>	<u>Dollar costs of generating one direct man year of employment. **</u>
1. Peanuts, beans, raspberries flame, lettuce, yuca, cucumbers	.50 to .68	300 to 665
2. Mango, tobacco, cauliflower strawberries, beet, sugar cane	.40 to .48	475 to 710
3. Arracacha, onions, platains, cacao, lentils, habas, spinach tomatoes, peas, cabbage, orange, lemons, irrigated rice, lulo, grapes.	.30 to .39	615 to 950
4. Small farm corn, sesame, jute, soybeans, potatoes	.20 to .26	950 to 1,420
5. Millet, cotton, barley, sorghum, wheat, milk	.10 to .19	1,420 to 3,270
6. Wool, eggs, poultry, pork, beef	.01 to .043	6,300 to 26,255

* Range in costs are caused by regional wage differential and differences between commodity labor coefficients inside commodity groups.

** Figures rounded.

UNCLASSIFIED

UNCLASSIFIED

-32-

TABLE I - 2APPROXIMATE DIRECT MAN YEARS OF EMPLOYMENTGENERATED BY 34 MILLION DOLLARS IN SUPERVISEDSMALL FARM CREDIT *

<u>Commodity Group</u>	<u>Direct Man Years Generated **</u>		
1. Peanuts, beans, raspberries, kame, lettuce, yuca, cucumbers	51,100	to	113,300
2. Mango, tobacco, cauliflower, strawberries, beets, sugar cane,	47,900	to	71,500
3. Arracacha, onions, plantains, cocoa, lentils, garbanzos, habas, spinach, tomatoes, peas cabbage, oranges, lemons, rice, lulo, grapes	36,000	to	55,300
4. Corn, sesame, jute, soybeans potatoes	24,000	to	36,000
5. Millet, cotton, barley, sorghum,	10,400	to	24,000
6. Wool, eggs, poultry, pork, beef	1,300	to	5,400

* If placed completely inside a commodity group

** Figures rounded.

With ranges as large as those exhibited in Table I-1 it is no surprise that planners and economists are led to search among alternatives in the first groups for employment-generating agricultural development. It is only in

UNCLASSIFIED

-33-

a portion of the agricultural sector, and not in the sector as a whole, that it is reasonable to think of the most logical choices for sizeable job creation with limited capital resources. There are many industries in the manufacturing and processing sectors which are considerably more labor intensive than the most capital intensive agricultural commodities of group 6. The labor intensive agricultural commodities, on the other hand, have no rivals in the industrial sector from a cost-of-employment-generation standpoint.

Estimates of new jobs needed in agriculture to absorb the additions to the rural labor force vary from 40,000 to 100,000 depending on assumptions about out-migration to the urban sector. With the data on the costs of providing those jobs by expansion via credit-provision to alternative commodity groups in the agricultural sector. For this calculation we will use two direct-indirect labor creation assumptions. In the first we will assume that the only significant effects are the direct effects. In the second, we will use the off-farm indirect labor generation factor derived by the Mission. At a later date in the ongoing analysis, we will derive both the first forward and first backward link employment effects (and nth forward and nth backward links) for the alternative commodity groups, to estimate the differences in indirect employment generation.

In Table I-3 we pose the question: How much credit would be required to create enough employment to absorb the additions to the rural labor force if we accomplished that absorption in each of the commodity sub-groups?

UNCLASSIFIED

UNCLASSIFIED

-34-

TABLE I - 3

CREDIT COSTS OF ABSORBING RURAL LABOR FORCE ADDITIONS

(US Million Dollars)

<u>Commodity Group</u>	<u>Rural Urban Out-Migration 40,000 to be Absorbed</u>		<u>No Out-Migration, 100,000 To be Absorbed</u>	
	<u>Direct Only</u>	<u>Direct & Indirect</u>	<u>Direct Only</u>	<u>Direct & Indirect</u>
1.	18.95	16.11	47.39	40.28
2.	24.64	20.95	61.61	52.37
3.	32.22	27.39	80.56	68.48
4.	47.39	40.28	118.48	100.70
5.	85.30	72.50	213.26	181.27
6.	568.68	483.37	1,421.70	1,208.45

Table II and Table III approach the same problem from opposite directions and a tentative conclusion is clear, even if the basic data have relatively large error factors. The conclusion is, that, given the \$34 million (dollars) of supervised credit for which this analysis is relevant,

UNCLASSIFIED

UNCLASSIFIED

-35-

the impact that it has on employment depends centrally on the commodities to which it goes. If one looked to livestock production as an employment generating avenue for the supervised credit, it is clear that the avenue holds little hope. First, the quantity of credit required is not possibly available. No one would suggest that one billion dollars might be available each year for beef production. Second, no one would suggest that Colombia has sufficient land to absorb that production, and third, no one would suggest that demand would allow the absorption of the immense volumes implied.

Looking at the other end of the spectrum of labor intensity, it would appear that the general level of credit available (\$34 million dollars) would be able to approach a solution to the employment creation problem at the scale required. However, from the second, third, and additional standpoints of marketing and production capacity, there appear to exist significant problems. The second problem of land availability of the requisite quantity, quality, and climatic condition is not as difficult as the demand and marketing problems.

DEMAND CONSTRAINTS AND LABOR INTENSIVE PRODUCTION

Perhaps the first and most important consideration that comes to the fore in a discussion of labor generation through labor intensive production is the question of the existence of markets at reasonable prices for the implied production.

INTERNAL DEMAND AS A CONSTRAINT

The first point that should be made about the demand for food products in general in Colombia is that it is growing rapidly; the IBRD used 5.7% annual growth in demand as its estimate. This implies that demand for all (but not each) food commodities will double about every 14 years. This average growth rate varies dramatically between commodity groups, from lows of 3% to highs of 25% per year.

In order to evaluate what impact the internal demand conditions impose on the possibilities of allocation of credit or other agricultural production resources for employment creation, it is necessary to deal with the problem on a crop by crop basis as is done in Annex I, Exhibit 9. We will present here the conclusions of that preliminary analysis. Utilizing the internal demand projections based on CEDE studies we will

UNCLASSIFIED

UNCLASSIFIED

-36-

indicate how many of the commodity groups (starting with the most labor intensive) would be needed to absorb the production implied by a 34 million dollar investment, subject to the constraint that the additional production called forth by the allocation if the credit does not exceed the additional internal demand for that commodity. Phrased differently, the additional production should not exceed that level which would approximately maintain current relative prices.

A linear programming problem with two constraint systems was used to solve this problem. The market assumptions are estimated from projections by CEDE under a contract with the USDA-ERS * (these projections are currently being revised). Based on the CEDE projections and assuming that external markets do not exist, each of the following crop groups would appear to be able to absorb the levels of credit indicated under the column labeled "Based on CEDE" in Table I - 7. ** In all projections, coffee is held at zero expansion. The second column in Table I-4 shows the approximate direct labor created by the internal-demand-constrained allocation.

From Table I-4, we observe that under the above assumptions the \$34.0 million could be allocated completely within groups 1-5 and would result in the final creation of approximately 29,500 direct jobs. Using the Riley/Schwinden off-farm employment creation factor, 14,400 indirect jobs could be added to that total to yield a final 43,900 man-years of employment created. This would indicate that even with the very restrictive internal market and additionality constraints, there exist alternatives which would allow supervised credit to create the general magnitude of 40,000 *** jobs needed in the rural sector. It should be

* CEDE Demand Projections for Agricultural Products in Colombia, Bogota, 1966.

** It is assumed that this credit is needed, i. e., that without it, agricultural needs would not otherwise be met. If this assumption is wrong, and if expansion already financed and underway is fully sufficient to meet the agricultural requirements of Colombia, including foreign exchange then deeper questions about the loan as well as the analysis need to be raised.

*** According to Planeacion.

UNCLASSIFIED

UNCLASSIFIED

-37-

added that allocations which widely diverged from the allocations indicated in Table I - 4 would probably lead to the creation of substantially less employment. In operational terms, this would mean that significant credit allocations to commodities with lower labor coefficients than milk (the last commodity of group 5) would significantly, and probably unnecessarily, weaken the employment creation effect.

TABLE I - 4

CREDIT ABSORBABLE SUBJECT TO INTERNAL DEMAND

CONSTRAINT

(US Dollars)

<u>Commodity Group</u>	<u>Based on CEDE</u>	<u>Approximate Direct Labor Generated in Man Years</u>
1 .	848,750	1,791
2.	3,416,820	5,538
3.	6,272,540	7,765
4.	8,937,750	7,560
5. *	<u>14,644,940</u> Demand capacity needed to complete	<u>6,866</u>
Total	34,120,800 credit available	29,520
6.	24,892,520 Demand capacity	

* Considerable surplus demand existed in Group 5 after absorbing \$ 14,644,940.

UNCLASSIFIED

UNCLASSIFIED

-38-

External Demand and Labor Intensive Production

From Table I-2 it can be observed that if all credit could be allocated to commodities in group one the man years of labor generated would approximate the larger 100,000 ILO figure of additional jobs needed to absorb all of the additions to the rural labor force without migration. Under the demand constraints of the last section, including only internal markets, it appeared that only some 29,000 man years of direct labor could be generated, in contrast to the possible 51,000 to 113,300 of commodity Group 1. External markets are often looked to as outlets for products which a nation may have comparative advantage for producing, and though no specific treatment is given here we might assert that given the wage differentials between the developed and under-developed world, Colombian would have more comparative advantage for a commodity where labor costs were an important factor of total costs of production at the importing country level of technology. In general, groups 1, 2 and 3 are of that type. The object of this section is to view some alternative impacts on the earlier demand-constraint analysis if external markets are included.

In discussions of the external market one should first indicate that both supply (production possibility) and demand (external) are important. A general sketch of overall trends in international trade may give some idea of the growth of the demand side. From 1951-1965 the value of world imports of vegetables grew at an annual rate of 9.7, and fruits at an annual rate of 6.6%. These were the two commodity groups registering the highest growth rates. Cereals and oils followed with 6.2% and 5/6% respectively. The initial impression from these general figures is that the commodities in our commodity groups 1-4 have favorable international trade prospects. It is also interesting to note that in the category of fruits, Latin American countries account for 27% of total world exports, indicating considerable experience in production for export and marketing. It would be naive to suggest that because of favorable trends in international demand for the labor intensive commodities, one should use a demand constraint indicating infinitely elastic demand at a given price, for the purposes of planning short term credit allocation. While that sort of analysis may be useful for assessing long run directions for resource allocation it is certainly less than relevant for short term production loans in that it essentially ignores the difficult questions on the supply side, both of production capacity at international standards and the marketing difficulties which plague entry into the export markets.

UNCLASSIFIED

UNCLASSIFIED

-39-

If the external demand were constrained only by the additional exports that would be demanded on the international market given the growth rates of international trade, the \$34 million could be allocated without entering commodities outside Group 1.

The positive growth of external market demand for labor intensive food commodities, linked with the underlying economics of their production, Colombian factor prices and comparative advantage, should indicate a need for a rather concentrated effort on the production and marketing problems which prevent short and long term entry by Colombia in these markets.

An alternative approach to arriving at relevant implications of the external market is to estimate the increased production capacity of Colombia for those products which have favorable external demand trends and suggest reachable-export levels in a crude way integrating both the supply and the demand sides of the problem. Such a study was contracted by AID * and resulted in the projection of export goals for 1971. These projections were used along with the production data for small farms to give a general idea of implications of a more restricted export demand constraint than infinite elasticity at world prices. No suggestion is made that this analysis is definitive, for even it ignores many important marketing and technological problems, but it is used so that an order of magnitude might be given.

If we add then, the additional export projections of the AID study to the earlier utilized internal market constraints, we find that we are able to allocate the 34 million dollars as indicated in Table I - 5

* Posibilidad de Exportacion de Productos Agricolas de Colombia, Walter Tatum, USAID.

UNCLASSIFIED

UNCLASSIFIED

-40-

TABLE I - 5EMPLOYMENT MAXIMIZING ALLOCATIONS OF SUPERVISED CREDITCONSTRAINED BY INTERNAL AND EXTERNAL MARKETDEMANDS

(Thousands of US\$)

<u>Commodity Group</u>	<u>Allocations to satisfy additional internal demand</u>	<u>Allocations to meet Tatum additional export projections 1971</u>	<u>Man-years of direct employment generated</u>
1.	848	10,047	22,991
2.	3,417	955	7,161
3.	4,140	14,673	21,460
Totals	<u>8,405</u>	<u>34,120</u>	<u>51,612</u>
4.	0	0	0
5.	0	0	0
6.	0	0	0

The implications of Table I - 5 are that, if we allow credit to depend on the external market in a limited way, it would increase our capacity to so allocate credit as to increase the employment generated with 34 million dollars, from 29,000 man years to more than 50,000. This increase in employment is implied by credit allocations which need not reach below the labor intensity of the first few commodities of Group 3. If the indirect off-farm employment generated on the basis of the Mission estimation is added, one would arrive at the figure of approximately 66,000 man years generated.

UNCLASSIFIED

UNCLASSIFIED

-41-

Labor Intensity and Profitability

In the analysis of employment generation, profitability was used as a primary screen, production technologies and commodity alternatives were not considered unless they met the initial financial productivity requirements implied by the lending process of INCORA. The alternatives included are all financially productive, and the rankings of labor intensities are among the financially productive alternatives.

It would appear that the two rationing standards (profitability or labor intensity) are not entirely or even substantially contradictory. The twenty most profitable (return per peso invested) commodities, according to the 1969 figures of INCORA, include ten commodities from Groups, 1, 2, and 3, four commodities from our Group 4, and only six from groups 5 & 6. The contradiction which is often posed between maximizing employment generation and maximizing production is not at all obvious from the primary data for the agricultural sector. Ongoing analysis should shed considerable light on the trade-off between the two goals. At this stage, there is no clear indication that the losses to production are likely to be substantial if labor intensity were used as a secondary screen to allocate resources after a certain minimum financial productivity requirement were met.

Seasonality of Employment in Agriculture

No discussion of labor in agricultural production would be complete without reference to the importance of seasonal problems in the distribution of labor demand in primary production as well as processing and marketing activities. Seasonality is a very difficult phenomenon to measure because it depends on crop mix and seasonal variations between climatic subzones.

The seasonality of individual crops is easier to approach. Seasonality coefficients have been derived based on small farm data of INCORA for individual crops and these have been averaged for the seven crop groups used in the preceding portions of this analysis. Crop group 1, the group with the highest labor intensity, also had the lowest seasonality coefficient, meaning that there was less difference between the peak labor-demand-month and the average labor-demand-month. The

UNCLASSIFIED

UNCLASSIFIED

-42-

differences between commodity groups was not dramatic, however, and no significant correlation appears between labor intensity and low seasonality. It is important to realize that there was no negative correlation. In general, cereals had the highest seasonality of labor demand and Group 1, fruits and vegetables, the lowest. Group 6, livestock products, had the next lowest seasonality.

The commodity groups are ranked below according to the seasonality of their labor demand. The percent indicates the portion of a full year that a worker would be employed if this commodity were his only employment. There might be a certain percentage of the workers who would find full time employment in a crop whose average seasonality were 20% but when all the peak laborers are added, the total average for all workers employed in that crop should approximate the seasonality percentage shown below:

COMMODITY GROUPS RANKED ACCORDING TO SEASONALITY OF LABOR DEMAND

<u>Commodity Group</u>	<u>Percentage of Peak Labor Employment</u>
Group 1	42.87%
Group 6	35.50%
Group 3	35.40%
Group 4	29.71%
Group 2	29.21%
Group 5	20.72%

These figures overstate the seasonality of labor demanded but they do highlight the extremely seasonal nature of agricultural employment. Though seasonal labor problems can be minimized by intelligent choice of cropping patterns at the farm and regional level, the problem remains a serious impediment to the generation of consistent employment opportunities in the rural sector. If the labor generation figures which resulted from constraining the employment maximization by first internal and then external market constraints were adjusted to reflect the seasonality of the labor demand, it is clear that a much larger number of men would actually be demanded in the rural sector than the man-years of work created. It is difficult to estimate how many more men would be required, but double the man year figure would not be unreasonable, given what is known about the seasonality of labor demand for the crops included in small farms.

UNCLASSIFIED

-43-

2. Land Area, Use, Distribution and Tenure

a. Area

Colombia has a total area of 284,500,000 acres with 131,000,000 acres in the settled portion, of which 68,500,000 acres are usable for agriculture and 62,500,000 acres are not economically usable for this purpose (mountains, lakes, rivers, swamps, cities, etc.). The rest of the area of the country, 153,500,000 acres includes mainly the extensive Eastern plains and Pacific slopes.

b. Distribution of farm units by size

In 1960 the first and only Census of Agriculture was taken; it found that 76.5% of the farm units were smaller than 25 acres in size and represented only 9% of the area included in the enumeration; 20% of the units were from 25 to 250 acres in size and represented 25% of the area; and 3.5% of the farm units were larger than 250 acres and represented 66% of the area. While there are no subsequent enumeration census data it is estimated that the total agricultural land area in use has increased from 67,000,000 acres to 75,000,000 acres and the number of farm units from 1,210,000 to 1,700,000. The distribution of area relative to farm unit size has shifted slightly in favor of the middle and smaller size units.

c. Land use

The overall pattern of land use from 1969 estimate is: commercial crops 3.3%; agricultural fallow 2.2%; natural and improved pastures 18.2%; cities, towns, roads, etc. 2.9%; rivers, forests, lakes and swamps 4.7%. The remaining 68.7% is not in agricultural use. There are three identifiable movements underway which affect the use distribution. They are: colonization, the settling of lands not in use (moving some of the 68.7% into pastures and crops); conversion of natural grass into crop lands; and more intensive utilization to reduce the amount of fallow lands (through irrigation, drainage etc.). Colonization offers the best opportunities to extend the agricultural land area; the other efforts are use-intensification measures. INCORA programs focus directly on those measures which change the land use pattern through land

UNCLASSIFIED

UNCLASSIFIED

-44-

distribution (public lands) or redistribution (acquisition and titling of private lands) and thus reduce the degree of concentration of total area relative to size of farm unit.

d. Tenure

Tenure is the legal basis for possession and occupancy and occurs in various forms. Title, of course offers the most absolute security, but relatively few titles had been established prior to the advent of agrarian reform.

Over the 110 years from 1852 through 1961, when the Agrarian Reform Law was passed, only about 80,000 official titles to land were issued. Yet, from 1962 to 1970, INCORA granted 115,000 titles to 7.7 million acres. It is expected that between 1971 and 1975 up to 30,000 titles per year, or 150,000 titles covering some 8.8 million acres will be granted. Under this assumption, more than 16 million acres will have been titled by INCORA to 265,000 farmer-owners between 1962 and 1975. Thus, the acceleration in the rate of increase in titling would be substantial.

In addition to the formal issuance of title, many titles pass through various stages of subdivision. This is accomplished through a purchase-sale contract and an escritura duly recorded, which serves as a title. For example, a royal grant title issued in 1794 for 122,000 acres has been subdivided through the years to 72 owners as of 1964 (average unit size 1,700 acres). This is a straightforward distributional process, although squatter occupancy may occur at any of the stages of sub-division leading to the complications and conflicts inherent in "squatters' rights".

If titling before and after Agrarian Reform has created some 200,000 titles to date, the vast gap between this number and the estimated 1.7 million farm-units raises fundamental questions.

In attempting to relate the number of titles to the number of farm units, however, two problems emerge. One is the lack of data on the number of escrituras issued and current throughout Colombia at any given time. The other is the looseness of census definition discussed below.

UNCLASSIFIED

UNCLASSIFIED

-45-

The 1960 Census shows that:

(a) 62% of the farm units (755, 000) with 72% of the land area used were considered "PROPIAS" according to the tenural definition of the Census,

(b) 23% of the farm units (282, 000) with 7% of the land area used were rented or sharecropped, thereby implying existence of title or other secure tenural form sufficient to grant leaseholds,

(c) 4% of the farm units (47, 000) with 12% of the land area used were occupied without tenural form,

(d) 11% of the farm units (125, 000) with 8% of the land area used have some other form or forms of tenural arrangements which probably derive from custom or tradition.

The Census defines "PROPIAS" as private property that is land of the producer (farmer) with title, or without title: (a) if the land is permanently rented, rented for long term, or rented with terms varying from 30 to 99 years at a nominal rent or (b) if the land is without legal title or long term contract rental, but the producer occupies it peacefully and without interruption for over 30 years without paying rent.

Such coverage is so inclusive that it is almost meaningless for analytical purposes.

By deduction from the Census it is highly likely that the rented or sharecropped lands have title or escritura. It is also likely that many of the "PROPIAS" units have title or escritura tenure. Probably most of the two remaining groups have a weak or legally non-existent tenural base. This leaves the clear impression that the existing forms of tenure are inadequate and thus may impair various essential prerequisites to development.

The commonly ascribed benefits of an adequate tenural structure and system are that they provide:

UNCLASSIFIED

UNCLASSIFIED

-46-

- (a) The psychological feeling of security of ownership,
- (b) The basis for economic allocation of resource at least in part through resource pricing,
- (c) The basis for extension of credit,
- (d) The basis for taxation or assigning other fixed obligation against property.
- (e) The opportunity for farmers to change location or employment in response to economic alternatives.

The question of whether or not existing tenural forms in Colombia are, in fact, adequate to provide those benefits should be examined objectively. The findings of such an examination should be compared with the land reform program of INCORA which is defined and executed according to law. From that comparison the INCORA program might be reshaped to become more comprehensive, with greater clarity in definition and purpose, possibly with more simple procedures and with a broader basis of support.

3. Marketing

a. Price Stabilization Program

The GOC agricultural price stabilization program is oriented toward a prime objective of maintaining a level of prices that will assure the necessary increases in production to satisfy an expanding domestic demand and to increase exports of selected commodities. However, the level of agricultural floor prices are also designed to maintain stable prices for basic consumer goods as part of an overall economic stabilization effort.

For a number of years IDEMA and its predecessor INA have carried out price stabilization operations on selected storable commodities. The level of floor-prices have usually been announced

UNCLASSIFIED

UNCLASSIFIED

-47-

at planting time. The price stabilization agency has attempted to buy all of the product offered by farmers at the floor price. The announced prices have intentionally been somewhat below the anticipated open market price in order to encourage the commercial sector to handle the bulk of the commodities. At the same time however, they have been set high enough to cover the farmers' production costs and allow enough profit to keep stimulating production. Thus the idea has been to maintain a guaranteed floor price to farmers to protect them against the possibility of seasonal price fluctuations as a result of temporary excessive supplies or unexpected shifts in demand.

For many years the effectiveness of the price stabilization operations were hampered by a lack of public storage facilities and public funds with which to buy commodities. It was not always possible for farmers to sell their products to the price stabilization agency during the critical periods of harvest. In 1964, the GOC contracted for a major economic and engineering study of marketing and storage facilities. 1/ Related studies were conducted by INA, the National Marketing Institute, and ILMA, the Latin American Institute for Agricultural Marketing. 2/ Based upon these studies there has been a continuing program to substantially expand public facilities for grain storage (Exhibits 10 and 11 in Annex I). Currently an IDB loan is supporting a 50 percent increase in IDEMA storage capacity over the period 1970-1973. The program to expand public storage facilities also involves a major technological shift to modern facilities for cleaning, drying, classifying and mixing grains using bulk handling methods. If properly managed, the new facilities will reduce losses and facilitate the price stabilization efforts of IDEMA.

1/ Weitz-Hettesater Engineering, "Marketing and Storage Facilities for Grain and Tuberosa Crops" - Colombia - 1965.

2/ INA, "Proyectos de Plantas de Silos Tipica Para Almacenamiento de Arroz, Maiz o Trigo", 1964.

ILMA, "Feasibility Study for the Enlargement of INA's Grain Storage Network", 1964.

UNCLASSIFIED

UNCLASSIFIED

-48-

Although IDEMA has been maintaining floor prices for some 10 storable basic commodities (sesame, anis, rice, peas, barley, beans, corn, potatoes, sorgo and wheat), 87 percent of total purchases during the 1968-1970 period were concentrated in three commodities, rice, corn, and wheat. IDEMA purchases as a percentage of total national production were highest on wheat (17 to 40 percent). (See Annex I, Exhibit 11). Rice purchases were exceptionally large (21 percent of production) in 1969, a year when storage stocks that had accumulated from previous years put downward pressures on prices. Purchases of corn have ranged from 2 to 7 percent of total production while bean purchases reached 13 percent of production in both 1968 and 1969.

The available data are not sufficient to support a definitive evaluation of the agricultural price stabilization program. However, certain observations seem warranted based upon the information at hand including a recent consulting report by qualified AID - supported grain marketing specialists from Kansas State University. 1/

1. With the completion of present construction projects, the lack of suitable storage facilities should cease to be a serious limiting factor in carrying out price stabilization operations for basic, storable grains. To the extent there is still a facility problem it is probably in the interior, primary assembly market locations where farmers may still be long distances from IDEMA buying points. Hence, additional satellite buying stations may be needed to complement the silo type facilities in the larger assembly centers.

2. According to the Kansas State University Report, "effective utilization of modern silo facilities appears to be a major problem in Colombia and one that will tend to worsen as the additional facilities in the long-range plan come into operation. If the utilization problem is not corrected, the privately-owned silos, such as ALMACENAR, will have to be closed, and the IDEMA and INAGRARIO silos will not

1/ Richard Phillips and Harry B. Pfost, "Observations and Recommendations for Improving Grain Storage and Marketing in Colombia", Food and Feed Grain Institute, Kansas State University, Report No. 20, December 1970.

UNCLASSIFIED

UNCLASSIFIED

-49-

produce sufficient revenue to amortize the IDB loan to Colombia''
The KSU consultants offer the following 2/ recommendations to increase silo utilization:

- (1) Development of a public grain warehousing system.
- (2) Integration of grain merchandising with custom storage. This might require that IDEMA either lease facilities to private or semi-public entities or become involved in grain merchandising other than price support and import operations.
- (3) Shift toward bulk handling of grain with an official agency to supervise the weighing and grading operations. This would permit comingling of grain placed in storage by different owners.
- (4) Development of an analytical and managerial capacity to coordinate grain movements through the silo network. This should be supported by improved information and statistical services and a continuing program of personnel training and external consulting services.

b. Internal Rural-Urban Product Marketing Systems.

The increasing concern of GOC officials over problems of agricultural market organization can be attributed to several factors including the following:

- (1) The realization that effectively organized markets for both products and inputs will be needed as part of the public effort to expand job opportunities in agriculture and raise incomes of small farmers.

2/ Op. cit., p. 15.

UNCLASSIFIED

UNCLASSIFIED

-50-

(2) The rapid shift of population from farms and rural villages to larger urban centers, thus greatly increasing the demand for marketing services.

(3) The dissatisfaction of the lower income groups as expressed in the 1970 national elections. Since food is the largest item in the low-income family budget, reductions in food costs and improvement in marketing services could contribute greatly to the chances of social and political stability. In the aggregate, about 40 to 50 percent of total expenditures by urban households goes for food. But the poorest one-half of the urban families are spending 60 to 80 percent of their income for food, leaving relatively little for other goods and services. Approximately 40 to 50 percent of the urban consumers food outlay is attributable to marketing services involved in assembly, processing, storage, wholesaling and retailing.

A brief diagnostic description of the food marketing system serving the city of Cali will illustrate the nature of the market organization problems. These observations are drawn from a comprehensive study of the Cali urban food distribution system and the commodity production-distribution systems that link Cali with rural areas. ^{1/} Although there are regional differences in food production and consumption patterns, the basic structure of the marketing systems and the institutional settings are quite similar among the various Colombian cities and their related food supply areas.

The bulk of the food reaches Cali consumers through about 9,000 small retail outlets. There is an average of one retail food outlet for every 15 households. Food purchases by type of retail outlet were as follows for a representative sample of Cali households:

^{1/} Harold Riley, Kelly Harrison et. al., Market Coordination in the Development of the Cauca Valley Region - Colombia, Research Report No. 5, Latin America Studies Center, Michigan State University, East Lansing, 1970. This study was financed jointly by the GOC and AID and was carried out by a project staff composed largely of Colombians under the direction of Michigan State University staff members operating under a Regional AID Contract (La-364).

UNCLASSIFIED

UNCLASSIFIED

-51-

<u>Type of Outlet</u>	<u>Percent of Purchases</u>
Personal Services Stores (Tiendas and Graneros)	55
Public Market Retailers (Puestos and mobile vendors)	20
Specialized Outlets (meat, poultry, dairy and bakery products)	12
Self-service Stores	<u>13</u>
TOTAL	100

Because of the limited line of products handled by neighborhood stores and the inconvenience of the public markets, most consumers spend much time shopping for food. While public markets tend to offer lower prices and a better variety, the cost of transportation and time spent in searching these markets make it impractical for many of the lower income families to shop there. Consequently, they use nearby stores where prices tend to be higher and products are of lower quality.

Retailers, like consumers, also spend large amounts of time buying, assembling and transporting products to their places of business. Individual wholesalers handle relatively few products and offer few services to the retailer other than product availability and short-term credit at high interest rates. Most products are ungraded so the retailer usually finds it necessary to inspect each purchase. Consequently, early each morning thousands of small retailers converge on the wholesale market areas to search for their supplies and then arrange transportation to haul their purchases back to their stores. The physical congestion of vehicles and people in wholesale markets adds unnecessary costs to the food distribution system. Poor handling practices also contribute to significant losses of perishable products and unsanitary conditions which create health risks for consumers.

UNCLASSIFIED

UNCLASSIFIED

-52-

Many food processors find it impractical to use the existing system of food wholesaling to distribute their products. Hence, these processors have organized their own systems of distribution with trucks delivering small quantities of products to thousands of tiny retail stores. The unit costs of this type of distribution system is obviously very high. Improved vertical coordination of the commodity production-distribution systems which supply the large urban centers is also needed. The assembly function is costly because it often deals with the collection of very small quantities of poorly sorted products. It is risky because of the uncertain quality and the uncertainty of finding a profitable market. The channel from farmer to urban wholesaler may involve several transactions and considerable physical handling of the product. This is especially true of the fruits and vegetables. Furthermore, farmers and assemblers may not be able to successfully introduce improved practices, such as grading and packaging, without the cooperation of urban wholesalers. Hence, modernization of urban food distribution systems may provide greater economic incentives for improvements in assembly market operations. This points up the high degree of interdependency between the different stages in the production-distribution process and the need for pricing procedures and information flows that will effectively coordinate the various stages in the operation of the food system.

The Cali study ^{2/} identified several conditions which serve as constraints to the development of a more effectively coordinated food marketing system. Some of the principal constraints are the following:

- (1) A pervading attitude of distrust and antagonism toward intermediaries that is reflected in government policies of direct intervention in marketing, the procedures for enforcing price controls and the rules against speculation.
- (2) The lack of technical assistance, specialized training and credit programs to stimulate innovative behavior and improved performance in private sector food marketing activities.

^{2/} Op. cit., Chapter 7, pp. 346-62.

UNCLASSIFIED

UNCLASSIFIED

-53-

(3) The existence of specific laws and regulations which appear to have undesirable effects on the utilization of capital and labor resources in food marketing. These include labor codes, sanitary regulations, licensing procedures and price controls. 3/

(4) The prevalence of structural, attitudinal and knowledge constraints to innovative behavior among food marketing participants. The existing urban food retailers find it difficult to enlarge their businesses given the fragmented wholesale system, and the limited knowledge of retailers on how they might improve their operations. Small wholesalers and retailers, like small farmers, live close to the level of subsistence hence they cannot command significant amounts of credit nor are they willing to risk large losses. Even managers of larger firms who have access to capital, evidenced a conservative attitude toward the development of new markets and new products.

(5) The lack of reliable and timely information on agricultural production, prices and product flows over time and space. Programs have recently been undertaken to improve the basic agricultural statistical services of DANE and the current price information services of IDEMA. High priority should be given to the improvement of both the collection and rapid dissemination of this information to government agencies and private sector users.

The transport system is an additional barrier to effective coordination of regional and national markets. Many of the existing agricultural areas are poorly connected with the national highway network and there are relatively large areas of potentially productive agricultural land that remain relatively inaccessible because of the lack of penetration roads. 4/

3/ Op. cit., Chapter 6, pp. 315-23. Some important observations on labor laws were made in the ILO report, Towards Full Employment, Geneva, 1970, pp. 185-212.

4/ Ministry of Agriculture, "Memoria July 1969 to July 1970", Bogota.

UNCLASSIFIED

UNCLASSIFIED

-54-

Further analysis seems to be needed to identify projects where road extensions and improvements would yield the higher returns. Also, it would be desirable to explore the possibilities of using more labor-intensive methods of constructing rural roads in areas where under-employment is prevalent and the potential benefits of improved roads justify the additional investments.

One of the principal recommendations that grew out of the study of rural-urban marketing systems in the Cali area was to create a semi-public regional marketing entity to coordinate the development of a more modern food distribution system in Cali and its related rural food supply area. Such an agency has been organized in Cali and a similar program is also being carried forward in Bogota. The general pattern of activities projected by these agencies is described below.

(1) Assessment of needs for food wholesaling and processing facilities, and preparation of feasibility studies and detailed plans for constructing and financing of these facilities.

(2) Supervision of the construction of wholesale food marketing facilities, leasing of space to private sector occupants, and general management of the wholesale center operations excluding the actual purchase and sale of commodities.

(3) Provision of technical assistance to private enterprise to stimulate the development of a more efficient and progressive system of wholesaling and retailing. These activities are to be supported by supervised credit program involving the regional marketing development agencies and banking institutions.

(4) Stimulating improvements in commodity marketing channels extending from urban wholesale buyers through rural assembly operations and back to producers. This activity would require coordination with other public agencies such as ICA, INCORA and the Caja Agraria.

This approach to introducing some major changes in the internal food marketing system represents a significant policy shift and is somewhat controversial. However, the Presidential Committee

UNCLASSIFIED

UNCLASSIFIED

-55-

appointed to evaluate the agrarian reform program strongly recommended this regional approach to marketing improvement as the most rapid and efficient way to benefit simultaneously rural producers and urban consumers by reducing marketing costs. 1/

c. Processing of Agricultural Products

There are wide differences in the organizational structure of processing activities for the principal agricultural products. There are relatively large, capital intensive units that manufacture refined sugar, cotton yarns and textiles, vegetable oils, chocolate, powdered milk and selected grain products such as corn starch and malt for the brewing of beer. Flour and rice mills are mostly intermediate in size. The processing of meat and dairy products (other than livestock slaughter and milk pasteurizing), baking and pasta manufacturing is predominantly by small firms. There are a few medium to large fruit and vegetable processing firms but most of these perishable products move directly to consumers as fresh produce.

A 1969 study 2/ of food processors revealed the following problems that serve as constraints to the expansion of processing activities:

1. The shortage of sufficient volumes of suitable raw materials is a severe limiting factor affecting fruit and vegetable processing.
2. High packaging costs affect all processors using metal and glass containers for finished products. At current prices the containers are frequently more costly than the raw products placed in them. The price of the processed product is often beyond the purchasing power range of most medium and low income families.

1/ Informe de la Comision Evaluadora de la Reforma Agraria, January 30, 1971, p. 155.

2/ PIMUR, Market Coordination in the Development of the Cauca Valley Region - Colombia, 1970.

UNCLASSIFIED

-56-

3. The lack of an efficient wholesaling system to assemble processed food products from manufacturing firms and distribute these products to individual retail outlets.

4. Price controls on a number of processed foods require manufacturers to sell at a fixed price throughout the country. This makes it unprofitable to expand sales in distant market areas and may restrict the opportunity to achieve scale advantages in manufacturing.

5. Small and medium-sized food processors often cannot obtain adequate credit to finance operating expenses and capital investments. Large firms were generally able to meet their financial needs.

6. Small and medium-sized firms also found it difficult to obtain competent assistance on technical and management problems.

It would appear that the current efforts of the GOC to expand employment should include actions to stimulate the development of efficient and progressive food processing operations. In many instances the processor can serve a critical role as the promoter and coordinator of an integrated production-processing and distribution system for specific products in a particular geographic area. The processor may provide technical assistance and help the producer obtain the credit needed to purchase inputs.

Public agencies, such as ICA and INCORA, might be able to increase their effectiveness through cooperative research and extension activities involving food processing firms. This would seem to be especially important in "pilot project" areas where attempts are being made to stimulate the production of labor intensive fruit and vegetable products for both domestic and export markets.

d. Agricultural Input Marketing

As economic development occurs the manufacture and distribution of farm production inputs such as fertilizers, improved seeds, pesticides, machinery and feed concentrates becomes an increasingly important component of the agricultural production process. The more general aspects of the production and farm utilization of agricultural inputs is discussed later in this paper. Hence, only selected aspects of the distribution system will be covered at this point.

UNCLASSIFIED

UNCLASSIFIED

-57-

Public agencies are heavily involved in the distribution of agricultural inputs. The Caja Agraria, a Government-backed agricultural development bank, operates 13 distribution centers and 435 farm supply stores. The Caja's agricultural input division was established in 1952 to make supplies more broadly available to farmers at the lowest possible prices. By 1970 total retail sales through Caja stores had risen to U. S. \$25 million. More than one-half of its sales were in fertilizers, drugs, and agricultural chemicals.

Some of the large producer associations (coffee, rice, cotton) operate distribution systems for major farm inputs such as seeds, fertilizer and agricultural chemicals. INCORA has organized 30 local cooperatives which operate farm supply outlets.

In retrospect, there is much evidence to indicate that the Caja Agraria agricultural input program has made significant contributions to the development of Colombian agriculture. Among those contributions has been the development of technically-sophisticated and reasonably efficient processing and distribution systems for improved and certified seed. The opening of retail farm supply stores and related credit facilities no doubt increased the availability and use of technical farm inputs during a critical period in the development of Colombian agriculture.

However, given the emergence of a strong commercial farming segment in the agricultural sector and the establishment of viable private sector manufacturers and distributors of most farm inputs, it may be an appropriate time to re-examine the future role of the Caja Agraria's agricultural input supply system. The present GOC agricultural policies would suggest that the Caja input program might be revised to focus greater attention toward supplying inputs to areas where special agricultural development programs are being carried out and where these efforts are not likely to be adequately serviced by the private sector. Existing retail outlets in the more developed agricultural areas could be sold to private sector operators or in some instances these outlets might be converted into local cooperatives. Obviously such a reorganization of the Caja's operations should be preceded by an appropriate feasibility study to support any policy decision that might be made by the directive

UNCLASSIFIED

UNCLASSIFIED

-58-

council for the Ministry of Agriculture and the management of the Caja Agraria.

Improved Seed -- Colombia has a well developed and reasonably efficient production-distribution system for improved seed. ICA is primarily responsible for developing new varieties. Seed stocks are multiplied, processed and distributed by Cresemillas (a Caja Agraria enterprise). Proacol (a private corporation) and a series of commodity organizations (rice, barley, cotton, tobacco).

The availability and use of improved seed has expanded rapidly, especially in crops produced for commercial processing. By 1967 more than 80 percent of the land area planted to soybeans, grain sorghum, tobacco and cotton was planted with improved seed. A much lower percentage of the land area devoted to traditional crops such as corn, beans and potatoes was being planted with improved varieties.

According to a 1969 study the existing plant capacity for seed processing could support at least two to three times the volume of product being handled at that time. (Table I-6). Also, since 1969 there has been further expansion in the facilities of Cresemillas, with a major addition to the Cauca Valley plant.

TABLE I-6

PLANT CAPACITY FOR PROCESSING AND HANDLING IMPROVED SEEDS FOR MAJOR GRAINS AND LEVEL OF PLANT UTILIZATION, COLOMBIA 1968

<u>Agency or Entity</u>	<u>Plant Capacity (Tons)</u>	<u>Production (Tons)</u>	<u>Percent Plant Utilization</u>
Cresemillas (Caja Agraria)	32,000	8,566	26.8
Fedearroz	46,000	9,016	24.6
Procebada	7,200	2,102	29.2
Agrosoya	3,000	831	27.7
Proacol	2,700	1,817	67.3

Source: Market Coordination in the Development of the Cauca Valley Region-Colombia, Res. Rept. No. 5, Lat. Amer. Studies Center, Mich. State Univ., 1970. p. 227.

UNCLASSIFIED

UNCLASSIFIED

-59-

Cresemillas is the price leader on the seeds which it handles, in competition with the private entity, Proacol. However, it appears that the private firm is providing effective service and product quality competition with particular success in serving the larger commercial farmers.

To the extent that there are significant constraints in the production and distribution of improved seed they are centered in three activities: (1) the continued process of developing new crop varieties adaptable to the wide range of climatic conditions in Colombia; (2) maintaining adequate quality controls in the multiplication and distribution of "certified" and improved seed; and (3) the wider distribution and use of improved seed by medium and small farmers in combination with technical assistance, credit and other complementary inputs that would contribute to the profitability of the added costs of improved seed.

Fertilizers -- The fertilizer industry has developed rapidly in Colombia. Nitrogen fertilizers are produced domestically by three plants on the North Coast -- AMOCAR, owned by Esso International; FERTICOL, a mixed economy company; and MONOMEROS, jointly owned by the governments of Colombia and Venezuela. Much of the rock phosphate and all of the potash raw or intermediate materials are imported. There are four large mixing and blending entities -- ABOCOL, an Esso International Corporation, SUIFACIDOS, MONOMEROS and the Caja Agraria.

It appears that Colombia now has sufficient nitrogen production capacity and fertilizer mixing and blending capacity to adequately satisfy likely demand through the 1970's.^{1/} (Tables I-7 and I-8) (Detailed information on fertilizer production and use appears in Section 5 of this paper.)

Fertilizer pricing appears to be effectively competitive, with the Caja Agraria acting as a price leader through its semi-annual

^{1/} I. W. McCarmey and D. R. Waggoner, "Engineering Evaluation of Selected Fertilizer Production Facilities in Colombia" Tennessee Valley Authority, Bulletin Y-10, Aug. 1970, Prepared for AID.

UNCLASSIFIED

UNCLASSIFIED

-60-

negotiations with suppliers. The level of fertilizer prices has continued to be slightly higher than in the U.S. but there is a possibility that fuller utilization of production and mixing facilities may lead to modest cost and price reductions.

TABLE I-7ESTIMATED AMMONIA PRODUCTION CAPACITY FOR FERTILIZERS,COLOMBIA

<u>Producer</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
		<u>Thousands Metric Tons</u>		
AMOCAR	100	125	130	130
FERTICOL	12	15	20	20
MONOMEROS	--	<u>5</u>	<u>30</u>	<u>45</u>
TOTAL	112	145	180	195

Source: Tennessee Valley Authority Bulletin Y-10, Engineering Evaluation of Selected Fertilizer Production Facilities in Colombia, 1970, p. 4.

TABLE I-8ESTIMATED PRODUCTION CAPACITY, MIXED FERTILIZER, COLOMBIA

<u>Entity</u>	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>
		<u>Thousands Metric Tons</u>		
ABOCOL	125	125	135	150
CAJA AGRARIA	38	80	90	100
SUFACIDOS	35	45	50	60
MONOMEROS	--	18	80	170
OTHERS	<u>34</u>	<u>54</u>	<u>64</u>	<u>64</u>
TOTAL	232	322	419	544

Source: (Same as for Table I-7 above - p. 5)

UNCLASSIFIED

UNCLASSIFIED

-61-

The transportation of fertilizer from north coast plants to interior agricultural areas is costly and sometimes poorly coordinated with seasonal needs of farmers. Consequently, local retail outlets are frequently out-of-stock while at other times inventories are very large. Farmers might be better served and costs actually reduced with better inventory control and more careful scheduling of deliveries. Forward sales contracts with farmers, especially the larger operators, could also reduce uncertainties and lower distribution costs. 1/ There are continuing complaints about the poor quality of mixed fertilizers. Samples taken by AID-sponsored consulting experts from the TVA confirms the lack of quality control. 2/

Pesticides -- Most of the pesticides distributed in Colombia are produced by foreign-owned firms with imported raw materials. Solvents and emulsions for pesticides are produced in Colombia but there have been problems with the quality of these materials.

On the basis of an industry survey made in 1968, it was estimated that existing producing firms were operating at 40 to 50 percent of capacity. 3/ Manufacturers indicated they were having difficulties with import permits for raw materials and that retail price controls had squeezed the profit margins in their operations as well as for retailers. As a result some products were being dropped and production quality standards were being adjusted on other items.

Pesticides are widely used by commercial producers of grain, cotton, potatoes and certain fruits and vegetables. Herbicides are

1/ Market Coordination in the Cauca Valley Region, Colombia p. 263.

2/ McCarmey and Waggoner, op. cit., p. 19.

3/ Market Coordination in the Development of the Cauca Valley-Colombia, 1970, p. 246.

UNCLASSIFIED

UNCLASSIFIED

-62-

used extensively by rice, wheat and barley producers.

About one-half of the pesticides are distributed through the Caja Agraria and the various farmer federations (rice, cotton, etc.). Several of the larger manufacturers maintain their own agronomist salesmen who make direct contacts with the larger farmers and offer technical advice on pesticide applications. These salesmen also call on other, publicly employed agronomists to promote their firm's products and to pass along technical information. The manufacturers and their distributors are also making extensive use of newspaper advertising and other means of promoting their products.

Farm Machinery -- Agricultural production is highly mechanized in some of the more productive, relatively level valleys of Colombia where commercial production of grains and cotton is being carried out on medium to large farms. For example, in the Cauca Valley it is estimated that over 90% of the cultivated acreage is under tractor powered cultivation. However, in the mountainous areas where a very high percentage of rural population is located there has been relatively little application of tractor power or even animal drawn cultivation equipment. ICA has recently devoted considerable effort toward the development of a small tractor but this has not as yet been produced and distributed on a commercial basis. Foreign firms have also been investigating the possibilities of expanding sales of small tractors in Colombia.

Historically, a very high percentage of the farm machinery has been imported. However, since 1964 there has been an attempt to expand local production of replacement parts and cultivation equipment such as plows, discs, harrows, planters and row-crop cultivators. Domestic production of agricultural machinery received import protection and credit assistance. However, product quality has often been subject to criticism by farmers and prices are frequently higher than comparable imported items. (Agricultural machinery is discussed further in Section 5 below).

Tractors and other major equipment items are being imported on favorable terms. Import duties on tractors are only 2 percent. In order to encourage importation, the Caja Agraria provides an import clearance and financing service to certain qualified private

UNCLASSIFIED

UNCLASSIFIED

-63-

distributors. The distributor can also make his own arrangements for importation. In either case, a gross margin of 37 percent of the equipment purchase price is the maximum permitted by government regulation. This has the effect of establishing an upper limit on retail prices.

There appear to be adequate arrangements to facilitate the import of tractors and other major equipment items. However, interviews with farm machinery distributors and farmers indicate that the ordering of spare parts is less satisfactory. Consequently, there are frequently serious delays in repairing equipment. To cope with this problem some farmers maintain extra large tractor and equipment inventories. 1/

Feed Concentrates -- Feed concentrate production has increased rapidly in recent years with over 70 percent of the production capacity being owned by three firms. About 90 percent of the raw materials are domestically produced. Imported ingredients are primarily fish and animal protein meals, vitamins and other minor ingredients. Occasionally, small amounts of basic feed grains (corn and sorghum) are imported by IDEMA to alleviate temporary domestic shortages.

Feed concentrate prices have been relatively high reflecting the high cost of feed grains in the protected local market. During 1969, domestic corn prices were 50 to 60 percent above the world market prices, and the gap was even wider in 1970 when feed grains were in short supply in Colombia.

A large proportion of the feed concentrates go into poultry and egg production with lesser amounts being used by milk and pork producers. Several of the larger poultry and egg producers have been installing their own feed mixing equipment to realize lower costs and higher quality products. 2/

The channels for distributing feed concentrates to commercial poultry and dairy producers are reasonably well developed. Large buyers are often served directly from the feed mills while smaller, and more distant buyers are serviced through independent distributors.

1/ Market Coordination in the Development of the Cauca Valley Region - Colombia, 1970, p. 253.

2/ PIMUR, Poultry and Egg Production and Distribution in the Cali Area, 1970.

UNCLASSIFIED

UNCLASSIFIED

-64-

The Manufacturers and distributors provide considerable technical assistance through feeding demonstrations and direct consultation with buyers. Feed concentrates can also be purchased through small farm supply stores in rural trading centers.

There are two problem areas in the production and distribution of feed concentrates. By far the most important is the high cost of domestic feed grains and the uncertainty of supplies. The other problem concerns the maintenance of quality control which is aggravated by the scarcity and high prices of basic raw materials. ICA is the agency responsible for supervising quality controls.

e. Export Marketing

The expansion of non-traditional (minor) exports is a high priority goal of the GOC. The 1970-73 Plan for Social and Economic Development projected a 20 percent annual growth rate in non-traditional exports. Subsequently, on April 13, 1971, the GOC announced a more ambitious goal of expanding minor exports by more than 40 percent per year over the next three years. 1/

During the past three years (1968-1970) traditional exports (coffee and petroleum) provided about two-thirds of total export earnings (Annex I, Exhibit 13). During late 1969, and early 1970, a sharp increase in world coffee prices boosted the dollar value of Colombian coffee exports. By late 1970 and early 1971 New York coffee prices had fallen back from the peak of about 57 cents per pound to less than 50 cents. This downward adjustment in coffee prices has created a greater sense of urgency concerning efforts to expand minor exports.

From 1968 to 1970 agricultural and forestry products have accounted for about two-thirds of all minor exports (Table 1). During this three year period these minor agricultural exports have been increasing about 10 to 15 percent annually.

1/ El Tiempo, April 13, 1971.

UNCLASSIFIED

-65-

Some estimates of the possibilities for expanding exports of specific agricultural commodities are summarized in Exhibit 14, of Annex I to this paper. Based upon these estimates it seems probable that annual increases in exports of bananas and tobacco will be no more than 5 percent; sugar, as much as 10 percent; beef, cotton, fresh fruits and vegetables, and oilseed meal as much as 20 percent. Much higher rates of growth might be realized for forest products, seafoods, flowers, fresh fruits and vegetables.

The actual expansion of minor agricultural exports will depend upon many factors. For basic commodities such as cotton, and oilseed meal it is mostly a problem of expanding output and sales at competitive world market prices and for sugar at U. S. quota or world sugar agreement prices. These are relatively standardized products for which there are established export marketing arrangements. For many of the other products there will need to be aggressive, well-coordinated efforts to identify export market opportunities and to organize production, processing, and transportation systems that will satisfy the specific export market demands and stimulate the needed volume of output.

The GOC has initiated several program activities to stimulate exports. PROEXPO is a national agency created in 1968 for the promotion of exports. To date much of the Agency's efforts have been devoted to the promotion of manufactured products in potential foreign markets and to direct assistance to Colombian firms attempting to arrange export sales contracts. The government also provides a significant and recently improved subsidy to minor exports through a 15 percent tax credit (CAT).

Within the agricultural sector IDEMA has been given broad responsibility for developing new export outlets for agricultural products. This includes authority to finance producer associations and to create export marketing commissions that would carry out coordinated commodity export programs. These commissions would be allowed to execute export contracts and to carry out all the functions necessary to fulfill the contracts. To date, IDEMA has organized an export commission to expand beef exports. During a twelve-month period beginning in September 1969, IDEMA has exported 85,000 head of live cattle under a contract with the Peruvian Government. An additional 105,000 head have been contracted for delivery

UNCLASSIFIED

UNCLASSIFIED

-66-

during a 16-month period that began in October, 1970. Meanwhile, government backed private firms have been exporting chilled beef to Peru, and certain Caribbean islands. Some frozen beef has been shipped to Spain. In addition, there continues to be a significant volume of unregistered cattle exports to Venezuela (variously estimated at 100,000 to 125,000 head per year).

It appears that the major constraint on beef exports has been the slow rate of expansion in domestic output (about 3 1/2 percent per year when adjusted for cyclical movements) while domestic demand has been increasing at about 5 percent per year. It appears that 1966-68 was a period of cyclical reduction in cattle slaughter. A cyclical expansion in slaughter which began in 1969 should continue through 1971 or possibly 1972 if past cyclical patterns are repeated. Unless there are significant improvements in beef production efficiency during this period, it will be difficult to continue expanding beef exports without experiencing higher domestic prices. There are other constraints on beef exports including the presence of aftosa in many of the Colombian cattle herds. This disease not only hampers output expansion but also makes it impossible to sell live cattle, chilled or frozen beef in the United States and to other aftosa-free market areas. The GOC is continuing to wage a vigorous campaign to eradicate foot and mouth disease with IDB financial assistance, but this is an extremely long-term undertaking. The shortage of adequate slaughtering facilities and the unsanitary handling practices in many existing plants has also been a constraint on Colombian beef exports. However, some new facilities have been constructed and additional investments in slaughterhouses are under consideration, part of which are being financed by an AID project loan.

It is generally recognized that an expansion of beef exports will contribute relatively little toward the creation of additional employment although it would certainly provide badly needed foreign exchange. Thus, it is highly important that more labor intensive agricultural export possibilities be identified and promoted.

UNCLASSIFIED

UNCLASSIFIED

-67-

Currently, the GOC policy is to substantially expand efforts to assist small farmers through INCORA, ICA, the Caja Agraria, the Coffee Diversification Fund and other agencies. An important dimension of these programs is to stimulate production of fruits and vegetables for both domestic and export markets. Colombia has the environmental conditions for the production of a wide variety of fruits and vegetables and many of these could be exported to the U.S. and other markets in both fresh and processed forms. If this could be done it would provide substantial amounts of employment and would also stimulate much needed improvements in the domestic production and marketing system for fruits and vegetables.

Some of the problems to be confronted in promoting exports of fruits and vegetables are as follows:

1. The present methods of producing and marketing fruits and vegetables are not well organized to meet the discerning demands of export buyers. Product quality is highly variable, packaging and handling methods are very rudimentary.
2. There has been little research carried out by ICA to develop improved varieties of fruits and vegetables or to examine other production-related problems.
3. The fruit and vegetable processing industry is relatively small, although there are a few firms that have developed successful operations to serve a relatively narrow domestic market.
4. Packaging costs tend to be high for processed fruits and vegetables, especially so when packed in metal containers. However, there is an expanding and relatively progressive group of firms that are producing packaging materials.
5. A government-supported institute (Instituto de Investigaciones Tecnológicas) has conducted studies on food processing and handling problems, but much additional work would be necessary to support a major effort to expand fruit and vegetable exports.
6. Air transport rates to the U.S. are relatively expensive (U.S. \$0.30 to \$0.50 per kilo), although lower rates could probably be

UNCLASSIFIED

UNCLASSIFIED

-68-

negotiated on volume contracts. There is also the problem of working out a backhaul.

To date actual exports of fruits and vegetables have been negligible. CECORA has exported a few grapes from Valle and they are planning some exports of melons and okra from the Atlantic Coast. COLFRUTAS, a producer association originally financed by the Caja Agraria, has made an experimental air shipment of fresh pineapples to the U.S., but sustained shipments will have to await an expansion in farm production which is now underway.

If these various efforts to expand exports of fresh fruits and vegetables are to be successful it will require carefully organized production and marketing programs with contractual arrangements linking foreign buyers with local marketing entities who in turn may find it necessary to contract with farmers. Production scheduling, quality control, packaging, and transportation must be carefully coordinated to satisfy foreign produce buyers.

Colombian exports of lumber and forest products increased rapidly from U.S. \$3.7 million in 1965 to U.S. \$7.5 million in 1969. It is believed that present forest resources would support a substantial expansion in export activity and that much of the export sales could be processed wood products (see Annex I, Exhibit 15). Both the harvesting and processing activities are relatively labor intensive.

Much of the timber resources are in relatively inaccessible areas. Most of the lumbering has been done by small operators who sell logs to the sawmills, plywood and pulp mills. Harvesting and sawmill technologies are primitive and wastage tends to be high.

INDERENA, a public agency in the Ministry of Agriculture, is responsible for the administration of the nation's forest resources. A concession system for timber harvesting is now in operation. However, the agency lacks basic information on forest inventories and other basic data needed for administering a long-term management program. Related to the information problem is the lack of trained personnel to carry out studies and to manage forest resources.

UNCLASSIFIED

UNCLASSIFIED

-69-

If wood exports are to be expanded it will be necessary to provide greater support to INDERENA and to the private firms engaged in harvesting and processing. PROEXPO can assist in arrangements for export contracts but credit and technical assistance must also be provided to local firms. The government is interested in stimulating the participation of foreign firms who might assist in the development of a forest products industry. (USAID is providing some \$80,000 in technical assistance to PROEXPO in this field in FY-1971-72.)

4. Agricultural Credit and Capital

a. Availability

Credit availability has expanded substantially over the past four years.

Between 1966 and 1970 the total agricultural credit portfolio expanded 36 percent to reach \$443.2 million by the end of 1970. The amount of new loans granted in 1970 totaled \$277.1 million, or 25 percent greater than in 1966. Comparing 1970 with 1969 the total portfolio grew by 2% but new loans decreased by 6.6% an indication that the terms of loans are lengthening.

The five major sources of agricultural credit are: The Agricultural Bank (Caja Agraria) with 55% of the total portfolio and accounting for 53% of 1970 new loans; commercial banks with 22% of the portfolio and 29% of new 1970 loans; the Livestock Bank (Banco Ganadero) with 15% of the portfolio and 13% of new 1970 loans; INCORA with 6% of the portfolio and 3% of the new 1970 loans; and COFIAGRO with 2% of the portfolio and 2% of the new 1970 loans. Growth occurred in both portfolio and new loans for all agencies except commercial banks, which showed a decline in total portfolio held from 33.8% to 22.2%, and a decline in percentage of total new loans from 42.7% to 28.8%. The direct INCORA percentage share of total new loans made declined from 3.6% to 2.9%, but nearly half the INCORA portfolio and new loans made are now included in the accounts of either the Agricultural Bank or Livestock Bank.

UNCLASSIFIED

UNCLASSIFIED

-70-

b. Uses of Credit

The three major uses for which credit is extended are crops, livestock and capital improvements. In 1970, 41.3% of the total portfolio and 56.8% of the total of new loans were related to crops; 42.9% of the portfolio and 28.8% of new loans were related to livestock; and 15.8% of the portfolio and 14.4% of new loans were related to capital improvement. Comparing the distribution by use between 1966 and 1970, the crop portfolio declined by 3.4 percentage points and new loans by 2.1 points; the livestock portfolio declined by 1 point and new loans for livestock fell 5.3 points. Capital improvements increased by 4.2 points in portfolio share and by 6.4 points in new loans. Thus along with the growth in aggregate credit there are noticeable shifts in credit use favoring capital improvements over crop and livestock financing. Since all components continue to grow, the shift toward capital improvements gives increasing emphasis to modernization and commercialization.

c. Credit Distribution

There are over 4,000 offices extending credit covering the agriculturally productive areas of Colombia. Commercial bank offices are most numerous, totaling about 3,000, the Agricultural Bank has over 800 offices, INCORA has 130 zone offices, the Livestock Bank has 70 branches and COFIAGRO has one central office in Bogota.

The permanently settled areas normally have several credit sources available. Farmers in the colonization areas are served principally by INCORA and the Agricultural and Livestock Banks. Credit-extending agencies are reasonably well dispersed geographically, but accessibility of farmers to credit sources is a constraint because of lack of roads and the lack of transport.

The distribution of credit among borrowers depends upon credit purpose and borrower criteria. The 1970 World Bank Report (WH-200) Appendix E page 11, states "only about 25% of bank credits are advanced as a result of a detailed technical appraisal of requests. Credit worthiness of the applicant, not the expected return of the

UNCLASSIFIED

UNCLASSIFIED

-71-

investment, is the only consideration of much bank lending in Colombia." The Agricultural Ministry has noted that 23% of the farmers have access to institutional credit, while 77% depend upon private sources often under usurious conditions.

In 1970, the Agricultural Bank had 72.5% of its portfolio loaned to clients with gross assets of \$16,250, or less. An additional 17.2% was loaned to clients with less than \$55,000 gross assets. This is a big increase in small farmer lending since 1969. INCORA lending goes to small and medium farmers. Livestock Bank lending principally funds large enterprises, while commercial banks primarily lend to medium and large producers, and the Coffee Bank provides substantial funding to small farmers. In general credit distribution among borrowers has tended to concentrate funds on the medium to large producers, but this tendency has been diminishing in the past few years.

d. Credit Costs.

The cost of credit to the borrower ranges from 9% annually for INCORA to 14% for other lending institutions. With an inflation rate of about 8% per year the real cost of credit to the borrowers is minimal. To the borrower the time cost of credit is no constraint. But to the extent that there is a time cost for lenders to acquire funds for lending (e. g. borrowing or savings), and where lenders operate inter-sectorally with opportunity costs differing among sectors, a constraint can exist. It may take the form of a time cost subsidy in a public entity (e. g. INCORA), as a transfer by borrowing for agricultural production, but investing agricultural proceeds in other sectors yielding higher return.

e. Capital Investment

(i) The credit agencies noted above provided about \$70 million in portfolio terms and \$50 million in new 1970 loans. The Agricultural Bank alone provided \$49 million in portfolio and \$19 million of new loans in 1970. These funds support development of small rural industries, seed multiplication and distribution, housing and facilities for providing agricultural inputs. The Livestock Bank has a portfolio of \$14 million and provided \$19 million in new loans in 1970. Those funds finance working capital for commercialization of the industry, housing

UNCLASSIFIED

UNCLASSIFIED

-72-

and facilities and industrial processing of livestock products, COFIAGRO finances the commercialization of agricultural products, principally for export. COFIAGRO initiated operations in 1968 and as of 1970 had a portfolio of \$7 million and new loans of \$11 million.

(ii) Major elements of the GOC sectoral investment budget which accelerate capital formation in agriculture are:

IDEMA - Principal function is marketing. Plans call for an increase of IDEMA's existing grain storage capacity by 50% in the 1970-1973 period. This expansion will cost \$9 million annually, half of which is provided by the IDB. Cotton ginning facilities receive about \$1 million per year in investment funds. There appears to be no significant investment constraint for grain storage and ginning.

INDERENA and the industries utilizing renewable natural resources have numerous sources of credit available to them. The Government sources are located in Caja Agraria, Fondo de Promocion y Exportaciones, and Instituto de Fomento Industrial. INDERENA is expanding its investigations survey, administration, and systems which bear directly or indirectly on making timber, fish and wild animals available for exploitation according to the best known practices. For those purposes the capital formation portion of the INDERENA budget was \$2 million in 1969 and will rise to an estimated \$3 million by 1972. These public contributions are expected to induce a rapidly rising level of private capital investment.

INCORA's budget provides for an investment of \$12 million in 1971 increasing to \$14 million in 1972 for farm land improvements and roads.

ICA develops human resources which are not normally countable in capital formation. However, ICA has 26 experimental farms for crop and livestock experimentation and development which can be counted as physical capital. Results from research in terms of improved germ plasm and better methodology carried to the farmer through the extension services has a marked influence on capital formation although this influence is difficult to quantify.

UNCLASSIFIED

UNCLASSIFIED

- 73 -

In the aggregate the GOC agricultural investment budget provides an identifiable amount of about \$170 million for capital formation in 1971.

(iii) External financing consists of U.S. assistance, other foreign financing (see Annex Table 6) and private foreign investments. U.S. assistance to the agricultural sector was \$30.3 million in 1970 and is projected for 1971 and 1972 at \$38 million and \$34.6 million respectively. The disbursement rate, therefore, is about \$35 million per year with i. e. \$11.3 million, for production credit and marketing, \$8.46 million, for capital formation, roads, natural resources and infrastructure, and \$8.51 million, for development of human resources, e. g. research, extension and planning. Loans to agriculture by year from various international entities are shown in (Annex I Exhibit 8). Of the total \$102 million of loans granted to agriculture in the 1967-1970 period about half, \$53.7 million, supported credit for production and just less than half, \$49 million, financed capital formation.

External private investment for capital formation in the agricultural sector is estimated at a rate of \$4 million per year. Thus, the estimated total of public and private foreign investment in capital formation is \$22.6 million in 1971, or combined with \$25.4 million of GOC funding, provides a total of \$48 million for 1971 exclusive of farm production generated capital formation. Credit agencies are expected to add about \$75 million in 1971 to their capital formation portfolio and about \$60 million in new loans. That would raise the total of investment to \$123 million. This contrasts with credit availability for crops and livestock combined of an estimated 1971 portfolio of \$380 million and \$310 million of new loans. There are no criteria to establish the optimal distribution of investment funding between production credit and capital formation and we lack a quantification of the amount of private domestic (e. g. farm) capital formation. It does appear that capital formation in the sector may be lagging and attention should be given to accelerating capital formation in the future.

(iv) Domestic private investment for capital formation is not quantifiable. Credit generated increases in agricultural production and income convert to capital formation at the farm level and into linkages with agro-industrial services involving agricultural inputs

UNCLASSIFIED

UNCLASSIFIED

-74-

and products. Among small farmers credit generated income gains go primarily to farm capital formation, e. g. net worth increases. (See Part f. following).

Capital formation for major crops, e. g. coffee and sugar, appears adequate. Colombia, now approaching self-sufficiency in vegetable oils, has, at least, adequate and perhaps excess oil extraction capacity. As noted above, a serious effort to induce capital formation for exploiting renewable natural resources is under way. Considerable attention is given to cacao production, but capital investment for prudent elaboration seems adequate from private sources.

f. Employment and Production Impact

An evaluation of the INCOBA credit program in terms of dollar values shows that for a single farm plan with an average term of 1.3 years duration financed by \$1,000 of credit, an estimated .374 man years of off-farm and .258 man years of on-farm employment is generated. The average increase in the value of gross product sold is \$675, the net cash return to the farm and family increases by \$170 per plan. The average increase in net worth is \$460 per plan and the family level of living increases \$187 per plan.

As small farmer borrowers pass through a sequence of plans they continue to show marked progress. As measured from the results at the end of their first plan through the sequence: gross product sold increases at a compound rate of 14% per year, labor hired increases 15%, inputs purchased 11%, family living level 6%, farm and family cash generated 37%, net worth 9% and farm size 4%. As measured from an estimated performance level prior to entering the credit program through the sequence: gross product, up 24% per year, labor hired up 46%, inputs purchased 22%, family living level, up 25%, farm and family cash generated, up 41% net worth, up 21% and farm size, up 16% all in compound rates in constant money value. On the average, it takes 4 to 6 years to complete the plan sequence as currently operating. From that point on farmers graduate to other credit sources or simply provide their own financing. Their cash

UNCLASSIFIED

UNCLASSIFIED

-75-

flow is sufficient to permit their retirement of supervised credit debt over 4 to 8 years, depending upon the type of enterprise and length of loan terms. (For details See Annex I, Exhibit 16). The financing to be provided by this loan for credit is expected to generate comparable rates of farmer development, employment generation and production increase.

5. a. Physical Inputs (Machinery)

Availability and Cost

Tractor usage has increased markedly following a period of relative stability in the early 1960's. Tractor imports have risen from 1,764 units in 1967 to annual rates of import of over 3,000 in 1969 and 1970. From an estimated 24,243 units in use in 1967, numbers have grown to 27,872 units in 1970. The average sale price to the producer has increased from \$70,433 pesos (approx. US\$4,321) in 1968 to \$86,792 pesos (approximately US\$4,691) in 1970. The most popular size of tractors is in the 50-60 H. P. range, which cost 75,479 pesos or US\$4,151 in 1969. ^{1/}

Utilization

Geographically, mechanization is most advanced in the flat fertile valleys, such as the Cauca, Middle and Upper Magdalena, Sinu and various river valleys in the Valledupar area. Other isolated areas combining flat land and large land holdings, such as the Savannah of Bogota, are also cultivated with substantial mechanization. These are the important areas of large scale commercial production of rice, cotton, soybeans, sorghum, corn, beans, sugar cane, wheat and barley.

^{1/} Colombian prices from Caja Agraria, Dept. of Agricultural Supplies U. S. price from "Farm Machinery Cost in Georgia", Research Report 45, University of Georgia, 1969. Price is generally in agreement with the U. S. average price to the farmer for 1969 for a tractor of 50-60 H. P. reported by USDA, in "Agricultural Statistics 1970". This report indicates \$5,830 for such a tractor.

UNCLASSIFIED

UNCLASSIFIED

-76-

The tasks most commonly mechanized are the preparation of soil and planting. These are the jobs in which machinery offers the greatest time savings. Mechanization of these tasks also allows the producer the greatest flexibility to take advantage of other physical inputs by adequate soil preparation and by precise control of location and densities of seed and fertilizer applications.

Production, Employment and Profit Impact

The impact of machinery on the level of production, producer costs and profits, and on labor utilization was recently studied in the Ministry of Agriculture. Cost effects were difficult to determine accurately in the study, partially because of insufficient information dealing with non-machinery input costs. The study did however, disclose some very interesting information concerning production, income and employment effects of machinery usage. In general, it would appear that machinery and other technology are complementary in their production and income effects. Both appear to contribute to yield increases and therefore to increased net incomes.

Machinery and other forms of technology appear to have opposite employment effects, however. Adding other technology to a traditional farm increases labor requirements by about 28 man-days per hectare, and increases yields by an average of about 65%. The further addition of machinery reduces labor requirements by 49 man-days, but adds another 13% to yields of the modern level, or the equivalent of 22% of traditional yields. Thus from the standpoint of Colombia's need to increase both production and employment in agriculture, some balance is desirable between the complementary relationship of machinery and other technology with respect to production and their competitive relationship with respect to employment.

One means of approaching such a balance is to emphasize machinery use on those tasks where complementarity with other technology is highest. The complementarity of machinery and other technology could be exploited for the production benefit, with the reduction in employment from the mechanization of these stages or tasks being accepted. In the production stages or tasks where the complementarity appears less important, the extra production benefit of mechanization could be foregone in order to

UNCLASSIFIED

UNCLASSIFIED

-77-

maintain the employment benefit of the other technology.

Following this line of thinking, the study disclosed that machinery has a high level of complementarity with other inputs in the preparation of soil and seeding, in irrigation and in rice harvest and localized harvesting of other grains. For the other parts, of the production process, machinery contributes little enough to productivity that it may be preferable to avoid employment reduction of mechanization and accept the level of productivity provided by the other inputs. 2/

A fact which is frequently overlooked in development planning is that profits to individual producers do not necessarily mean the greatest benefit to society. As indicated by the Ministry of Agriculture Study, application of machinery to a farm already using other forms of technology is a profitable investment for the producer, netting him an average of over 900 pesos per hectare more income. The resulting reduction in employment of 51 man-days, however, is a cost to society which is difficult to evaluate. Regardless of the means used to estimate this cost to society, it cannot be ignored in any conscientious program of development which expresses concern for employment and income questions.

Supply-Demand Determinants

The supply of implements such as plows, cultivators and planters is subject to regular market forces since most of these items are manufactured in Colombia. There are no indications that the capacity to produce these implements is exhausted at current levels of output by existing manufacturers.

2/ "Considerations of the Role of Machinery in Colombian Agriculture", OPSA -051, Ministry of Agriculture, March 1971 (in Spanish) Pages 12-17 presented intact.

UNCLASSIFIED

UNCLASSIFIED

-78-

Farmers have indicated, however, that the quality of metals used in locally-made implements is inferior to that found in the few imported implements available. Prices also are reported to be somewhat higher on the locally-made equipment, although firm data are lacking on this point.

Small Machinery Possibilities

Power and equipment facilitate an increase in yields through more timely and effective farm operations and enhances the possibility of multiple cropping. Mechanization also increases the appallingly low productivity of labor in the agricultural sector. If standards of living are to rise, this must be a real concern of Colombian planners. Thousands of small tractors have measurably increased the well-being of small farmers in Japan, Taiwan and Korea. This invasion of power to assist Colombia's over 700,000 small farmers has already begun with the Japanese Honda and other makes. Ford's new DNT 7.5 horse-power tractor shows great promise of helping overcome the little man's most critical problem, i. e. lack of adequate farm power.

In summary, we face an immediate problem of definition when talking about mechanization. Many of the arguments on the issue have been posed in terms of polar opposites; contrasting fully mechanized agriculture, with large tractors, combines and a host of additional equipment; and "traditional" cultivation, characterized as a farmer with a hoe, or with a draft animal and wooden plow. In reality there is a range of intermediate steps between these two poles. These steps include the use of improved animal-drawn implements, such as mouldboard plows and seed drills, the use of stationary power equipment for certain aspects of the cultivation process, such as irrigation and threshing, and the use of small walking tractors as are common in Japan and becoming so in Taiwan and South Korea.

UNCLASSIFIED

UNCLASSIFIED

-79-

b. Physical Inputs (Seed)

It is generally recognized that one input alone does not usually cause very significant changes in yields. For big yield increases to occur, several improved practices are required. Factors of production usually include improved seed, fertilizer, pesticides, and a level of management that can combine these essential inputs to obtain optimum results. Machinery is often included in the list of improved practices, although its impact on yield increases may be less direct than the others and could be classified as an aid to management rather than an essential ingredient for higher yields.

(1) Improved Seeds

While the available quantity of improved seed is not sufficient to plant the total area grown of major crops, present supplies appear to have greatly exceeded effective demand. Rice may have been an exception, for 96% percent of the available improved rice seed in 1969 was used. This was sufficient to plant about two-thirds of the irrigated rice area. For other crops, the percentage of available improved seed that was used in 1969 was around 75 percent for soybeans, corn and potatoes; 66 percent for wheat, and 40 for beans. (Table I-9)

TABLE I-9

QUANTITIES OF IMPROVED SEED PRODUCED AND AREAS THAT COULD BE COVERED WITH IMPROVED SEED IN RELATION TO AREA ACTUALLY PLANTED, SELECTED CROPS, 1969

<u>Crop</u>	<u>Prod.</u>	<u>Area that could be covered With Quantity of Improved Seeds.</u>		<u>Total</u>
		<u>Tons</u>	<u>Prod.</u>	
Rice	15,300	Has.	102,000	280,000
Soybeans	4,908		65,440	58,000
Corn	4,124		242,588	780,000
Potatoes	1,410		1,085	84,000
Wheat	4,057		33,808	58,000
Beans	686		10,554	66,000

UNCLASSIFIED

UNCLASSIFIED

-80-

These data suggest that programs are needed to encourage farmers to drastically increase use of improved seed.

The reasons for the limited demand for improved seed is not at all obvious. While the price of improved seed is higher than that of regular seed, the amount of credit extended is based on the price of seed and is sufficient to purchase the recommended quantity and variety. Also, test results from variety trials indicate that improved seed have much higher yields than common varieties; double or more in most cases. The difference between the potential yield level of improved varieties and the national average yield for 13 crops illustrate this difference (See Annex I, Exhibit 17). However, the potential yield levels are the result of a package of improved practices since the entire yield increase cannot be attributed solely to the improved variety.

The reason farmers are not using greater quantities of improved seed may be due to lack of knowledge of their superior performance potential. Data needed to calculate economic benefits at the farm level from using improved seed are difficult to find partly because experimental data are not available to separate out the costs and returns associated with their use. Therefore, it is difficult to prepare a cost and returns analysis for farmers to illustrate the economic benefits from using improved seed.

Regardless of the nature of the demand for improved seed, production has continued to increase. From 1966 to 1970, the output of improved seed increased several fold (Annex I, Exhibit 18). In order to assure high quality seed of authentic type and variety, a certified seed service was established in 1965. Since then almost all improved seeds for some crops (wheat, soybeans, beans) have been certified seeds while for others lesser percentages have been certified (Annex I, Exhibit 19).

c. Physical Inputs (Fertilizer)

Fertilizer use in Colombia is quite low in comparison with usage in the United States. The annual rate of increase in fertilizer use is very small. Between 1964 and 1968 the use of fertilizer increased

UNCLASSIFIED

UNCLASSIFIED

-81-

only 30 percent. Some acceleration in fertilizer use may be seen in 1970 figures, but it is expected that the preliminary nature of these statistics overstates the increase (See Table I-10). This low rate of utilization appears to result from weak demand coupled with and partially resulting from an inefficient supply situation.

Total fertilizer supply is more than adequate to meet present needs. Moreover with the opening of the new Monomeros plant in mid-1971, Colombia will have sufficient capacity to meet the expected demand for mixed fertilizer for the next 10 to 15 years. In addition there are fairly efficient urea production facilities with a combined production capacity of 100,000 tons annually (See availability of Improved Seed, Pesticides, Agricultural Tractors and Fertilizers in Colombia 1966-1970 in Annex I, Exhibit 20). Some imports of urea were made in 1970 and the need for additional imports in the future is anticipated. Imports are also required to meet some of the raw material needs of the mixed fertilizer plants. This is particularly true of almost all the phosphatic raw materials since 80% of the P_2O_5 and all potash needs must be imported.

While overall supply is adequate, the organization and production methods of the fertilizer industry have created problems detrimental to rapid increases in demand. One of these problems is the above-mentioned overcapacity of the industry, which forces firms to operate at below optimal levels, thereby leading to high fertilizer prices.

With the entry of Monomeros plant, capacity for production of mixed fertilizer will be about 540,000 tons annually, or more than double the amount produced in 1970. Fertilizer distribution experts from TVA have indicated that it is highly unlikely that fertilizer use would increase more than 5 percent a year for prolonged periods of time. Applying this rate of increase, along with, alternatively, a more optimistic rate of 8 percent, and taking the amount of mixed fertilizer produced in 1970 as the amount used in 1970 (this likewise is optimistic, for it would appear that 1970 production exceeded 1970 consumption), it is seen from the following figures that demand projections do not reach production capacity until 1985 for a 5 percent rate of increase, and about 1980 for a 8 percent increase.

UNCLASSIFIED

UNCLASSIFIED

-82-

TABLE 10

PROJECTED DEMAND FOR MIXED FERTILIZERS

1970 Base 260,000 Tons

	<u>5%</u>	<u>8%</u>
1975	331,833	382,026
1978	384,140	481,242
1979	403,346	519,740
1980	423,511	561,319
1985	540,522	

High fertilizer prices alone, however, are not primarily responsible for the slow growth in the demand for fertilizer. These prices could be compensated for, to some extent, if returns from the use of fertilizer were sufficiently high. Unfortunately recent studies indicate a relatively low return from the use of Colombian fertilizers.

Much of the reason for this low crop response and resultant low profitability of fertilizer use may be traced to the poor quality product of most of the plants that mechanically mix or blend fertilizer.

There are some 20 to 25 of these plants that altogether produce between 20,000 and 40,000 tons annually, and the Government-owned Caja Agraria plants that produce 50,000 to 60,000 tons annually, but have a potential capacity near 100,000. The 20 to 25 bulk blending plants produce small quantities of a large number of grades of generally low analysis fertilizer. The quantity produced of any one kind also varied greatly from only one ton for several grades to over 4,000 tons in others.

UNCLASSIFIED

UNCLASSIFIED

-83-

Generally, the quantity produced of any one kind was less than 1,000 tons. Most of the grades were low in both nitrogen and total nutrient content. The majority of grades contained 6 percent or less nitrogen and about half had less than 35 percent total nutrients. Furthermore, the kind of blending equipment used made it almost impossible to produce uniform, high quality fertilizer, with the result that much of the fertilizer did not meet quality and grade standards and therefore farmers often did not get the quantity of nutrient they had paid for. In many cases, the tolerance permitted within a grade is as great as the difference between the grades themselves. The great number of grades, moreover, makes price comparison difficult, and encourages farmers to buy the lowest-priced fertilizer per ton rather than the fertilizer with the lowest cost nutrients.

The main producer of mechanically mixed fertilizer is the Caja Agraria, which produces between 20 to 30 percent of the total. In 1969, about half the fertilizer produced by the Caja did not contain the quantity of nutrients specified in the analysis. This was not an unusual year, as indications are that equal or larger percentages failed to meet standards in prior years.

The overall situation with regard to Colombian fertilizer mixing plants may be summarized by a quote from the TVA report which states; "none of the fertilizer mixing plants visited were making products of good quality in terms of good physical condition and uniform nutrient composition". It is, therefore, desirable that ICA, the Government agency responsible for quality control of farm inputs, develop and enforce standards related to the production of mechanically mixed fertilizer.

Fertilizer demand is also, of course, limited by the widespread lack of knowledge of what even properly blended and applied fertilizer can do, but this latter problem can be attacked more effectively after the Government, through ICA, has developed and enforced strict standards related to the production of mechanically mixed fertilizer.

In addition the high prices and low returns from the use of fertilizer, related usage is to the farmer's economic capacity to purchase the fertilizer needed. There is a fairly direct relationship between the availability of credit and the use of fertilizer.

UNCLASSIFIED

UNCLASSIFIED

-84-

While the amount of credit available for purchase of fertilizer does not appear in itself to be a limiting factor, the manner in which credit is granted may tend to reduce the amount of fertilizer actually used. Both Caja Agraria and INCORA, the two main Government lenders, in order to insure that loans are used for the purpose indicated, often issue specie rather than money with instructions that the specie be turned in for redemption of merchandise at the store of the agency providing credit. However, this sometimes leads to confusing and disturbing aspects relative to fertilizer use. In towns where both Caja Agraria and INCORA have farm supply outlets, the following situation may exist: In the potato area, for example, the Caja sells 5-20-12 and ammonium nitrate, plus some other grades of fertilizer, but often does not sell urea. At the same time, and in the same town, INCORA farm supply outlets do not sell either 5-20-12 or ammonium nitrate, but do sell urea. Therefore, the main factor determining the kind of fertilizer used by farmers is the agency providing them credit. Also, since nutrient from 5-20-12 and ammonium nitrate are more expensive than nutrients from the urea sold in INCORA stores, farmers getting credit from Caja usually have to pay more for fertilizer nutrients than INCORA clients. Under these conditions, it is difficult to develop a meaningful fertilizer education program that will have much impact.

In addition to the production and credit constraints limiting fertilizer usage, Colombia lacks an efficient and dynamic system of fertilizer distribution. Despite the fact that the Caja Agraria alone has over 400 farm supply outlets and INCORA-CECORA runs 30 cooperatives, farmers are unable in certain areas to obtain the quantities and types of fertilizers needed on a timely basis. Moreover, there is a strong feeling on the part of numerous persons in the agricultural field that one of the more important factors contributing to the small annual increase in fertilizer use is the lack of a significant effort on the part of fertilizer manufacturers and distributors to "sell" fertilizer. In short the lack of a dynamic fertilizer sales force coupled with the above mentioned production with the above mentioned production, credit, and distribution problems have significantly constrained rapid increases in fertilizer use in Colombia.

UNCLASSIFIED

UNCLASSIFIED

-85-

d. Physical Inputs (Pesticides)

A Commission 1/ to study the use of pesticides estimated that agricultural output in 1967 was reduced 15 to 20 percent from losses caused by insects, diseases and weeds. These losses occurred even though Col. Ps. 351 million worth of pesticides were used. However, one of the factors contributing to these high losses is the fact that only about 40 percent of the cultivated area was treated. The report indicates that proper application of pesticides can increase yields of major crops by 5 to 10 percent. In addition, however, there are times when the non-use of pesticides results in zero output. It is also apparent that with many of the new improved varieties, areas properly fertilized are much more prone to insect attack because of their more succulent, dense foliage. This makes proper use of pesticides all the more important.

Quantities of pesticides must be imported. Since the life of many of these is fairly short and the time period in which they must be applied to control insects and disease is often short and quite often unpredictable, it is imperative that import regulations permit the arrival of these materials without undue delay. Equally as important as this is that the domestically produced inputs, such as solvents, emulsifiers, packaging and inert materials, be available as needed. In the past this has not always been the case, and the unavailability of some of these inputs tended to limit the availability of pesticides to farmers.

A report of a recent study commission 2/ states that at present there appears to be no particular problem with the supply and quality of pesticides. However, it continues, the average price of all pesticides increased 13.68 percent in 1970, and this has added to overall production costs of farm output.

1/ Informe final de las Comisiones sobre Insumos Agropecuarios, Ministerio de Agricultura, Diciembre, 1968.

2/ Programa de Fomento Agropecuario para 1971, Documento MinAgr. - OPSA-050 Feb. 1971.

UNCLASSIFIED

6. Research and Extension

a. Institutional Development

Over the past two decades there has been continued and substantial progress in the development of agricultural research and extension institutions in Colombia. In 1952 the Rockefeller Foundation initiated a program to assist in the development of an agricultural research unit that operated as a division in the Ministry of Agriculture. Over a period of about 15 years, Rockefeller maintained a normal resident staff of 12 highly-qualified agricultural scientists and made substantial capital investments in experiment station facilities and equipment. Concurrently more than 100 Colombians were trained to M.S. and Ph.D. levels in U.S. universities. In the late 1950's the U.S.' ICA initiated a program to strengthn the Colombian agricultural extension services, with pilot projects in Boyacá, Valle and Atlántico. From 1962, Michigan State University provided institutional development assistance to the National University Faculties of Agronomy at Medellín, Palmira, with financial resources provided by the International Cooperation Administration and Kellog Foundation.

The Michigan State program helped with the introduction of major curriculum changes in the agronomy training programs, including specialized courses in animal sciences, agricultural economics, agricultural mechanization and agricultural extension. In addition some 50 faculty members received post-graduate training in the United States. In 1960 a special commission composed of high-level Colombians and U.S. administrators made a comprehensive evaluation of higher agricultural education, research and extension, and recommended that a coordinated, "land-grant college" type research, education and extension system be organized in Colombia. ^{1/} In 1964 the GOC created ICA, Instituto Colombiano Agropecuario, to carry out an integrated agricultural research, extension and educational program. The University of Nebraska was requested to provide technical assistance to ICA with financial support from AID, Ford and Kellog Foundations. This has been a sizeable program with approximately 25 to 30 foreign technicians in residence and a large scholarship program to train Colombians in the United States. By the end of 1971, 96 Colombians will have completed M.S. or Ph.D. degrees in the U.S., and will be back on the job with ICA or the National University. Another 41 Colombians are still in U.S. training programs and will return over the next three years.

In 1969 AID support for the Nebraska Mission shifted from a grant to a loan basis. It now appears probable that the program will be phased out after CY-71. ^{2/}

^{1/} Higher Agricultural Education in Colombia, a report by a commission financed by the Kellog Foundation, April 1961.

UNCLASSIFIED

-87-

In 1968 plans were laid for a Latin American international agricultural research center to be financed by Rockefeller, Ford and Kellogg Foundations and AID. This is one of four such international centers, the others being located in Mexico, the Philippines and Nigeria. This center is now being constructed near Palmira in the Cauca Valley and is in close proximity to a large Colombian agricultural research center and a National Faculty of Agronomy. This new center, CIAT (Centro Internacional de Agricultura Tropical), is a major research resource that will operate in close liaison with the existing Colombian agricultural research system. The CIAT program will give major attention to problems of livestock, corn, grain sorghum and yuca production in the tropics and will carry out some of the work at Colombian experiment stations located in hot climate zones.

This brief historical review provides some perspective of the very substantial technical assistance and training investment that has been made in agricultural research, extension and educational institutions that will serve Colombia in years immediately ahead. Before turning to a diagnosis of the weaknesses and needed adjustments in this research and extension system, it will be useful to provide additional information concerning the existing action agencies ICA, INCORA, INDERENA and Federation of Coffee Growers all of which have important roles in carrying out agricultural research and extension programs. (Basic information on these entities were presented earlier in this paper, See Part Two, I-c-b-).

Currently ICA has 11 major research centers, 14 outlying experiment stations and in 1970 employed 524 professional technicians. The rural extension system had 52 extension offices in 1969 and employed 119 professional technicians and 320 sub-professional technicians. Personnel in the ICA research system increased more than three fold, while the extension staff force was increased more than four fold. 3/

Although ICA has major responsibility for agricultural research and extension, the National Coffee Federation has for many years carried out a large research and extension program focused on coffee culture.

2/ For more detailed accounting of the Nebraska Mission program see the Annual Report for 1969, The University of Nebraska, April 1970, p.188.

3/ Ministerio de Agricultura, El Cuatrenio de la Transformación Rural, 1966-1970 p.62.

UNCLASSIFIED

UNCLASSIFIED

-88-

More recently the Federation has turned considerable attention toward crop diversification and more general problems of rural development. The Federation's extension service now employs over 500 agronomists and agricultural "practicos" who operate out of offices throughout the coffee zone.

INCORA has by far the largest institutional task force to carry out agricultural development programs. The INCORA staff includes approximately 1,400 professional and sub-professional workers in the field and another 400 in the central administrative group. Many of the field staff are involved in supervised credit programs where technical assistance and other services are provided to farm families.

INDERENA has 12 centers where research activities are conducted, four of which are forestry centers. In total, INDERENA employs some 334 professional personnel.

In addition to these public agency programs, agricultural technical assistance also is being provided by licensed agronomists who operate as private consultants to large farmers. Manufacturers and distributors of agricultural inputs are also providing technical assistance through qualified sales representatives.

In total there appear to be between 2,500 and 3,000 professional and sub-professional workers engaged in technical assistance and related agricultural development activities. If there were only 2,000 "extension workers" and assuming there are 1.5 million farms in Colombia, there would be an average of 750 farms per extension worker. Although this is far from adequate coverage, it does indicate that there is already a large institutional base for agricultural research and extension program implementation.

b. Research and Extension in the implementation of the Current GOC Development Plan.

In the past the agricultural research and extension system has been heavily orientated toward the development and adoption of technologies that would expand crop and livestock production. A portion of the extension effort has been directed toward the improvement of living conditions among rural families through home economics and rural youth programs. But with the exception of the INCORA projects and some of the Coffee Federation program, the research-extension establishment has not been significantly orientated toward rural community development or coordinated regional development efforts.

UNCLASSIFIED

UNCLASSIFIED

-89-

Table I - 11

Experiment Station Yields of Selected Crops Compared with
Commercial Farm Yields and National Average Yields, Colombia

<u>Crop</u>	<u>Experimental</u>	<u>Commercial</u>	<u>National Average</u>
Rice	5.0	4.0	3.2
Sugar Cane	21.0	12.0	6.2
Barley	6.0	3.0	1.7
Beans	1.5	1.5	0.5
Corn	7.0	4.5	1.0
Potatoes	60.0	40.0	11.0
Wheat	4.5	2.6	1.0

Source: Peter Hildebrand and Jorge Lopera P. "La Brecha en la Productividad Agrícola en Colombia", ICA Sub-Gerencia Técnica, División de Investigación de Economía Agrícola, Boletín Técnico No. 7, Junio de 1970.

UNCLASSIFIED

UNCLASSIFIED

-90-

The shift in GOC policies toward higher priorities on employment generation, more equitable income distribution and coordinated urban-rural development strategies is causing some serious re-evaluation of agricultural research and extension program activities. Strong pressures are being directed toward an acceleration of agrarian reform. This involves not only the INCORA program but also related programs of ICA, the Caja Agraria and other agricultural agencies. A Presidential Committee that evaluated the agrarian reform and subsequent seminar involving the Ministry of Agriculture administrative staff have directed attention toward problems of program reorganization

1/ 2/ Major concerns have been centered around increasing the impact of efforts to assist small and medium sized farmers through credit, technical assistance, roads and improved marketing institutions. The 1970-73 GOC Plan shows large increases in ICA extension operations and in the INCORA supervised credit program as the main elements in their revised programs. (See Section III-A). Meanwhile a sizeable research program will continue to serve both large and small farmers.

c. Some Needed Adjustments in Research and Extension Programs 3/

As indicated above the GOC agricultural establishment is attempting to modify and expand research and extension activities. In many active consideration or initial steps are being taken to move in these directions.

(1) Increase emphasis on applied research and greater integration of research and extension activities.

There is a wide gap between the crop and livestock production results obtained under experimental conditions compared with those obtained by the better commercial producers. An even wider gap exists between average crop yields and those obtained by the better commercial producers (Table I-11). Greater dissemination of existing technical information would likely improve yields. However, due to the complementarity of modern inputs such as improved seed, fertilizers, pesticides, plus wide variation in Colombia soils and climates there seems to be real need for adaptive research to identify profitable packages of technology for specific sets of conditions. This type of investigation requires close cooperation of agricultural specialists including extension personnel. Commodity or problem-orientated task force units should be organized to carry out this type of coordinated research and extension program. The experimental designs should be organized so as to facilitate the determination of

1/ Informe de la Comisión Evaluadora de la Reforma Agraria, January 30, 1971.

2/ El Sector Agropecuario en el Plan de Desarrollo Económico y Social, 1970-73. Background Material for a Ministry of Agriculture Seminar, February 17, 1971.

3/ Materials prepared by the Nebraska Mission were used in the drafting of this section of the loan paper.

UNCLASSIFIED

UNCLASSIFIED

-91-

profitable levels of input use and optimum combinations of production practices. Market constraints with respect to product characteristics should also be considered in these special task force programs.

(2) Expansion of the existing extension service

There are many rural communities that have little or no contact with the extension services and related credit agencies. There are 915 municipios in Colombia. Currently ICA operates 62 extension offices serving about 60,000 families. ICA has proposed a five-year program to expand the number of extension offices to 450 by 1975, and to better coordinate their technical assistance with the credit provided through the Caja Agraria. ^{1/}

According to ICA, this expanded extension system could serve 900,000 farm families out of the estimated 1,500,000 that now reside in rural areas. Assuming that each office was staffed with 1 agronomist, 10 practicos, 1 veterinarian, 3 home economists, 1 secretary and 1 laborer, it would cost about 600 million pesos (30 million dollars) per year to operate 450 extension offices. The ICA extension service budget for 1970 was 56 million pesos. Some major obstacles to such an ambitious expansion of the extension service are the limited budget support that can be provided by the GOC and the shortage of trained personnel. This suggests that ICA and related agencies must make a concerted effort to increase the effectiveness of existing human resources through innovative extension programming techniques.

(3) Organize pilot extension projects directed toward comprehensive rural community development

There are many rural communities where comprehensive and coordinated community development programs may be the most effective way to achieve development goals, such as increasing family incomes, improving the quality of living, creating additional employment, slowing down migration to large cities and better preparing those who do migrate for successful integration into the urban environment.

^{1/} ICA, El Sector Agrícola Colombiano, a document presented to the Comisión Evaluadora de la Reforma Agraria, Dec. 1970

UNCLASSIFIED

UNCLASSIFIED

-92-

The Coffee zone diversification program is already moving into community development type projects. INCORA supervised credit projects have incorporated many of the elements of a community development program. ICA is in the process of formulating plans for four to six pilot area extension programs involving educational and technical assistance activities for farmers and farm families, with closely linked arrangements for credit and farm inputs. In addition the community may receive assistance in planning and carrying out projects to improve roads, schools, and health services.

The GOC is currently planning a major effort to expand and strengthen educational programs in rural areas. The plan includes the establishment of ten pilot centers (Concentraciones Escolares). These centers will provide facilities for extending present rural education beyond the 3-year level, with a goal of eventually achieving a full nine-year cycle. However, it is intended that the physical facilities will also be utilized for adult education programs carried out by agricultural and home economics extension personnel and may actually house extension staff. This program will begin in 1971 with financial support proposed in the FY 71 AID Education Sector Loan.

The ILO report presented some interesting views and recommendations for stimulating rural community development. Among these were suggestions for farmer owned service centers and training centers to stimulate and facilitate change. ^{2/} It is argued that the service centers will create a dynamism that will provide opportunities for other private enterprise activities as the community actually develops.

The interest and initial commitment to coordinated community development programs exists among the GOC agricultural agencies. The major barriers to actual implementation are the usual ones lack of budgetary support for new programs and the difficulties of assembling qualified teams to plan and carry out such a program.

^{2/} ILO, Towards Full Employment, pp 90-94

UNCLASSIFIED

(4) Training and personnel development

There appears to be no shortage of university-trained agronomists. There are currently 10 agricultural faculties turning out 300 to 400 agronomists per year. Some recent graduates are reportedly having difficulties obtaining jobs. ^{2/} However, there has continued to be a relative shortage of intermediate agricultural technicians (prácticos) and the proposed expansion in agricultural development programs will further increase the demand. The World Bank and the UNDP support the GOC in setting up additional technical agricultural institutes to train a total of about 4000 students per year, ^{3/} which would alleviate the shortage of this type of technicians. There has also continued to exist a shortage of home economists, nurses para-medical personnel to adequately staff rural extension programs and health centers. Efforts are now underway to develop a school of home economists at the University of Caldas in Manizales, with AID assistance through the Nebraska Mission.

Over the past three years ICA, in cooperation with the National University and with support of the Nebraska Mission, has established a Master's level program to train students in animal and crop sciences, agricultural economics and agricultural engineering. The University of Valle has also organized a master's level program in agricultural economics. Thus, an increasing number of Colombian agriculturists can now receive graduate level training within the country. Nevertheless, it will continue to be necessary to send students abroad for advanced training to the Ph.D. level and for Master's degrees in several of the specialized disciplines. Especially critical is the need for highly trained technicians to staff the expanding program of INDERENA in the areas of forestry, fishers and natural resources management.

The principal agricultural research and extension agency, ICA, is confronted with a difficult administrative task. The organization has grown rapidly. Its employees now number over 5,000 and they are scattered throughout a country where transportation and communications services are frequently un dependable and difficult to arrange. Consequently several administrative reforms are probably needed to increase the effectiveness of the ICA program. These should probably include an improved budgeting-accounting and payroll system; further decentralization of program planning and management; and greater coordination with other development agencies and the private sector at the regional and local levels.

^{2/} ILO, op. cit. p. 240

^{3/} Ibid., p 241

UNCLASSIFIED

-94-

There is also a problem of rapid personnel turnover within ICA that is related to the Governments prevailing low salary structure. Hence, many young and more able staff members seek and find more remunerative employment once they have gained some work experience. This personnel situation, plus the need to train people for new types of research extension activities, makes it extremely important that ICA and related research agencies organize and carry out a continued program of in-service training. This is already being done to some extent, but needs substantial reinforcement if high level performance is to be achieved.

7. Institutional Structure

One of the main concerns of the National Government, at the beginning of the Lleras administration, was to provide an organized institutional structure which would permit the efficient application of policy instruments and facilitate the execution of coordinated programs.

A study made by ICCA ^{1/} at the request of the Colombian Government indicated that the Ministry of Agriculture was losing its capacity for action and efficiency as the number of autonomous institutes over which the Ministry had little control increased from year to year. As a result of this, there were as many policies as there were institutes and this often resulted in conflicting efforts. This situation of conflicting and ineffective programs at the national level was intensified and multiplied at the Departmental level by the absence of coordination between national plans and programs and those of the Departments. In addition, the Ministry of Agriculture was not only isolated from other agricultural agencies but also from other Ministries and the National Planning Department. The study concluded that the Ministry was only one among many diverse and dispersed agencies in the agricultural sector and considered as perhaps the least important but probably the most efficient.

This situation was completely changed by Decrees 2420 and 3120 of 1968, which provided the basis and authority for restructuring the agricultural sector and converting it into one of the "most powerful, important and efficient Ministries" in Colombia. ^{2/} The purpose of these Decrees was not just another reorganization of the Ministry of Agriculture, but rather a fundamental re-structuring of all the agencies of the public agricultural sector with a triple purpose:

^{1/} Herrera, José Eugenio, "Organización Administrativa del Sector Agropecuario de Colombia", Bogotá, IICA, 5 volúmenes, 1966.

^{2/} El Cuatrenio de la Transformación Rural, 1966-1970, Memoria, 1969-1970 Ministro de Agricultura, 1970.

UNCLASSIFIED

UNCLASSIFIED

-95-

1. To give to the Ministry of Agriculture the necessary implements to enable it to effectively carry out its role as leader in the formulation, adoption, execution, and evaluation of agricultural policy, totally in agreement with general development policy.
2. To establish in each of the Departments of the country a rural community action service for the purpose of integrating the services provided by the Ministry of Agriculture and related agricultural agencies with those provided by the corresponding local government.
3. To group the agencies of the agricultural sector so that they could operate more efficiently and at less cost. This would be achieved by eliminating duplication of efforts and by attaching these agencies to the Ministry of Agriculture so that they would reflect national agricultural policy while still being responsible for program execution.

The reorganization produced some radical organizational changes. Chief among these were the following:

1. The creation of interlocking Boards of Directors of the agencies attached to the Ministry of Agriculture. The various managers of these agencies are also members of the Boards of Directors of the other agencies which permits a coordination of the general policy.
2. Attaching to the Ministry of Agriculture, as public establishments, the Corporaciones Autónomas Regionales, such as CVC, CAR, Quindío and Urabé, the Junta de Rehabilitación de la Zona Bananera del Magdalena, the Servicio Colombiano Meteorología e Hidráulica and the Fondo de Diversificación de Zona Cafeteras (which functions under the "Federación Nacional de Cafeteros" by means of a contract with the Ministry of Agriculture).
3. Attaching to the Ministry of Agriculture the following enterprises: The Caja Agraria, which became a commercial and industrial enterprise of the Government; two other development banks (Banco Cafetero and Banco Ganadero); the Corporación Financiera Agropecuaria, COFIAGRO; and "Almacenes de Depósito INAGRARIO".
4. Eliminating Agricultural Development Institutes and replacing them by the Instituto Colombiano Agropecuario; transferring responsibilities for ginning and marketing of cotton to IDEMA; and transforming the Instituto Zooprofiláctico into the Empresa Colombiana de Productos Veterinarios, VECOL, as an industrial and commercial enterprise. As presently constituted the Ministry of Agriculture consists of 12 public agencies, 4 commercial and industrial State enterprises, and 2 semi public corporations in addition to the actual Ministry itself. The most important of these have been described in part I, B, b, above.

UNCLASSIFIED

UNCLASSIFIED

-96-

Planning of the Agricultural Sector

As indicated above, in the years prior 1966, the instruments for planning, guiding and executing agricultural policy had generally deteriorated. On the one hand the responsibilities of the Ministry of Agriculture had gradually diminished to such an extent that it did not have the necessary structure or resources to effectively exercise its role as the leading entity for the formulation of agricultural policy. On the other hand, numerous decentralized agencies had been created which were charged with the execution of certain programs, but which operated independently of each other as well as from the Ministry of Agriculture. The result was little or no cooperation or coordination among agencies in carrying out joint agricultural development programs. To correct this situation, the reorganization was planned so that the Ministry of Agriculture would be responsible for:

1. Planning and programming agricultural development.
2. Organization of "campesinos" to enable them to better use the services of the various agricultural agencies, to actively incorporate them into the economy and life of the country, and to encourage them to participate in the formulation of plans and programs of the various agencies.
3. Formulation of standards relative to: sanitary protection of agricultural output, defense of wildlife, (fauna and flora), control of quality and of the systems of utilization of inputs, regulation of water sources and of the river basins, marketing of agricultural products, and other norms necessary to regulate production and trade.
4. Efficient coordination of the various programs being carried out in the agricultural sector by the operating agencies and organizations, so that not only would programs be executed effectively and efficiently, but that they would also jointly contribute to achieving overall policy goals already established by the Ministry of Agriculture.

For the efficient execution of these functions a Planning Office for the Agricultural sector was established in the Ministry of Agriculture, which is responsible to the Minister. This office, in addition to advising the Minister, is also responsible for preparing, in cooperation with other public and private agencies, development plans and programs for production, marketing, and foreign trade and for analyzing and recommending policy for the different instruments of the government. In addition the Planning Office serves as the Technical Secretariat for the Executive Committee.

UNCLASSIFIED

● B. Summary of Constraints

1. Employment

Increased investment in labor-intensive agricultural production and processing is justified by prospective demand for products which require a high labor input. Substantial new employment could be generated by a large investment program orientated toward such products. Current GOC policy strongly advocates programs to maximize job-creation while also achieving increased output. Sufficient land is available to serve both employment and production objectives. Thus, the fundamental requisites for rural employment generation-demand, land, labor, and policy are present in Colombia.

There are, however, constraints on putting these requisites to work. An overriding constraint, of course, is conventional resistance to change by interests which have enjoyed privileged access to the highest quality production factors (e.g. good land, easy credit) without due regard for the intensity or purpose of use of those factors. The political problems of overcoming such resistance are important and complex, generally covered in Embassy analysis and need not be examined here. In the context of this loan proposal, the essential facts are that GOC policy clearly seeks reallocation of resources in favor of intensive use of land and labor, and the loan will strengthen programs in support of that policy. Opposition to change diminishes in fact, if not in rhetoric, as such programs are successfully carried forward. Success, however, depends on progressive reduction of other constraints, as follows.

2. Land Tenure

The concentration of land ownership, despite a substantial agrarian reform program, is still a major obstacle to labor-intensive production increases. Moreover, secure tenure (valid titles) apparently does not extend to large numbers of farm units. Continued redistribution, colonization, and titling are necessary, existing, and stated GOC policy is to accelerate these processes. Political and financial impediments to such acceleration will be troublesome, but not prohibitive. An important issue in current policy evolution is the establishment of criteria permitting redistribution to proceed where necessary, but without prejudice to efficient commercial farming.

3. Marketing

The lack of a well coordinated food marketing system is deterrent to Colombian agricultural production and to the potential growth of effective consumer demand for non-food goods and services. Substantial improvements in food distribution systems serving the large urban centers are badly needed and some steps are underway to deal with this problem.

UNCLASSIFIED

-98-

The least effective marketing system among all the commodity groups is the one for fruits and vegetables. Because of the potential labor adsorptive capacity of fruit and vegetable production it is important that more dependable and remunerative domestic markets be developed and that special efforts be made to develop the capability to meet export market demands.

In many rural areas the lack of feeder roads is a serious barrier to the integration of potentially productive agricultural areas into local and regional markets.

There has been relatively little public effort to stimulate the development of an efficient and progressive private sector in food marketing or in the distribution of agricultural inputs. Many of the public regulations and direct public intervention activities tend to discourage innovative investments by private firms.

The GOC agricultural sector plan lists marketing improvement as one of its major objectives. The principal program activities are an expansion in grain storage facilities, a continuation of price support and stabilization activities, and a beef export promotion program. AID sector loan funds will assist in the initiation of a credit program for private sector marketing firms. AID funds will also be channeled into feeder roads, with expansion in the areas for intensive extension pilot projects.

4. Credit

While total credit nominally available to agriculture is substantial, much credit has been pre-empted by creditworthy borrowers, without serious appraisal of the creditworthiness of the investment, or the relevance of the latter to major national objectives, e.g., employment, intensified land use, exports, etc. Inefficient use, and even diversion, of credit, are characteristics of the system. Land reform must be accompanied by credit, but thus far a minor proportion of the reform's beneficiaries are clients of supervised credit. Re-orientation of the large official credit flow to serve national priorities, especially the small farmer strategy, is a major GOC objective and the largest component of this loan is programmed to support that objective.

5. Inputs

The supply of improved seeds, fertilizers and pesticides meets or exceeds effective demand, which is relatively low. More effective quality control, in the case of fertilizers, and aggressive sales and education programs are required for all such inputs. Programs for small farmers, partially financed from this loan, will increasingly emphasize that farmers receive recommended inputs as "in kind" increments of their farm plan financing. Further increase in use of inputs should come by shifting emphasis in supervised credit loans from

UNCLASSIFIED

UNCLASSIFIED

-99-

livestock to short term production credit for labor-intensive priority crops.

6. Research and Extension

The institutional capacity of the Colombian agricultural research and extension establishment has improved markedly over the past 20 years. When viewed against current development problems, the following adjustments appear to be needed: (1) increased emphasis on problems related to increasing the production and marketing of labor-intensive crops, on applied research and greater coordination of research and extension activities; (2) an expansion of the extension service to reach a greater proportion of the rural families; (3) increased involvement of extension agents in the formation of farm plans and in assisting clients to secure and utilize credit with technical assistance; (4) greater emphasis on extension programs directed toward comprehensive rural community development and (5) strengthening of administrative procedures and reinforcement of personnel development activities. The GOC agricultural plan is well oriented toward these research and extension adjustments; however, the overriding constraint to the achievement of these adjustments is budgetary.

The AID sector loan funds will be used to reinforce the GOC efforts in areas where new programs are being developed that promise to be critical in effecting employment generation and increasing rural incomes, while maintaining a high rate of output expansion.

7. Institutional Structure

The reorganization of public sector agricultural agencies which took place in 1969 greatly improved the GOC's ability to deal with the constraints to development presented above. In brief the structure now consists of a Ministry with decisive policy making and coordinating authority, over several strong operating agencies which carry out agrarian reform, research, extension, education, marketing, natural resources development, credit, etc. Much of the responsibility under the new organizational structure rests with the Office of Planning for the Agricultural Sector, which is located in the Ministry of Agriculture. Because of its central importance, loan funds will be used to strengthen the capabilities of the office.

The 1970-73 GOC Development Plan envisages the continuation of this office as a primary coordinating mechanism. OPSA will also coordinate the recent policy decision which has already led to the formation of agricultural development committees at the departmental level. These committees, made up of members from each agency operating in the departments and chaired by an appointee of the Minister of Agriculture, will focus on accelerating agrarian reform and development in ways which are responsive to local conditions and aspirations.

UNCLASSIFIED