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

PROJECT PAPER

Proposal and Recommendations
For the Review of the
Development Loan Committee

BOLIVIA - AGRICULTURE SECTOR II

AID-DLC/P-2247

UNCLASSIFIED

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

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AID-DLC/P-2247

September 12, 1977

MEMORANDUM FOR THE DEVELOPMENT LOAN COMMITTEE

SUBJECT: Bolivia - Agriculture Sector II

Attached for your review are recommendations for authorization of a loan to the Republic of Bolivia ("Government of Bolivia") in an amount not to exceed Eleven Million Three Hundred Thousand United States Dollars (\$11,300,000) to assist in financing certain foreign exchange and local currency costs of goods and services required for the project (the "Project") which consists of (1) seed processing and storage facilities; (2) agricultural credit for production, investment and land clearing; (3) human resources development; and (4) agriculture sector management and coordination.

This loan is scheduled for consideration by the Development Loan Staff Committee on Monday, September 19, 1977, at 2:30 p.m., in Room 5951 New State. If you are a voting member a poll sheet has been enclosed for your response.

Development Loan Committee
Office of Development Program Review
and Evaluation

Attachments:

Summary and Recommendations
Project Analyses
Annexes A - K

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PROJECT PAPER FACESHEET

1. TRANSACTION CODE

A ADD
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 D DELETE

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2. DOCUMENT CODE

3

3. COUNTRY ENTITY
 BOLEVIA

4. DOCUMENT REVISION NUMBER

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A SYMBOL LA B. CODE 3

7. PROJECT TITLE (Maximum 40 characters)

AGRICULTURAL SECTOR II

8. ESTIMATED PROJECT COMPLETION

FY 8 3

9. ESTIMATED DATE OF OBLIGATION

A. INITIAL FY 7 7 B. QUARTER 4
 C. FINAL FY 8 1 (Enter 1, 2, 3, or 4)

10. ESTIMATED COSTS (\$000 OR EQUIVALENT \$) -

A. FUNDING SOURCE	FIRST FY 77			LIFE OF PROJECT		
	B. FX	C. L/C	D. TOTAL	E. FX	F. L/C	G. TOTAL
AID APPROPRIATED TOTAL	3,925	7,375	11,300	6,125	7,375	13,500
GRANT	(-0-)	(-0-)	(-0-)	2,200	(-0-)	2,200
LOAN	(3,925)	(7,375)	(11,300)	3,925	(7,375)	11,300
OTHER U.S.						
HOST COUNTRY (GOR+CODETAR)	-0-	-0-	-0-	-0-	6,030	6,030
OTHER DONOR(S)						
TOTALS	3,925	7,375	11,300	6,125	13,405	19,530

11. PROPOSED BUDGET APPROPRIATED FUNDS (\$000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. 1ST FY 77		H. 2ND FY 78		K. 3RD FY 79	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	I. GRANT	J. LOAN	L. GRANT	M. LOAN
(1) PN	100	012	012	-0-	11,300	680	-0-	800	-0-
(2)									
(3)									
(4)									
TOTALS				-0-	11,300	680	-0-	800	-0-

A. APPROPRIATION	N. 4TH FY 80		O. 5TH FY 81		LIFE OF PROJECT		12. IN-DEPTH EVAL. SCHEDULED
	P. GRANT	Q. LOAN	R. GRANT	S. LOAN	T. GRANT	U. LOAN	
(1) PN	480	-0-	240	-0-	2,200	11,300	<input type="checkbox"/> MM <input type="checkbox"/> YY <input type="checkbox"/> 0 <input type="checkbox"/> 8 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 7 <input type="checkbox"/> 8
(2)							
(3)							
(4)							
TOTALS	480	-0-	240	-0-	2,200	11,300	

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

1 1 = NO
 2 2 = YES

14. ORIGINATING OFFICE CLEARANCE
 SIGNATURE *Frank B. Kimball*
 Frank B. Kimball

15. DATE DOCUMENT RECEIVED IN AID/W. OR FOR AID/W DOCUMENTS. DATE OF DISTRIBUTION

TITLE Director, USAID/Bolivia
 DATE SIGNED MM DD YY
 08 21 77

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AGRICULTURE SECTOR II
PROJECT PAPER

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PROJECT PAPER

PART I - PROJECT SUMMARY AND RECOMMENDATIONS

A. Face Sheet

B. Recommendations

The following action is hereby submitted for A.I.D. approval:

-- Grant	\$ 2,200,000
-- Loan	11,300,000
(Terms: 40-year term, 10-year grace period, 2% interest during grace period and 3% interest thereafter)	
	<hr/>
Total New A.I.D. Obligations	\$ 13,500,000

The companion grant to this Project is Small Farm Production (511-0481) which was originally presented in the FY 1978 Congressional Presentation for initial funding in FY 1977. The initial obligation is now planned for FY 1978 and the total project cost has increased to \$2.2 million.

C. Description of the Project

1. Borrower/Grantee

The Borrower/Grantee will be the Government of Bolivia (GOB). The executing agency will be the Ministry of Agriculture and Campesino Affairs (MACA).

Four other public organizations will participate in the Project directly. One is a decentralized public institution under the jurisdiction of MACA: the Bolivian Agriculture Bank (BAB). Two are public universities: the Universidad Mayor de San Simón in Cochabamba and the Universidad Mayor Gabriel René Moreno in Santa Cruz. The last is the Tarija Development Committee (CODETAR).

2. Summary Project Description

During its five-year disbursement period, the Project will seek to increase the availability to the small farmer of needed inputs, particularly land, and improved seed, and to provide him with the production and investment credit necessary for the purchase of such inputs. This objective will be sought through (1) increasing the production capacity of certified seed, (2) supporting a small farmer production and investment credit program and (3) carrying out a small farmer land clearing credit program. The Project is also aimed at developing the agricultural sector's human resources and improving its management and coordination.

By the end of the Project, 3 new and 3 upgraded seed processing and storage facilities will have been completed. The small farmer credit program will be providing about 5,000 farmers with production and investment credit and will have provided approximately 2,200 farmers with credit to clear a total of 10,000 hectares of land. In addition, the quality of professional education in agriculture at two universities will have been improved and sector management and coordination will have progressed.

Small farmers in the target area, the southern intermountain valleys of Chuquisaca, Potosi and Tarija Departments, will benefit directly from project seed processing and storage, production and investment credit and land credit activities. They will benefit indirectly from project human resources development and sector management and coordination activities.

Several project outputs are discussed or implied in the paragraph above on end of project status indicators. Participants trained overseas and in-country constitute an additional output as do GOB implementing agency counterpart personnel assisted and trained by technical advisors. Also, two agricultural service centers will be constructed.

A.I.D. inputs will include: (1) long and short-term technical assistance, (2) overseas training, (3) equipment and vehicles, (4) loan capital, (5) capital for the rotating seed fund and (6) construction. Major items in the GOB contribution include: (1) in-country training, (2) loan capital, (3) capital for the rotating seed fund, (4) data processing and (5) administrative costs.

D. Summary Findings.

The Project Committee has determined the proposed activities to be technically and financially feasible for completion within the proposed disbursement period of five years. Taking into account the technical and other assistance being provided as part of the Project, the GOB executing agency is believed to have the capacity to carry out its responsibilities under the Project. There appears to be no financial constraints to prevent

the GOB from providing the required funding for Project implementation. The social analysis identifies no obstacle to Project implementation which has not been taken into account in the design of the Project. The Project meets all applicable statutory criteria (See Annex H). The USAID Director's Section 611 (e) Certification is included as Annex I to this Project Paper.

On the basis of the analysis contained herein, the USAID Mission to Bolivia concludes that the Project is technically, economically and financially sound and recommends that a grant in an amount not to exceed \$2,200,000 and a loan in an amount not to exceed \$11,300,000 be authorized to the GOB.

E. Composition of the Project Committee:

- | | |
|----------------------|--|
| Robert K. Clark | - Chief, Development Resources Division, Chairman, USAID/Bolivia. |
| Bastiaan Schouten | - Acting Chief, Agriculture Production/Rural Development Division, Project Manager, USAID/Bolivia. |
| Edward H. Smith, Jr. | - Development Resources Division, Project Coordinator, USAID/Bolivia. |
| Isaac Torrico | - Agriculture Production/Rural Development Division, Agricultural Economist, USAID/Bolivia. |
| Juan Steer | - Agriculture Production/Rural Development Division, Agronomist, USAID/Bolivia. |
| Raul Pinto | - Controller Division, Financial Analyst, USAID/Bolivia. |
| Luis Montero | - Controller Division, Financial Analyst, USAID/Bolivia. |
| Robert D. Adams | - Chief, Engineering and Transportation Division, USAID/Bolivia. |
| Charles E. Costello | - Regional Legal Advisor, USAID/Bolivia. |
| Albert Brown | - Consultant, American Technical Assistance Corporation. |
| James Riordan | - Agricultural Economist, LA/DR/RD, AIL/W. |
| Drafted by | - Bastiaan Schouten and Edward H. Smith, Jr. |
| Reviewed by | - Charles J. Stockman, Deputy Director, USAID/Bolivia. |
| Approved by | - Frank B. Kimball, Director, USAID/Bolivia. |

PART II. PROJECT BACKGROUND AND DETAILED DESCRIPTION

A. Background

1. Summary of Recent Sectoral Performance.

In general terms, the performance of the Bolivian agricultural sector has improved dramatically since the submission of the Agricultural Sector I Project Paper in 1974. As can be seen from Table 1 below, growth in the production of the important food products of Bolivia's Central Valleys and lowlands has been significant in recent years. These increases have their origin in the dynamic and sustained growth of the Bolivian economy, the relaxation of price controls during 1973-74, and a good supply response on the part of the sector which is, at least in part, due to GOB/AID efforts under various programs, including the Agriculture Sector I Project (053).

Table 1

Production of Important Central Valley and Lowland Food Products 1971-1976.
(Metric Tons)

<u>Food Product</u>	<u>1971-73</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>Annual Growth Rate %</u>
wheat	52,563	62,460	61,750	63,795	6.7
Corn	280,307	276,660	305,000	356,545	8.3
Barley	69,400	75,120	79,600	88,855	8.6
Rice	73,824	85,235	126,560	113,045	15.3
Soybeans	1,933	8,000	11,930	15,370	99.6
Peanuts	7,560	14,500	15,300	15,900	28.1
Potatoes	710,000	749,460	834,050	873,100	7.1
Yuca	240,333	269,500	285,350	304,700	8.2
Vegetables <u>a/</u>	191,533	218,370	223,785	226,000 <u>P/</u>	5.7
Pork	18,000	23,310	24,670	25,200 <u>P/</u>	11.9

a/ Sweet corn, onions, tomatoes, green peas

P/ Preliminary estimates

SOURCE: MACA Statistics Division

However, this increase in the production important crops is basically attributable to more land being brought into production. This

can be deduced from Table 2 which indicates that yields of these crops have, with the exception of vegetables, not increased as rapidly as the increase in output.

Table 2
Yields of Key Central Valley and Lowland Crops 1971-1976
(Kilograms/ha.)

<u>Crop</u>	<u>1971-73</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>Annual Growth Rate %</u>
Wheat	821	849	803	845	1.0
Corn	1,280	1,260	1,325	1,533	6.2
Barley	687	696	713	669	-0.8
Rice	1,643	1,600	1,700	1,575	-1.4
Soybeans	1,611	1,380	1,266	1,270	-7.6
Peanuts	1,204	1,510	1,500	1,500	7.6
Potatoes	6,567	6,340	6,532	6,723	0.8
Yuca	13,109	12,913	13,101	13,850	1.9
Vegetables	3,563	5,469	3,462	5,645	16.6

Source: MACA Statistics Division

In spite of the sector's good supply response to increased demand in recent years, yield statistics such as those presented in the table above and other available information indicates that the fundamental structural and technological problems of the agricultural sector, especially of the small farm subsector, have not been removed.

2. Continuing Constraints on Small Farm Development.

The interlocking set of constraints facing Bolivian small farmers is well documented in the USAID/B Agricultural Sector Assessment. These constraints continue to be present and will only be summarized here.

a. Stagnant Technology and a Weak Scientific Base.

Low productivity in the sector is in part due to the fact that the large majority of Bolivian farmers has not yet moved toward the adoption of modern production techniques. Their production technologies

are still traditional. Only minimal use of fertilizers, improved seeds, and other biological and chemical inputs are evident. Irrigation for the most part is poorly understood and even more poorly practiced.

An important factor in the stagnant technology and low factor productivity in Bolivian agriculture is the absence of a well organized scientific base, i.e., a knowledge of improved technology. Applied research programs are needed to determine, within the context of the Bolivian small farmer's resource endowment, what set of factor inputs, what methods, and what technologies will be most productive.

Research capability in Bolivia is extremely limited. Agricultural research stations are seriously underfinanced and their programs lack problem orientation, direction and continuity.

The sector's technology communications system which should convey the results of research efforts to the farmer is also seriously deficient. This weakness is in part due to a lack of adequate budgets and ineffective organization, and in part the result of not having tested improved technologies to extend.

b. Poorly Organized and Inadequately Supported Agricultural Programs.

Social and technical programs that provide essential sectoral support services and encourage institutional and technical change in the sector are also limited. Such programs, like technological development and extension, suffer from lack of budget support and qualified scientific input. Among these programs are soils analysis, irrigation, animal health, agricultural credit, cooperative development, land titling and colonization.

The organization of the public services in the Bolivia agricultural sector is complex and has often been characterized by overlapping programs. Agricultural development in Bolivia, for the most part, has been subjected to a system of ad-hoc planning and implementation has lacked coordination. Programs have often proceeded without sufficient demonstration of feasibility or the consideration of alternatives. Much of the sector's planning and programming is done in an informational vacuum. The critical absence of data on resource use, production, and marketing limits the value of the little analysis which is attempted.

c. Inadequately Developed Factor and Product Markets.

The limited availability and high cost of modern inputs for agricultural production such as fertilizer, improved seed varieties,

agrochemical supplies, irrigation infrastructure and equipment, tools, machinery, etc., are important constraints to sectoral modernization. Almost all these inputs must be imported, internal transport costs are high, and the effective demand for these inputs is limited by the lack of better technological knowledge and purchasing power, especially among small farmers.

The lack of agricultural credit to finance the purchase of inputs and to pay for other production factors such as hired labor is a major constraint to a more dynamic and responsible market system for modern inputs. In the future, to the extent improved production practices can be developed, the lack of adequate agricultural credit will become even more limiting.

A deficient, high cost transportation system further limits the distribution of inputs, contributes to high transfer costs in both factor and product markets, and severely limits agricultural export possibilities, as well as greater internal specialization. The lack of adequate farm-to-market roads is the most serious transportation obstacle .. many production areas are not accessible by vehicle at all, other are accessible only periodically and at extremely high cost. The system of taxing agricultural produce at highway check points and the monopolistic organization of the trucking systems further aggravates this fundamental transport infrastructure deficiency.

Although product markets are better developed in Bolivia than factor markets, they still lack the efficiency of a modern marketing system. The lack of information on price and commodity movements, the absence of grading and quality standards and the lack of standardized weights and measures all contribute to inefficiency. In the small farm sub-sector especially, the marketing system for produce as well as inputs is highly fragmented, which suggests that probably efficiencies could be gained in both input and output marketing through cooperative organization. The lack of viable small farmer organizations is undoubtedly an important constraint to the sector's modernization in marketing as well as in other areas.

d. Quality of Human Capital.

The sector's development is constrained at all levels by the quality of human capital.

At the farm level there appears to be much dissatisfaction with the relevance of formal schooling to the lives of rural people.

Evidence for such dissatisfaction is seen in the high rural drop out rates. Formal schooling in the rural areas rarely offers much which seems immediately relevant to Bolivia's rural poor. The amount and quality of adult level training in modern agricultural practices is also inadequate.

The current system of university training at the B.S. and technical levels does not respond to the sector's needs. Considering the existing effective demand, the number of graduates appears to be sufficient, but the quality and usefulness of the training received remains deficient. Most university students in agriculture are from urban areas and have little practical farm experience. The relatively low remuneration and prestige of the sector are not conducive to the better secondary students entering upon a career in agriculture. Emphasis in the universities is principally upon the physical and biological sciences with little opportunity to study the social sciences or even such critical areas as farm management. In the universities, faculty training levels are by and large too low, and laboratory, library, and practice facilities inadequate.

Finally, at the highest levels there is a critical shortage of scientists and technical managers with advanced training or experience to staff senior level positions in the areas of policy formulation and technology development and extension. Those trained abroad are often not retained in Bolivia. Neighboring countries or international organizations in general offer better employment opportunities.

e. The General Policy Framework.

Aside from ineffective planning and poorly designed programs and policies internal to the agriculture sector, there exists a general policy framework which, in spite of major improvements in recent years, continues to restrict and limit the prospects for modernizing agriculture.

At the present time in most crop lines adequate production incentives appear to exist with most prices more or less in line with world prices. To the extent that "administered" prices do exist, the controls are largely ineffective, although they may from time to time be capriciously applied at the local level. Even though product price levels at the present time are in general adequate, the price control mechanism continues to exist and could threaten incentives in the future.

In recent years import taxes on agricultural inputs have been somewhat eased. It appears, however, that GOB tariff policies continue to be slightly biased to favor the industrial and mining sectors.

A major policy problem which continues to hamper the sector's development is the general lack of fiscal support to the agricultural sector for both operational programs and longer term investment. This has resulted in a failure to provide quality public sector services supportive of the sector's development.

3. GOB Response to Problems of the Agriculture Sector.

In 1974 the GOB prepared an assessment of the problems confronting the agricultural sector, a document which closely parallels the USAID Sector Assessment. Based on this GOB assessment, a Five Year Agricultural Plan 1976-1980 was developed. The Plan is a detailed statement of objectives, strategy, and sectoral program and contains a \$247 million sectoral investment program.

Briefly, the objectives of the Plan are the following:

1. Increase agricultural production and factor productivity, especially in the campesino (small farmer) sector.
2. Increase the level of per-capita income, improve the quality of life of the campesino population, and attempt to achieve a more equitable distribution of income.
3. Increase the level of self-sufficiency in food and raw materials and substitute imports selectively and progressively.
4. Increase and diversify exports.
5. Aim for harmonious and balanced development in all the regions of the country.
6. Reduce rural underemployment through better and more rational use of the land, water, and other natural resources which the country possesses.

The Plan, the first of its kind in Bolivia, provides the basis for the preparation of Annual Operational Plans and the framework for budget decisions within the sector. Although the Plan is still in its "shakedown" period, it addresses almost all the problems and constraints which were presented in the previous section and is a promising mechanism for ordering public sector activities in agriculture.

4. AID's Sectoral Strategy.

AID's agricultural sector strategy in Bolivia pursues the overall sector goal of increasing the per capita income and standard of living of rural people. The strategy consists of four basic areas of concentration which simultaneously address the interrelated constraints facing small farmer development. These are as follows:

a. Development and Dissemination of the Technical Base for Small Farmer Agriculture.

The USAID/B projects focusing on this area of concentration are basically the Agricultural Sector I loan (053) and its companion grant project Basic Foods Production and Marketing (0451). Both these projects have important technological development and dissemination elements which concentrate on Bolivia's high valleys. The Exploratory Research grant project (0461) pursues the expansion of the agricultural technical base for Bolivia's northern agricultural frontier areas. Although AID's involvement in this area will continue with the ongoing projects mentioned above, no major new involvement in agricultural research or extension are planned at this time because of the large IDB effort programmed for the Bolivian Agricultural Technology Institute (IBTA).

b. Improvement of Small Farmer Access to Needed Production Inputs, Including Land and Water.

Many USAID/B ongoing or planned projects fall into this area of concentration. The Sub-Tropical Lands Development Loan (050) has as its objective the provision of productive land credit and other inputs to approximately 4,000 small farmers. The agricultural credit components of Basic Foods Production (052), Agricultural Sector I (053) and Small Farmer Organizations I (055) all contribute to improved small farmer access to inputs. The planned Productive Credit Guarantee Program will also contribute to this end, as will the increased supplies of agricultural inputs to be financed under the Rural Enterprises Project. In recent times AID's participation in much needed water resource development has been principally two small-scale community development type projects.

c. Improvement of the Marketing System Serving Small Farmers.

AID projects which focus on this area of concentration are various. The Rural Roads I project (056) and the planned Rural Roads II project focus on the construction of priority farm-to-market roads.

Through food for work programs Title II food also contributes to the improvement of these capillaries of the marketing system. The Small Farmer Organizations I Loan (055) is supporting the development of cooperatives which will also help improve small farmer marketing. The planned Rural Enterprises Loan will have as one of its major objectives providing stronger and more secure markets for small farmer produce.

d. Improvement of Sectoral Management, Planning and Policy Making, and Human Capital Formation.

Basically this area of concentration is being addressed by the Agricultural Sector I (053) loan and its companion grant (0451). This area of concentration is also being addressed by the training components of other projects. The planned Farm Policy Project is also expected to contribute in this area.

5. Agriculture Sector I - Design and Implementation.

The Agricultural Sector I Loan and its companion grant, Basic Foods and Marketing have four purposes:

1. Technology Development: To develop improved technologies for use by the small farm sector of the inter-mountain valleys of Central Bolivia and the eastern agricultural lowlands.
2. Technology Extension: To extend to small farm operators in target areas the improved technologies and more modern production practices developed.
3. Sectoral Management: To develop the capability of MACA's offices of (1) Economics and Statistics, (2) Marketing and (3) Planning to generate and disseminate basic data, analyze problems and formulate coordinated policies and programs for the sector.
4. Agricultural Credit: To broaden the availability of and improve target farmer access to needed inputs, information, financing and markets.

In general terms, the joint loan/grant sectoral program is presently on track and is well on the way to meeting its major objectives. Progress is being made in each of the areas of technological development, technological extension, sectoral management and agricultural credit.

The original project design was somewhat overly optimistic about the time required for research results to be ready for field application. The production of new knowledge is not as easy to program as an item produced on an assembly line. Nevertheless, significant progress can be expected in this area prior to the terminal disbursement date (TDD).

Procurement under Agricultural Sector I has been slightly slower than originally anticipated, to the detriment of some planned activities. Similarly, project construction is slightly behind schedule. Most of these unforeseen implementation problems have now been overcome and the project's major procurement actions taken. Likewise, all project construction is in the final design stage and should be completed well before the planned TDD.

A sound and effective small farmer credit program has been initiated and is being improved based on the first year's experience. In spite of the fact that vehicles for this credit program are only now arriving in Bolivia, the program is far ahead of its targets, both in terms of number of farmers being reached and the amount of resources being placed. Average loan size is considerably smaller than originally anticipated. In spite of adverse climatic factors in 1977, capital recuperation in the program, albeit based on early results, is excellent. (See Technical Analysis Section).

Progress in the sectoral management area has also been significant. MACA's Planning Section has published a five-year sectoral development plan; work on the basic statistical area frame sample is ahead of schedule; significant resource optimization studies using linear programming are under way, and a computer terminal and data processing section will probably be installed in MACA within the year. Only in the area of marketing feasibility studies has progress been slower than anticipated, principally because of other donor (IDB) involvement in the area with the Ministry of Industry and Commerce and the GOB's division of labor which puts that ministry in charge of most of the public sector activity in marketing.

6. Other Donor Activities.

Other donors, both major and minor, are active in almost all areas within the sector and their programs have a significant influence on AID's implementation of its sectoral strategy. In fact, both coordination with other donor on-going and programmed activities and AID's desire to avoid duplication have dictated significant changes in Agricultural Sector II project design from that indicated in the Project Review Paper (PRP).

a. Description.

Other donor programs relevant to AID's agriculture sector strategy fall into a wide variety of areas. They can be usefully classified into five groups for purposes of discussion: (1) technology development and dissemination, (2) water and land development, (3) agricultural marketing, (4) agricultural credit and (5) integrated rural development.

1) Technological Development and Dissemination.

The IDB is the only other major donor working in this area. Its planned \$7.0 million loan for the newly created Bolivian Agricultural Research and Extension Institute (IBTA) will finance most of the agricultural technology improvement activities that were contemplated for AID financing in the PRP. The IDB/IBTA project will finance the equipping and construction of experiment stations, vehicles for research and extension, a large training component and some limited technical assistance.

Minor donors working in the area include the Governments of Great Britain, Taiwan, and Switzerland. The British Tropical Mission has an eleven-man technical assistance team working in the Santa Cruz area on the production of cotton, sugar cane and tropical forages. Taiwan is also providing technicians in the Santa Cruz area who are working on rice, soybeans, and pineapples. The Swiss technical assistance program is working on dairy improvement in the Cochabamba Valley.

2) Water and Land Development.

Although feasibility studies have been completed or are underway for several large-scale multi-purpose water development projects, no major donor has as yet actively entered this area. Irrigation activities to date have been limited to ground water and small-scale surface efforts. FAO and the UNDP are completing a ground water study project in the Cochabamba Valley which is being expanded to cover Tarija's central valley.

The German Government together with the National Community Development Service is carrying out a \$4.6 million small-scale irrigation program based in large part on community self-help programs. The IDB is planning to grant-finance a study of the irrigation subsector which will include some feasibility studies.

Preliminary conversations are taking place between the GOB and the IDB on the possible future financing of a colonization effort in the Alto Beni region of the La Paz Department. However, AID continues to be the only major donor directly involved in colonization activities.

3) Agricultural Marketing.

The IDB and the Canadian Government development agency (CIDA) are planning a major basic food marketing effort with the Ministry of Industry and Commerce (MIC). The first step in this undertaking is a comprehensive CIDA-financed marketing study which it is hoped will develop a project for joint CIDA/IDB financing. This major joint CIDA/IDB effort has pre-empted the planned marketing efforts which were being considered for AID financing in the PRP.

The World Food Program is assisting PFL, the milk marketing subsidiary of the Bolivian Development Corporation (CBF), in the development of milk marketing. Milk processing plants have been built in Cochabamba and Sucre and a plant is under construction in Tarija which, until domestic dairy production can be increased, are to be operated on donated milk solids and vegetable oil.

4) Agricultural Credit.

Both the IBRD and the IDB are involved in agricultural credit thru the Bolivian Agricultural Bank (BAB). The IBRD is operating a line of credit which focuses principally on large-scale cattle production in Eastern Bolivia and on grape production in the southern valleys. The GOB is now involved in negotiations with the IDB for another major (6.4 million) cattle loan for Eastern Bolivia. AID is the only donor involved in small farmer credit programs.

5) Integrated Rural Development.

So-called integrated rural development programs are very popular in Bolivia, both among major and minor donors. The IDB is currently considering the financing of a regional development program in the Central Altiplano which would complement the IBRD's Ingavi Project which is operating in the Northern Altiplano. UNESCO and UNDP, with the assistance of the WFP food for work program and in cooperation with the Chuquisaca and Tarija departmental development committees, are also involved in a series of small so-called integrated rural development projects.

b. The Effect of Other Donor Activities on the Design of AID's Sectoral Program.

The multiple activities of other donors in areas closely related to AID's sector program has had repercussions on AID's activities in general and on this project in particular. AID, as the donor of last resort, attempts to find priority program areas not already being addressed by other donors. In a sectoral program such as this, the result is a series of project components which at first glance do not appear sufficiently inter-related, e.g., the small farmer credit program is not intimately tied together with activities in research and extension or marketing, which are admittedly priority areas of action given the small farmer development objective. However, the project components presented for financing in this PP are not a collection of unrelated activities but are rather priority activities in the GOB agricultural sector program which are not being addressed by other donors with specific project activities and as such are vital components in the GOB's sectoral strategy to improve the lot of Bolivia's rural poor.

B. Detailed Description.

1. Sector Goal and Subgoal.

The goal of this Project is the same as the goal of the GOB's Agriculture Sector Plan and the Agriculture Sector I Project. This goal is to increase the per capita income and improve the standard of living of Bolivia's rural people. Since this Project will expand the geographic focus of the Agriculture Sector I Project to include the southern intermountain valleys located in the Departments of Chuquisaca, Potosi and Tarija, the sector subgoal is modified as follows: to increase small farmer incomes in Bolivia's central and southern intermountain valleys and developing eastern lowland valleys.

2. Project Purpose.

The purpose of the Project is to increase the availability to the small farm subsector of needed inputs, particularly land and improved seed, and provide the small farmer with the production and investment credit required to purchase such inputs. Development of the agriculture sector's human resources and management capability is also included in the project purpose.

3. End of Project Status.

The Project consists of five elements: (1) seed processing and storage, (2) credit, (3) human resource development and (4) sector management and coordination. At the end of the Project three new and three upgraded seed processing and storage facilities will be in full operation, thus increasing Bolivia's certified seed production capacity by 20 MT per day and storage capacity by 550 MT. Another signal that the end of the Project has been reached is an operational small farmer credit program providing both production and investment credit to approximately 7000 small farmers in Bolivia's central and southern intermountain valleys and developing eastern lowlands. The other EOPS indicator

in the credit area is the availability of approximately 10,000 hectares of additional cleared land to small farmers in the Humid Chaco area of Tarija Department. For the human resource development project element the signal that the end of the project has been reached is the improved quality of professional education in agriculture at the Universidad Mayor de San Simon in Cochabamba and the Universidad Mayor Gabriel Rene Moreno in Santa Cruz. Improved sectoral planning, coordination and management at MACA's central level is another indication that the end of the Project has been reached. The other EOPS signal for the sector management and coordination element is the completion of new agriculture service centers for the Departments of Potosi and Tarija.

4. Project Design.

a. Seed Processing and Storage.

High quality, improved seeds are a key element in increasing the small farmer's productivity and income. A well functioning seed supply system forms an indispensable link between agricultural research and the farmer.

Current use of high quality seed of improved crop varieties is extremely low, ranging from 1.7% of farms in Potosi to 8.5% in Tarija with a regional average for the southern intermountain valley area of only 4.6%. As would be expected, use of improved seed tends to rise with farm size and situation and with income.

Increasing the availability of high quality seed requires both institutional improvement and the establishment of specific regional facilities. Improved seed used in Bolivia may be imported or produced by the MACA National Seed Program or by the private sector. Generally, the private sector handles cottonseed and other oilseeds, hybrid corn and sorghum, and vegetable seeds and distributes primarily to commercial farmers and to commercial outlets. The National Seed Program deals principally with basic food grains and distributes through government channels to smaller farmers, as well as through commercial channels to medium and larger farmers.

The Government of Bolivia through the National Seed Program operated by the Seed Department of the Ministry of Campesino Affairs and Agriculture (MACA) is in the process of consolidating, expanding and improving its capacity to deliver certified ^{1/} seed of basic food crops

1/ Certified seed is seed produced under quality controlled conditions from foundation or registered seed which is produced on experimental stations, usually in small quantities. It is "certified" as to germination ratio, weed content, varietal purity, etc.

to Bolivia's farmers.

Under the Agricultural Sector I Loan approximately \$400,000 was provided to improve the functioning of the National Seed Program in the Agricultural Sector I project area. AID funding provided for the construction and equipping of new seed facilities at Warnes (Santa Cruz) and also for additional vehicles to improve the program's operations.

1). Expansion of Seed Processing/Storage Capacity

As part of the Agriculture Sector II Project, loan funds would be used to expand the seed processing and storage capability of the National Seed Program in both Agriculture Sector I and II target areas. The present program is three-pronged: 1) three new small seed processing/storage facilities will be built and equipped in the Agriculture Sector II project area, i.e. the southern valleys; 2) three existing facilities will be significantly upgraded in the Agriculture Sector I project area, i.e., the central valleys and eastern lowlands; and 3) the institutional capacity of MACA's Seeds Department will be upgraded through training and technical assistance.

New seed processing/storage facilities will be located at Betanzos (Potosi), Zudañez (Chuquisaca) and Yacuiba (Tarija). Existing facilities which will be upgraded include: Warnes (Santa Cruz), Coña-Coña (Cochabamba) and Las Barrancas (Tarija). The Project will add approximately 20 MT/day to the program's existing real processing capacity of 32 MT/day and would add approximately 550 M.T. to the existing storage capacity of approximately 1500 MT. ^{1/} Moreover, by improving the existing physical facilities and providing technical assistance and training, the program will assist in improving efficiency and quality control in existing facilities.

2). Capitalization of the Rotating Seed Purchase Fund

Experience in seed programs both in Bolivia and in other developing countries indicates that a rotating seed purchase fund of adequate size is often an indispensable element in a seed program. A rotating seed purchase fund is essentially a means of inventory financing for a seed program. It makes possible prompt payment in

^{1/} Real processing capacity is defined as 50% of theoretical capacity, given eight hours of operation per day.

cash to cooperating seed producers, finances the seed inventory during its processing and storage and is replenished when seeds are sold to farmers. A rotating seed purchase fund does not normally provide credit to either seed producers or purchasers as this would involve the establishment of a collection mechanism and the program would have to bear the credit risk. In Bolivia the addition of a credit program to the seeds program is not essential because, if seed producers or users require production credit they have access to existing resources within BAB or the private banking system.

The AID loan will provide up to \$250,000 to increase the capitalization of the existing National Seed Program Rotating Seed Purchase Fund administered by MACA. The present capitalization of this fund is \$292,000 (See Annex E, Table 1b). It is estimated that by 1981 the required capitalization of this fund will be approximately \$700,000. Thus approximately \$150,000 of GOB resources will be required in addition to the resources provided by the AID loan.

3). Seed Program Training.

AID will finance training in relation to the seed component. It is anticipated that one technician would receive long-term non-degree training in the U.S.A., and that up to 10 other MACA seed technicians would receive in-service training for 3 to 6 month periods in other countries having similar seed programs. Training would focus on the proper operation of seed plants and laboratories.

4). Technical Assistance to the Seed Program.

The grant element of this project will provide for two worker-years of technical assistance to the National Seed Program to assist the Program in the areas of quality control, production, processing, and distribution. In addition, short-term loan-funded technical assistance will be made available as needed in the above areas; approximately 7 worker-months of short-term assistance will be required.

AID's contribution to the construction/upgrading of the seed processing and storage facilities will consist of construction, processing machinery and equipment, laboratory equipment, office equipment and vehicles. AID will also finance a \$250,000 increase in the rotating seed purchase fund as well as long- and short-term technical assistance and overseas training in support of this project element. The GOB will provide an addition of \$150,000 to the seed purchasing fund and administrative costs.

c. Agricultural Credit.

1) Expansion of Coverage and Scope of Sectoral Small Farmer Credit Program.

This project component (1) extends the geographic coverage of the Bolivian Agricultural Bank's (BAB) small farmer credit program (SFCP) to Bolivia's southern valleys and (2) broadens the SFCP to include a special credit line for land clearing, the existence of which is deemed crucial for small farmer development in certain areas of the southern valleys. The SFCP, which was initiated under the Agricultural Sector I Project (O53), in Bolivia's central valleys and developing eastern lowlands, will, with this expansion, be able to service the agricultural credit needs of approximately 8,350 small farmers.

a) Expansion of the Geographic Area Serviced by the SFCP.

The SFCP is a credit program specifically designed to meet the production and investment credit needs of target group farmers. Under the Agricultural Sector II Project, the SFCP's geographic coverage will be expanded to include the southern intermountain valley areas of the Departments of Chuquisaca, Potosí and Tarija which were not included in the Agricultural Sector I Program. The expanded SFCP area will thus include Bolivia's central and southern intermountain valleys and the developing eastern lowland valleys.

Although this project component provides resources to expand the geographic coverage of the BAB's SFCP, it is not intended that the resources provided hereunder be limited to the area of expansion. They could be used as well to deepen the SFCP's penetration in the Agricultural Sector Loan I area once the credit provided under that loan is fully disbursed.

b) Expansion of the SFCP Scope to Include Land Clearing.

In certain areas of the southern valleys, such as the Humid Chaco area of Tarija Department small farmers are faced with a problem which does not exist in the Agricultural Sector I area. Even though they are only able to farm 2 to 4 hectares, given their present levels of capitalization and technologies, they are owners of considerably larger extensions (10 to 15 has.) which must be cleared before they can be put under cultivation. The major factor limiting the agricultural opportunities of these smallholders is the availability of suitably prepared land.

Although the lending criteria of the SFCP presently permit the granting of credit for land clearing, the upper loan limits are too low to permit both land clearing and an adequate financing of production and investment in other than land clearing. Moreover, although some private land clearing is being undertaken in the area, it is high cost and of limited scope. Considerable economies to the small farmer could be realized with a well-organized land clearing program which would minimize dead machine time and equipment transport costs. It is proposed that such a program be operated by the Tarija departmental development committee (CODETAR).

Given the above considerations, it is proposed that a special land clearing line of credit be added to the SFCP. Initially, the actions of this new program would be limited to Tarija's Humid Chaco area because of the existence there of markets for increased production. Eventually, however, if the proposed approach proves successful, it could be replicated in other agricultural frontier areas where small farmers face similar problems.

2) Experience in the Sectoral Small Farmer Credit Program to Date.

To date, the SFCP must be judged as very successful. As of June 30, 1977 the program had approved credits totaling \$b.24,797,849 equivalent to US\$1,239,892. The geographic distribution and general characteristics of the SFCP portfolio are illustrated in Table 3. 1,214 small farm families are being benefitted by the program and the average loan size per family is slightly over US\$1,100.

Table 3

Results of Bolivian Agricultural Bank (BAE) Small Farmer Credit Program (SFCP) Financed Under the Agriculture Sector I Project Through 6/30/77

<u>Region</u>	<u>No. of Loans</u>	<u>Amount Approved (US\$)</u>	<u>No. of Families</u>	<u>Average per Family (US\$)</u>
Cochabamba	324	678,475	530	1,280
Sucre	408	282,719	399	709
Potosí	73	287,481	156	1,843
Santa Cruz	92	60,743	92	660
Total	897	1,309,418	1,177	1,113

Source: AID/BAE Credit Advisor reports.

Approximately \$b.1,557,658 has been repaid to the program as of 6/30/77. Delinquency on the due date (amount delinquent as percent of amount due) was under 5%; the percent of payments delinquent at ninety days was less than 1%. Thus the early results of this program support the general wisdom among Bolivian agricultural credit agents that the Bolivian small farmer is a good credit risk.

An evaluation performed at completion of the program's first agricultural year (5/77) found the project slightly ahead of schedule and reaching target group farmers. Loans were made individually and to groups of farmers. Average loan size in the evaluation sample of 25 loans was \$b.20,700 (US\$1035). Loans included investment and production credit, frequently both, and for several lines to each farmer. No dollar value breakdown was made by commodity but the objective distribution of the loans was as shown in Table 4.

Table 4

Percentage of Loans Made Under the Bolivian Agricultural Bank (BAB)
Small Farmer Credit Program (SFCP) Including Various Inputs

<u>Input</u>	<u>% Of Loans</u>
Seed	80.6%
Fertilizer	80.6%
Oxen	74.0%
Dairy Cattle	18.6%
Tools	12.5%

The major problem encountered in the administration of the program is the complex procedure used to process loan applications. This has been discussed with BAB officials and major modifications are being made to reduce the complexity of the process. The AID-funded technical advisor to the program is now preparing a simplified procedure. The adoption of a simplified small farmer loan application process by the BAB for both the Agricultural Sector I credit program and this program will be included as a condition precedent to disbursement for this loan component.

3) Sub-Lending Criteria.

The criteria for sub-lending from the SFCP will differ somewhat depending on whether financing is from the regular SFCP production and investment credit line or whether the sub-loan is from the SFCP land clearing line.

a) Sub-lending Criteria for the Regular SFCP Production and Investment Line.

Criteria for sub-lending will be similar to those for the Agricultural Sector I credit program, i.e.:

(1) Demonstration of potential to achieve a production level beyond family maintenance requirements (usually involving adoption of a new technique requiring credit for purchase of modern inputs, for significant farm improvements, or to permit the cultivations of larger areas of land).

(2) The loan size limit to any one farm unit will not exceed \$5,000 annually for a combined operating and investment loan.

(3) A farm operating unit will be considered outside of the target group when net income from farming operations exceeds \$1,500 per family or gross off-farm sales exceed \$2,000.

(4) No farm with more than 10 hectares of cultivated land will be eligible for credit.

(5) The principal source of the farm family's income must be agriculture.

(6) The prospective borrower does not have ready access to other credit sources under reasonable terms and conditions.

(7) Loan repayment ability exists solely from farm income or in combination with seasonal off-farm income. In the event that off-farm income is a factor in loan repayment, it must be established that work is available and that this does not adversely affect carrying out the improved farming program agreed upon.

Loans may be made for annual production inputs, including family and paid labor or for investment in orchards, livestock, machinery, or land and farmstead improvements. Investment credit may be granted for a period of up to eight years with an appropriate grace period. There is no predisposition as to the relative proportions of investment vs. production credit; these will be determined by demand.

It is considered highly desirable that the Agricultural Sector I and II Small Farmer Credit Programs have similar terms,

conditions, criteria, etc. so that they in fact do form one program. Therefore, if this Project Paper is approved and the Project Agreement signed, the Mission intends to issue an implementation letter to the Agricultural Sector I Loan which make the terms, conditions and criteria under both loan-funded programs uniform.

b) Sub-lending Criteria for the SFCP Land Clearing Activity.

All the criteria governing the SFCP production and investment program less numbers (2) and (5) plus the following criteria will apply to the financing of land clearing activity:

(1) Credits may be used (i) to clear forest land (desmontar), (ii) to remove logs, stumps, and roots from land (destroncar) and (iii) to improve drainage and rehabilitate existing irrigation facilities on land which has been cleared or had the logs, stumps and roots removed under this program.

(2) In no case will credit be given for the construction of new irrigation works.

(3) Land to be cleared on any one farm under the SFCP may range from a minimum of one hectare to a maximum of ten hectares, with the limitation that presently cleared land plus the land to be cleared will not exceed a total of ten hectares.

(4) Credit for land clearing will be granted only for use within the guidelines established by agreement between MACA/RAB/COLETAR.

(5) Credit granted for land clearing under this line may not exceed \$3,000 per family, it may however be combined with other production and investment credits such as the regular SFCP line, the SNDC CROFOC line, FRA-2, or any other source of credit.

The maximum loan period for land clearing credit will be five years. The repayment schedule will be suited to the farmer's projected cash flow and an appropriate grace period not to exceed one year may be granted.

4) Operation of the SFCP-Financed Land Clearing Activity.

The Bolivian Institute of Agricultural Technology (IITA) will promote small farmer interest in the land clearing program and

organize their participation. The extension agents of INTA's oilseed program will carry out this function.

A small farmer or cooperative which decides to participate in the program will apply to the Bolivian Agricultural Bank (BAB) for a loan. After BAB determines that the farmer meets applicable loan criteria, BAB and INTA technicians will assist the farmer in making plans for removing logs, stumps and roots from hand-cleared land and/or fully clearing uncleared land. After these plans are complete, a technician from the Tarija Development Committee (CODETAR) will visit the site and provide the farmer with a written cost estimate for the work to be accomplished. At this point, BAB will complete processing of the farmer's loan. Once the farmer's loan is approved, he will enter into a contract with CODETAR to carry out the actual work involved.

CODETAR will divert some of its own equipment from the construction of roads to land clearing until the project-financed land clearing equipment arrives. It is expected, therefore, that CODETAR equipment will be used during the first year of the Project to clear about 1000 hectares. BAB will use about one-half of the AID loan capital provided as part of the Project to purchase land clearing equipment and spare parts and repair shop equipment and tools. AID will also make a direct contribution to the purchase of this equipment. Upon arrival BAB will transfer this equipment to CODETAR in trust for the execution of the land clearing program. Upon the completion of 9,000 hectares of land clearing under the program using project-financed equipment, title to this equipment will pass to CODETAR. If the equipment is properly maintained, it will continue to remain of value. If BAB determines that CODETAR's performance under this arrangement is unsatisfactory for good cause shown and MACA and AID concur, BAB will take possession of the equipment and transfer it to another contractor to complete the land clearing program.

CODETAR will group farmer land clearing work contracts and develop work plans in order to use their two land clearing field groups as efficiently as possible. One field group will be based in Yacuiba and the other in Villamontes. The composition of each field group will be as indicated in the following table.

Table 5

Composition of Each CODETAR Land Clearing Field Group

A. Equipment

- 2 D-7 Crawler Tractors
- 2 D-6 Crawler Tractors
- 1 Semi Truck Tractor with Low Boy Trailer (25 tons)
- 1 Lubrication/Shop Truck
- 1 Stake Truck (2 tons)
- 1 Pickup Truck (1 1/2 tons)
- 1 Small Compressor
- Attachments and Tools for Crawler Tractors.

B. Personnel

- 1 Field Supervisor
- 8 Heavy Equipment Operators
- 8 Helpers
- 6 Drivers
- 1 Field Mechanic

It is expected that each field group will be able to work an average of 25 days per month, 9 months per year. The field groups will work a 12-hour day in two shifts. It is likely that an average of 8 hours per day per machine will be spent clearing land and transportation between sites, maintenance, repairs and idleness will account for the other four hours.

Since heavy equipment workshops in the Department of Tarija do not have the capacity to handle the maintenance and repair requirements of Project-financed equipment and are remotely located from much of the land clearing program area, the Project includes a heavy equipment maintenance and repair workshop. This workshop will be managed by CODETAR and located in Yacuiba. CODETAR will construct the workshop and needed equipment and tools will be included among the items provided by BAB to CODETAR in trust. The staff of the workshop will include a shop supervisor, 2 mechanics, 2 mechanic's helpers, a lathe operator, a welder and an electrician.

CODETAR will provide a central administrative office for the program. This office will include a project manager, an assistant

project manager (administrator), an accountant and 2 secretaries.

Once CODETAR has completed the contracted work to a farmer's satisfaction, the farmer will certify this fact to BAB in writing. This certification will serve as the basis of BAB payment to CODETAR for the work. During the initial period when CODETAR will be using its own heavy equipment to carry out the work, the BAB payment will cover both operating and capital costs. Once project-financed equipment is made available to CODETAR, payments will only cover operating costs. The operating and capital costs of the land clearing program will be converted into a BAB portfolio as follows:

Table 6
Conversion of Operating and Capital Costs of Land
Clearing Program into BAB Loan Portfolio
(U.S.\$ Thou.)

<u>Calendar</u> <u>Year</u>	<u>Hectares</u> <u>Cleared</u>	<u>Operating</u> <u>Costs</u>	<u>Capital</u> <u>Costs</u>	<u>New</u> <u>Loans</u>
1978	1,000	110	135	245
1979	2,250	245	306	551
1980	2,250	245	306	551
1981	2,250	245	306	551
1982	2,250	245	307	552
	<u>10,000</u>	<u>1,090</u>	<u>1,360</u>	<u>2,450</u>

This portfolio, like other resources in the SFCP, will constitute a GOB capital grant to the BAB. Reflows from this portfolio will form a part of the regular SFCP and will be subject to the sub-lending criteria which cover it. The GOB will provide \$245,000 for the operating costs of this program to BAB as part of its regular budgetary transfer. After exhausting this amount BAB may use the resources generated by the interest on the portfolio to defray administrative costs, with interest-generated resources in excess of non-GOB defrayed operating costs and after allowance for capital losses going to further capitalize the SFCP fund. As in the case for the regular SFCP fund, the GOB will covenant to maintain the value of the loan fund.

In general, after a farmer's land is cleared, he will normally plant corn the first year to keep weed growth to a minimum and peanuts or soybeans thereafter. The new CODETAR balanced animal feed plant at Tarija will provide a ready market for the additional corn production resulting from the land clearing.

program. The additional peanuts and perhaps some of the additional soybeans grown will find a ready market in the new oilseeds plant at Villamontes. The Bolivian Development Corporation (CBF) is the major stockholder and operator of this plant and CODETAR is a minority stockholder.

5) Rationale for Choosing CODETAR as Executing Agency for Land Clearing Program.

There are several reasons for employing CODETAR's services as executing agency in the land clearing program as opposed to a private firm. To begin with no private firm presently operating in the area has the capacity to carry out a program of this magnitude.

In addition, the key to a successful low-cost land clearing program for small farmers is the organization of small jobs into a rational work program. In lieu of such organization the cost of mobilizing to clear small scattered plots would be excessive. The work then, must be organized and grouped. Given the Bolivian institutional environment it is more feasible for IBTA and BAB do this grouping with a public development entity than with a private firm (even if a large enough one would enter the program area at a reasonable cost).

Finally, Bolivia's departmental development entities are only recently becoming actively concerned about the lot of rural poor. The participation of CODETAR in this program would serve as an example of what these grass roots entities could do for the rural poor in their departments. Furthermore, it would demonstrate to GOB central government entities the usefulness of incorporating autonomous grass roots level entities like CODETAR into the execution of their development programs at the local level, thus strengthening the desirable tendency towards decentralization which exists in Bolivia at the present time.

6) Inputs into the SFCP.

a) SFCP Regular Line.

Loan capital in the SFCP regular line will be increased by a total of \$4.7 million, \$3.5 million of which will come from the AID loan and \$1.2 million will come from the GOB treasury. The total amount will be a GOB contribution to the BAB's capital, i.e. AID loan capital repayments and interest will be borne by the GOB.

The GOB will provide \$400,000 towards the administrative costs of the program through its regular budget transfer to BAB.

Administrative costs in excess of this amount may be financed from resources generated from the interest rate. Earnings of the fund not required for the program's administrative expenses will be used to increase the lending capital.

The financial details of the program are further discussed in Section III A, Technical Analysis, which demonstrates that the program is financially viable. In any event the loan agreements will contain a covenant in which the GOB commits itself to maintaining the integrity of the sub-lending fund's value.

In addition to its contribution to loan capital, AID will provide long-term technical assistance, overseas training, jeep-type vehicles and office equipment in support of the SFCP regular credit program. Two worker-years of grant-funded long-term technical assistance will be provided to BAB to assist in program implementation, refinement and evaluation.

BAB employees will receive 25 worker-months of non-degree training overseas. Alternatively, an appropriate agricultural credit course, such as that offered by USDA, might be brought to Bolivia.

Ten jeep-type vehicles will be furnished to BAB to use in the program. Also, office equipment will be supplied for the 7 new agencies which BAB will open.

The GOB's major contribution to the SFCP regular program will be \$1.2 million in loan capital and \$400,000 towards BAB operating costs. A small amount of in-country training will also be included in the BAB contribution.

b) SFCP-Financed Land Clearing.

AID's most important input into the SFCP-financed land clearing program will be \$2,450,000 of loan capital for loans to small farmers. This amount will pay for (1) a part of land clearing equipment and spare parts, (2) a part of maintenance and repair shop equipment and tools, (3) CODETAR equipment services for the first year of the program and (4) operating costs. Since the clearing of one hectare of land is estimated to cost \$245 (see Annex E, Table 3a), this loan capital should be sufficient to provide small farmers with loans to clear a total of about 10,000 hectares.

AID will also finance long-and short-term technical assistance and equipment and vehicles in support of the SFCP-financed land clearing program. CODETAR will receive a total of five worker-years of grant-funded long-term technical assistance; three worker-years of the services of an agricultural engineer who will assist in the planning and execution of the land clearing program and two worker-years of the services of a heavy equipment specialist who will assist in equipment operation and maintenance. In addition, six worker months of short-term technical assistance will be provided to CODETAR to plan the maintenance and repair workshop, choose the workshop equipment and later, make sure the equipment is properly installed.

Five jeep-type vehicles will be provided in support of BAB land clearing credit operations and three more will be furnished to the CODETAR central administrative office for the program. Both the BAB credit operations and the CODETAR central administrative office will receive a small amount of needed office equipment.

The GOB contribution will consist of the extension services of IBTA's oilseed program in promoting and organizing small farmer participation in the program and \$245,000 towards BAB operating expenses. CODETAR will fund (1) construction of the maintenance and repair workshop, (2) salaries and fringe benefits of central administrative office personnel, the two field supervisors and the workshop supervisor, (3) travel and per diem expenses of these Bolivian personnel, (4) office supplies and (5) operating costs of the 3 AID-financed jeep-type vehicles to be supplied to the central administrative office.

d. Human Resource Development.

This project component continues at a modest level the efforts begun under Agricultural Sector I to improve the quality of the agricultural education being imparted in the two agricultural universities operating in the region, the Universidad Mayor de San Simón in Cochabamba and the Universidad Mayor Gabriel René Moreno in Santa Cruz. Between them, these institutions have a teaching staff of about fifty professors. They are both still being developed and are modestly provided with experimental farms, classrooms and laboratories.

The quality of the academic output of these schools and their service capability depends upon the quality of their faculties and the adequacy of their facilities. Only about a fifth of the faculty have been able to specialize through post graduate training. Opportunities

For graduate specialization in agriculture are virtually non-existent in Bolivia. Those faculty members with Ph.D. and M.S. degrees obtained them in the U.S. or other countries. This component will provide training for twelve current or prospective faculty members to the M.S. level in the U.S. or third countries in the disciplines of agricultural economics and rural sociology; plant and animal sciences; soils, agricultural engineering, and irrigation; and forest and range management.

In addition to faculty training this component will improve laboratory facilities, acquire library reference materials and teaching aids, and purchase limited field equipment for both universities. In Cochabamba a building will be constructed to house the National Entomology Laboratory, a basic tool for working in plant protection. Equipment will be procured to complete the Food Technology Laboratory. Laboratory equipment will also be provided to the Santa Cruz University to partially equip its Agricultural Engineering Department at Santa Cruz.

Both the Santa Cruz and Cochabamba schools have fledgling experimental farms which are important in giving agronomy students with urban backgrounds some practical farm experience. Both these farms require traction equipment. The Project will provide one tractor and its implements for the Cochabamba University and two tractors and implements for the Santa Cruz University. Both universities will receive small amounts of library reference materials and teaching aids.

Summarizing then, AID will furnish about 240 worker-months of overseas academic training, laboratory equipment, field equipment, library materials and training aids and small amount of construction to this activity. The GOB will contribute administrative costs including salaries and operating expenses.

e. Sectoral Management and Coordination.

This project element has two major components: (1) to improve MACA sectoral planning, coordination, and management capabilities at the central level, and (2) to improve intra-sectoral coordination and institutional outreach at the departmental level.

1) Sectoral Planning, Coordination, and Management at the Central Level.

AID supported efforts to improve sectoral planning and coordination were initiated under the Agricultural Sector I program.

Assistance was given to MACA for the development of the Five Year Agricultural Plan and other basic studies, as well as for the initiation of the development of the statistical basis for agricultural policy decision making based on an area sample frame. Funding was also provided for the purchase of an intelligent electronic data processing terminal which can be connected to the National Computer Center (CENACO).

The building of data collection and planning systems are long-term endeavors and, in spite of the good base laid under the Agricultural Sector I program, much remains to be done to perfect these systems. Thus, with one significant exception, the activities to be funded under this component will build on activities initiated under the Agricultural Sector I program. The exception is that the concept of sector management will be broadened slightly to include an effort to improve the MACA's administrative systems.

a) Sectoral Management Technical Assistance.

In order to improve sectoral management at the central level, approximately ten worker-years of long-term, grant-funded technical assistance, will be provided as follows:

(1) Sectoral Planning.

Three worker-years of technical assistance will be provided to MACA's sectoral planning office to assist in (1) refinement of the Five Year Agricultural Plan, (2) development of program planning, evaluation and control systems and (3) refinement of the sectoral linear programming model. This advisor will also provide advice on the preparation of policy studies.

(2) Data Management.

Three worker-years of technical assistance of a broad gauge systems analyst/programmer will be required to train the personnel of MACA's new electronic data processing unit which is about to be organized around MACA's Agricultural Sector I-financed intelligent computer terminal which will be used to gain access to the agricultural data banks which are in the process of being created. The computer will also be used for such administrative functions as program, budget, and inventory control.

(3) Organization and Methods.

Many of MACA's administrative systems were set up by U.S. technicians in the 1950's during the Servicio period. These sys-

tems have evolved little since then, even though the structure of the agricultural public sector has evolved considerably and new technologies such as electronic data processing are now available. At present, many of these administrative systems are inefficient and burdensome. These inefficiencies have negative impacts on almost every phase of MACA's programs and eventually result in such things as services not being delivered to small farmers and agricultural research experiments being lost because a key input does not arrive in a timely manner.

Approximately four years of technical assistance will be needed to assist MACA's planning and administrative offices in designing and implementing new administrative systems including program budgeting. In addition, approximately 10 worker-months of short-term technical assistance will be furnished to supplement the skills of the long-term grant-funded advisors. Also, MACA will be allowed to purchase such equipment and supplies as the establishment of new management systems may require.

b) Data Development (Area Sample Frame).

As mentioned above, work on the development of an area sampling frame was initiated under the Agriculture Sector I Project. The extension of this frame requires further investment.

Earlier funding permitted the purchase of aerial photos and topographical maps for most of the departments of Bolivia. It is now necessary to fund the purchase of enlarged aerial photos of the segments selected in the following departments: Chuquisaca, Potosí, Tarija and La Paz. These enlargements will permit the installation of the area frame in those departments. These same enlargements will be used several times and for various studies. Thus, this expenditure is an investment in a system for data collection which can be institutionalized in Bolivia for future statistical work.

The Departments of Pando and Beni, as well as the northern portion of Santa Cruz Department east of the Rio Grande River, the Chaco region of the Tarija and Chuquisaca Departments and the north of La Paz Department will require a different sampling system. These zones are large areas which are sparsely populated and mainly dedicated to the cattle industry. For part of the area, aerial photos do not exist. In any event, it would seem to be more feasible to utilize samples based on lists of cattlemen that are maintained by cattlemen's associations in connection with maps from the Bolivian Statistical Institute (INE).

Best Available Document

The Project will finance the completion of the area sample frame. This task requires the enlargement of approximately 1450 aerial photos, 100 work-days of USDA provided short-term assistance, and the purchase of required materials and supplies. Details of these inputs can be found in Annex E, Table 5a.

c) Sector Management Training.

It is anticipated that this project component will require the long-term training of two individuals, possibly to the M.S. level and the short-term training abroad of perhaps another half dozen individuals. Several in-country short-term training courses or seminars will be held for perhaps another 30 individuals.

d) Intra-sectoral Coordination and Institutional Outreach at the Departmental Level.

The coordination of the activities of MACA dependencies and the sector's autonomous public institutions at the departmental level is an onerous and difficult, but essential task. An important step towards better coordination at this level has been taken in the last few years in that the role of MACA's departmental directors, who act as the direct representatives of the Minister, has been significantly strengthened. Problems of coordination between individual MACA direct dependencies and individual MACA autonomous agencies, as well as between direct dependencies and autonomous agencies, persist.

The fact that the offices of MACA and the services they offer farmers are physically dispersed influences coordination negatively. MACA's departmental facilities are generally located in separate rented, **temporary** and often dilapidated quarters. The Agriculture Sector I loan is building agricultural service centers in three departmental capitals (Santa Cruz, Cochabamba and Sucre) to overcome MACA's physical facility problem. In these places a farmer with a problem will know where to go, officials from different entities will have closer communication, and multi-agency programs will be easier to administer. Moreover, the possibility of limited joint administrative servicing will become a possibility.

It is proposed that this Project provide funding for the construction and equipping of two new agricultural service centers in the Departments of Potosí and Tarija. These facilities would serve the same functions in the Agriculture Sector II area as the agricultural

service centers in the Agriculture Sector I area serve. These service centers would house dependencies such as: the extension service, the seed department, irrigation, soils, community development, BAH, etc., as well as MACA's Departmental Director whose function is to coordinate the actions of MACA's various entities.

3) Relationship of this Component with the Planned Farm Policy Project.

USAID/B is developing, in collaboration with LA/DR/RD, a project for early FY 1978 funding. The Project Paper for this project will be submitted for AID/W review in September. The Farm Policy Project will undertake efforts which are highly complementary in that thorough basic studies on the sector and the problems of the rural poor will be undertaken. These studies will feed the MACA planning process, strengthen the sector's data base, and guide and orient the GOB sectoral strategy and policy. Data developed by means of the Farm Policy Project will serve as raw material for the Sectoral Management activities.

AID's contribution to the sector management and coordination project element will consist of 10 worker-years of long-term technical assistance, 27 worker-months of short-term technical assistance, 36 worker-months of overseas academic training, 24 worker-months of overseas non-academic training, equipment and supplies, and the construction of new agricultural service centers at Potosí and Tarija. The GOB will furnish in-country training and cover administrative expenses including salaries and operating costs.

5. Input Summary

On the A.I.D. side, all long-term technical assistance will be grant-funded and all other Project inputs will be loan-funded. Total long-term technical assistance included in the Project amounts to 222 worker-months. This amount will be divided among the elements of the Project as follows: seed processing and storage (18 wm), SFCP regular fund (24 wm), SFCP land clearing (60 wm) and sector management and coordination (120 wm).

A.I.D. will loan-finance a total of 43 worker-months of short-term technical assistance. Seed processing and storage will account for 10 worker-months, the SFCP land clearing program 6 worker-months and sector management and coordination 27 worker-months. A.I.D. will also provide a number of local national contract personnel to work on the irrigation study.

Another element of A.I.D. support for the Project is overseas training. Of a total of 254 worker-months of academic and 69 worker-months of non-academic participant training, the seed processing and storage component will receive 18 and 24 worker-months of academic and non-academic training, respectively. BAB personnel will receive 25 worker-months of non-degree training as part of the SFCP production and investment credit program. Degree training will be provided to 12 faculty members of the Universidad Mayor de San Simon in Cochabamba and the Universidad Mayor Gabriel Rene Moreno in Santa Cruz for a total of 240 worker-months. The overseas training input into the sector management and coordination component will be 36 worker-months of academic and 20 worker-months of non-academic participant training.

Commodities to be procured with A.I.D. loan funds include vehicles, equipment and certain miscellaneous items. Seed processing machinery and equipment, office and laboratory equipment and 10 jeep-type vehicles will be provided to the Project's seed processing and storage activity. Equipment destined for the SFCP regular credit program includes 10 jeep-type vehicles and office equipment. Land clearing equipment and spare parts, maintenance and repair shop equipment and tools, 8 jeep-type vehicles and office equipment will be furnished in support of the land clearing credit program. Commodity support for human resource development includes laboratory equipment, field equipment and library materials and teaching aids. Some equipment and supplies will also be made available for sector management and coordination. A.I.D. will finance a total of 28 jeep-type vehicles for the Project.

The largest A.I.D. contribution to the Project will be loan capital for the SFCP production and investment and land clearing credit programs. A.I.D. loan capital for the land clearing program will be used to cover the costs of: (1) CODMTAR equipment services for the first year, (2) part of the land clearing equipment and spare parts, (3) part of the maintenance and repair shop equipment and tools and (4) operating costs. A.I.D. will also provide capital for the seed rotating fund.

A.I.D. will finance a number of construction activities included in the Project. Three seed processing and storage facilities will be upgraded, one each in Santa Cruz, Cochabamba and Tarija Departments, and 3 new facilities will be constructed, one each in Chuquisaca, Potosí and Tarija Departments. Also, a National Entomology Laboratory will be constructed on the campus of the Universidad Mayor de San Simón in Cochabamba. In addition, agricultural service centers will be constructed for Potosí and Tarija Departments.

The GOB's major contributions to the Project will be loan capital for the SFCP production and investment credit program and capital for the seed rotating fund. The GOB will also finance in-country training for the SFCP regular credit fund and sector management and coordination project activities. In addition, the GOB will pay administrative costs including salaries, travel and per diem for Bolivian personnel and operating costs.

CODETAR is only involved in the land clearing activity. Their contribution to this activity will consist of the construction of the maintenance and repair shop and a small portion of operating costs.

PART III. PROJECT ANALYSES.

A. Technical Analysis.

1. Technical Feasibility.

a. Seed Processing and Storage.

The seed program to be financed under this project is an outgrowth of efforts initiated under the Agricultural Sector I Project, which has benefitted from the consultation in technical aspects of the Seed Technology Laboratory at Mississippi State University (see report TA-73-7). Additional facilities to be financed under the project in the Warnes (Santa Cruz) and Coña-Coña (Cochabamba) facilities are an outgrowth of recommendations made in the Mississippi State Report. The work to be carried out in Betanzos (Potosi), Zudañez (Chuquisaca), Yacuiba and Las Barrancas (Tarija) follows the general framework developed by Mississippi State and has been reviewed by Mr. Milton Lau, RDO in USAID/Peru. Preliminary design and cost estimates of these facilities are contained in Annex . The Mission plans to call on Mississippi State's expertise for assistance in the preparation of more detailed equipment specifications and further guidance on construction design.

1) Design Alternatives.

a) Addition to Existing Facilities.

The option to expand existing seed processing/storage facilities (Santa Cruz, Cochabamba, Tarija) beyond that contemplated under this project to meet the needs of the additional areas instead of the building of new facilities was considered and rejected because of high transport costs and climatic differences. The disadvantage of this option is the necessity to transport seeds from the seed production areas to the processing facilities and back to the production areas for distribution among farmers. Given Bolivia's high transport costs, in many instances choosing this option would result in doubling the price of seed or would require a GOB subsidy.

b) Farmer Seed Cleaning, Treating and Storage.

In the case of cereal seeds, there exists the technically feasible option which would permit the farmer to clean his own seed on the farm with relatively simple equipment. The disadvantages of this option are the following:

1. Even though the farmer with proper assistance and equipment could do a fairly good job of cleaning cereal seeds, weed seeds that were the same size as the cereal seed being cleaned would remain. Furthermore, farmers would have to be taught how to screen their seed by the extension service; which is at present under-staffed and under-financed and which would therefore be a bottleneck.

2. Farmers cannot clean viruses out of their potato seed, which should be changed every two to three years with virus free seed. The International Potato Center (CIP) is assisting IBTA in developing virus free potato seed for Bolivian areas. A mechanism is needed to multiply and distribute this virus free potato seed. Given that the potato seed distribution system is indispensable, the marginal cost of also cleaning cereal seeds is lowered.

3. The existence of a functioning seed cleaning and distribution system facilitates the introduction of improved varieties such as those which have been recently developed in Bolivia for oats and barley. Farmer cleaned cereal seed does not have this advantage.

c) Subsidization of a Private Seed Firm.

As pointed out in earlier sections of this paper, private seed firms do operate in seeds that are more profitable than the basic food seeds, i.e., cottonseed, vegetable seed, hybrids, etc. Thus a possible design alternative would be the subsidization by the GOB of a private seed company. The disadvantages of this approach are the following:

1. Given the current Bolivian institutional environment, it would not be feasible to make direct cash payments to a large seed firm, especially a foreign firm.

2. The MACA seed program is closer to new developments in the IBTA research stations than a private firm would be.

3. The principal reason for utilizing a private seed firm is that certain seed lines will eventually become more profitable and that these lines would be taken over by the private firm without subsidy. This transfer could take place even within the context of the present design, and it is thought that there will always be unprofitable lines which would not be tempting for a private firm but which from a social point of view will require promotion.

2) Size of the Rotating Seed Purchase Fund.

To establish the required size of the Rotating Seed Purchase Fund until 1982 the following methodology was employed. First the amount of seed required for the areas in basic food crops was calculated. The 25% improved seed goal of the Five Year Agricultural Plan was then applied to the global seed requirement yielding the seed production goals that are presented in Table 1b, Annex E. These goals are in excess of the capacity of the National Seed Program which is presented in Table 1c, Annex E. The calculations of the magnitude of resources required in the Rotating Seed Purchase Fund to finance the National Seed Program operating capacity, which should not be confused with physical plant capacity, are presented in Table 1d of Annex E. Finally, Table 1e, Annex E presents sources of capitalization of the Rotating Seed Purchase Fund through the 1980/1981 crop year when resources in the fund will exceed \$1,000,000.

b. Agricultural Credit.

1) Choice of Credit Channel.

The principal reason for choosing the Bolivian Agricultural Bank (BAB) as the channel for credit to be made available to small farmers under this loan is that it is at present the only institution in Bolivia with a proven capacity to handle a program of the nature proposed. Moreover, it is presently operating the Agricultural Sector I Small Farmer Credit Program (SFCP) which will be expanded by this project.

a) Alternative Channels.

Two alternative credit channels were examined as possible options for this program and have been rejected. These

channels were the private banking system and the cooperative movement. Both these channels are the object of development under other AID projects (052 and 055). Although they are promising for future efforts in the credit area, these channels do not have sufficient experience to undertake a major effort such as the proposed project.

b) Experience to Date with the SFCP.

As of June 30, 1977 the SFCP has made 897 loans to 1,177 beneficiaries. These credits exceed \$1.3 million and to date have an excellent recuperation rate. As of June 30, 1977, capital recuperations in the program totaled \$77,883. Only 19 loans totaling \$5,564 were delinquent as of June 30. An aging of the overdue portfolio is presented in Table 7. It indicates that 93.3% of the loan capital due for payment has been collected. Moreover, Table 7 shows that most (58%) overdue loans have been overdue for less than a month.

Table 7

Aging of Accounts, SFCP Overdue Portfolio.

	<u>Days Overdue</u>			<u>Total</u>
	<u>1-30</u>	<u>31-60</u>	<u>61-90</u>	
No. of Loans Overdue	11	7	1	19
Amount of Loans Overdue (\$US)	36.77	1687	200	5564

c) Adequacy of the SFCP Interest Rate.

At present the final nominal interest rate to the borrower from the SFCP is 13% p.a. The real interest rate is probably about 0.5% higher. The interest rate normally paid by the best commercial borrowers averages 15-16% and in many large farmer credit lines is approximately 12%. Although reliable figures are not available, it is estimated that the current rate of inflation

in Bolivia is approximately 9 to 10%; this rate is not expected to increase in the short or medium term. It is planned that the SFCP rate will continue at the present nominal rate of 13% p.a. with this addition to the SFCP. This rate could be changed in the future.

At a 13% p.a., rate, resources from the SFEP are slightly subsidized when compared to the going commercial rate but are, nevertheless, real and positive. Moreover, the cash flow projection of the program presented in Annex B, Table 1, indicates that the interest rate is adequate to cover the program's administrative costs and build a substantial reserve for capital protection.

The cash flow projection indicates that the program will "break-even" in year three, i.e., interest income will cover administrative costs and the 4% capital protection reserves. By year seven of the program, two years after the final planned AID and GOB inputs, projected administrative costs total 40% of the sub-loan generated interest, i.e., \$337,000 out of a total interest income of \$842,000. (5.2% of a 13% spread). The balance of the interest income (\$505,000 or 7.8% of a 13% spread) can be placed in the capital protection reserve.

Even given the low delinquency rates which have been experienced to date in the SFCP, given the present and projected rates of inflation, it might be theoretically desirable to increase the SFCP's final rates to borrowers by 2 to 4% per annum. In fact such an adjustment is not practical given the present structure of Bolivian interest rates, including those fixed at low levels by the other donors. An upward revision in the SFCP rate would only be practical as part of an overall interest rate revision or could occur in real terms if the present rate of inflation drops.

2) Land Clearing.

a) Design Alternatives.

Three technical options exist for land clearing in Bolivia. This project will utilize a method widely in use in Bolivia, that of using crawler tractors and specialized implements being pulled or pushed by these machines. Two other alternatives

which were considered and rejected are hand clearing and the use of specialized, sophisticated machinery.

Hand clearing requires the use of 30 to 40 man days of work per hectare, depending on the density of existing vegetation. Although hand clearing is cheaper than machine clearing (costing only about \$75 to \$100 per hectare, compared to about \$245 per hectare under this program) it does have the following disadvantages:

1. Hand clearing of land is limited to a three month dry, cold winter period because agricultural demand during the rest of the year uses all available family and paid labor.

2. Land clearing by hand implies the burning and destruction of most of the land's available organic matter, has negative effects on the environment, and limits the possibility of selling marketable wood, the value of which is estimated to average \$150 per hectare.

3. Roots, stumps and large stems do not burn completely and may cover up to 25% of the field at planting time.

4. Roots, stumps and stems which litter the surface and subsurface obstruct even rudimentary equipment, they are difficult to remove and slow to rot. It is not possible, for example to plant and harvest low crops such as peanuts even with simple intermediate technologies (such as simple oxen or tractor pulled peanut harvesting equipment).

Large, specialized, sophisticated land clearing machinery has been unsuccessfully introduced in very limited quantities in the Santa Cruz area. Spare parts were not available and took several months to arrive in Bolivia. These machines are expensive and there is no knowledge or experience in the country regarding their proper operation and maintenance. Therefore their employment in the program was rejected.

b) Technical Feasibility.

Two factors have to be considered to establish technical feasibility of the land clearing program:

- (1) the availability of sufficient suitable land to be cleared in the Chaco Humedo area; and

(2) the adequacy of the technological and institutional support to the farmer to put his land into production after clearing.

(1) Land Availability.

According to the soils study made in the Chaco Humedo in December of 1976, there are 19,449 hectares of cultivable land without use limitations and 27,423 hectares of cultivable land with some restrictions on its use. About 5,000 hectares of this total of 46,872 hectares are presently in use. The zone studied focused on the most promising portions of the Chaco Humedo and considerably more land that could potentially be cleared under the Project exists outside of the studied areas. Even larger extensions exist in the dry Chaco but these would require irrigation.

(2) Technological and Institutional Support.

It is thought that during the first two or three years of the program small farmers in the Chaco Humedo area will not run into production system constraints, i.e., they will be able to handle increases in areas cultivated with their present technologies and with the labor available in the area. In years four and five, it is thought that extending present technology systems will run into labor constraints especially for peanut harvesting.

To overcome these constraints, farmers will have to adopt different technologies including simple mechanized or oxen-drawn harvesting and cultivating equipment. In order to facilitate these changes in the farmer's technical system, the National Community Development Service (SNDC) will organize one of the four planned integral cooperatives to be organized under the Revised Small Farmer Organization project among corn and peanuts producers in the Chaco Humedo.

2. Engineering Considerations.

a. Seed Processing Facilities.

Review has been made of the proposed amplification of seed facilities in the three centers in Santa Cruz, Cochabamba and Tarija Departments, and of the new seed facilities proposed for Potosí, Chuquisaca and Tarija Departments. These centers are of modest size and are distributed by production zone in order to reduce costs of transportation. All will include design for corn. The other types of seeds in design will be determined by the crop patterns for the area. The facility near Yacuiba in Tarija, for example, will handle oilseeds and controlled ambient storage must be provided for soy beans in that installation. Given the GOB intent to sharply increase oilseed production in that region, the facility will be designed with consideration of future expansion. Costs are projected on the basis of current construction in the respective areas and current prices for seed handling equipment with a factor for escalation. The Ministry of Agriculture will employ the services of an engineering design firm with experience in seed facilities for the layout and specifications of these project facilities. Design and construction supervision will be accomplished by a consultant firm.

b. Entomology Laboratory.

This laboratory, for the study of plant and insect life, will be a part of the university complex in Cochabamba; costs are projected on the basis of historical costs for similar new laboratory structures and equipment in that complex, with a factor for escalation. The services of a research group such as the one which will provide technical assistance for this unit will be secured for layout and equipment specifications, and an architectural engineering consultant will be responsible for design and construction supervision.

c. Agricultural Service Centers.

These two new centers, in Potosí and Tarija, will be functionally designed for purposes similar to the centers presently being designed for other areas under the Agriculture Sector I Project but with layout and support facilities appropriate to these new areas. Costs are projected on the basis of anticipated area requirements and present unit construction costs with a factor for escalation. Design and supervision of construction will be accomplished by an architectural engineering consultant.

d. Land Clearing.

The area projected for clearing of 37.5 square miles is basically level to rolling fertile terrain 500 meters above sea level. Rainfall, per OAS data on the River Plate basin, averages from 600 to 800 millimeters per year, with 55% occurring in the December-February quarter. The forest growth is moderate and the ground firm for tractor work during nine months of the year. The spread of equipment and support facilities are based on Caterpillar equipment production data and actual experience in current other AID-supported land clearing work (Loan 511-T-050). Equipment and facilities are considered appropriate for the work projected and time frame. Projected costs per hectare are slightly less than commercial rates for such work. Equipment costs are based on current quotations with an escalation factor.

B. Financial Analysis and Plan

The estimated cost of activities to be financed under this Project is \$19,530,000. The AID contribution will be \$13,500,000 of which the loan will provide \$11,300,000 and the grant will provide \$2,200,000. The disbursement period of both the loan and grant will be 5 years.

Long-term technical assistance will be grant-financed. Loan funds will be used to finance short-term technical assistance, local national contract personnel, overseas training, vehicles and equipment, loan capital, rotating seed fund capital and construction.

The GOB will contribute \$6,030,000 to this Project in the form of in-country training, loan capital, rotating seed fund capital, data processing and administrative costs including salaries, operating costs and travel and per diem. The annual obligation involved represents an average of approximately 1.8% of the combined MACA and BAB budgets.

1. Summary Cost Estimate and Financial Plan

Table 8 presents an estimate of the total financing necessary to complete the Project analyzed by source and use of funds.

Table 8

Summary Cost Estimate and Financial Plan (U.S.\$ Thou.)

	A.I.D.				Local Contribution			Total	
	Grant	Loan		Total	GOB	CODETAR	Total		
	FX	FX	LC		LC	LC	LC		
A. Technical Assistance									
1. Long-term	1,850	-	-	-	1,850	-	-	-	1,850
2. Short-term	-	280	-	280	280	-	-	-	280
B. Training									
1. Overseas									
a. Academic	-	295	-	295	295	-	-	-	295
b. Non-academic	-	115	-	115	115	-	-	-	115
2. In-country	-	-	-	-	-	50	-	50	50
C. Equipment and Vehicles	-	1,355	-	1,355	1,355	-	-	-	1,355
D. Loan Capital									
1. SFCP Regular Fund	-	-	3,500	3,500	3,500	1,200	-	1,200	4,700
2. SFCP Land Clearing Fund	-	1,225	1,225	2,450	2,450	-	-	-	2,450
E. Seed Rotating Fund	-	-	250	250	250	150	-	150	400
F. Administration	-	-	-	-	-	3,340	215	3,555	3,555
G. Construction	-	-	1,175	1,175	1,175	-	75	75	1,250
Subtotal	<u>1,850</u>	<u>3,270</u>	<u>6,150</u>	<u>9,420</u>	<u>11,270</u>	<u>4,740</u>	<u>290</u>	<u>5,030</u>	<u>16,300</u>
Inflation (15%)	260	490	920	1,410	1,670	710	40	750	2,420
Contingency (5%)	90	165	305	470	560	235	15	250	910
<u>Total</u>	<u>2,200</u>	<u>3,925</u>	<u>7,375</u>	<u>11,300</u>	<u>13,500</u>	<u>5,685</u>	<u>345</u>	<u>6,030</u>	<u>19,330</u>
Percent					69%			31%	100%

As the table above shows, the GOB will contribute about 31% of the project costs and A.I.D. will contribute about 69%.

2. Accrued Disbursement Schedule

Source and timing of Project accrued grant, loan and GOB disbursements are presented in Annex E, Table 5b. This table breaks down disbursements by project input.

3. Recurrent Budget Analysis

During the disbursement period of the Project, the GOB will contribute \$5,685,000 excluding CODETAR's contribution which amounts to \$345,000. Of the \$5,685,000, \$4,740,000 represents cash commitments and \$819,000 "in kind" contributions. Salaries for new personnel to be hired within MACA and BAB have been estimated. In-country training, increased operating costs and travel and per-diem as well as contributions to loan capital and the seed rotating fund have been included. Table 9 presents MACA and BAB combined annual project costs:

Table 9
GOB Project Costs (U.S.\$ Thou) 1/

	<u>C a l e n d a r Y e a r</u>					<u>Total</u>
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	
<u>A. Cash Outlays</u>						
1. In-country Training	10	20	20	-	-	50
2. Loan Capital	170	205	240	275	310	1200
3. Seed Rotating Fund	18	18	38	38	38	150
4. Personnel Salaries	242	392	424	477	452	1997
5. Operating Costs	57	130	139	112	96	534
<u>Subtotal Cash</u>	<u>497</u>	<u>765</u>	<u>861</u>	<u>902</u>	<u>896</u>	<u>3921</u>
<u>B. "In Kind" Contribution</u>						
1. Personnel Salaries	59	112	111	112	120	514
2. Operating Costs	36	66	66	68	69	305
<u>Subtotal "In Kind"</u>	<u>95</u>	<u>178</u>	<u>177</u>	<u>180</u>	<u>189</u>	<u>819</u>
<u>Total</u>	<u>592</u>	<u>943</u>	<u>1038</u>	<u>1082</u>	<u>1085</u>	<u>4740</u>
Inflation (15%)						710
Contingency (5%)						235
<u>Grand Total</u>						<u>5685</u>

1/ Includes MACA and BAB, but not CODETAR costs.

IBRD has been assured by the GOB that sufficient funds will be allocated to the Project from regular GOB revenues. The loan application letter signed by the Ministers of Campesino Affairs and Agriculture and Finance has committed the GOB to provide adequate support to achieve the purposes of the Project. A covenant will be included in the Loan Agreement by which the GOB will commit itself to provide funds for the maintenance of equipment purchased and facilities constructed with loan funds.

MACA and BAB combined costs have also been estimated for a period of 4 years after disbursement of the Project in Table 10 .

Table 10

	GOB After Project Costs				Total
	(US\$ Thou.) 1/				
	C a l e n d a r		Y e a r		
	1983	1984	1985	1986	
1. Rotating Fund	40	42	44	46	172
2. Data Processing	21	22	23	24	90
3. Personnel	615	646	678	712	2651
4. Travel and Per-Diem	7	8	9	10	34
5. Operating Costs	186	205	225	247	863
<u>Total</u>	<u>869</u>	<u>923</u>	<u>979</u>	<u>1039</u>	<u>3810</u>
Inflation (15%)	130	138	147	156	571
Contingency (5%)	43	46	49	52	190
<u>Grand Total</u>	<u>1042</u>	<u>1107</u>	<u>1175</u>	<u>1247</u>	<u>4571</u>

1/ Includes MACA and BAB contributions only.

In Table 11, annual budgets of the MACA and BAB have been estimated and compared with the annual GOB contribution to the project. Its purpose is to demonstrate that only small percentage increases in the MACA and BAB budgets are necessary for them to carry out their responsibilities both during and after the Project.

The counterpart requirements of other GOB projects in the sector financed by other donors could influence the availability of counterpart for this Project and therefore an analysis of these requirements was performed. At the April, 1977 meeting of the Paris Consultative Group on Bolivia, the GOB presented, in addition to this Project, seven other projects to be executed in the sector by the MACA and the BAB over the next three years. These projects required a total financing of \$125.5 million, of which \$33.1 million represented GOB counterpart. Only three of these seven projects were classed as "probable" by the GOB, the others being placed in the "approached" or "identified" categories. Projects classed as "probable" required \$33.5 million in financing, of which \$11.1 million represented GOB counterpart. If the \$6.0 million required as the GOB counterpart for this Project is added to the counterpart requirement of other "probable" projects, the sum of \$17.1 million can be compared to the estimated budgets presented in Table 11. The budget projections in Table 11 are based on the historical rates of budgetary increases and indicate a projected increase of \$19 million between 1976 and 1979. The conclusion which must be drawn from the above data is that at normal rates of growth in the MACA-BAB budget, counterpart resources will be available for the GOB's "probable" projects but that the execution of other projects will require significantly higher budget allocations to the MACA and the BAB.

The possible counterpart constraint to the execution of presently classified "non-probable" projects will be called to the GOB's attention during the negotiation of the Project Agreement and will be the subject of a report to be prepared with the assistance of the Project-financed Sectoral Planning Advisor.

The Financial Plan to be submitted to A.I.D. by the GOB as a condition precedent to disbursement will be carefully reviewed by USAID/Bolivia to assure that adequate counterpart will be available for the successful execution of this Project.

Table 11

Relation of GOB Contribution to Total MACA and BAB Budget
(U.S.\$ Thou.)

Calendar Years	Estimated Budget		Annual GOB Contribution	Contribution as % of MACA and BAB Budgets
	MACA 1/	BAB 2/		
1976	12,394	21,547	33,941	-
1977	15,875	29,456	45,331	-
1978	17,145	31,812	48,957	592
1979	18,517	34,357	52,874	943
1980	19,998	37,106	57,104	1,038
1981	21,598	40,074	61,672	1,082
1982	23,326	43,280	66,606	1,085
1983	25,192	46,742	71,934	1,042
1984	27,207	50,481	77,688	1,107
1985	29,384	54,519	83,903	1,175
1986	31,735	58,881	90,616	1,247

1/ Source: 1976-1977 GOB General Budget. Following years increased using 8% growth rate based on prior years.

2/ Source: 1976-1977 GOB General Budget and BAB's Budgeting Division, excluding sub-loan funds. Following years increased using 8% growth rate based on prior years.

h. Summary and Conclusions

The financial plan attempts to include all costs of the Project. Inputs and their costs have been reviewed by GOB officials and Mission project personnel. The disbursements schedule was prepared using estimates as to when technical assistance will be contracted, training will take place, equipment and materials will be purchased, credits will be granted, and construction will be carried out. Estimates of GOB costs to continue the program after the Project were prepared using the best possible estimates. It is the Project Committee's judgement that the figures shown in this financial section are realistic estimates of cash contributions and that the GOB will be able to provide its contribution on a timely basis.

C. Social Analysis.

1. Socio-Economic Profile of the Target Area.

A farm survey covering the Agricultural Sector II project area was carried out in the first half of 1977; data collected covered the 1976-77 agricultural year. The survey included interviews with 750 farmers in a clustered self weighting sample of twenty primary sampling units (PSUs). The survey was carried out by the MACA Statistics Department and LA/DR's BUCEN/RSSA group. The survey's methodology and the procedures employed were "state-of-the art" quality.^{1/} The 1976-77 agricultural year was one of moderate to serious drought in the target area, and therefore it is thought that the normal situation of the target group is considerably better than the picture presented in the following profile.^{2/}

a. Target Group Income and Appropriateness of the Target Region.

In the tabulation of survey results, four measures of income were calculated -- net farm cash income, net farm income, net household cash income, and net household income. Because the latter is the best measure of the overall economic status of the household, it will be used as the measure of income in the following analysis unless otherwise stated.

Table 2, a frequency distribution of income, demonstrates that each of the departments in the Agricultural Sector II region includes large concentrations of poor farmers. For the region as a whole, more than 80% of the farms have household incomes below

1/ Further description of the methodology and procedures used in this survey can be found in the BUCEN/RSSA reports on file in LA/DR/RD and USAID/B Office of Rural Development.

2/ For a more detailed analysis of the target Region's small farmers refer to "An Assessment of the Target Region for USAID/Bolivia Agricultural Sector Loan II" by James T. Riordan of LA/DR (on file in LA/DR/RD and USAID/B Office of Rural Development).

\$500; almost 63% are below \$235. Even in the most prosperous sub-zones, 70% of households have incomes of under \$500.

Table 12

Frequency Distribution of Household Income, %^{1/}

	<u>Region^{2/}</u>	<u>Chuquisaca^{2/}</u>	<u>Tarija</u>	<u>Potosi^{2/}</u>	<u>Chaco^{3/}</u>
\$ 40 or less	21.2	15.7	20.9	23.7	0
\$ 41 - 105	20.2	15.7	15.0	25.2	0
\$106 - 235	22.3	28.6	23.3	19.3	17.4
\$236 - 500	17.8	17.2	18.4	17.6	52.2
More than \$500	18.5	22.8	22.3	14.3	30.4

Mean net income in the region (Table 13) averaged only \$62 per capita. Mean farm income per capita was only \$27. The above figures imply that the presence of off-farm income is an important determinant of economic well-being for farm families. This is true; it should be noted however that only 24% of the farm families in the sample had off-farm non-agricultural earnings and 25% had off-farm agricultural earning. The percentage of families having both agricultural off-farm income and non-agricultural off farm income is not known, but somewhere between 51% and 75% of the families lived only from farm income which averaged \$147 per family (but which could of course be higher for families having only this income source).

1/ Percentages do not necessarily sum to 100 due to rounding.

2/ In this and all subsequent tables the regional and Chuquisaca figures exclude the Chaco PSU. See ANNEX E for a detailed definition of the survey region.

3/ In this and all subsequent tables containing information from the Chaco PSU, figures are based on farms under 5 has. in size which comprise 92% of the sample.

Note: In this and all following tables the figures under "Chuquisaca", "Tarija", "Potosi" and "Chaco" are not meant to represent these entities as such but only the areas in these entities falling into the survey area as defined in ANNEX E .

Table 13.

Mean Net Income Compared to Mean Net Farm Income in the Target Region, 1976-77 (\$US)

	<u>Region</u>	<u>Chuquisaca</u>	<u>Tarija</u>	<u>Potosi</u>
Mean Income per-capita	62	89	58	52
Mean Farm Income per-capita	27	57	18	21

As a point of comparison, Riordan estimates Bolivia's per-capita GDP in 1973, based on Planning Ministry figures and 1976 population data, to be \$239 per-capita, and in terms of per-capita GDP ranks the departments of Tarija, Chuquisaca, and Potosi, fifth sixth, and eighth out of Bolivia's nine departments with per-capita GDPs of \$232, \$207, and \$194, respectively (Pando and Beni, two isolated sparsely populated departments are ranked 7 and 9 respectively). These departmental GDP rankings include urban income and to some degree contradict IDB-FAO 1971 estimates of rural income presented in Table 14, also cited by Riordan.

Table 14.

IDB-FAO Cooperative Program Estimates of Rural Family Income

<u>Region</u>	<u>Estimated Rural Population (000)</u>	<u>Average Rural Family Income (\$US)</u>
Low Income		
Tropical South	191	125
Central Valleys	793	150
Southern Altiplano	101	125
Middle Income		
Southern Valleys	422	250
Northern Altiplano	552	250
Central Altiplano	407	210
High Income		
Tropical North	237	350
Northern Valleys	611	400
Sub-Tropical North	281	300
Sub-Tropical South	137	300

Note: Estimates thought to be based on MACA-Utah State farm survey.

The fact is that little primary data exists in Bolivia on which to base any kind of relative regional ranking of rural poverty, a situation which

will hopefully be remedied by the results of AID planned FY78 Farm Policy Project. Whatever the relative regional ranking of Bolivian rural poverty (and much controversy remains on this subject), it is clear from both Agricultural Sector II Survey results and other data that Bolivia's central and southern valleys i.e. the Agricultural Sector II region, are places of extreme poverty (perhaps only the sparsely settled southern Altiplano is worse) where large numbers of AID's target group live and that they are therefore proper places for AID to concentrate its resources.

b. Farm Characteristics.

1) Farm Size and Tenancy.

Farms in the Agricultural Sector II region tend to be very small. Their mean size is 4 has. and only 8.2% are larger than 10 has. Except for in the Chaco PSU, where about two-thirds of the farmers are squatters, roughly half of the farmers have definitive title and most of the rest hold their land in a recognized farm of non-definitive ownership.

Table 15.

<u>Distribution of Farm Size and Tenancy</u>	
	<u>Region</u>
<u>Mean Size (has.)</u>	4.0
<u>Size Distribution (%)</u>	
0-.99 has.	29.2
1-1.99 has.	20.9
2-4.99 has.	27.2
5-9.99 has.	14.6
10-has or more	8.2
<u>Tenancy Distribution (%)</u>	
Definitive Title	55.5
Non-definitive ownership	39.9
Other Forms (renting, squatting, etc.)	4.6

2) Land Use and Characteristics.

Only about 10% of the region's area in farms is not useable, 27% being in natural pasture and 63% being in crop land. General land use characteristics are shown in Table 16.

Table 16 .

General Land Use Characteristics of the "Average"
Farm in the Region.

	<u>Hectares</u>	<u>%</u>
Land in farm	4.00	100
Not useable	0.42	10
Natural pasture	1.06	27
Cropland	2.52	63
Temporary crops	1.90	75 ^{1/}
Fallow/preparation	.53	21 ^{1/}
Permanent crops	.09	4 ^{1/}

1/

As a percentage of crop land

The farms in the region are on relatively flat terrain (63.9%) but of these about 1/3 are not tractorable (20.9%). About half of the region's farms (45.6%) receive some irrigation.

3) Marketing.

Table 17 summarizes information on distance to road and time to market for the region as a whole.

Table 17 .

Distance to Road and Time to Market,
Frequency Distribution (%)

<u>Distance to Road</u>	<u>Region</u>
Less than 1 Km.	45.7
1 to 3 Kms.	11.4
3 to 10 Kms.	27.4
More than 10 Kms.	15.6
 <u>Time to Market</u>	
Less than 1 Hr.	17.0
1 to 3 Hrs.	26.5
More than 3 Hrs.	56.4

Table 17 indicates a reasonable good access to roads but very long times to markets. Most farmers use either a rented vehicle or their own to transport their products and occasionally rent animals to move their crops to market. In the Department of Chuquisaca distance to road is significantly higher than the regional average, while time to market is somewhat lower. Mean transportation costs per farm in Chuquisaca (\$61) were ten times higher than in Tarija and Potosi (this could be due to the vagaries of sample design).

Roughly one-fifth (20.2%) of the Region's farms sell their products on the farm, 55.7% sell off the farm, and 24.1% reported no sales of any kind. The largest number of farms report selling at retail in fairs, followed by retail not in fairs, to friends or relatives, and to retail intermediaries. Very few sell to wholesalers, cooperatives and others and only about fifteen percent sell to tuckers.

4) Cropping and Livestock Patterns.

Crop production was tabulated on a parcel basis rather than by farms (an average of 3.04 parcels per farm). This provides a more accurate picture of the importance of a crop in the area and, since all parcels of the same crop on the same farm were counted as one; it also indicates the crop's importance to families.

Corn and potatoes were the most important field crops in the area, followed by wheat and barley (Table 18). Over twelve percent of the parcels in all departments are devoted to fruits and vegetables, but a much smaller number to pulses, and much of this is peanuts in Tarija.

Table 18 .

	<u>Distribution of Parcels Devoted to Various Crops</u>			
	<u>Region</u>	<u>Chuquisaca</u>	<u>Tarija</u>	<u>Potosi</u>
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
Basic Grains	(50.6)	(52.3)	(53.4)	(47.9)
Barley	8.2	6.0	0.6	14.6
Corn	28.4	30.9	33.4	23.7
Wheat	9.8	9.9	11.6	8.5
Pulses	3.9	5.1	7.5	0.8
Quinoa	0.3	0.4	0.3	0.3
Root Crops	(28.7)	(25.7)	(18.8)	(38.0)
Potatoes	23.6	24.9	17.7	27.0
Others	5.1	0.8	1.1	11.0
Vegetables	14.3	10.0	21.2	11.5
Fruits	2.9	5.6	3.4	0.6
Other	3.5	6.5	3.2	2.1
Total Parcels	2,127	466	682	979
Parcels per Household	3.04	3.28	3.22	2.85

Farms in the target area maintain small numbers of a remarkable array of animals (Table 19).

Table 19.

Percent of Farms Reporting Livestock by Class and
Average Number of Each Class per Farm

	<u>R E G I O N</u>	
	<u>% of Farms</u>	<u>Average Number</u>
Cattle	63.7	5.6
Dairy	11.9	2.9
Beef	15.2	3.1
Dual Purpose	28.6	5.3
Oxen	50.1	2.5
Sheep	63.2	15.5
Goats	58.7	16.9
Pigs	62.5	3.4
Horses, mules, asses	68.2	3.0
Poultry	78.4	10.0

More farms in Tarija have livestock of any class than the other two departments, but not enough more to seriously affect the averages. The frequency of possession in the different classes of livestock is remarkably similar over income classes, but numbers of each class tend to rise with greater income. As would be expected, both frequency and numbers of different classes of livestock increase with increasing size of farm, but most farms with less than one hectare supported one or more classes of stock: (37 percent had cattle, 38 percent had sheep, 68 percent had goats, half had pigs, more than half had horses or mules and 67 percent had poultry).

From the above, it must be concluded that programs which ignore the importance of livestock to the small farmer and its varied array are addressing only part of the target farmer system. From farm budgets, which are presented later in this analysis, it can be concluded that farm animals are used mainly for traction and family consumption. Only 26.9% of the farms in the region had livestock sales and only 14.6% sold livestock products. Livestock sales accounted for only 23.4% of total cash sales. Almost ninety percent of the farms produced animal by-products (milk 61.4%; eggs, 66.1%; wool, 54.2%; and hides, 38.1%), but less

than twenty percent of these producers sold these products. The implication is that the target group has a higher intake of animal protein than is typical of most peasant agricultural societies.

5) Productivity

Yields of the region's main crops tend to be very low (Table 20). Low yields are no doubt related to the low

Table 20.

Yields of Principal Crops in Kilograms per Hectare

	<u>Region</u>	<u>Chuquisaca</u>	<u>Tarija</u>	<u>Potosi</u>
Barley	686	830	297	680
Corn	655	1,129	478	719
Wheat	240	495	135	332
Potato	1,423	2,131	812	1,562

level of input use which is illustrated by Table 21. It must be kept in mind, however, that the 1976-77 agricultural year was one of serious drought, a fact which appears to have had significant impact on yield levels. For example, the fact that yields were lowest in Tarija and low in Potosi probably reflects the relative severity of the drought rather than levels of input use, which were similar.

Table 21.

Percentage of Target Region Rural Households Using Different Inputs

	<u>Region</u>	<u>Chuquisaca</u>	<u>Tarija</u>	<u>Potosi</u>	<u>Chaco</u>
Improved Seed	4.6	5.6	8.5	1.7	-0-
Chemical Fertilizer	12.4	17.4	21.7	4.7	-0-
Organic Fertilizer	86.0	68.1	79.2	97.7	2.2
Other Chemicals	11.7	16.7	17.0	6.4	6.5
Machinery	0.6	-0-	0.5	0.9	-
Animal Power	78.4	56.9	93.9	77.8	87.0
Irrigation	45.6	50.7	30.2	52.5	-
Credit	6.7	12.5	9.4	2.6	0.0
Training/Extension	5.8	12.8	6.8	2.3	6.5

It is noteworthy that these farmers have received little external knowledge through training or technical assistance and little credit with which to purchase inputs. The traditional agriculture which these farmers practice tends to be low cost and risk averting. However, the high use of manure, irrigation and animal power, and their clear and uniform perception of problems and needs indicates a good level of sophistication.

6) The Farm Economy .

Table 22, shows the frequency distribution of cash costs incurred by farmers and indicates that the pattern of cash outlays is quite similar from one department to another. The four most frequently incurred cash costs are "miscellaneous", livestock inputs, crop inputs, and processed product inputs. The levels of

Table 22 .

Frequency Distribution of Cash Costs Incurred (%).

	<u>Region</u>	<u>Chuquisaca</u>	<u>Tarija</u>	<u>Potosi</u>
Cash rents	4.4	4.9	4.7	4.1
Crop inputs	64.0	65.3	72.6	58.2
Other crop costs	28.7	22.2	24.2	34.1
Livestock purchase	18.8	23.6	22.6	14.3
Livestock inputs	67.0	67.4	84.8	55.5
Processed product inputs	50.6	25.7	50.0	61.6
Machinery and tools	32.2	25.7	34.9	33.2
Construction and maintenance	8.5	13.8	9.0	6.1
Miscellaneous	95.5	93.8	95.3	96.5

cash outlay per hectare do, however, vary significantly within the region (Table 23). Both cash costs and cash income per hectare are considerably higher in Chuquisaca. Cash outlay and income per hectare are low in Potosi, but the value of on-farm consumption per hectare is high. In fact total returns per hectare are higher in Potosi than anywhere, in spite of its more subsistence orientation. One possible explanation -- average farm size is much smaller in Potosi than in Chuquisaca or Tarija and the farming systems in Potosi are probably more labor intensive.

-6A-

Table 3

Cash Sales, Cash Costs, Cash Income and Total Income
per Hectare (\$US).

	<u>Region</u>	<u>Chuquisaca</u>	<u>Tarija</u>	<u>Potosi</u>
(1) Total Cash Sales	46.91	81.49	32.48	28.06
(2) Cash Costs				
Cash rents	.74	1.76	.08	.44
Crop inputs	7.18	8.78	7.66	4.84
Other crop costs	.93	.94	.79	1.05
Livestock Purchase	5.61	7.02	3.72	6.46
Livestock Inputs	1.39	1.30	2.10	.66
Processed Product Inputs	6.78	17.58	1.98	1.06
Machinery and tools	7.78	2.21	1.25	1.94
Construction and Maintenance	1.69	4.13	.78	.20
Miscellaneous	3.98	9.73	.92	1.56
Total Cash Costs	30.08	53.45	19.28	18.21
(3) Cash Income (1)-(2)	16.83	28.04	13.20	9.85
(4) Value of On-farm Consumption ^{1/}	22.63	8.56	14.57	35.58
Farm Income, (3)+(4)	39.46	36.60	27.77	45.43

1/ Excludes on-farm animal consumption

There exist two seasonal peaks of labor use: (1) April-June for harvesting and (2) August-January for land preparation and seeding. Peak periods differ somewhat between departments, Chuquisaca being somewhat earlier and Tarija somewhat later than average. Many farms use hired labor or employ labor exchange (Table 24). The labor exchange custom is more important in Potosi while hired labor is more important in Chuquisaca.

Table 24 .

Use of Hired Labor and Labor Exchange.

	<u>Region</u>	<u>Chuquisaca</u>	<u>Tarija</u>	<u>Potosi</u>
Farms Using (%)				
Hired	26.9	48.6	81.6	14.9
Exchange	33.8	18.8	12.7	53.1
Person Days per Farm				
Hired	58.2	108.3	27.6	28.8
Exchange	15.6	8.5	10.6	17.4

7) Relationships Between Farm Income,
Farm Characteristics and Policy Variable.

A number of relationships exist between income levels and other variables. Some of these relationships are obvious and expected, like the positive relationships existing between household income and off-farm employment or between farm size and farm income. Others, such as the relationships between education and income or between credit and income, are less clear, particularly in terms of causality.

This profile makes no attempt to define these relationships or to suggest causality, but merely arrays a set of characteristics against net farm income (Table 25). Extreme care should be used in drawing inferences from these data. In the future serious investigators will perform multiple regression analysis on these values using individual farm observations. Inferences made on the basis of limited observations or about causality are particularly treacherous. For example, in Table 25 a positive relationship exists between farm income and training/extension. It should not be concluded without more analysis that training and extension cause the higher income. It may be that extension agents prefer to visit with higher income people or that higher income farmers can afford to attend training courses.

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Table 5

Income Associations (Net Farm Income, \$b):

	<u>Region</u>	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>
Farm Size	2,881	1,673	2,104	3,348	4,662	4,569
Topography		3,772	-	2,182	-	2,295
Tenancy		3,352	-	2,516	-	543
Irrigation		4,033	-	-	-	1,972
Time to Market		4,789	3,094	2,399	-	2,042
Credit		2,784	-	3,346	-	6,326*
Training/Extension		2,554	7,181	10,047*	-	3,080

* Very small number of observations.

KEY:

Farm Size (Has.)	0 - .99	1.0-1.99	2.0-4.99	5.0-9.99	10.0+
Topography	Flat and Tractorable	-	Flat, not Tractorable	-	Not Flat
Tenancy	Definitive Title	-	Non-Definitive Ownership	-	Other
Irrigation	Irrigated	-	-	-	Non-Irrigated
Time to Market (Hrs.)	0 - 1	1 to 3	3 to 6	-	6 +
Credit	No credit	-	Low Credit	-	High Credit
Training/Extension	None	Training	TA	-	Both

c. Demographic, Cultural, and Educational Characteristics of the Target Group.

Target region rural households average 5.3 members. The average family size is higher in Tarija (6.0) and lower in Potosi (4.9). Households are normally headed by a male. In the region, 85% of

the males ages 13-60 and 46% of females in the same age group are principally engaged in agriculture. In Potosi female participation in agriculture was 53% versus about 39% in Chuquisaca and Tarija.

Spanish is the most common first language everywhere except in Potosi where Quechua is spoken as a first language by 86% of the population. Chuquisaca has an important Quechua speaking minority (20.8%). In Tarija, Spanish is the first language of 98.6% of the population.

Table 26.

Average Family Size and Frequency Distribution of Other Demographic and Cultural Characteristics (region).

<u>Family Size (No.)</u>	5.3	<u>Language</u>	
		Spanish (%)	53.4
<u>Household Head</u>		Quechua (%)	46.5
Male (%)	88.6	Other (%)	0.1
Female (%)	11.4		
<u>Agriculturists</u>		<u>Emmigration</u>	
Males 13-60 (%)	85.9	Temporary (%)	28.1
Females 13-60 (%)	46.1	Permanent (%)	10.8

During the 1976-77 agricultural year 28.1% of the interviewed families had at least one member away from the community temporarily for purposes of work. Such temporary migration was higher in Tarija (37.5%) and lower in Chuquisaca (6.2%). During the year, 10.8% of the families had one or more members move away for permanent work.

The farm population of the region is moderately well educated considering its levels of income and isolation. Approximately 70% are literate and only 38.4% have received no formal education.

Table 27.

Literacy and Formal Education

	<u>Region</u>	<u>Chuquisaca</u>	<u>Tarija</u>	<u>Potosi</u>
Literacy (%) ^{a/}	69.5	70.1	73.6	66.8
<u>Formal Education (%)^{b/}</u>				
None	38.4	40.2	30.2	43.4
1-3 grades	46.8	40.2	60.4	39.0
4-12 grades	12.3	12.5	6.8	16.1
Higher	3.0	7.1	2.6	1.5

a/

A household is classified as literate if the head of household, spouse or eldest son can read and write.

b/

Highest level of education completed by head of household, spouse or eldest son.

Generally speaking the farm population is reticent about joining or forming organizations. Sixty-three percent of farm families belonged to no organization of any type. Cooperatives were accessible to about 18.5% of the farmers but only 4.1% were cooperative members.

d. Characteristics of the Bolivian Chaco.

The Gran Chaco Boliviano is formed by areas of the two eastern most provinces of the Departments of Chuquisaca and Tarija. The western edges of these provinces consist of low mountains and intermountain valleys, are forested, well-watered, populated mostly by small farmers, and are collectively known as the Chaco Húmedo, or wet Chaco. The Dry Chaco to the east is nearly all flat brushland, poorly watered and non-agricultural, devoted primarily to extensive cattle ranches.

The survey included a single primary sampling unit (PSU) in the Luis Calvo province of Chuquisaca. That PSU is located in the so-called Chaco Húmedo. Generalization of the entire Chaco Húmedo, however, would be not only unscientific but a basic error. The Chaco PSU included 51 farmsteads of which 47 were under four hectares in size and 4 farmsteads over 10 Has. in size with an average extension of nearly 1,400 Has. These four farms were so large that their inclusion in the averages of the PSU, the Department of Chuquisaca, or the entire region would grossly distort the description of the area. This PSU was therefore excluded from the computer calculated averages. Later analysis demonstrated the primarily small farmer nature of the Chaco Húmedo. When the four large farms were excluded, by means of hand calculations it was found that the remaining 47 farms had an average extension of 1.2 has. (which is thought small for the Chaco Húmedo).

A site inspection of several communities in the Gran Chaco province of the Department of Tarija confirmed the small farm nature of the Chaco Húmedo. Land of good quality is fairly plentiful in the intermountain valleys and rainfall is adequate to support most crops. The land is densely forested, however, and individual farmers are seldom able to occupy more than ten hectares. Farm sizes are generally limited areas where small farmers can clear and crop in their valley of residence.

The area is still a frontier region, with relatively poor communications, and one which requires a high degree of self reliance. The established farmsteads in the areas visited had the same highly diversified character of the larger sample, i.e., multiple classes of livestock and an exceptional variety of fruits, vegetables and field crops. Corn is the supreme field crop, and does very well with average yields of about 3 MT per hectare. Wheat, barley and potatoes are almost unknown, but farmers experimenting with peanuts report yields of 1.5 MT per hectare.

Based on the above post-survey evidence, the Mission has no reservations about including the Chaco Húmedo within the target area for Agricultural Sector II.

2. Target Group Definition.

Based on the foregoing socio-economic profile of the Target Area and other information such as that contained in the USAID/B draft DAP, the target group for this project is defined

by the following parameters:

1. A farm operating unit will be considered outside of the target group when net income from farming operations exceeds \$1,500 per family or gross off-farm sales exceed \$2,000.
2. Farms with more than 10 hectares of cultivated land will be considered outside the target group.
3. The principal source of the farm family's income must be agriculture.

It is thought that the combination of these three criteria will: (1) exclude from project benefits any family above Bolivia's mean income level; (2) include well over 90% of the farmers in the Agricultural Sector II area; and (3) exclude part-time "farmers" who dabble in agriculture.

Among the alternative target group definition criteria that have been suggested (and rejected by the Mission) are the following:

- The exclusion of a farm family from the project target group because it lives in a relatively high income area.
- The definition of the target group along ethnic or linguistic criteria.

The Mission rejected the first criterion because it is quite possible for very poor farmers to live in areas of relatively high mean incomes. The second ethnic/linguistic criteria was rejected because: (1) its discriminated on the basis of race and national origin and (2) many people in Bolivia whose first language is not Spanish are relatively well to do; an ethnic/linguistic criterion would not exclude them.

3. Socio-Cultural Feasibility.

a. Target Groups Perception of Needs and their Relation to Project Components.

In the pre-project survey small farmers were asked what their needs were in order to produce more. They were allowed up to three responses. A summary of their responses is presented in Table 28.

Table 28.

Percentages of Target Region Rural Farm Households
Expressing Different Needs Concerning Future Increases
in Production.

No need or desire to produce more	3.0	Availability of inputs at reasonable prices	20.7
Credit	66.1	Labor	6.6
Better or more secure prices	11.3	Information or technical assistance	45.5
More accessible markets	7.6	More land	47.2
Land Improvements (irrigation, clearing, etc.)	49.9	Diversification of production	.4
		Other needs	6.6

Only 3% of the region's farmers responded that they had no need or desire to produce more. The leading expressed needs were for credit for land improvements (irrigation, clearing, etc.) for more land, and for information or technical assistance. There was little intra-regional variation in farmer responses except in credit where Potosi farmers were higher than the regional average (81%) and Tarija farmers lower (43%).

Expressed needs did vary somewhat by income groups. Lower income farmers seem more concerned about credit, information and more land than higher income farmers. Higher income farmers were more concerned about input and output prices and labor supply.^{1/}

1/

See Riordan, Table K-4

Farmers were also asked in the farm survey what the differing reasons were for them not adopting new technologies. Their answers are presented in Table 29. The leading impediments were seen by the farmers as lack of information (77%) and lack of credit (52%). From the responses a certain degree of risk aversion may also be detected, i.e., fear of crop failure and fear of inadequate output prices were frequent responses. Approximately one-fourth of the farmers indicated that costs of new technology were too high-- an answer which could imply either lack of financing or a conviction that new technology is not economically feasible.

Table 29.

Percentages of Target Region Rural Farm Households
Expressing Different Reasons Impeding their Adoption
of New Technology.

	<u>Percent</u>
Lack of information	77.1
Not justified due to farm size	17.9
Costs too high	25.2
Fear of crop failure	35.6
Inputs not available	3.4
Fear of low output prices	15.2
Lack of credit	51.6
Location of input sellers	7.2
Other reasons	8.2

The first ranking farmer perceived need for improving his production was credit. Farmers were asked what they would use credit for were it made available to them. These uses are presented in Table 30. It should be noted that among the major uses of credit is the purchase of seeds.

The components of the AID project which require active farmer collaboration are: (1) seed production and storage and (2) agricultural credit (including land clearing). The data presented above on farmer needs and uses of credit indicate that these components of the AID program are responsive to their needs and that they would actively respond to such programs.

Table 30.

Expressed Different Purposes that Credit Would be Used
for if Made Available (Percent)

None (No Credit Desired)	10.4	Purchase of Cattle	19.9
Purchase of Seeds	46.6	Purchase of Other Livestock	20.7
Purchase of Fertilizers	25.6	Hiring of Labor	2.0
Purchase of Other Chemical Products	7.3	Rental of Tractors, oxen, implements, etc.	1.6
Purchase of Tools	49.8	Construction	.6
Purchase of Machinery or Implements	4.3	Improvements (irrigation systems, fences, etc.)	11.9
Purchase of Oxen	41.8	Other Uses	9.4

The AID project components not requiring the direct involvement of the farmers are also responsive to their needs, although perhaps more indirectly. The improvement of agricultural universities is required to upgrade the quality of the technical assistance that they may some day receive; and although the farmers may not be aware of it, the improved institutional capability of MACA and better program and policy planning and management will eventually have repercussions on their welfare. In fact such improved capability is required if information and services that farmers desire are ever to get to them.

b. Previous Experience in Similar Activities.

Most of the components proposed for financing under the project are expansions or replications of activities of proven socio-cultural feasibility. Improved seeds, for example, are of proven acceptability to the farmer, given adequate financing. Similarly, although only 3.6% of the region's farmers are receiving institutional credit now and a disproportionate number of these farmer are either out of

the target group or at its upper end, the 053 SFCP is proving that small farmers are good credit clients and that no insuperable socio-cultural barriers exist to a well designed small farmer credit program. Socio-cultural and legal constraints to well organized, rational small and medium scale irrigation programs no doubt do exist--these will be among the topics for detailed study under the project financed irrigation planning activity.

4. The Role of Women.

As pointed out earlier in the socio-economic profile of the target group, 46% of the females in the 13-60 age group are primarily engaged in agriculture. In addition to providing important labor inputs, especially during planting and harvesting, it is widely acknowledged in Bolivia that women exercise an equal, if not predominant, role in family decisions concerning all significant marketing decisions, are responsible for management of the bulk of the family's small scale domestic enterprises (milk, cheese, eggs, ducks, pigs, woven goods, etc), and have substantial influence over the control of family savings which are generally in the form of livestock (which they or the children under their control generally tend).

This project has no features that would necessarily or specifically preclude the participation of women or restrict their access to project resources. The laws of Bolivia with respect to access to credit and indebtedness are not discriminatory on the basis of sex. In fact, many women already participate in various credit programs including the SFCP and have borrowed money for both production and marketing investments. Women, to the extent that they fall within the proposed target clientele, will have equal access to project resources to the same extent and on the same terms as men.

Moreover, MACA and its related entities are sensitive to the importance of women in the rural economy and sponsor special programs aimed at the rural woman. For example, the National Community Development Service conducts courses in community development which are exclusively for the campesina, including training in community organization and leadership.

In summary, this project will enhance the role of women both as agents and beneficiaries of development.

D. Economic Analysis.

1. Impact of the SFCP.

The southern valleys have two distinctive sub-regions in the intermountain valleys found in central Chuquisaca, Tarija and eastern Potosí and the lower lying valleys of the Humid Chaco area of Tarija Department. The characteristics of the farms in the southern valleys are detailed in the "Socio-economic Profile of the Target Group" presented in the Social Analysis and in "An Assessment of the Target Region for USAID/Bolivia's Agricultural Sector Loan II" by James T. Riordan of IA/DR. Both these analyses are based on the AID/MACA small farm survey carried out in the target area. For purposes of the present analysis, it is useful to make certain distinctions between the activities to be financed in the "southern valley sub-region" and the Humid Chaco sub-region. ^{1/}

In the southern valley sub-region, corn and potatoes are the most important crops, followed by wheat, barley and vegetables; these crops cover 64 percent of the cultivated land. The balance of the crop land is devoted to fruits, pulses, quinoa, and other minor crops. In the Humid Chaco sub-region, the principal crops are corn, peanuts, and citrus. The areas cultivated per farm in both sub-regions are similar but uncleared and unused areas in the possession of small farmers in the Humid Chaco sub-region are larger. In the region, as a whole, approximately 45% of the farms have some irrigation. There are indications, according to survey results, that agriculture in the Humid Chaco is, in the main, rainfed (only 10.9% of the small farms in the Chaco survey segment reported irrigation). Small farmers in both areas have a significant number of differing kinds of animals.

For the purposes of this economic analysis, the above facts were combined with other available information and typical pre-program and post-program partial farm budgets were synthesized for both sub-regions. These detailed budgets for the Southern Valley are presented in Annex D, Tables 1 and 2. The detailed budget for the Humid Chaco is contained in Annex D, Table 3.

a. The Southern Valley Sub-region.

1) The Pre-program Farm.

The synthesized typical farm in the Southern Valley Sub-region has 3 hectares of land of which 2.3 hectares is at present under

^{1/} The distinctions made here are for analytical purposes only. In fact the SFCP will operate as one unified program.

cultivation. The pre-program cropping pattern and its net returns are presented in Table 31.

Table 31

Pre-program Cropping Pattern and Its Net Returns
for a Typical Southern Valley Sub-region Small Farmer

<u>Crop</u>	<u>Hectares</u>	<u>Net Returns (US\$)</u>
Corn	0.25	19.6
Potatoes	0.25	36.4
Alfalfa	0.50	87.2
Vegetables	0.05	59.2
Wheat	0.75	51.1
Barley	0.50	33.5
Fallow	<u>0.70</u>	<u>-</u>
Total	3.00	287.0

The level of net returns that are generated by this budget, \$287, is significantly higher than the average farm income figures of \$147 calculated in the pre-loan survey. It is thought that the major reason for the apparent disparity is due to the fact that the region in 1977 suffered drought and that the budget generated income figure of \$287 is a better indicator of the true long-term farm income situation than a one time only interview in an admitted drought year.

2) The Post-program Farm.

Table 32 presents the typical cropping pattern and its net returns after the implementation of the credit program:

Table 32

Post-program Cropping Pattern and Its Net Returns for a
Typical Southern Valleys Sub-region Program Participant

<u>Crop</u>	<u>Hectares</u>	<u>Net Returns (US\$)</u>
Corn	0.25	58.4
Potatoes	0.25	125.8
Alfalfa	0.50	90.1
Vegetables	0.10	147.1
Wheat	1.00	87.9
Barley	0.50	40.4
Fallow	<u>0.40</u>	<u>-</u>
Total	3.00	549.7

The credit program will result in the removal of important constraints now confronting the farmer in that it will permit the purchase of fertilizer, improved seeds and other production inputs as well as farm improvements such as fencing, new wells, pumps, improved animal traction, etc. The benefits are generated from three sources:

--increased yields in existing crop lines resulting from the application of inputs purchased with credit, the cost of which is less than the increase to total returns resulting from their use;

--a slight intensification of land use, with the average area dedicated to vegetables doubling from 0.05 ha. to 0.10 ha.

--a slight decrease in the average farm's non-irrigated fallow areas, which is permitted by increased input use and improved traction.

Comparing pre-program net returns and post-program net returns, it can be concluded that the increase in the income of the average program participant in the Southern Valley Sub-region will be approximately \$263. An implicit assumption which underlies this analysis is that factor and product prices will remain constant or vary proportionately.

Table 33 illustrates how benefits are generated in the Southern Valley Sub-region. Benefits are derived by multiplying the number of program participants by the average benefit received. Table assumes an average loan size of \$1200 in accordance with experience to date with the Agricultural Sector I SFCP and FRA II and taking inflation into account. About half of the credit granted is expected to go to production credit, with the other half distributed between medium- and long-term investment credit.

Table 33

Benefits Generated by the SFCP in the Southern Valley Sub-region (U.S.\$ Thou.)

<u>Year</u>	<u>No. of Participants</u>	<u>Benefits Generated</u>
1	380	100
2	695	183
3	1200	316
4	1935	509
5	2860	752
6	2870	753
7	3240	852
8	3515	924
9	3700	973
10	3790	997
11	3790	997
12	3790	997

On the basis of AID/GOB capital inputs, land clearing credit reflows, and the required credit to put cleared land into production, Table 4 of Annex D shows the amount of credit resources available for the Southern Valley Sub-region.

b. The Humid Chaco Sub-region.

The benefits generated in the Humid Chaco Sub-region will be from two sources.

The first source of benefits is the direct impact of land clearing upon the value of the land as well as the value of marketable trees salvaged from the cleared land. Cleared land in the area sells for about \$300 per hectare more than forested land. It is also estimated that, on the average, marketable trees from the land have an average value of \$150 per hectare. The benefits of firewood, building materials, etc. are not taken into account. The direct benefits of land clearing are summarized in Table 34.

Table 34

Direct Benefits of SFCP Financed Land Clearing (US\$ Thou.)

<u>Year</u>	<u>No. of Has. Cleared</u>	<u>Benefits from Increased Value</u>	<u>Benefits from Timber Sales</u>	<u>Total Benefits</u>
1	1000	300.0	150.0	450.0
2	2250	675.0	337.5	1012.5
3	2250	675.0	337.5	1012.5
4	2250	675.0	337.5	1012.5
5	<u>2250</u>	<u>675.0</u>	<u>337.5</u>	<u>1012.5</u>
Total	10000	3000.0	1500.0	4500.0

The second source of benefits from the SFCP-financed land clearing program derives from putting cleared land into production. It is assumed that in the first year after the land is cleared that all of it will be planted to corn and that, in subsequent years, 100% of the cleared area will be in peanuts for the first five years and that soybeans in a small proportion (10%) will be added in year six.

Partial crop budgets for corn, peanuts and soybeans are presented in Annex D, Table 3. These budgets assume the use of improved

varieties of peanut seeds which are rapidly being adopted by the area's small peanut farmers and the employment of a semi-mechanized traction and harvest system (not a critical assumption). The net returns per hectare in these partial crop budgets are \$70.50 for corn, \$154.50 for peanuts and \$98.50 for soybeans. A benefit stream can be generated by multiplying the land areas to be cleared devoted to each crop by the returns per hectare; this benefit stream is presented in Table 35 .

Table 35

Benefit Stream Resulting from Bringing Cleared Land into Production (US\$ Thou.)

<u>Year</u>	<u>No. of Hectares</u>			<u>Benefits Generated</u>
	<u>Corn</u>	<u>Peanuts</u>	<u>Soybeans</u>	
1	1,000	-	-	70.5
2	2,250	1,000	-	313.1
3	2,250	3,250	-	660.8
4	2,250	5,500	-	1,008.4
5	2,250	7,750	-	1,174.8
6	-	9,000	1,000	1,489.0
7	-	9,000	1,000	1,489.0
8	-	9,000	1,000	1,489.0
9	-	9,000	1,000	1,489.0
10	-	9,000	1,000	1,489.0
11	-	9,000	1,000	1,489.0
12	-	9,000	1,000	1,489.0

A total benefit stream for the SFCP financed land clearing activities can be developed by adding together the benefit streams developed in Tables 34 and 35 . This total benefit stream generated from land clearing is presented in Table 5, Annex D.

c. Total Costs and Benefits of the SFCP Program.

In Annex D, Table 5, the total direct costs and benefits of the SFCP project component are analyzed. The results of this analysis indicate an Internal Rate of Return of 24% per annum.

In addition to the direct benefits of this program a series of indirect benefits exist which, although more difficult to quantify, are never-the-less very real. The first is the encouragement of the

entry of an entity like CODETAR into the small farm assistance field. Secondly, this program is expected to have an important favorable impact on the BAB liquidity position and capitalization. The impact of the program on improving income distribution can also be roughly estimated. Given the total land area of 10,000 has. planned for clearing and assuming that on the average 4.5 has. will be cleared per farm, and that the average farm family has 5.3 members, it can be estimated that approximately 11,750 persons will benefit from this activity and their increase in annual per capita income will be about \$94. The Southern Valley Sub-region credit program will benefit approximately 3,800 farmers or 20,150 persons, whose per-capita incomes will be increased by approximately \$51.

2. Effective Demand for Improved Seed.

The pre-project survey carried out in the target area indicated the purchase of seed would be one of the leading uses of credit resources if these were made available. Of the farmers reporting that they desired credit, 46.6% said they would use credit obtained to purchase seed. Of the farmers interviewed in the survey who were receiving credit, 44.6% indicated that they had used part of their credit to purchase seed. The evaluation of the Agricultural Sector I SFCP found that 80.6% of the loans contained financing for improved seeds. It is clear from the previous paragraph that a high correlation exists between seed use and credit availability because in the survey sample as a whole only 4.6% of the farmers were using improved seed.

On the basis of the relationship which exists between credit availability and improved seed use, an analysis was performed to estimate the effective demand for seeds included by the SFCP. Based on the partial farm budget presented in Annex D, Table 2, the average credit-financed seed purchase is estimated to be approximately \$200. Assuming that 80% of the loans made under the credit component finance seed purchase (as is the experience under Agriculture Sector I), then \$160 of the average loan is used to purchase seeds. By 1982 the SFCP will add approximately 5465 clients both from Agricultural Sector I and this project, which will add about \$874,000 to the existing effective demand for improved seed (see Annex D, Table 6). When the credit induced seed demand is added to the existing seed demand, it is clear that during the 1978-1982 period there will continue to exist a slight amount of excess demand in relation to the National Seed Program's projected operating capacity. (see Annex E, Table 1d).

3. Demand for Credit.

The pre-project survey indicates that 88% of the farm households interviewed in the target area desired credit, i.e., approximately 97,000 households. The average size loan desired according to the survey was \$1,141 (compared to an average loan per family of \$1,113 under Agricultural Sector I). On the basis of the above, it is possible to estimate an unmet loan demand in the target area in excess \$110 million.

4. Demand for Land Clearing.

The pre-project survey did not include sample points that are expandable to the area in which land clearing is to take place and thus it is somewhat more difficult to estimate the demand for such services. Never-the-less ample evidence exists that there is sufficient demand in the area to enable the program to clear 10,000 has.

In the absence of a readily available credit source for land clearing, IBTA extensionists were able to interest 493 farmers having over 1,600 has. needing land clearing in this activity this year (see Table 36).

Table 36

First Year Demand for Land Clearing

<u>Zone</u>	<u>No. of Farmers</u>	<u>No. of Hectares</u>
Yacuiba	264	917
Itau	23	146
Caraparí	56	242
Entre Rios	<u>150</u>	<u>300</u>
Total	493	1,605

Besides the solid indication of demand demonstrated in Table 36, there are other reasons to believe that adequate demand exists;

a) The price of financed land clearing is somewhat lower than the prevailing market price for such services (\$245/ha. vs \$290/ha.).

b) An adequate credit mechanism to finance land clearing has never existed before in the zone.

c) Ready and profitable markets exist for the products to be grown on the cleared land.

PART IV. IMPLEMENTATION PLANNING.

A. Institutional Analysis.

1. MACA Organization.

In 1948, the newly created Ministry of Agriculture, Cattle and Colonization replaced the Bolivian Development Corporation (CBF) which had been responsible for managing the agricultural development program in Bolivia. Shortly after the Revolution of 1952, the Ministry was redesignated as the Ministry of Agriculture (MINAG). After various mergers and separations involving the Ministry of Agriculture (MINAC) and the Ministry of Campesino Affairs (MAC), in 1974 under a GOB's reorganization, the MINAG and MAC were integrated into the Ministerio de Asuntos Campesinos and Agriculture (MACA).

Late in 1975, the Experimental Stations and Sub-Stations, Nurseries, and Extension Agencies were pulled out of MACA in order to form the Instituto Boliviano de Tecnología Agropecuaria (IBTA), a decentralized entity charged with planning, coordinating and implementing agriculture research and extension.

Chart 1 of Annex C illustrates MACA's current organizational structure. It is headed by the Minister who is supported by one Sub-Secretary of Agriculture and another for Campesino Affairs. In turn, these sub-secretaries are supported by and are responsible for various technical and administrative directorates. At present, MACA has a staff of approximately 387 full time employees. It has jurisdiction over eight Regional Directorates and six decentralized public institutions: Consejo Nacional de Reforma Agraria (CNRA), Instituto Nacional de Colonización (INC), Servicio Nacional de Desarrollo de la Comunidad (SNDC), Centro de Desarrollo Forestal (CDF), Instituto Boliviano de Tecnología Agropecuaria (IBTA), and Servicio Nacional de Control de la Fiebre Aftosa, Rabia y Brucelosis (SNCIFARB). The Banco Agrícola de Bolivia (BAB) is a separate public enterprise under the supervision of MACA. MACA at present has seven technical operating directorates: Seeds, Livestock, Agricultural Marketing, Agricultural Engineering, Plants Sanitation, Rural Legal Affairs and La Paz Projects Coordination.

At the beginning of 1977 the operations of the National Wheat Institute (INT) were terminated and its personnel was absorbed by various MACA departments. At the regional level, the MACA operates with 8 Directorates located in all of Bolivia's departments except La Paz which is

served by a Central Office Directorate. The Regional Directorates which are responsible for MACA programs in their respective departments have approximately 309 employees. These Directorates are supported, in turn, by 8 provincial offices.

2. Organization and Responsibilities for the Project.

a. National Level-General.

The MACA through its Directorate of Seeds and the Irrigation Department as well as the Agricultural Bank (BAB) will be responsible for the implementation of the seeds, irrigation and credit components of this project. The Corporación de Desarrollo de Tarija (CODETAR), IBTA, and BAB will be responsible for the credit financed land clearing component.

b. Seeds Directorate.

This office includes a Director and his secretary at the central office level and 15 technicians distributed in the regional offices as follows: Cochabamba 7, Chuquisaca 1, Tarija 1, Potosí 3, and Santa Cruz 3. The main functions of this Directorate are: a) production of basic food seeds; and b) supervision of the importation, production, processing and marketing of seeds. Under the project, loan funds will be used to expand the seed processing and storage capability of the National Seed Program in the target areas, including: a) construction and equipping of three new small seed processing/storage facilities; b) up-grading of three existing facilities; and c) upgrading of the institutional capacity of MACA's Seeds Directorate. The Institutional Analysis of this office revealed that its National Director is a qualified professional, and the 15 technicians working at the regional level are also professionals who appear to have the necessary background and experience.

c. Bolivian Agricultural Bank (BAB).

The BAB was founded in 1942 in order to provide credit to farmers, to carry out banking and commercial operations, to import agricultural inputs such as fertilizers, seeds, and machinery, and to make them available to farmers. The BAB has had a long record of mismanagement and political interference and as a result a large proportion of its portfolio consists of uncollectable bad debts. The BAB has had to be continually subsidized by the GOB.

Since its inception, the BAB has undergone four reorganizations. The most recent was carried out in 1976 with the advise of a consulting firm, associated with Price, Waterhouse, Peat and Co. The latest reorganization included the following: a general reorganization of the Bank's structure, the restructuring of its credit operations and procedures, the relocation of regional offices and agencies, and development of a program for reducing the Bank's uncollected portfolio.

Analysis of the new BAB organization chart disclosed that adequate and effective lines of responsibility have been established. Under the Credits and Collection Division, four assistant managers on a geographic basis have been created who have direct responsibility over the regional agencies. In the past, the regional agencies were under the direct supervision of the general assistant manager. The former Financial and Administrative Division was split in two divisions, one for the financial matters and the other for the general administration, personnel and general services. This new organizational structure is an improvement in the distribution of lines of responsibility.

The Institutional Analysis disclosed that in the Credit and Collection Division, agricultural engineers and technicians occupy all executive positions. Greater participation of economists and administrators in the management of this Division would appear to be advisable.

BAB-Small Farmer Credit Program (SFCP).

This is the Division within the BAB which has the responsibility for the placement, supervision and collection of small farmer credit under Loan T-053. The accounting and control records of the SFCP are maintained separate from BAB's other credit lines. Similarly, its reports files and documentation are also separate.

The head office and its program director are located in Cochabamba and have the responsibility of supervising 6 regional offices in Cochabamba, Chuquisaca, Santa Cruz, Potosí and Oruro, with a total of 30 employees. Annex C, Chart 5 shows the organization chart of the SFCP.

Cochabamba.

This regional office has a total of 15 employees. The Director of the program and his immediate assistants have 10 or more years of service within the Bank and most of them have agricultural backgrounds. When SFCP officials were asked about BAB's new credit and collection procedures manual as well as its forms, they explained that they were too sophisticated and time consuming for the type of small credits involved and that they would not be used in the program. SFCP officials indicated that they were satisfied with the T-053 sub-loans recuperation index which shows a very small amount of loan payments in arrears.

The regional office has sufficient space available for future growth but additional office furniture, equipment and vehicles will be required under the proposed loan. Equipment purchased under the T-053 loan has not yet arrived.

Chuquisaca.

Annex C, Chart 6 shows the organization on chart of the regional SFCP office in Chuquisaca. A total of 7 employees work for the program financed under Loan T-053. Approximately 85% of the activities of this office are concerned with the T-053 program.

The office has space available for more employees, however, additional office equipment and furniture, as well as, vehicles would be necessary to execute the proposed project. The personnel at this office seem capable and experienced, and should be able to assume new and additional responsibilities.

Tarija

Although this office was not included under the T-053 credit activities, an administrative analysis of this regional office was done since it will be included in the activities of this project. Its organization chart is shown on Annex C, Chart 7. A total of 25 employees work at this office. Additional personnel, office furniture and equipment, and vehicles will be needed. Any new personnel hired should be composed of professionals and the present employees should receive some training in technical and administrative areas.

3. Tarija Development Committee. (CODETAR) Organization and Responsibilities for the Project.

CODETAR, created by Supreme Decree in 1971, is the official agency in charge of the development of the Department of Tarija. Its main functions are: a) planning, design and execution of projects; b) obtain and administer external and internal loans; and c) coordinate the implementation of projects with other agencies. The organization chart, Annex C, Chart 8, shows that this agency is headed by a Board of Directors and a President. Under the President's supervision are the following Directorates: Planning, Implementation and Natural Resources, Production, and Administration. CODETAR has approximately 300 employees and workers of which 40% represents the permanent staff. The rest are personnel under 6 to 12 months contracts.

CODETAR will be in charge of carrying out the land clearing project activity for the small farmers in the Chaco llumedo area of Tarija. The agency will assign 3 pieces of heavy equipment for this purpose during the first year of the project. For the second and following years, CODETAR will receive in trust the necessary equipment to complete 10,000 hectares of land clearing. CODETAR will hire a group of 6 employees in order to implement the project. The project related administrative expenses incurred by CODETAR during the implementation period will represent its contribution to the project. CODETAR has performed similar land clearing small projects in the past, and with additional personnel, equipment and administrative support will be able to carry out its responsibilities under the project.

4. Sectoral Management.

An Institutional Analysis of the MACA performed by the Mission in 1975, revealed considerable weakness in the organization, management and

capability of most of its Directorates. Since then certain improvement in some Directorates has been observed. However, this improvement is slow-paced and because of low salaries, continuous transfers of the personnel to other Directorates and/or other agencies occur. The logistic support of the technical and administrative Directorates is restricted by the lack of equipment, laboratories, vehicles, office furniture, etc. In addition, it is evident that the MACA personnel need training in technical and administrative areas including system analysis and organization methods.

A separate coordinating office established under Agricultural Sector I Loan T-053 is functioning adequately. This office's sole responsibility is to coordinate activities under the Loan. This includes accounting and budgeting functions required for adequate fiscal control. Since the coordinating office has demonstrated its competency, it is recommended that it should also be charged with similar responsibilities for this Project.

B. USAID Monitoring Responsibilities

Monitoring will be performed by a Mission Project Implementation Committee composed of representatives from various interested USAID divisions. Members will have the following responsibilities:

1. The Development Resources Office (DR) will be responsible for the content of the conditions precedent and special covenants and the drafting of the Loan Agreement annexes. Responsibility for negotiation of the Loan Agreement will also lie primarily with this office. During the implementation phase of the Project, the responsibilities of DR will include over-all general monitoring and the drafting of Implementation Letters. The DR Office will be responsible for reviewing all purchasing requests, RFPs and IFBs prepared by RDD and MACA, as well as the analysis of bids and awards.
2. The primary monitoring task will rest with the Office of Agriculture Production/Rural Development (RDD). The RDD Project Manager will monitor all elements of the Project including seed processing and storage, irrigation, credit, human resource development and sector management and coordination. He will also be responsible for preparing project-related correspondence and draft Invitations for Bid (IFBs) and Requests for Proposals (RFPs).
3. The Office of the Controller (CON) will be responsible for reviewing all disbursement requests for conformity with AID regulations, and will insure that adequate accounting practices are followed by MACA and other responsible financial offices.
4. The Engineering and Transportation Division (ETD) will review all equipment procurement lists and plans and specifications for construction and will periodically inspect the engineering progress of project activities.
5. The Regional Legal Advisor (RLA) will draft the Loan Agreement and participate in its negotiation with GOB officials. The RLA will review subsequent loan implementation materials for legal implications.
6. Other divisions may be called on as required by the Project Manager to assist and advise in such areas as project evaluation and participant training.

C. Implementation Plan

1. Implementation Period

A five-year project implementation period is proposed. As indicated below in the schedule of major events, this period is needed to complete several of the Project's activities. For example, the credit-financed land clearing activity will require a full five years to execute because it is estimated that a full year will be required for the equipment to arrive in Bolivia and that, once in-country, no more than about 2,250 hectares a year could be cleared because of equipment and program operating constraints.

The small farmer production and investment credit program also requires an orderly expansion. Although there is little doubt that credit resources could be disbursed faster than planned, such an increase would no doubt occur at the expense of making poorer loans and a resulting increase in delinquency. For the credit program, BAB will have to add twelve new agents, who will have to be carefully selected and will require at least a year of in-service training.

Similarly, AID's experience in Bolivia with the construction and equipping of facilities like those planned under this Project is that they take a considerable period of time. Based on past experience with similar projects in Bolivia, the Mission believes that a five-year period is required to successfully and completely implement the project.

2. Schedule of Major Events

Date	Activity
August 1977	Project Paper submitted to AID/W.
September 1977	Project authorized by AID/W.
January 1978	Project agreement signed.
February 1978	Request for prequalification data for design engineering and technical assistance contracts issued.
March 1978	Prequalification data for design engineering and technical assistance contracts received.
April 1978	Initial conditions precedent met. Design engineering and technical assistance firms prequalified and RFP's issued. IFB's for land clearing equipment and spare parts, maintenance and repair shop equipment and tools, other equipment and vehicles issued.
May 1978	PSC for short-term equipment specialist issued.
June 1978	Remaining conditions precedent met. Participants in non-degree overseas training depart for training. Proposals for design engineering and technical assistance contracts received. Bids for land clearing equipment and spare parts, maintenance and repair shop equipment and tools, other equipment and vehicles received.
July 1978	Design engineering and technical assistance contracts awarded. Land clearing equipment and spare parts, maintenance and repair shop equipment and tools, other equipment and vehicles contracts awarded. PSC arrives. Land clearing and production and investment credit activities begin.

Date	Activity
August 1978	Design engineering and technical assistance contracts signed. Land clearing equipment and spare parts, maintenance and repair shop equipment, other equipment and vehicles contracts signed.
November 1978	Design engineering and technical assistance activities begin.
December 1978	Preliminary construction plans received and approved. Request for prequalification data for construction issued. Initial disbursements under BAB credit program and seed program rotating fund take place. Completion of clearing of initial 1,000 hectares of land.
January 1979	Prequalification data received from construction firms. Participants in overseas degree training depart.
February 1979	Construction firms prequalified. IFB's issued for university equipment. Land clearing equipment and spare parts, maintenance and repair shop equipment and tools, other equipment and vehicles arrive.
March 1979	Final construction plans and specifications received and approved. IFB's for construction issued.
April 1979	Bids for university equipment received.
May 1979	University equipment contracts awarded. Bids for construction received.
June 1979	University equipment contracts signed. Construction contracts awarded.
July 1979	Construction contracts signed.
October 1979	Construction contractors mobilized.
December 1979	Total of 3,250 hectares land cleared under project. University equipment arrives.

Date	Activity
October 1980	Construction completed.
December 1980	Total of 5,500 hectares land cleared under the project.
December 1981	Total of 7,750 hectares land cleared under the project.
September 1982	Terminal Commitment Date (TCD).
December 1982	Total of 10,000 hectares land cleared under the project. Total of \$4.7 million distributed under the BAB Credit Program and \$650,000 made available under the Seed Program Rotating Fund.
March 1983	Terminal Disbursement Date (TDD).

D. Evaluation Plan

The Project will be evaluated annually starting approximately one year from the date that the initial conditions precedent are met. Progress will be measured against the indicators at the goal, purpose, and output levels as contained in the Logical Framework Matrix (Annex F).

In addition, in order to help validate certain key assumptions about output-purpose and purpose-goal linkages, and to monitor project targeting, a special evaluation strategy has been adopted. Beginning in July 1977, the questionnaire instrument used in the pre-project survey is being administered on the farm to one-seventh of new individual loan applicants and one-tenth of new group loan applicants on a random basis before the loan application is approved. These farmers will be interviewed on a yearly or bi-yearly basis during the small farmer surveys planned under the FY 78 Farm Policy Analysis Project (or if that project is not approved, under Technical Support). By comparing the situation of credit program farmers before and after their entry (or non-entry) into the credit program, and also by comparing their situation to that of a randomly selected survey group, it should be possible to answer the following questions:

1. What part of the target group do SFCP participants fall into?
2. How do rejected loan applicants compare with SFCP participants and the target group in general?
3. What is the impact of the SFCP on participant incomes and wealth?
4. What relationship, if any, exists between the participants incomes and wealth and loan repayment records?

Furthermore, by slightly modifying the pre-project survey instruments it should also be possible to measure SFCP performance in relation to the farmer's non-interest costs involved in receiving a loan, i.e. number of visits to bank, average time from loan application to disbursement, etc.

The analyses of these data will be performed by the statisticians and economists working under the FY 78 Farm Policy Analysis Project and under the sector management and coordination component of this project. Should the FY 78 Farm Policy Project not be approved or should the technical support funds prove inadequate to perform the planned evaluation analyses, the Mission will reprogram a small amount of the grant funds provided under this Project to perform them.

E. Conditions Precedent and Covenants

1. Conditions Precedent to Initial Disbursement

Prior to any disbursement or to the issuance of any commitment documents under the Project Agreement, the Government of Bolivia shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

a. A legal opinion of the Attorney General of Bolivia or other legal counsel acceptable to A.I.D. to the effect that the Project Agreement has been duly authorized and/or ratified by the Government of Bolivia and executed on its behalf and that it constitutes a valid and legally binding obligation of the Government of Bolivia, in accordance with all its terms; and

b. A certified statement of the name of the person(s) authorized under the Project Agreement to act as the Government of Bolivia's representative under the Agreement with authenticated specimen signatures of said representatives.

2. Conditions Precedent to Disbursements Other than for Technical Assistance

Except as A.I.D. may otherwise agree in writing, prior to any disbursement or the issuance of any commitment documents under the Project Agreement, to finance other than technical assistance, the Government of Bolivia shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

a. A financial plan for the Project specifying the amount and timing of the Government of Bolivia's contributions during the life of the Project;

b. A time-phased implementation plan including all Project activities; and

c. A plan for the maintenance of vehicles and equipment to be procured with A.I.D. funds.

3. Conditions Precedent to Disbursements for Credit Fund Capitalization

Except as A.I.D. may otherwise agree in writing, prior to any disbursement or the issuance of any commitment documents under the Project Agreement for credit fund capitalization, the Government of Bolivia shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

a. Evidence of the adoption by the Bolivian Agricultural Bank (BAB)

of the simplified small farmer loan application form for both the Agriculture Sector I project credit program and the credit programs included in this Project;

b. A plan for the simplification of the BAB's small farmer loan application processing procedure for both the Agriculture Sector I Project credit program and the credit programs included in this Project; and

c. A plan for ensuring that the CBF edible oil processing plant at Villamontes pays farmers in cash for their peanuts and soybeans at the time of delivery.

4. Conditions Precedent to Disbursement for Any Individual Construction Subproject

Except as A.I.D. may otherwise agree in writing, prior to any disbursement or the issuance of any commitment documents under the Project Agreement to finance any individual construction sub-project, the Government of Bolivia shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

a. Evidence of clear title to the land upon which construction is to take place;

b. Final plans and specifications, bid documents, bid awards and contracts for construction for the individual subprojects; and

c. A maintenance plan for the facilities to be constructed.

5. Special Covenants

Except as A.I.D. may otherwise agree in writing, the Government of Bolivia shall covenant that:

a. Adequate operational budgets will be provided to all GOB agencies actively involved in the Project;

b. The full value of the small farmer lending funds under the Project will be maintained and repayments to such funds will be utilized for relending to eligible small farmers for production and investment credit;

c. An effective program of maintenance and repair, including necessary funding therefor, will be carried out for all equipment provided and facilities constructed under the Project.

ANNEX A

AID/W PRP APPROVAL MESSAGE

UNCLASSIFIED

STATE 55643 8 MAR 76

RO61906Z MAR 76
FM SECSTATE WASHDC
TO AMEMBASSY LA PAZ 8061
BT
UNCLAS STATE 055643

AIDAC

E.O. 11652: N/A
TAGS:

SUBJECT: DAEC REVIEW - AGRICULTURE SECTOR II PRP.

1. DAEC REVIEWED AND APPROVED SUBJECT PRP FOR INTENSIVE REVIEW. THE FOLLOWING GUIDANCE IS OFFERED FOR PREPARATION OF THE PP, TENTATIVELY SCHEDULED FOR SUBMISSION IN JUNE, 1977.
2. GRANT FUNDING - (A) THE 600,000 DOLS GRANT ELEMENT OF THE PRP REPRESENTS AN INCREASE IN THE EXISTING 1.007 MILLION DOLS BASIC FOODS PRODUCTION AND MARKETING PROP (511-11-190-364.6) APPROVED IN NOVEMBER, 1974, AS THE COMPANION GRANT TO THE AGRICULTURE SECTOR I LOAN. THE JUSTIFICATION FOR THIS INCREASE (I.E. SUPPORTING TECHNICAL ASSISTANCE FOR THE AGRICULTURE SECTOR II PROJECT) SHOULD APPEAR IN THE PP, ACCOMPANIED BY A FACESHEET AMENDMENT REFERENCING THE AGRICULTURE SECTOR II PP; (B) AS DISCUSSED WHEN MISSION REPRESENTATIVES WERE IN AID/W, PROJECTIONS OF GRANT FUNDING REQUIREMENTS EXCEED SUBSTANTIALLY THE AMOUNT EXPECTED TO BE AVAILABLE FOR FY 77 FOOD AND NUTRITION GRANT ACTIVITIES IN BOLIVIA. THEREFORE, A SEPARATE, REVISED GRANT BUDGET, AT/OR BELOW CP CONTROL LEVELS, SHOULD BE PREPARED FOR THE SECTOR REFLECTING PRIORITY NEEDS AGAINST PROBABLE FUNDS AVAILABILITY. REQUEST YOU SUBMIT REVISED BUDGET TO AID/W IN ADVANCE OF PP SUBMISSIONS FOR ANY FY 77 GRANT ACTIVITIES. FY I: CP PROJECT SHEET FOR GRANT WILL SHOW 200 IN FY 76, 521 IN TQ, AND 900 IN FY 77. THESE LEVELS CANNOT, HOWEVER, BE COUNTED ON TO HOLD.
3. TARGET GROUP - TO THE EXTENT POSSIBLE, MISSION SHOULD EXPLORE WITH THE MACAG REFINEMENT OF TARGET GROUP AND BENEFICIARY IDENTIFICATION, INCLUDING ALTERNATIVE MEANS OF INSURING THAT ACTUAL BENEFICIARIES OF THE PROJECT FALL WITHIN THE LOWEST FEASIBLE INCOME LEVELS OF SMALL FARMERS, E.G. LOWERING OF ELIGIBILITY CRITERIA AND/OR SUB-LOAN SIZE LIMITS FROM THOSE UNDER LOAN 053. PP SHOULD DISCUSS ALTERNATIVES CONSIDERED.

4. GOB POLICY AND CONTRIBUTION - PP SHOULD CONTAIN DISCUSSION OF: (A) HOW GOB AGRICULTURAL PRICING POLICY RELATES TO/INFLUENCES THE PROJECT, PARTICULARLY STABILIZATION OBJECTIVES INVOLVED (SEE PARA 8 BELOW); AND (B) POST-PROJECT COST TO THE GOB OF OPERATING AND MAINTAINING NEW AND INTEGRATED IMPROVED FACILITIES (FOR RESEARCH, EXTENSIONS; AND MARKETING), TO BE FINANCED BOTH UNDER AGRICULTURE SECTOR I AND II PROJECTS, INCLUDING PROBABILITY OF GOB BEING ABLE TO SUPPORT ON A CONTINUING BASIS THE LEVEL OF ACTIVITY (OUTREACH TO BENEFICIARIES) TO BE REACHED BY END OF PROJECT, USAID SHOULD EXPLORE WITH MACAG THE POSSIBILITY OF INCREASING COUNTERPART CONTRIBUTIONS, PARTICULARLY FOR COMMODITY IMPORTS, AS AN INITIAL DEMONSTRATION OF GOB WILLINGNESS/ABILITY TO MEET FULL COSTS (INVESTMENT AND OPERATING) OF EXPANDING AND IMPROVING RESEARCH, EXTENSION, AND MARKETING SERVICES TO SMALL FARMER BENEFICIARIES.

5. CREDIT FUND - SINCE CREDIT UNDER THIS PROJECT WOULD ALSO BE AVAILABLE TO MEET EXCESS CREDIT DEMAND UNDER AGRICULTURE SECTOR I, THE PP SHOULD INCLUDE A COVENANT BY WHICH THE GOB GUARANTEES TO MAINTAIN THE CREDIT LEVEL PROVIDED FOR UNDER AGRICULTURE SECTOR II, SHOULD REPAYMENTS TO THE FUND UNDER AGRICULTURE SECTOR I BE INSUFFICIENT TO REPLENISH THE FUND IN THE SECTOR II AREA.

6. EDUCATION - DAEC WAS UNABLE TO ESTABLISH SATISFACTORILY THE DEGREE TO WHICH THE PROPOSAL TO FUND RESEARCH AND FACULTY DEVELOPMENT AT THE UNIVERSITIES OF COCHABAMBA AND SANTA CRUZ WOULD HAVE A REASONABLY DEMONSTRABLE IMPACT ON PROJECT BENEFICIARIES. THEREFORE, THIS PROJECT COMPONENT SHOULD BE EXAMINED IN CONSIDERABLE DEPTH DURING INTENSIVE REVIEW. THE PP SHOULD INCLUDE SOME ANALYSIS OF THE SUPPLY AND DEMAND FOR TRAINED AGRICULTURAL MANPOWER; AND DESCRIBE THE GOB'S AGRICULTURAL RESEARCH STRATEGY TO WHICH THE TRAINING AND RESEARCH COMPONENTS RESPOND. ADDITIONAL QUESTIONS WHICH SHOULD BE ADDRESSED INCLUDE: (A) SPECIFIC RESEARCH REQUIRED FOR SMALL FARM SECTOR AND APPROPRIATE SPLIT OF RESEARCH RESPONSIBILITIES BETWEEN THE UNIVERSITIES AND MINISTRY; (B) SAFEGUARDS WHICH WOULD ENSURE THAT ONLY RELEVANT RESEARCH (I.E. THAT OF IMMEDIATE OR NEAR-TERM APPLICABILITY TO THE SMALL FARMER) IS SUPPORTED; (C) METHODS FOR ENSURING THAT RESEARCH RESULTS ARE EFFECTIVELY TRANSMITTED TO THE TARGET FARMER; AND (D) CAUSAL LINKAGES BETWEEN THE PLANNED RESEARCH AND SPECIFIC PRODUCTION OBJECTIVES.

7. INTERIM REPORT - SINCE PROGRESS UNDER AGRICULTURE SECTOR I COULD NOT YET PROVIDE A BASIS FOR EVALUATING AGRICULTURE SECTOR II, USAID IS REQUESTED TO SUBMIT AN INTERIM REPORT CONTAINING: (A) A DISCUSSION OF THE BAB'S PROGRESS IN IMPROVING ITS ORGANIZATION AND PROCEDURES, AND IN REVERSING ITS TREND TOWARD DECAPITALIZATION; (B) EVIDENCE OF MACAG'S ABILITY TO HIRE AND FIELD SUFFICIENT NUMBERS

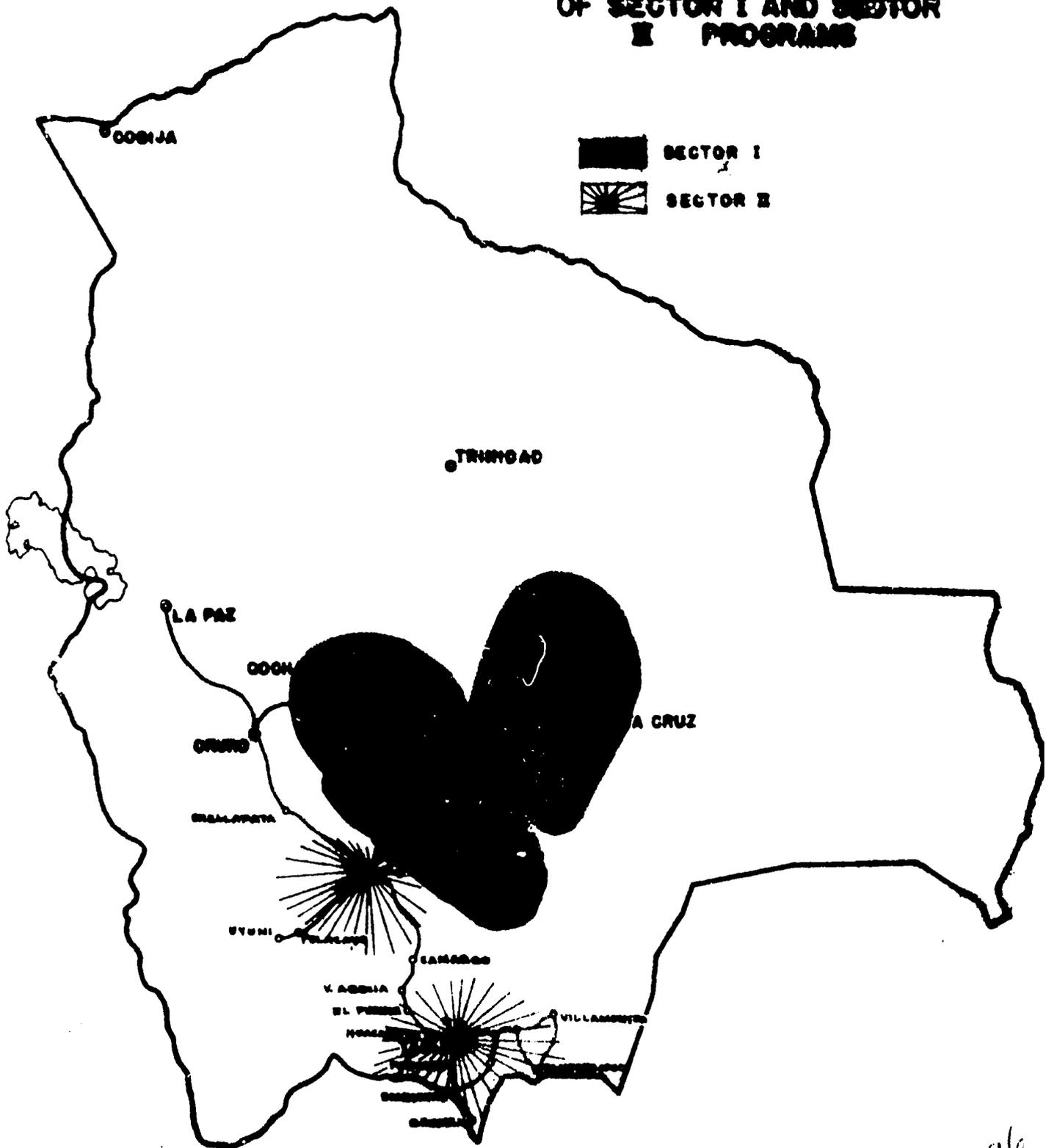
OF QUALIFIED EXTENSION AGENTS TO REACH THE NUMBERS OF BENEFICIARIES ANTICIPATED; (C) EVIDENCE OF NCDS' ABILITY TO PROVIDE SUFFICIENT FIELD WORKERS TO IDENTIFY AND ORGANIZE THE ANTICIPATED NUMBER OF BENEFICIARIES. SINCE THESE THINGS SHOULD BE CONSIDERED IN THE COURSE OF REGULARLY SCHEDULED EVALUATIONS OF THE AGRICULTURE SECTOR I AND BASIC FOODS PRODUCTION AND MARKETING PROJECTS, USAID MAY SUBSTITUTE EVALUATION REPORTS (ADDRESSING THE QUESTIONS ABOVE) IN LIEU OF AN INTERIM REPORT. SUCH EVALUATION REPORTS (SUPPLEMENTED BY NORMAL IMPLEMENTATION REPORTING) PROVIDE A BASIS FOR DETERMINING WHETHER THE AGRICULTURE SECTOR II MODEL IS FEASIBLE GIVEN PROGRESS UNDER THE PRECEDING PROJECTS.

8. SECTOR ASSESSMENT - THE PP SHOULD REFLECT REFINEMENTS TO THE SECTOR ASSESSMENT (IN THE FORM OF SUPPLEMENTS) WHICH ARE ALREADY UNDERWAY OR PLANNED IN CERTAIN SPECIFIC AREAS: (A) PRODUCTION/ DEMAND ANALYSIS AND WHEAT POLICY - PER YOUR LATEST ADVICE, THE COMPLETED STUDIES ARE EXPECTED IN AID/W IN EARLY 1976; (B) FARM POLICY - WE UNDERSTAND THIS STUDY HAS BEEN POSTPONED TO JUNE, 1977, DUE TO CONFLICTING MACAG PRIORITIES. IT IS, NONETHELESS, AN IMPORTANT PART OF THE ANALYTICAL CASE (PARTICULARLY WITH RESPECT TO STABILIZATION) WHICH SHOULD BE DEVELOPED FOR APPROVAL OF THE PP. THEREFORE, THE PP SHOULD CONTAIN A PRELIMINARY FARM POLICY ANALYSIS BASED ON FURTHER EVALUATION OF THE 1972 UTAH STATE SURVEY; (C) MARKETING ANALYSIS AND PRICING POLICY - STUDIES PREVIOUSLY SUBMITTED ON THESE TWO SUBJECTS SHOULD BE SUPPLEMENTED BY FURTHER ANALYSIS. THE MARKETING SUPPLEMENT (SUBMITTED WITH THE AGRICULTURE SECTOR I PP) SHOULD BE REFINED WITH IN-DEPTH ANALYSIS OF: (1) THE MARKET STRUCTURE FOR CROPS/LIVESTOCK TO BE FINANCED IN THE SMALL FARM SUB-SECTOR; (2) STATUS OF, AND PLANS FOR UTILIZING, KEY PUBLIC AND PRIVATE INSTITUTIONS INVOLVED IN MARKETING; (3) PROJECTIONS FOR ADDRESSING PHYSICAL CONSTRAINTS TO MORE EFFECTIVE/ EFFICIENT MARKETING, AND (4) MARKETING COSTS AND DIVISION OF RETURNS AMONG PROCESSORS/MIDDLEMEN, AND CONSUMERS. THE PRICING POLICY STUDY SHOULD BE SUPPLEMENTED BY ANALYSIS OF EFFECTIVE AND IMPLIED CONSUMER DEMAND. (D) AGRICULTURAL EDUCATION/RESEARCH - THE SECTOR ASSESSMENT SHOULD BE SUPPLEMENTED BY AN ANALYSIS OF THE AGRICULTURE EDUCATION SYSTEM IN BOLIVIA. THE STUDY SHOULD EXAMINE SMALL FARMERS' AGRICULTURAL INFORMATION AND SUPPORT REQUIREMENTS, AND ANALYZE THE MANPOWER IMPLICATIONS OF THESE REQUIREMENTS OF KEY AGRICULTURAL INSTITUTIONS. THIS IN TURN WOULD REQUIRE AN EXAMINATION OF LINKAGES BETWEEN AGRICULTURAL TRAINING INSTITUTIONS AT ALL LEVELS AND THE REQUIREMENTS OF THEIR "CLIENT" IN BOTH THE PRIVATE AND PUBLIC SECTOR.

9. WOULD APPRECIATE MISSION'S VIEWS ON SPECIFIC TDY REQUIRED TO DEVELOP PROJECT AND/OR COMPLETE PORTIONS OF SECTOR ASSESSMENT. PER PREVIOUS CORRESPONDENCE, WE ARE OFFERING ALTERNATIVES FOR AGRICULTURAL CREDIT ASSISTANCE. TDY COULD ALSO BE MADE AVAILABLE TO ASSIST WITH AGRICULTURAL RESEARCH/EDUCATION ANALYSES REQUIRED. PLEASE ADVISE NEEDS AND PROPOSED SCHEDULE. INGERSOLL

BOLIVIA

AREAS OF INFLUENCE OF SECTOR I AND SECTOR II PROGRAMS



9/8

ANNEX 3

Agricultural Sector II Project

Table 1

SFCP Addition Projected Cash Flow (U.S.\$ Thou.)

	<u>Year One</u> <u>(CY 1978)</u>	<u>Year Two</u> <u>(CY 1979)</u>	<u>Year Three</u> <u>(CY 1980)</u>	<u>Year Four</u> <u>(CY 1981)</u>	<u>Year Five</u> <u>(CY 1982)</u>	<u>Year Six</u> <u>(CY 1983)</u>	<u>Year Seven</u> <u>(CY 1984)</u>
A. <u>Cash on Hand (beginning of year)</u>	-	(-34)	21	129	204	32	359
B. <u>Sources of Funds</u>							
1. AID Loan Capital	500	600	700	800	900	-	-
2. Land Clearing Reflows	-	49	159	269	380	490	441
3. GOB Contribution							
a. Loan Capital	170	205	240	275	310	-	-
b. Operating Expenses	95	135	150	165	100	-	-
<u>Subtotal</u>	<u>265</u>	<u>340</u>	<u>390</u>	<u>440</u>	<u>410</u>	-	-
4. <u>Interest on Sub-loans</u>	<u>44</u>	<u>198</u>	<u>341</u>	<u>516</u>	<u>701</u>	<u>756</u>	<u>842</u>
5. Sub-loan Repayments							
a. Short-term	-	335	763	1,312	1,984	2,779	3,024
b. Medium-term	-	50	70	174	186	342	1,516
c. Long-term	-	-	65	114	125	325	1,509
<u>Subtotal</u>	<u>-</u>	<u>385</u>	<u>898</u>	<u>1,600</u>	<u>2,295</u>	<u>3,452</u>	<u>6,049</u>
<u>Total Sources of Funds</u>	<u>809</u>	<u>1,572</u>	<u>2,488</u>	<u>3,625</u>	<u>4,686</u>	<u>4,792</u>	<u>7,332</u>
<u>Total Funds Available</u>	<u>809</u>	<u>1,538</u>	<u>2,512</u>	<u>3,754</u>	<u>4,890</u>	<u>4,822</u>	<u>7,691</u>
C. <u>Uses of Funds</u>							
1. <u>Sub-loans</u>							
a. Short-term	335	763	1,312	1,984	2,779	3,024	3,245
b. Medium-term	170	264	395	630	378	471	1,626
c. Long-term	165	214	340	515	701	447	1,609
<u>Subtotal</u>	<u>670</u>	<u>1,241</u>	<u>2,047</u>	<u>3,129</u>	<u>4,358</u>	<u>3,942</u>	<u>6,480</u>

	<u>Year One</u> <u>(CY 1978)</u>	<u>Year Two</u> <u>(CY 1979)</u>	<u>Year Three</u> <u>(CY 1980)</u>	<u>Year Four</u> <u>(CY 1981)</u>	<u>Year Five</u> <u>(CY 1982)</u>	<u>Year Six</u> <u>(CY 1983)</u>	<u>Year Seven</u> <u>(CY 1984)</u>
2. Operating Expenses	173	211	230	253	278	306	337
3. Reserve, Capital Protection	-	62	106	158	216	222	260
<u>Total Uses of Funds</u>	<u>843</u>	<u>1,514</u>	<u>2,383</u>	<u>3,550</u>	<u>4,852</u>	<u>4,470</u>	<u>7,077</u>
D. <u>Cash on Hand (End of Year)</u>	<u>(-34)</u>	<u>24</u>	<u>129</u>	<u>204</u>	<u>38</u>	<u>353</u>	<u>614</u>

Projections are based on the following set of assumptions:

1. Short-term = 1 year; medium-term = 3-5 years long-term = 5 years or more.
2. Medium-term loans have no grace period; long-term loans have a one-year grace period.
3. Operating expenses are calculated based on the number of agencies: 9 during the first year, 11 during the second year and 12 during the third year. After the third year, operating expenses are assumed to increase at 10% p.a.
4. The interest rate on sub-loans is 13% p.a. which is collected in the same year the loan is made, except for the first year in which interest is only calculated for half the year.
5. The reserve for capital protection is estimated at 4% of the total portfolio.
6. The GOB amortizes AID loan capital and interest charges.

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ANNEX B

Agriculture Sector II Project

Exhibit 1

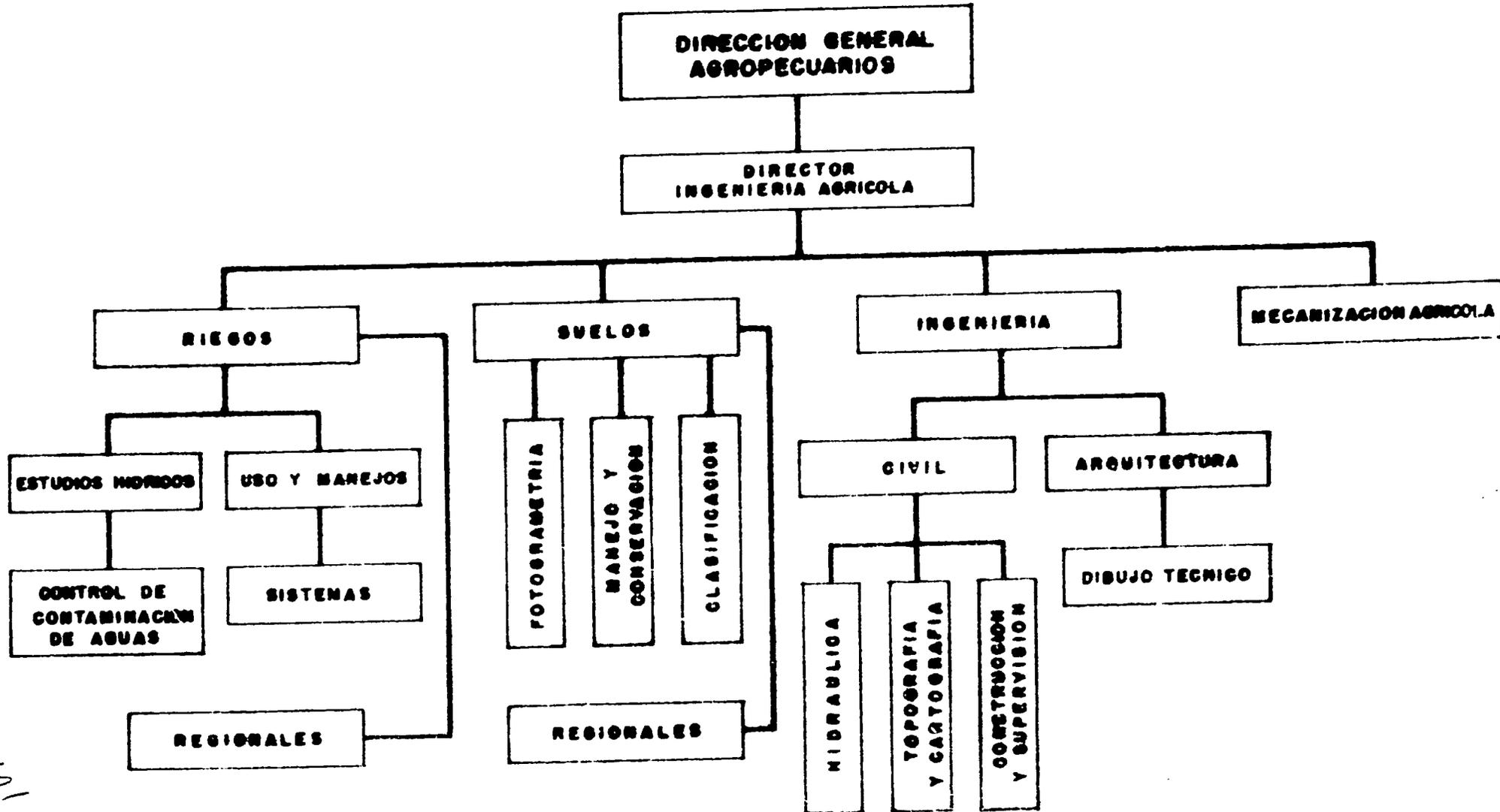
Detailed Definition of the Survey Region

For purposes of sample selection, the target region was defined as the non-densely populated areas (i.e. non-urban) of eighteen provinces in the southern portion of the Department of Chuquisaca, the south-central part of the Department of Potosí, and the Department of Tarija. These provinces, which are listed in the Table below, are each characterized by the presence of intermountain valleys and comprise the universe for the Agricultural Sector II Project. This universe can likewise be divided into five relatively homogenous ecological zones (see the Table). Five of the provinces (Azurduy, Frias, Linares, Saavedra, and Tomina) also overlap the service area of Agricultural Sector I. Similarly, in the course of project development and after the sample design was completed, it was decided to include the entire Department of Tarija less the Altiplano and Dry Chaco areas in the Agricultural Sector II area and not just the six provinces listed in the Table.

TableDecomposition of Target Region by Zones and Provinces

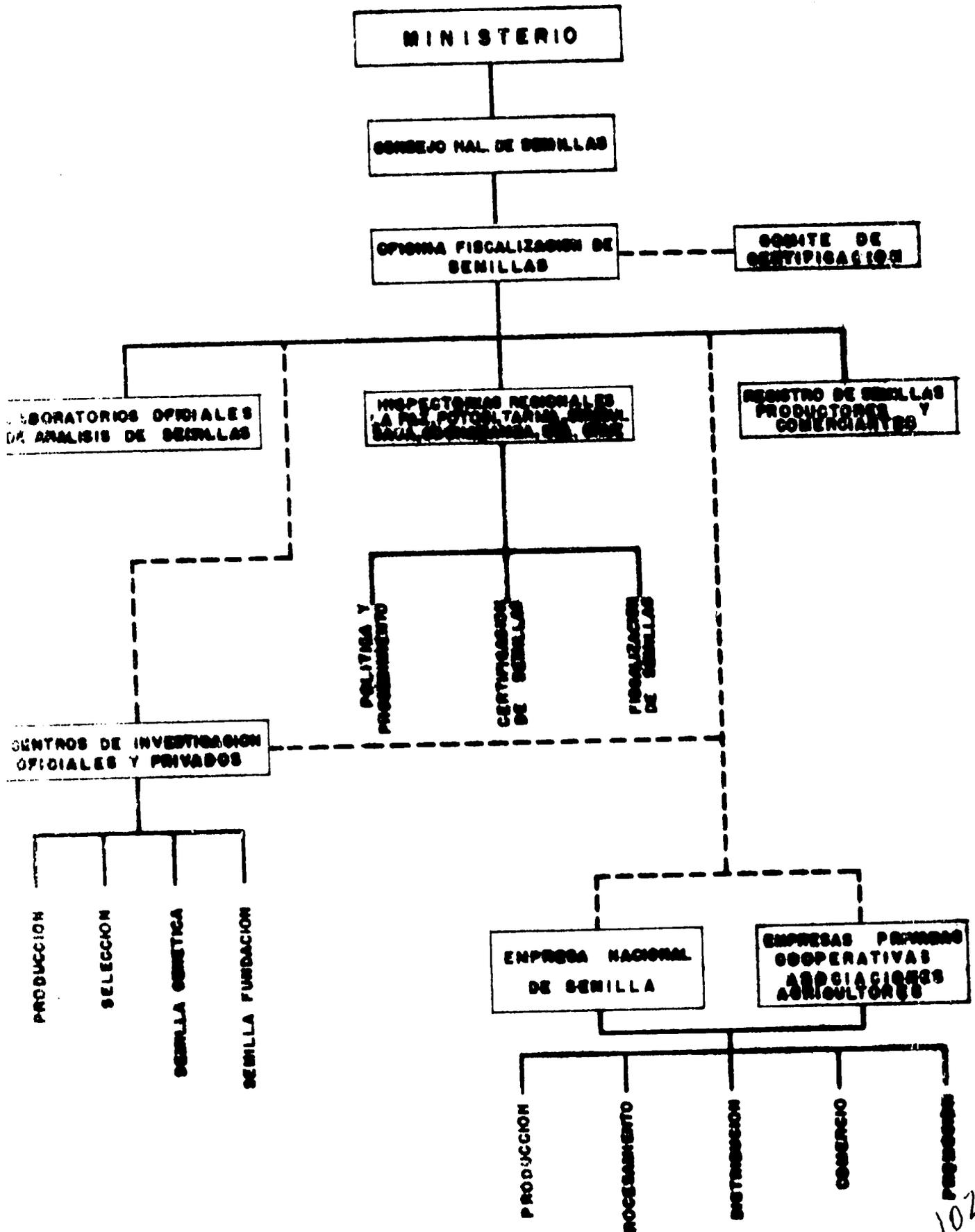
<u>Department</u>	<u>Zone</u>	<u>Province</u>
Chuquisaca	I	Azurduy Calvo Siles Tomina
		II
Tarija	III	Arce Aviles Cercado Mendez O'Connor Omiste
		IV
Potosí	V	Frias Linares Quijarro Saavedra

ANEX E - CHART 2
MINISTERIO DE ASUNTOS CAMPESINOS Y AGROPECUARIOS
DIRECCION NACIONAL DE INGENIERIA AGRICOLA



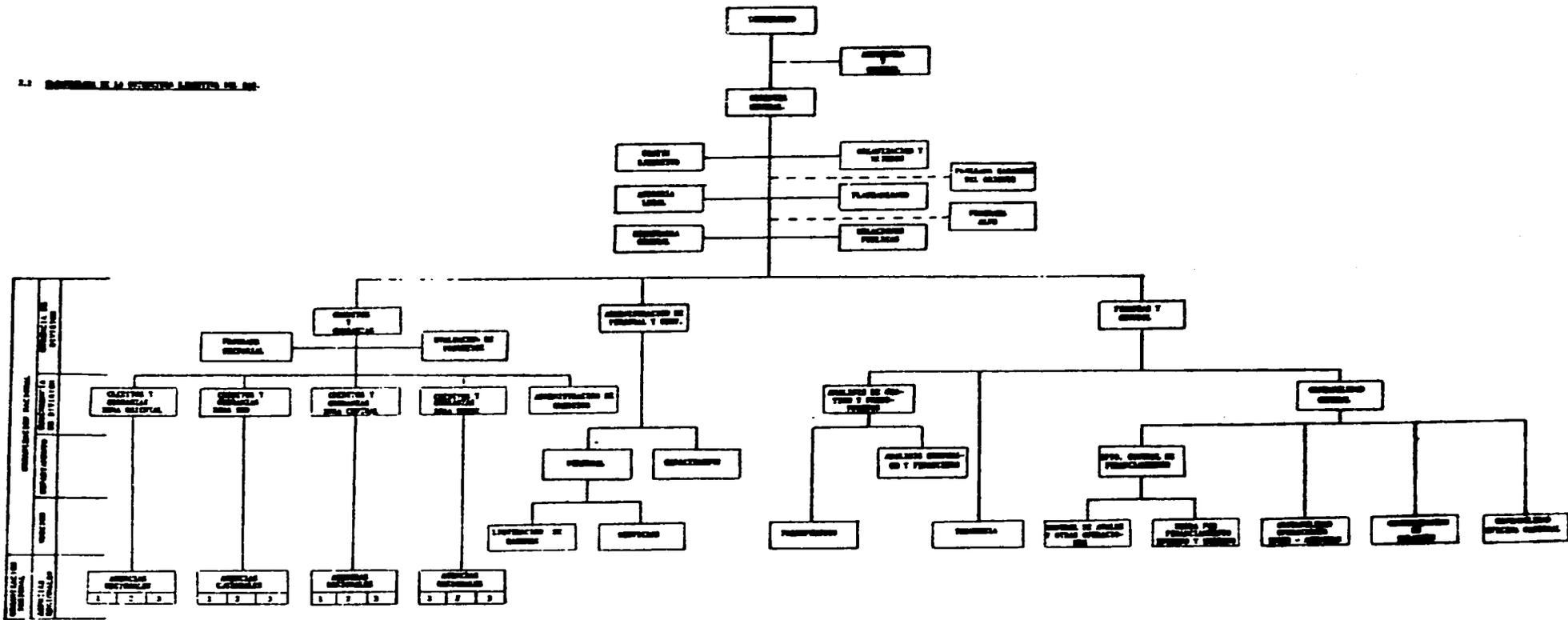
101

ANNEX C - CHART A
MINISTERIO DE AAGC Y AGROPECUARIOS
ESQUEMA NACIONAL DE ORGANIZACION
DEL PROGRAMA DE SEMILLAS

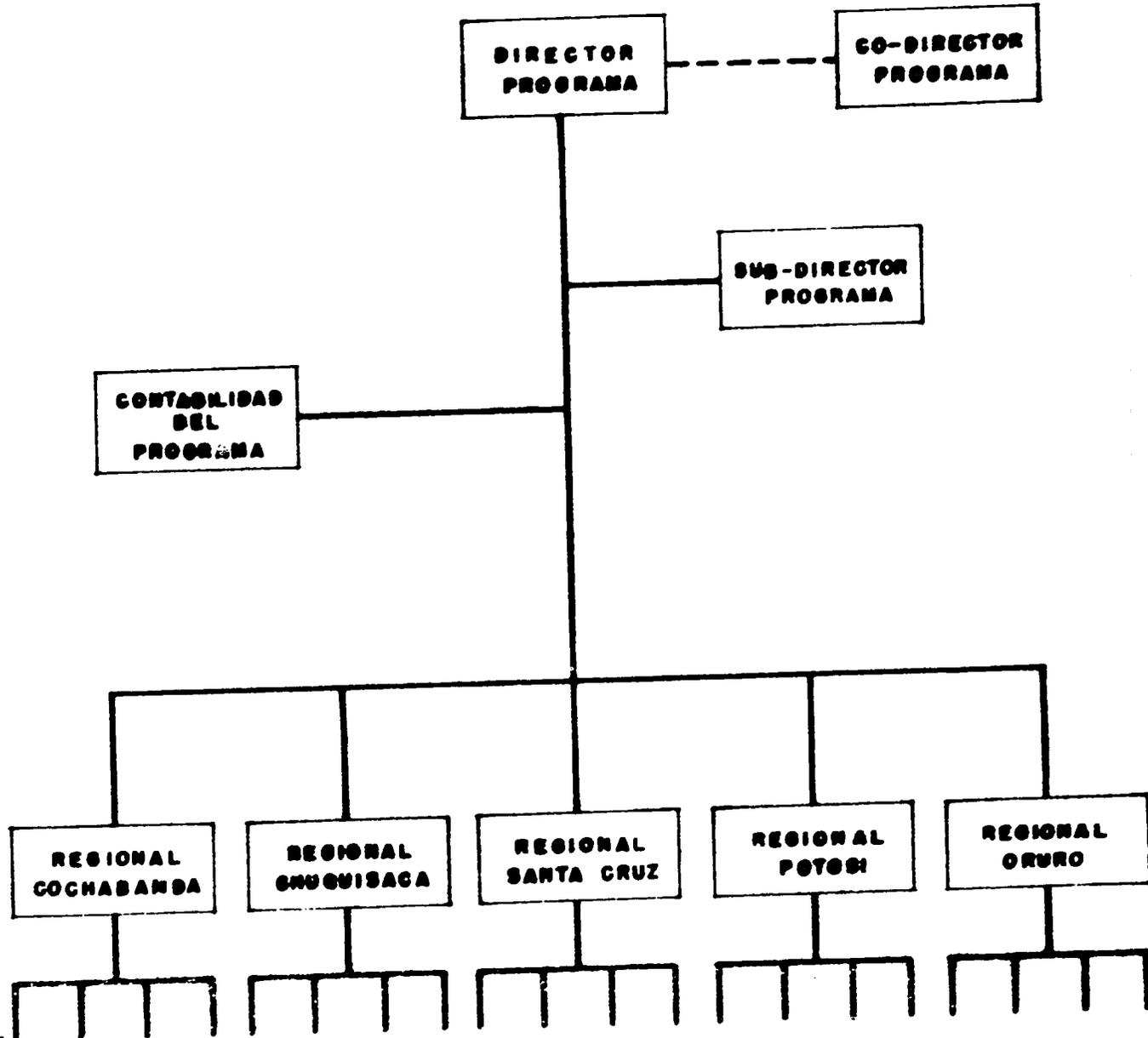


ANNEX C - CHART 1

2.1 ORGANIZATION OF THE COMPANY



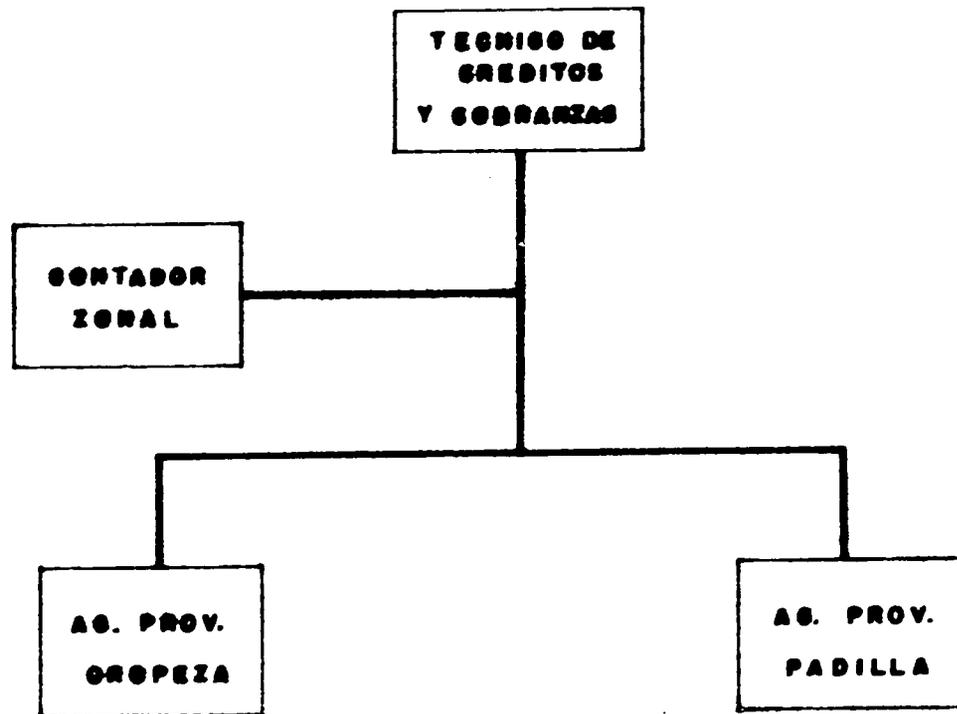
ANNEX C - CHART B
BANCO AGRICOLA DE BOLIVIA
ORGANIGRAMA CREDITO A PEQUEÑOS AGRICULTORES
(NIVEL NACIONAL)



OFICINAS
PROVINCIALES

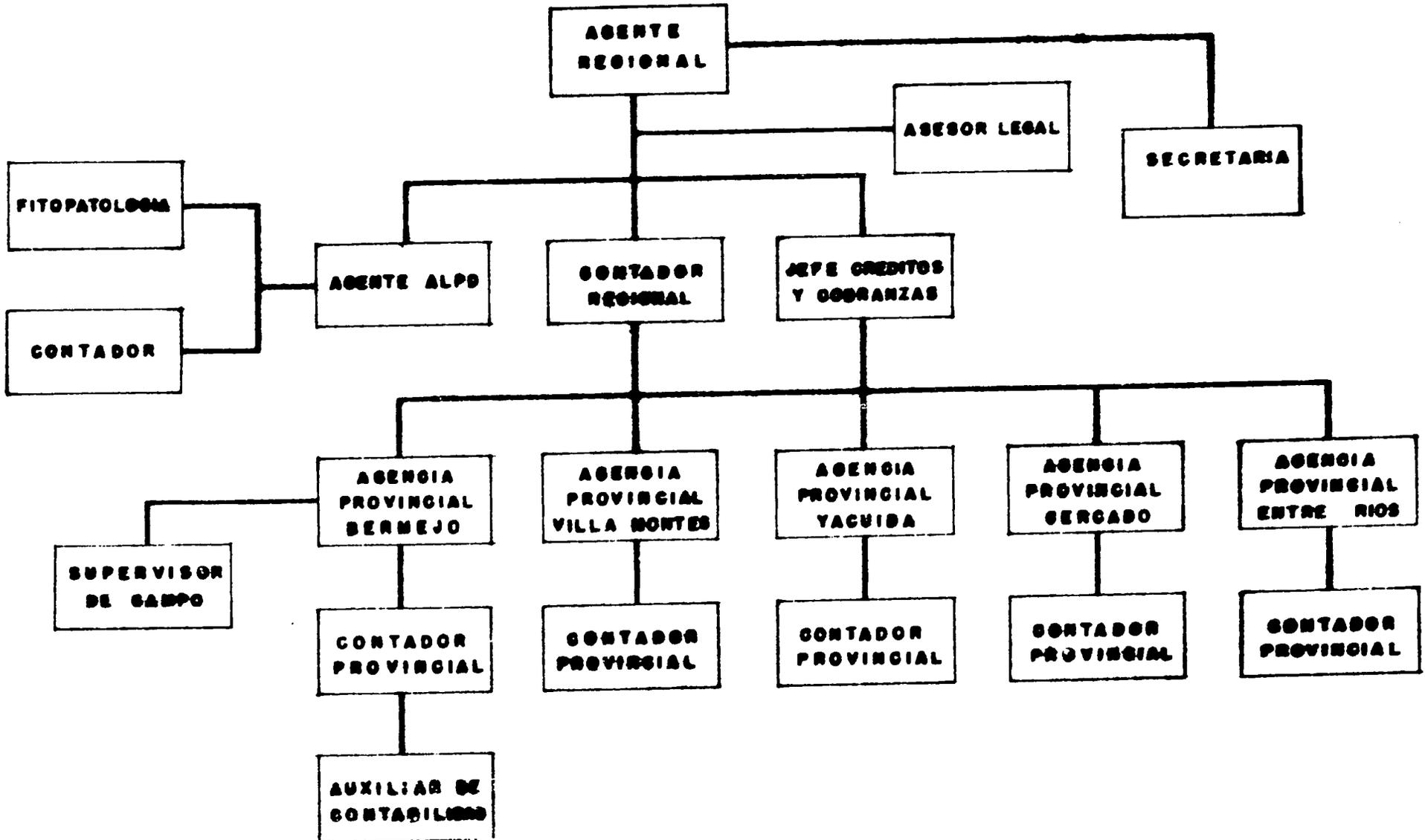
10/11

ANNEX C - CHART C
BANCO AGRICOLA DE BOLIVIA
ORGANIGRAMA CREDITO A PEQUEÑOS AGRICULTORES
CHUQUISACA

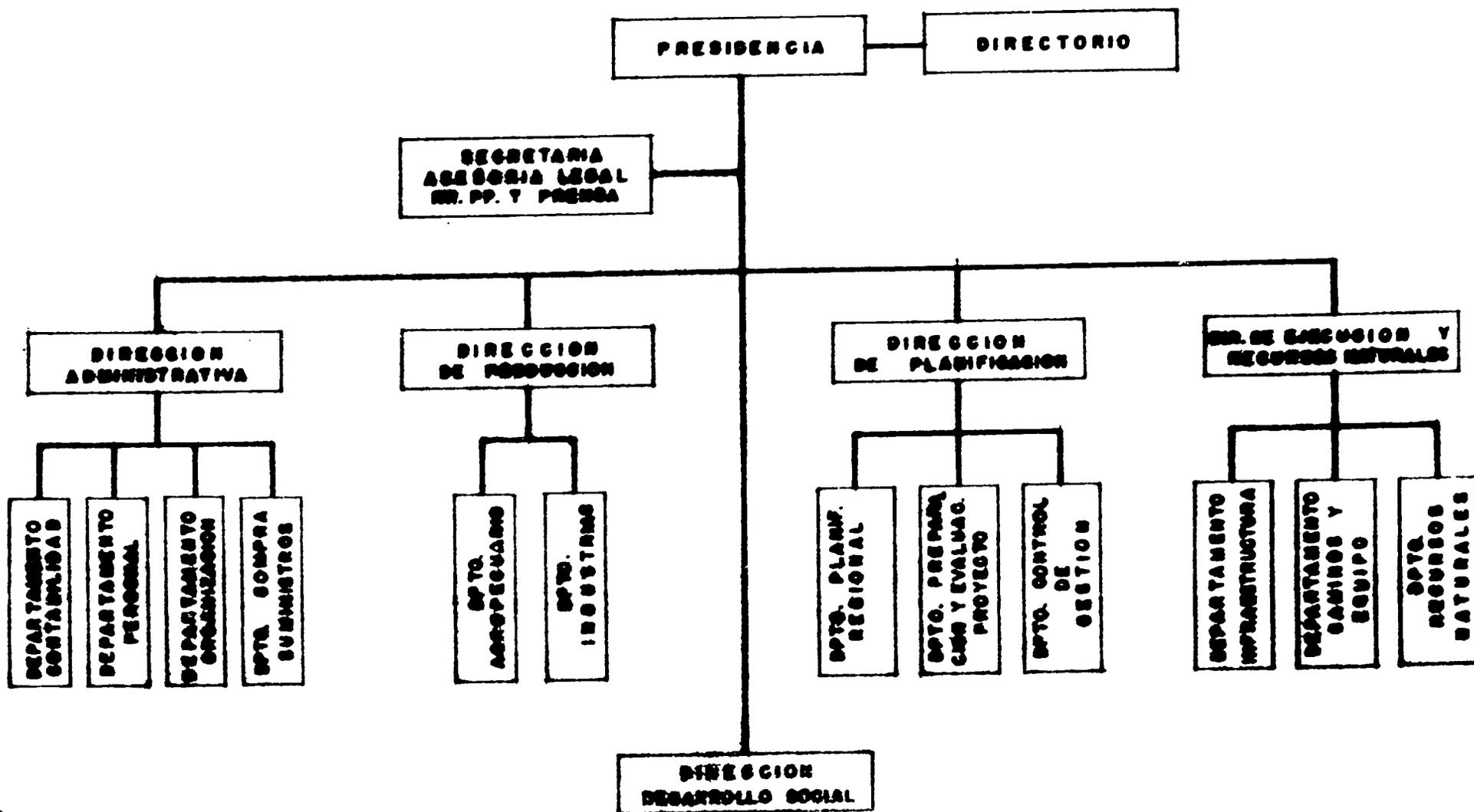


10-

ANEX C - GRANT 7
BANCO AGRICOLA DE BOLIVIA
ORGANIGRAMA OFICINA REGIONAL TARIJA



ANNEX C - CHART 8
ORGANIGRAMA-CODETAR



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ANNEX 3

Agricultural Sector II Project

Table 1

Pre-Project Partial Crop Budget for Chucuisaca, Potosí and Tarija Valleys - Semi-irrigated,
3 has. Average Land Holding (U.S.\$)

<u>Variable Cost Components</u>	<u>Corn</u> <u>0.25 Ha.</u>	<u>Potatoes</u> <u>0.25 Has.</u>	<u>Alfalfa</u> <u>0.5 Ha.</u>	<u>Vegetables</u> <u>0.05 Has.</u>	<u>Wheat</u> <u>0.75 Has.</u>	<u>Barley</u> <u>0.5 Ha.</u>	<u>Total 1/</u>
A. Seeds	2.5	111.4	22.0	4.0	16.9	12.5	169.3
B. Fertilizers	-	19.8	-	1.5	-	-	21.3
1. Natural	-	-	-	-	-	-	-
2. Chemical	-	-	-	-	-	-	4.5
C. Insecticides	2.0	2.5	-	-	-	-	32.3
D. Water	9.9	9.9	11.0	1.5	-	-	200.8
E. Labor	<u>45.5</u>	<u>30.3</u>	<u>54.0</u>	<u>8.0</u>	<u>45.5</u>	<u>17.5</u>	<u>50.0</u>
1. Preparing	6.8	6.9	15.4	1.4	14.5	5.0	19.5
2. Seeding	2.5	2.5	5.5	1.5	5.0	2.5	28.4
3. Weeding	5.5	5.3	8.3	1.8	5.0	2.5	87.6
4. Harvesting	28.2	11.9	16.5	2.5	21.0	7.5	15.3
5. Irrigation	2.5	3.7	8.3	0.8	-	-	428.2
Total Variable Cost	59.9	173.9	87.0	15.0	62.4	30.0	23.0
Opportunity Cost	3.0	8.7	5.2	0.8	3.8	1.5	451.2
<u>Total Cost</u>	<u>62.9</u>	<u>182.6</u>	<u>92.2</u>	<u>15.8</u>	<u>66.2</u>	<u>31.5</u>	<u>451.2</u>
Yields 2/	1,518	6,716	5,000	6,000	-	-	-
<u>Gross Income</u>	<u>82.5</u>	<u>219.0</u>	<u>179.4</u>	<u>75.0</u>	<u>117.3</u>	<u>65.0</u>	<u>738.2</u>
<u>Net Returns</u>	<u>19.6</u>	<u>36.4</u>	<u>87.2</u>	<u>59.2</u>	<u>51.1</u>	<u>33.5</u>	<u>287.0</u>

1/ 0.70 ha. assumed fallow.
 2/ Yields in kg./ha.
 Source: BAB Planning Office.

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Agricultural Sector II Project

Table 2

Post Project Partial Crop Budget for Chuquisaca, FOTOSÍ and Tarija Valleys - Semi-irrigated,
3 has. Average Land Holding (U.S.\$)

<u>Variable Cost Component</u>	<u>Corn 0.25 Has.</u>	<u>Potatoes 0.25 Has.</u>	<u>Alfalfa 0.5 Ha.</u>	<u>Vegetables 0.1 Has.</u>	<u>Wheat 1.0 Ha.</u>	<u>Barley 0.5 Has.</u>	<u>Total 1/</u>
A. Seeds	5.0	125.0	30.0	14.0	27.5	17.5	219.0
B. Fertilizers							
1. Natural	-	-	-	-	-	-	-
2. Chemical	17.5	35.4	12.5	24.3	30.0	15.0	134.7
C. Insecticides	2.3	3.0	1.2	-	-	-	6.5
D. Water	7.5	20.0	15.0	5.0	-	-	47.5
E. Labor	55.0	36.5	58.8	19.0	45.0	17.5	231.8
1. Preparing							
2. Seeding							
3. Weeding							
4. Harvesting							
5. Irrigation							
Total Variable Cost	87.3	219.9	117.5	62.3	102.5	50.0	639.5
Opportunity Cost	4.3	13.0	7.6	3.1	5.1	2.5	35.6
<u>Total Cost</u>	<u>91.6</u>	<u>232.9</u>	<u>125.1</u>	<u>65.4</u>	<u>107.6</u>	<u>525.0</u>	<u>675.1</u>
Yields 2/	2,760	11,000	6,000	8,500	1,000	1,000	-
<u>Gross Income</u>	<u>150.0</u>	<u>358.7</u>	<u>215.2</u>	<u>212.5</u>	<u>195.5</u>	<u>92.9</u>	<u>1,224.8</u>
<u>Net Returns</u>	<u>58.4</u>	<u>125.8</u>	<u>90.1</u>	<u>147.1</u>	<u>87.9</u>	<u>40.4</u>	<u>549.7</u>

1/ 0.40 ha. assumed fallow.

2/ Yields in kg/ha.

Source: BAE Planning Office

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ANNEX D

Agricultural Sector II Project

Table 3

Partial Budgets for Corn, Peanuts and Soybeans
in the Humid Chaco (U.S.\$/Ha.)

<u>Variable Cost Component</u>	<u>Corn</u>	<u>Peanuts</u>	<u>Soybeans</u>
Land Preparation	35.0	35.0	35.0
Improved Seed and Other Inputs	45.0	101.3	50.5
Seeding	15.0	17.5	17.5
Cultivating	33.5	43.0	36.0
Harvesting	42.5	63.2	47.3
<u>Total Variable Cost</u>	<u>171.0</u>	<u>260.0</u>	<u>186.3</u>
Opportunity Cost	8.5	13.0	9.2
<u>Total Costs</u>	<u>179.5</u>	<u>273.0</u>	<u>195.5</u>
Yields <u>1/</u>	3,000	1,500	1,400
<u>Gross Income</u>	<u>250.0</u>	<u>427.5</u>	<u>294.0</u>
<u>Net Return</u>	<u>70.5</u>	<u>154.5</u>	<u>98.5</u>

1/ Yields in kg./ha.

Source: Derived from figures supplied by CODETAR Department of Agriculture.

ANNEX C

Agricultural Sector II Project

Table 4

Availability of Credit Resources for "Valley" Credit Program (U.S.\$ Thou.)

<u>Year</u>	<u>Availabilities</u>			<u>Uses</u>	
	<u>From AID/GOB Inputs</u>	<u>Land Clearing Inputs</u>	<u>Total Availabil- ity</u>	<u>Cleared Land into Production</u>	<u>Available for "Valleys"</u>
1	670	-	670	213	457
2	1,475	49	1,524	691	833
3	2,415	208	2,613	1,169	1,444
4	3,490	477	3,967	1,647	2,320
5	4,700	857	5,557	2,125	3,432
6	4,700	1,347	6,047	2,600	3,447
7	4,700	1,788	6,488	2,600	3,888
8	4,700	2,119	6,819	2,600	4,219
9	4,700	2,339	7,039	2,600	4,439
10	4,700	2,450	7,150	2,600	4,550
11	4,700	2,450	7,150	2,600	4,550
12	4,700	2,450	7,150	2,600	4,550

ANNEX D

Agricultural Sector II Project

Table 5

Project Costs and Benefits - SFCP-Financed Activities (U.S.\$ Thou.)

Crop Year July-June	Period	Benefits from Valley Credit 2/	Benefits from Humid Chaco		Total Gross Benefits	Total Cost 1/	Net Returns
			Land Clear- ing 3/	Putting into Production 4/			
1977-1978	0	-	-	-	-	1,278	(-1,278)
1978-1979	1	100	450	71	621	3,579	(-2,958)
1979-1980	2	183	1,013	313	1,509	1,979	(- 470)
1980-1981	3	316	1,013	661	1,990	1,911	79
1981-1982	4	509	1,013	1,008	2,530	1,873	657
1982-1983	5	752	1,013	1,175	2,940	-	2,940
1983-1984	6	753	-	1,489	2,242	-	2,242
1984-1985	7	852	-	1,489	2,341	-	2,341
1985-1986	8	924	-	1,489	2,413	-	2,413
1986-1987	9	973	-	1,489	2,462	-	2,462
1987-1988	10	997	-	1,489	2,486	-	2,486
1988-1989	11	997	-	1,489	2,486	-	2,486
1989-1990	12	997	-	1,489	2,486	-	2,486

Calculated Internal Rate of Return is 24%

=====

- 1/ Includes AID grant and loan funds and total GOB contribution (MACA's, BAB's and CODETAR's administrative cost, and other operating expenses).
- 2/ From Table 34 in text.
- 3/ From Table 35 in text.
- 4/ From Table 36 in text.

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ANNEX D

Agricultural Sector II Project

Table 6

Estimated SFCP Credit Induced Seed Demand, 1978-1982

<u>Year</u>	<u>Added Sector I Clients</u>	<u>Sector II Clients</u>	<u>Total New Clients</u>	<u>Average Seed Purchase \$</u>	<u>Credit Induced Demand (\$ Thou)</u>
1978	945	602	1,547	160	248
1979	2,105	1,195	3,300	160	528
1980	2,105	1,700	3,805	160	609
1981	2,105	2,435	4,540	160	726
1982	2,105	3,360	5,465	160	874

ANNEX E

Agriculture Sector II Project

Table 1a

Seed Processing and Storage - Detailed Cost Estimate for
New and Upgraded Facilities (U.S.\$ Thou)

<u>Location</u>	<u>Cons- truc- tion</u>	<u>Machinery & Equipment</u>	<u>Office & Laboratory Equipment</u>	<u>Vehi- cles</u>	<u>Total</u>
A. <u>New Facilities</u>					
1. Betanzos, Potosí	41	49	7	8	109
2. Zudañez, Chuquisaca	104	45	13	8	181
3. Yacuiba, Tarija	123	93	16	34	279
<u>Subtotal</u>	<u>268</u>	<u>187</u>	<u>36</u>	<u>50</u>	<u>541</u>
B. <u>Upgraded Facilities</u>					
1. Warnes, Santa Cruz	73	103	13	18	214
2. Coña-Coña, Cochabamba	27	20	5	-	55
3. Las Barrancas, Tarija	27	47	68	18	164
<u>Subtotal</u>	<u>127</u>	<u>170</u>	<u>86</u>	<u>36</u>	<u>419</u>
C. <u>Consultant Services</u>					
(10% of Construction Costs)	40				
<u>Total</u>	<u>435</u>	<u>357</u>	<u>122</u>	<u>86</u>	<u>1,000</u>

ANNEX E

Agriculture Sector II Project

Table 1b

Seed Processing and Storage - Basic Crop Seed Production
Goals Calculated from Five Year Agricultural Plan (MP)

<u>Crop</u>	<u>1976/77</u>	<u>1977/78</u>	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>
Wheat	826	903	1,248	1,457	1,602
Potatoes	1,863	1,881	1,899	1,858	1,900
Rice	69	269	304	341	400
Soybeans/peanuts	400	720	2,222	3,556	4,000
Corn	240	255	270	282	300
Oats	-	66	84	104	150
Barley	60	143	210	428	800

ANNEX E

Agriculture Sector II Project

Table 1c

Seed Processing and Storage - National Seed Program Operating Capacity (MT)

<u>Crop</u>	<u>1976/77</u> <u>1/</u>	<u>1977/78</u>	<u>1978/78</u>	<u>1979/80</u>
Wheat	500	903	1,075	1,213
Potatoes	267	533	739	906
Rice	175	269	304	316
Soybeans/peanuts	450	720	1,300	1,720
Corn	145	255	270	280
Oats	5	66	84	150
Barley	5	143	210	395

1/ Present installed capacity.

ANNEX E

Agriculture Sector II Project

Table 1d

Seed Processing and Storage - Resources Required to Finance National
Seed Program Operating Capacity (U.S.\$)

<u>Crop</u>	Buying and Processing Cost (U.S.\$ per MT) 1/	Cost Per Year				
		<u>1976/77</u>	<u>1977/78</u>	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>
Wheat	289	144,550	261,057	310,797	321,920	350,830
Potatoes	267	71,289	142,363	197,488	215,300	242,000
Rice	300	52,421	80,578	94,059	102,146	94,820
Soybeans/peanuts	310	139,680	223,488	403,520	458,720	533,920
Corn	191	27,702	48,717	24,583	43,876	53,494
Oats	267	1,335	17,622	22,428	27,768	33,871
Barley	241	-	35,128	51,586	85,138	97,035
<u>Total</u>		<u>436,977</u>	<u>808,953</u>	<u>1,104,462</u>	<u>1,254,868</u>	<u>1,405,970</u>
<u>2/3 of Total 2/</u>		<u>288,405</u>	<u>533,909</u>	<u>728,945</u>	<u>828,213</u>	<u>927,940</u>

1/ Includes the costs of buying, processing, bagging (with bag) and selling.

2/ The amounts shown under totals are reduced by one-third because part of the fund is rotated twice every year due to the winter and summer crops.

ANNEX E

Agriculture Sector II Project

Table 1e

Seed Processing and Storage - Projection of Rotating Seed Purchase
Fund (U.S.\$)

<u>Source</u>	<u>1976/77</u>	<u>1977/78</u>	<u>1978/79</u>	<u>1979/80</u>	<u>1980/81</u>
GOB	90,000	100,000 3/	100,000	50,000	-
AID	-	100,000	100,000	50,000	-
<u>Subtotal New Resources</u>					
<u>Current Year</u>	<u>90,000</u>	<u>200,000</u>	<u>200,000</u>	<u>100,000</u>	<u>-</u>
Prior Years	202,000	321,200	573,320	850,652	1,045,717
<u>Total Available Current Year</u>	<u>292,000 1/</u>	<u>521,200</u>	<u>773,320</u>	<u>950,652</u>	<u>-</u>
10% Profit 4/	29,200	52,120	77,332	95,065	-
<u>Total Available Next Year</u>	<u>321,200 2/</u>	<u>573,320</u>	<u>850,652</u>	<u>1,045,717</u>	<u>-</u>

1/ Total presently available.

2/ Projected as of December 31, 1977.

3/ Government contribution to Agricultural Sector I Project (053).

4/ The National Seed Program will sell seed at a profit of 10%.

ANNEX E

Agriculture Sector II Project

Table 1f

Seed Processing and Storage - Cost Estimate by AID and GOB Contribution (U.S.\$ Thou.)

	A.I.D. Contribution			Total	GOB	Total
	Grant	Loan			LC	
	<u>FX</u>	<u>FX</u>	<u>LC</u>		<u>LC</u>	
A. Technical Assistance						
1. Long-term (18 wm)	150	-	-	150	-	150
2. Short-term (10 wm)	-	65	-	65	-	65
B. Training						
- Overseas						
a. Academic (18 wm)	-	20	-	20	-	20
b. Non-academic (24 wm)	-	40	-	40	-	40
C. Equipment and Vehicles						
1. Seed Processing Machinery and Equip.	-	355	-	355	-	355
2. Office and Laboratory Equipment	-	120	-	120	-	120
3. Vehicles (10)	-	85	-	85	-	85
D. Rotating Fund	-	-	250	250	150	400
E. Administration						
1. Salaries	-	-	-	-	625	625
2. Operating Costs	-	-	-	-	300	300
F. Construction	-	-	435	435	-	435
<u>Total</u>	<u>150</u>	<u>685</u>	<u>685</u>	<u>1,520</u>	<u>1,075</u>	<u>2,595</u>

ARREX E

Agriculture Sector II Project

Table 1g

Seed Processing and Storage - Disbursement Schedule
(U.S.\$ Thou.)

	Calendar Year					Total
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	
A. AID Contribution						
1. Technical Assistance						150
a. Long-term (18 wm)	-	70	80	-	-	65
b. Short-term (10 wm)	5	20	20	20	-	
2. Training						
- Overseas						20
a. Academic (18 wm)	-	10	10	-	-	40
b. Non-academic (24 wm)	8	8	12	12	-	
3. Equipment and Vehicles						
a. Seed Processing Machinery and Equipment	-	55	100	200	-	355
b. Office and Laboratory Equipment	-	20	100	-	-	120
c. Vehicles	-	85	-	-	-	85
4. Rotating Fund	32	32	62	62	62	250
5. Construction	-	35	180	220	-	435
<u>Subtotal AID</u>	<u>45</u>	<u>335</u>	<u>564</u>	<u>514</u>	<u>62</u>	<u>1,520</u>
B. GOB Contribution						
1. Rotating Fund	18	18	38	38	38	150
2. Administration						
a. Salaries	42	121	140	147	175	625
b. Operating Costs	32	67	67	67	67	300
<u>Subtotal GOB</u>	<u>92</u>	<u>206</u>	<u>245</u>	<u>252</u>	<u>280</u>	<u>1,075</u>
<u>Total</u>	<u>137</u>	<u>541</u>	<u>809</u>	<u>766</u>	<u>342</u>	<u>2,595</u>

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ANNEX E

Agriculture Sector II Project

Table 2a

Land Clearing - Farmer and CODETAR Capital and Operating Costs by Year, D-7 Tractor Unit
Hour and Hectare (U.S.\$)

	<u>#</u> <u>Units</u>	<u>Type</u> <u>Unit</u>	<u>Time</u> <u>Period</u>	<u>Cost/</u> <u>Unit</u>	<u>Total Cost/</u> <u>Time Period</u>	<u>Cost/</u> <u>Year</u>	<u>Cost/</u> <u>Tractor</u> <u>Unit hour</u>	<u>Cost/</u> <u>Hectare</u>
I. Farmer Cost								
A. Capital Costs ^{5/}								
1. Land Clearing Equipment ^{10/}								
a. D-7 Crawler Tractors each w. blade, stringer and rake	4	number	-	97,400	389,600	87,660 <u>1/</u>	6.49	38.96
b. D-6 Crawler Tractors each w. blade, stringer and rake	4	number	-	74,800	299,200	67,320 <u>1/</u>	4.99	29.92
c. Semi Truck Tractors with Low Boy Trailers (25 tons)	2	number	-	63,500	127,000	25,400 <u>2/</u>	1.88	11.29
d. Lubrication/Shop Trucks	2	number	-	53,000	106,000	21,200 <u>2/</u>	1.57	9.42
e. Stake Trucks (2 tons)	2	number	-	12,200	24,400	4,880 <u>2/</u>	.36	2.17
f. Pickup Trucks (1 1/2 tons)	2	number	-	8,700	17,400	3,480 <u>2/</u>	.26	1.55
g. Small Compressors	2	number	-	15,700	31,400	6,280 <u>2/</u>	.47	2.79
h. Attachments and Tools for Crawler Tractors	-	-	-	-	135,600	30,510 <u>1/</u>	2.26	13.56
<u>Subtotal Equipment</u>	-	-	-	-	<u>1,130,600</u>	<u>246,730</u>	<u>18.28</u>	<u>109.66</u>

M

	<u>#</u> <u>Units</u>	<u>Type</u> <u>Unit</u>	<u>Time</u> <u>Period</u>	<u>Cost/</u> <u>Unit</u>	<u>Total Cost/</u> <u>Time Period</u>	<u>Cost/</u> <u>Year</u>	<u>Cost/</u> <u>Tractor</u> <u>Unit Hour</u>	<u>Cost/</u> <u>Hectare</u>
2. Maintenance and Repair Shop								
a. Equipment and Tools <u>7/</u>	-	-	-	-	225,000	22,500 <u>3/</u>	1.67	10.00
b. Initial Stock Spare Parts (15%)	-	-	-	-	169,400	36,970	2.74	16.43
	-	-	-	-	<u>394,400</u>	<u>59,470</u>	<u>4.41</u>	<u>26.43</u>
<u>Subtotal Repairs</u>	-	-	-	-	<u>1,525,000</u>	<u>306,200</u>	<u>22.69</u>	<u>136.09</u>
<u>Total Capital Costs</u>	-	-	-	-				
B. Operating Costs								
1. Fuel	50	liter	Tractor Unit hour	.065	3.25	43,875	3.25	19.50
2. Lubricants and Related								
a. Lubricants	.675	liter	Tractor Unit hour	.80	.54	7,290	.54	3.24
b. Grease	.03	kilograms	Tractor Unit hour	.60	.02	243	.02	.11
c. Filters	-	-	-	-	.24	3,240	.24	1.44
d. Other Fluids	.225	liter	Tractor Unit hour	2.20	.50	6,683	.50	2.97
<u>Subtotal Lubricants and Related</u>	--	-	-	-	-	<u>17,456</u>	<u>1.30</u>	<u>7.76</u>
3. Tires (Support Vehicles)	-	-	-	-	-	5,000	.37	2.22
4. Insurance <u>8/</u>	-	-	-	-	-	43,500	3.22	19.33
5. Field Labor								
a. Hand Labor	2	number/ hectare	day	2.50	5.00	11,500	.83	5.00
b. Field Crews <u>10/</u>								
1) Heavy Equip. Operator	16	number	month	250	4,000	36,000	2.67	16.00
2) Helper	16	number	month	150	2,400	21,600	1.60	9.60
3) Driver	12	number	month	200	2,400	21,600	1.60	9.60
4) Mechanic	2	number	month	250	500	6,000	.44	2.67
<u>Subtotal Labor</u>	-	-	-	-	-	<u>96,450</u>	<u>7.14</u>	<u>42.87</u>

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	<u>#</u> <u>Units</u>	<u>Type</u> <u>Unit</u>	<u>Time</u> <u>Period</u>	<u>Cost/</u> <u>Unit</u>	<u>Total Cost/</u> <u>Time Period</u>	<u>Cost/</u> <u>Year</u>	<u>Cost/</u> <u>Tractor</u> <u>Unit Hour</u>	<u>Cost/</u> <u>Hectare</u>
6. Repairs								
a. Shop Labor								
1) Mechanic	2	number	month	250	500	6,000	.44	2.67
2) Mechnic's Helper	2	number	month	150	300	3,600	.27	1.60
3) Lathe Operator	1	number	month	250	250	3,000	.22	1.33
4) Welder	1	number	month	250	250	3,000	.22	1.33
5) Electrician	1	number	month	250	250	3,000	.22	1.33
b. Additional Spare Parts	-	-	-	-	-	20,000	1.48	8.89
Subtotal Repairs	-	-	-	-	-	38,600	2.85	17.15
<u>Total Operating Costs</u>	-	-	-	-	-	<u>244,881</u>	<u>18.13</u>	<u>108.83</u>
<u>Total Farmer Cost</u>	-	-	-	-	-	<u>551,081</u>	<u>40.82</u>	<u>244.92</u>
							Say	\$ <u>245.00</u>

CODETAR Contribution

A. Capital Costs

- Maintenance and Repair Shop	-	-	-	-	75,000 4/	3,000	.22	1.33
- Construction	-	-	-	-	<u>75,000</u>	<u>3,000</u>	<u>.22</u>	<u>1.33</u>
<u>Total Capital Costs</u>	-	-	-	-				

B. Operating Costs

- Overhead								
a. Personnel								
1) Project Manager	1	number	month	500	500	6,000	.44	2.67
2) Assistant Project Manager (Administrator)	1	number	month	400	400	4,800	.36	2.13
3) Field Supervisor 10/	2	number	month	350	700	8,400	.62	3.73
4) Shop Supervisor	1	number	month	350	350	4,200	.31	1.87
5) Accountant	1	number	month	250	250	3,000	.22	1.33
6) Secretary	2	number	month	150	300	3,600	.27	1.60
<u>Subtotal Personnel</u>	-	-	-	-	-	<u>30,000</u>	<u>2.22</u>	<u>13.33</u>

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	<u>#</u> <u>Units</u>	<u>Type</u> <u>Unit</u>	<u>Time</u> <u>Period</u>	<u>Cost/</u> <u>Unit</u>	<u>Total Cost/</u> <u>Time Period</u>	<u>Cost/</u> <u>Year</u>	<u>Cost/</u> <u>Tractor</u> <u>Unit Hour</u>	<u>Cost/</u> <u>Hectare</u>
b. Travel and Per Diem	-	-	-	-	-	6,000	.4	2.67
c. Office Supplies	-	-	-	-	-	5,000	.37	2.22
d. Jeep-type vehicles (3) 2/	-	-	-	-	-	-	-	-
1) Fuel	150	liter	vehicle month	.075	33.75	405	.03	.18
2) Lubricants, tires, etc.	-	-	-	-	-	300	.02	.13
3) Insurance	-	-	-	-	-	1,000	.07	.44
<u>Subtotal Vehicles</u>	-	-	-	-	-	<u>1,705</u>	<u>.12</u>	<u>.75</u>
<u>Total Operating Costs</u>	-	-	-	-	-	<u>42,705</u>	<u>3.15</u>	<u>18.97</u>
<u>Total CODETAR Costs</u>	-	-	-	-	-	<u>45,705</u>	<u>3.37</u>	<u>20.30</u>
<u>Grand Total</u>	-	-	-	-	-	<u>596,786</u>	<u>4.19</u>	<u>265.22</u>

1/ Estimated useful life of 8,000 hours (4.44 years).

2/ Estimated useful life of 5 years.

3/ Estimated useful life of 10 years.

4/ Estimated useful life of 25 years.

5/ BAB will use \$1,225,000 of the \$2,450,000 loan capital provided by AID to partially finance these capital costs. The remaining \$300,000 of these capital costs will be financed by AID directly.

6/ Attachments for crawler tractors to be purchased would include some plows, root plows, ditch formers and rolling brush cutters.

7/ Maintenance and repair shop equipment to be purchased would include a heavy and a light overhead crane, heavy and light lathes, a milling machine, a press, heavy and light drill presses, a small compressor, an arc welder, heavy and light vises, two complete sets of tools, etc.

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- 8/ 3% for land clearing equipment and spare parts and 1 1/2% for maintenance and repair shop construction, equipment and tools.
- 9/ AID will finance the three jeep-type vehicles.
- 10/ Two field groups will be formed to carry out the actual land clearing. One group will be based in Yacui-ba and the other will be based in Villamontes. Each group will consist of the following:

Equipment

- 2 D-7 Crawler Tractors
- 2 D-6 Crawler Tractors
- 1 Semi Truck Tractor with Low Boy Trailer
- 1 Lubrication/shop Truck
- 1 Stake Truck
- 1 Pickup Truck
- 1 Small Compressor
- Attachments and Tools for Crawler Tractors.

Personnel

- 1 Field Supervisor
- 8 Operators
- 8 Helpers
- 6 Drivers
- 1 Field Mechanic

- 11/ The number of D-7 tractor units involved in the land clearing operation was calculated as follows:

D-7 = 1.000 unit	4 x 1,000 =	4.000
D-6 = 0.875 unit	4 x 0.875 =	3.500
		<u>7.500</u>

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The number of D-7 tractor unit hours available per year was calculated as follows:

25	Working days/month
<u>x 9</u>	Working months/year
225	Working days/year
<u>x 8</u>	Working hours/day (12-hour day with 4 hours down time)
1,800	Working hours/year
<u>7.5</u>	D-7 tractor units
13,500	D-7 tractor unit hours available/year

The maximum number of hectares which can be cleared in one year was calculated as follows:

13,500	D-7 tractor unit hours available/year
<u>+ 6</u>	D-7 tractor unit hours required to clear one hectare of land.
2,250	Maximum number of hectares which can be cleared in one year.

ANNEX E

Agriculture Sector II Project

Table 2b

Small Farmer Credit Program - Cost Estimate by AID and Local Contribution (U.S.\$ Thou.)

	A.I.D. Contribution			Local Contribution			Total
	Grant	Loan		GOB	CODETAR	Total	
	<u>FX</u>	<u>FX</u>	<u>LC</u>	<u>LC</u>	<u>LC</u>	<u>LC</u>	
<u>I. BAB Small Farmer Production and Investment Credit Program</u>							
A. Technical Assistance							
- Long-term (24 wm)	200	-	-	200	-	-	200
B. Training							
1. Overseas - non-degree (25 wm)	-	40	-	40	-	-	40
2. In-country	-	-	-	-	20	-	20
C. Equipment and Vehicles							
1. Jeep-type Vehicles (10)	-	85	-	85	-	-	85
2. Office Equipment	-	20	-	20	-	-	20
D. Loan Capital	-	-	3,500	3,500	1,200	-	4,700
E. Administration							
- BAB	-	-	-	-	400	-	400
<u>Subtotal</u>	<u>200</u>	<u>145</u>	<u>3,500</u>	<u>3,845</u>	<u>1,620</u>	-	<u>5,465</u>
<u>II. BAB Small Farmer Land Clearing Credit Program</u>							
A. Technical Assistance							
1. Long-term (60wm)	500	-	-	500	-	-	500
2. Short-term (6 wm)	-	40	-	40	-	-	40

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	A.I.D. Contribution			Total	Local Contribution			Total
	Grant	Loan			GOB	CODETAR	Total	
	<u>FX</u>	<u>FX</u>	<u>LC</u>		<u>LC</u>	<u>LC</u>	<u>LC</u>	
B. Equipment and Vehicles								
1. Land Clearing Equipment and Spare Parts (15%)	-	165 1/	-	165	-	-	-	165
2. Maintenance and Repair Shop Equipment and Tools	-	135 1/	-	135	-	-	-	135
3. Jeep-type Vehicles (8)	-	70	-	70	-	-	-	70
4. Office Equipment	-	10	-	10	-	-	-	10
C. Construction								
- Maintenance and Repair Shop	-	-	-	-	-	75	75	75
D. Loan Capital								
1. CODETAR Equipment Services (1st year)	-	-	135 1/	135	-	-	-	135
2. Land Clearing Equipment and Spare Parts (15%)	-	1,135 2/	-	1,135	-	-	-	1,135
3. Maintenance and Repair Shop Equipment and Tools	-	90 2/	-	90	-	-	-	90
4. Operating Costs	-	-	1,090 3/	1,090	-	-	-	1,090
<u>Subtotal Loan Capital</u>	-	<u>1,225</u>	<u>1,225</u>	<u>2,450</u>	-	-	-	<u>2,450</u>
E. Operating Costs	-	-	-	-	-	215	215	215
F. Administration								
1. MACA	-	-	-	-	1,250	-	1,250	1,250
2. BAB	-	-	-	-	245	-	245	245
<u>Subtotal</u>	<u>500</u>	<u>1,645</u>	<u>1,225</u>	<u>3,370</u>	<u>1,495</u>	<u>290</u>	<u>1,785</u>	<u>5,155</u>
<u>Total</u>	<u>700</u>	<u>1,790</u>	<u>4,725</u>	<u>7,215</u>	<u>3,115</u>	<u>290</u>	<u>3,405</u>	<u>10,620</u>

- 1/ BAB will pay CODETAR \$135,000 for land clearing equipment services during the first year of the Project before the AID-financed equipment arrives. This amount will eventually be restored to the loan fund through farmer repayment of land clearing loans.
- 2/ BAB will use \$1,225,000 of the AID loan capital to purchase Land Clearing Equipment and Spare Parts and Maintenance and Repair Shop Equipment and Tools, to be provided to CODETAR in trust. This amount will eventually be restored to the loan fund through farmer repayment of land clearing loans. AID will contribute \$300,000 directly to the purchase of the Land Clearing Equipment and Spare Parts and Repair Shop Equipment and Tools. This amount represents the value of the equipment which will be turned over to CODETAR at the end of the Project.
- 3/ BAB will pay CODETAR a total of \$1,090,000 over the life of the Project to cover the operating costs of the land clearing program. This amount will eventually be restored to the loan fund through farmer repayment of land clearing loans.

ANNEX E

Agriculture Sector II Project

Table 2c

Small Farmer Credit Program - Disbursement Schedule (U.S.\$ Thou.)

	Calendar Year					<u>Total</u>
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	
<u>I. BAB Small Farmer Production and Investment Credit Program</u>						
<u>A. AID Contribution</u>						
1. Technical Assistance						
- Long-term (24 wm)	-	100	100	-	-	200
2. Training						
- Overseas - non-degree (25 wm)	-	16	16	8	-	40
3. Equipment and Vehicles						
a. Jeep-type Vehicles (10)	-	85	-	-	-	85
b. Office Equipment	-	20	-	-	-	20
4. Loan Capital	500	600	700	800	900	3,500
<u>Subtotal AID</u>	<u>500</u>	<u>821</u>	<u>816</u>	<u>808</u>	<u>900</u>	<u>3,845</u>
<u>B. GOB Contribution</u>						
1. Training						
- In-country	-	10	10	-	-	20
2. Loan Capital	170	205	240	275	310	1,200
3. Administration						
- BAB	65	75	90	105	65	400
<u>Subtotal GOB</u>	<u>235</u>	<u>290</u>	<u>340</u>	<u>380</u>	<u>375</u>	<u>1,620</u>
<u>Total</u>	<u>735</u>	<u>1,111</u>	<u>1,156</u>	<u>1,188</u>	<u>1,275</u>	<u>5,465</u>

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	Calendar Year					Total
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	
II. <u>BAB Small Farmer Land Clearing Credit Program</u>						
A. <u>AID Contribution</u>						
1. Technical Assistance	-	200	200	100	-	500
a. Long-term (60 wm)	-	40	-	-	-	40
b. Short-term (6 wm)	-	-	-	-	-	-
2. Equipment and Vehicles	-	-	-	-	-	165
a. Land Clearing Equipment and Spare Parts (15%)	-	165	-	-	-	165
b. Maintenance and Repair Shop Equipment and Tools	-	135	-	-	-	135
c. Jeep-type Vehicles (8)	-	70	-	-	-	70
d. Office Equipment	-	10	-	-	-	10
3. Loan Capital	-	-	-	-	-	135
a. CODETAR Equipment Services (first year)	135	-	-	-	-	135
b. Land Clearing Equipment and Spare Parts (15%)	-	1,135	-	-	-	1,135
c. Maintenance and Repair Shop Equipment and Tools	-	90	-	-	-	90
d. Operating Costs	110	245	245	245	245	1,090
<u>Subtotal Loan Capital</u>	<u>245</u>	<u>1,470</u>	<u>245</u>	<u>245</u>	<u>245</u>	<u>2,450</u>
<u>Subtotal AID</u>	<u>245</u>	<u>2,090</u>	<u>445</u>	<u>345</u>	<u>245</u>	<u>3,370</u>
B. <u>GOB Contribution</u>						
1. Administration	150	275	275	275	275	1,250
a. MACA	30	60	60	60	35	245
b. BAB	180	335	335	335	310	1,495
<u>Subtotal GOB</u>	<u>180</u>	<u>335</u>	<u>335</u>	<u>335</u>	<u>310</u>	<u>1,495</u>

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	Calendar Year					Total
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	
<u>C. CODETAR Contribution</u>						
1. Construction						75
- Maintenance and Repair Shop	75	-	-	-	-	
2. Operating Costs	43	43	43	43	43	215
Subtotal CODETAR	<u>118</u>	<u>43</u>	<u>43</u>	<u>43</u>	<u>43</u>	<u>290</u>
Subtotal Local Contribution	<u>298</u>	<u>378</u>	<u>378</u>	<u>378</u>	<u>353</u>	<u>1,755</u>
Total	<u>513</u>	<u>2,468</u>	<u>823</u>	<u>723</u>	<u>598</u>	<u>2,155</u>
Grand Total	<u>1,278</u>	<u>3,579</u>	<u>1,979</u>	<u>1,911</u>	<u>1,873</u>	<u>10,620</u>

ANNEX E

Agriculture Sector II Project

Table 3a

Human Resource Development - Cost Estimate by AID and Local Contribution
(U.S.\$ Thou.)

	A.I.D. Contribution			Total	FCI LC	Total
	Grant	Loan				
	FX	FX	LC			
A. Training						
- Overseas						
- Academic (240 wm)	-	240	-	240	-	240
B. Equipment and Vehicles						
1. Laboratories	-	60	-	60	-	60
2. Field Equipment	-	120	-	120	-	120
3. Library Materials and Teaching Aids	-	40	-	40	-	40
C. Construction	-	-	40	40	-	40
D. Administration						
1. Salaries	-	-	-	-	75	75
2. Operating Costs	-	-	-	-	15	15
<u>Total</u>	-	<u>460</u>	<u>40</u>	<u>500</u>	<u>90</u>	<u>590</u>

ANNEX E

Agriculture Sector II Project

Table 3c

Human Resource Development - Disbursement Schedule
(U.S.\$ Thou.,

	Calendar Year					<u>Total</u>
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	
<u>A. AID Contribution</u>						
1. Training						
- Overseas						
- Academic (240 wm)	-	40	100	100	-	240
2. Equipment and Vehicles						
a. Laboratories	-	60	-	-	-	60
b. Field Equipment	-	120	-	-	-	120
c. Library Materials and Teaching Aids	-	40	-	-	-	40
3. Construction	-	40	-	-	-	40
<u>Subtotal AID</u>	-	<u>300</u>	<u>100</u>	<u>100</u>	-	<u>500</u>
<u>B. GOB Contribution</u>						
1. Administration						
a. Salaries	8	15	15	16	16	70
b. Operating Costs	2	2	3	4	4	25
<u>Subtotal GOB</u>	<u>10</u>	<u>17</u>	<u>18</u>	<u>20</u>	<u>20</u>	<u>55</u>
<u>Total</u>	<u>10</u>	<u>317</u>	<u>118</u>	<u>120</u>	<u>20</u>	<u>555</u>

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ANNEX E

Agriculture Sector III Project

Table 4a

Sectoral Planning, Coordination and Management - Cost of
Equipment for Agricultural Service Centers in
Tarija and Potosí (U.S.\$)

	Tarija				Potosí				Total
	Office Equip. and Furni- ture	Engi- neering Equip- ment	Other Equip- ment	Sub- total	Office Equip- and Furni- ture	Engi- neering Equip- ment	Other Equip- ment	Sub- total	
A. Centralized Agencies									
1. Soils Department	11,400	11,360	1,500	24,260	11,400	11,360	1,500	24,260	48,520
2. Seed Department	2,390	-	-	2,390	2,390	-	-	2,390	4,780
3. National Livestock Directorate	5,410	-	40,100	45,510	3,580	-	22,100	26,680	71,190
4. Plant Sanitation	4,990	-	2,100	7,090	4,990	-	2,100	7,090	14,180
5. Marketing Department	3,730	-	-	3,730	3,730	-	-	3,730	7,460
6. Statistics Department	3,730	-	-	3,730	3,730	-	-	3,730	7,460
7. Office of Sectorial Plan- ning	2,890	-	-	2,890	2,890	-	-	2,890	5,780
8. MACA Administration	18,130	-	37,960	56,090	18,130	-	37,960	56,090	112,180
B. Decentralized Agencies									
1. National Community Development Service (NCDS)	14,010	-	-	14,010	14,010	-	-	14,010	28,020
2. Bolivian Institute of Agri- cultural Technology (IBTA)	8,150	-	-	8,150	8,150	-	-	8,150	16,300
3. National Institute of Colonization	2,200	-	-	2,200	2,450	-	-	2,450	3,650
4. National Council of Agri- cultural Reform	8,130	-	-	8,130	8,130	-	-	8,130	16,260
5. Forestry Development Center	12,840	-	-	12,840	9,720	-	-	9,720	22,560
Total	<u>98,000</u>	<u>11,360</u>	<u>81,660</u>	<u>191,020</u>	<u>92,130</u>	<u>11,360</u>	<u>63,660</u>	<u>167,150</u>	<u>358,170</u>

Agriculture Sector III Project

Table 4b

Sectoral Planning, Coordination and Management - Estimate of Physical Space Requirements of Agricultural Service Centers at Tarija and Potosí

	Tarija				Potosí				
	Main Building m ²	Garage Space #	m ²	Warehouses #	m ²	Main Building m ²	Garage Space #	m ²	Warehouses #
<u>A. Centralized Agencies</u>									
1. Soils Department	59	1	15	-	-	59	1	15	-
2. Seed Department	16	-	-	-	-	16	-	-	-
3. National Livestock Directorate	76	1	15	-	-	32	1	15	-
4. Plant Sanitation	60	-	-	-	-	60	-	-	-
5. Marketing Department	28	1	15	-	-	28	1	15	-
6. Statistics Department	16	-	-	-	-	16	-	-	-
7. Office of Sectorial Planning	16	-	-	-	-	16	-	-	-
8. MACA Administration	362	4	60	3	150	362	4	60	2
<u>B. Decentralized Agencies</u>									
1. National Community Development Service (NCDS)	170	4	60	1	50	170	4	60	1
2. Bolivian Institute of Agricultural Technology (IBTA)	158	6	90	-	-	158	-	90	-
3. National Institute of Colonization	62	1	15	-	-	20	1	15	-
4. National Council of Agricultural Reform	148	2	30	-	-	148	2	30	-
5. Forestry Development Center	204	4	60	-	-	172	-	60	-
<u>Total</u>	<u>1,359*</u>	<u>24</u>	<u>360</u>	<u>4</u>	<u>200</u>	<u>1,241*</u>	<u>24</u>	<u>360</u>	<u>3</u>

* The main building area has to be increased by 25% to account for the dining room, stairs, bathrooms, etc i.e. 1,699 m² for Tarija and 1,551 m² for Potosí.

ANNEX E

Agriculture Sector II Project

Table 4c

Sectoral Planning, Coordination and Management - Detailed Cost
Estimate for Agricultural Service Center Construction
 (U.S.\$)

	<u>Area to be</u> Cons- <u>tructured (m2)</u>	<u>Price</u> per m2 <u>(U.S.\$)</u>	<u>Estimated</u> Cost <u>(U.S.\$)</u>
A. Tarija			
1. Main Building	1,699	160	271,840
2. Garage for 24 vehicles (only columns and roofing)	360	94	33,840
3. Storage Warehouses (4) (with brick walls, one for workshop)	200	140	28,000
<u>Subtotal</u>	<u>2,259</u>		<u>333,680</u>
B. Potosí			
1. Main Building	1,551	160	248,160
2. Garage for 24 vehicles (only columns and roofing)	360	94	33,840
3. Storage Warehouses (3) (with brick walls)	150	140	21,000
<u>Subtotal</u>	<u>2,061</u>		<u>303,000</u>
<u>Total Construction Costs</u>			<u>636,680</u>
Consultant Services			63,320
<u>Total</u>			<u>700,000</u>

ANNEX E

Agriculture Sector II Project

Table 4 d

Sectoral Planning, Coordination and Management - Detailed
Cost Estimate for Data Development (Completion of
Area Frame Sample) (U.S.\$)

A. Aerial Photo Enlargements

1450 enlargements covering part of Chuquisaca,
Potosí, Tarija and La Paz (w/o Yungas) Departments 29,000

B. Short-Term Technical Assistance (USDA)

160 work-days total of a mathematical statistician,
systems analyst, and area frame specialist 46,000

C. Materials and Supplies

Special marking pencils, hand compasses, measuring
tapes, calculators, maps, enlarging paper, fixer
and developer 10,000

Total

85,000

ANNEX E

Agriculture Sector II Project

Table 4e

Sectoral Planning, Coordination and Management - Cost Estimate by AID and GDB Contribution
(U.S.\$ Thou.)

	A.I.D. Contribution			Total	GDB LC	Total
	Grant	Loan				
	<u>FX</u>	<u>FX</u>	<u>LC</u>			
A. Technical Assistance				1,000	-	1,000
1. Long-term (120 wm)	1,000	-	-	1,000	-	1,000
2. Short-term (27 wm)	-	175	-	175	-	175
B. Training						
1. Overseas		35	-	35	-	35
a. Academic (36 wm)	-	35	-	35	-	35
b. Non-academic (20 wm)	-	-	-	-	30	30
2. In-country		90	-	90	-	90
C. Equipment and Supplies						
D. Administration					360	360
1. Salaries	-	-	-	-	75	75
2. Operating Costs	-	-	-	-	-	-
E. Construction			700	700	-	700
- Agricultural Service Centers	-	-	700	700	-	700
<u>Total</u>	<u>1,000</u>	<u>335</u>	<u>700</u>	<u>2,035</u>	<u>465</u>	<u>2,500</u>

ANNEX E

Agriculture Sector II Project

Table 4a

Sectoral Planning, Coordination and Management - Disbursement Schedule
(U.S.\$ Thou.)

	Calendar Year					Total
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	
A. AID Contribution						
1. Technical Assistance	-	200	300	300	200	1,000
a. Long-term (120 wm)	35	35	35	35	35	175
b. Short-term (27 wm)						
2. Training						
- Overseas	-	-	17	18	-	35
1) Academic (36 wm)	-	8	9	9	9	35
2) Non-academic (20 wm)	-	90	-	-	-	90
3. Equipment and Supplies						700
4. Construction	-	200	300	200	-	700
- Agricultural Service Centers	35	533	661	562	244	2,035
<u>Subtotal AID</u>	<u>35</u>	<u>533</u>	<u>661</u>	<u>562</u>	<u>244</u>	<u>2,035</u>
B. GOB Contribution						
1. Training	10	10	10	-	-	30
- In-country						
2. Administration	55	70	74	78	83	360
a. Salaries	10	15	16	17	17	75
b. Operating Costs	75	95	100	95	100	465
<u>Subtotal GOB</u>	<u>75</u>	<u>95</u>	<u>100</u>	<u>95</u>	<u>100</u>	<u>465</u>
<u>Total</u>	<u>110</u>	<u>628</u>	<u>761</u>	<u>657</u>	<u>344</u>	<u>2,500</u>

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ANNEX E

Agriculture Sector II Project

Table 5a

Detailed Summary Cost Estimate and Financial Plan (U.S.\$ Thou.)

	A.I.D.				Total	Local Contribution			Total
	Grant	Loan		GOB		CODETAP	Total		
	FX	FX	LC	LC		LC	LC		
A. Technical Assistance									1,850
1. Long-term (222 wm)	1,850	-	-	-	1,850	-	-	-	280
2. Short-term (43 wm)	-	280	-	280	280	-	-	-	
B. Training									
1. Overseas									295
a. Academic (294 wm)	-	295	-	295	295	-	-	-	115
b. Non-Academic (69 wm)	-	115	-	115	115	-	-	-	50
2. In-country	-	-	-	-	-	50	-	50	
C. Equipment and Vehicles									
1. Seed Processing Machinery and Equipment	-	355	-	355	355	-	-	-	355
2. Office and Laboratory Equipment	-	300	-	300	300	-	-	-	300
3. Land Clearing Equipment and Spare Parts	-	165	-	165	165	-	-	-	165
4. Maintenance and Repair Shop Equipment and Tools	-	135	1	135	135	-	-	-	135
5. Field Equipment	-	120	-	120	120	-	-	-	120
6. Library Materials and Teaching Aids	-	40	-	40	40	-	-	-	40

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	A.I.D.				Total	Local Contribution			Total
	Grant FX	Loan		Total		GOB	CODETAR	Total	
		FX	LC			LC	LC	LC	
7. Vehicles (28)	-	240	-	240	240	-	-	-	240
D. Loan Capital	-	-	3,500	3,500	3,500	1,200	-	1,200	4,700
1. SFCP Regular Fund	-	-	-	-	-	-	-	-	-
2. SFCP Land Clearing Fund	-	-	-	-	-	-	-	-	135
a. CODETAR Equipment Services (1st year)	-	-	135	135	135	-	-	-	1,135
b. Land Clearing Equipment and Spare Parts	-	1,135	-	1,135	1,135	-	-	-	90
c. Maintenance and Repair Shop Equipment and Tools	-	90	-	90	90	-	-	-	1,090
d. Operating Costs	-	-	1,090	1,090	1,090	-	-	-	2,450
<u>Subtotal Land Clearing Fund</u>	-	<u>1,225</u>	<u>1,225</u>	<u>2,450</u>	<u>2,450</u>	-	-	-	
E. Seed Rotating Fund	-	-	250	250	250	150	-	150	400
F. Administration	-	-	-	-	-	3,340	215	3,555	3,555
G. Construction	-	-	-	-	-	-	-	-	435
1. Seeds Processing and Storage Facilities	-	-	435	435	435	-	-	-	75
2. Maintenance and Repair Shop	-	-	-	-	-	-	75	75	40
3. Plant and Insect Laboratory	-	-	40	40	40	-	-	-	700
4. Agricultural Service Centers	-	-	700	700	700	-	-	-	
<u>Total</u>	<u>1,850</u>	<u>3,270</u>	<u>6,150</u>	<u>9,420</u>	<u>11,270</u>	<u>4,740</u>	<u>290</u>	<u>5,030</u>	<u>16,300</u>
15% Inflation Factor	260	490	920	1,410	1,670	710	40	750	2,420
5% Contingency	90	165	305	470	560	235	15	250	810
<u>Grand Total</u>	<u>2,200</u>	<u>3,925</u>	<u>7,375</u>	<u>11,300</u>	<u>13,500</u>	<u>5,685</u>	<u>345</u>	<u>6,030</u>	<u>19,530</u>
Percent					69%			31%	100%

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ANNEX E

Agriculture Sector II Project

Table 5b

Disbursement Schedule
(U.S.\$ Thou.)

	<u>Calendar Year</u>					<u>Total</u>
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	
A. AID Contribution						
1. Technical Assistance						
a. Long-term (222 wm)	-	570	680	400	200	1,850
b. Short-term (93 wm)	40	95	55	55	35	280
2. Training						
- Overseas						
a. Academic (294 wm)	-	50	127	118	-	295
b. Non-Academic (69 wm)	8	32	37	29	9	115
3. Equipment and Vehicles						
a. Seed Processing Machinery and Equipment	-	55	100	200	-	355
b. Office and Laboratory Equipment	-	200	100	-	-	300
c. Land Clearing Equipment and Spare Parts	-	165	-	-	-	165
d. Maintenance and Repair Shop Equipment and Tools	-	135	-	-	-	135
e. Field Equipment	-	120	-	-	-	120
f. Library Materials and Teaching Aids	-	40	-	-	-	40
g. Vehicles (28)	-	240	-	-	-	240
4. Loan Capital						
a. SFCP Regular Fund	500	600	700	800	900	3,500
b. SFCP Land Clearing Fund	245	1,470	245	245	245	2,450
5. Seed Rotating Fund	32	32	62	62	62	250
6. Construction	-	275	480	420	-	1,175
<u>Subtotal AID</u>	<u>825</u>	<u>4,079</u>	<u>2,586</u>	<u>2,329</u>	<u>1,451</u>	<u>11,270</u>

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	Calendar Year					<u>Total</u>
	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	
						1,670
Inflation (15%)						560
Contingency (5%)						
<u>Subtotal AID</u>						<u>15,500</u>
B. <u>GOB Contribution</u>						
1. Training						50
- In-country	10	20	20	-	-	
2. Loan Capital	170	205	240	275	310	1,200
3. Seed Rotating Fund	18	18	38	38	38	150
4. Administration	394	700	740	769	737	3,340
<u>Subtotal</u>	<u>592</u>	<u>943</u>	<u>1,038</u>	<u>1,082</u>	<u>1,085</u>	<u>4,740</u>
						710
Inflation (15%)						235
Contingency (5%)						
Subtotal GOB						5,685
C. <u>CODETAR Contribution</u>						
1. Construction						75
- Maintenance and Repair Shop	75	-	-	-	-	
2. Administration	43	43	43	43	43	215
<u>Subtotal</u>	<u>118</u>	<u>43</u>	<u>43</u>	<u>43</u>	<u>43</u>	<u>290</u>
						40
Inflation (15%)						15
Contingency (5%)						
<u>Subtotal CODETAR</u>						<u>345</u>
Subtotal Local Contribution						<u>6,030</u>
<u>Total</u>						<u>19,530</u>

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ANNEX E

Agriculture Sector II Project

Table 5c

Costing of Project Outputs/Inputs (U.S.\$ Thou.)

<u>Project Inputs</u>	<u>Project Outputs</u>				<u>Total</u>
	<u>Seed Pro- cessing and Storage</u>	<u>Regular Credit</u>	<u>Land Clearing Credit</u>	<u>Human Resources Develop- ment</u>	
A. AID Contribution					
1. Technical Assistance					1,850
a. Long-term	150	200	500	-	1,000
b. Short-term	65	-	40	-	175
2. Training					295
- Overseas				240	35
a. Academic	20	-	-	-	35
b. Non-academic	40	40	-	220	90
3. Equipment	560	105	380	-	5,950
4. Loan Capital	-	3,500	2,450	-	250
5. Seed Rotating Fund	250	-	-	40	700
6. Construction	435	-	-	-	-
<u>Subtotal</u>	<u>1,520</u>	<u>3,845</u>	<u>3,370</u>	<u>500</u>	<u>11,270</u>
Inflation (15%)	225	570	500	75	300
Contingency (5%)	75	190	170	25	100
<u>Total AID</u>	<u>1,820</u>	<u>4,605</u>	<u>4,040</u>	<u>600</u>	<u>2,435</u>
<u>Percent</u>	<u>13.5%</u>	<u>34.1%</u>	<u>29.9%</u>	<u>4.5%</u>	<u>18.0%</u>
					<u>100%</u>

<u>Project Inputs</u>	<u>Project Outputs</u>					<u>Total</u>
	<u>Seed Pro- cessing and Storage</u>	<u>Regular Credit</u>	<u>Land Clearing Credit</u>	<u>Human Resources Develop- ment</u>	<u>Sector Manage- ment & Coord.</u>	
B. <u>Local Contribution</u>						
1. Training	-	20	-	-	30	50
- In-country	-	1,200	-	-	-	1,200
2. Loan Capital	-	-	-	-	-	150
3. Seed Rotating Fund	150	-	-	-	-	150
4. Administration	925	400	1,710	85	435	3,555
5. Construction	-	-	75	-	-	75
<u>Subtotal</u>	<u>1,075</u>	<u>1,620</u>	<u>1,785</u>	<u>85</u>	<u>465</u>	<u>5,030</u>
Inflation (15%)	160	240	265	15	70	750
Contingency (5%)	55	80	90	5	20	250
<u>Total GOB</u>	<u>1,290</u>	<u>1,940</u>	<u>2,140</u>	<u>105</u>	<u>555</u>	<u>6,030</u>
Percent	21.4%	32.2%	35.5%	1.7%	9.2%	100.0%
<u>Grand Total</u>	<u>3,110</u>	<u>6,545</u>	<u>6,180</u>	<u>705</u>	<u>2,990</u>	<u>19,530</u>
Percent	15.9%	33.5%	31.7%	3.6%	15.3%	100.0%

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CP 1977

Country: BOLIVIA

LOAN ACTIVITY DATA

TABLE IX

TITLE Agriculture Sector Loan II	FUNDS Food and Nutrition	PROPOSED OBLIGATION (\$000) 8,000
	KIND OF LOAN Project	INITIAL OBLIGATION FY: 1977

Goal

To increase the income and improve the standard of living of the small farmer and his family.

Purpose

To develop and extend new production technologies through the group approach to the small farm sub-sector of the inter-mountain valleys of Southern Bolivia; broaden access to needed imports, information, financing, and markets for small farmers; and improve agricultural education and research programs aimed at the small farmer sub-sector in selected Bolivian universities.

Background

The project will extend the program which is being developed and tested under A.I.D.'s FY 1975 Agriculture Sector loan to additional geographic areas. This program includes the provision of agricultural inputs, information, credit, and markets to the small farmer. This involves creation and strengthening of regional and specific agricultural research and extension programs; expansion of credit funds to meet small farmer credit needs; support for applied university-level agricultural research; and establishment of a basic grains stabilization program.

Major Outputs

(cumulative)	FY 77	FY 78	FY 79	FY 80
	(as of end of FY)			
Equip one Agric. Research Center (Potosi)	X	X		
Construction of one Agric. Serv. Ct. (Tarija)		X	X	
Training Small Farmers	100	600	1,500	2,500
University Faculty & Ministry	3	7	10	15

	FY 77	FY 78	FY 79	FY 80
	(as of end of FY)			
Construction/equipping of one Food Tech. Res. Lab.		X	X	
Construction/equipping of 2 livestock research facil.		X	X	
Construction/equipping of storage & drying facilities	X	X	X	

Host Country and Other Donors

IBRD - \$7.0 million loan for agriculture development in selected areas. IDB - \$2.2 million loan for corn and pork production and feasibility studies for small integrated rural development projects. UNDP - Underground water exploration, construction of an Agricultural Service Center, and a livestock sanitation project. UNICEF - Technical Assistance to implement selected Regional Development Plans. Host Country - 37% of project costs, to include: engineering and construction, the equivalent of \$1.0 million for the agricultural credit fund; and the cost of salaries for participant trainees.

A.I.D. Financed Inputs

	(\$ Thousands)
Agricultural Research	1,050
Agricultural Extension	875
Agricultural Credit	3,900
University Development	1,050
Marketing Development	925
Sector Management Training	200
Total	8,000

The loan will be supported by an increase in an existing companion \$600,000 A.I.D. grant to provide technical advisory services in agricultural extension and research, entitled "Basic Food Production and Marketing."

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ANNEX F

Agriculture Sector II Project

Logical Framework Matrix

A.1 Program or Sector Goal.

- a. Goal: Increase the per capita income and improve the standard of living of Bolivia's rural people.
- b. Subgoal: Increase small farmer incomes in Bolivia's central and southern inter-mountain valleys and developing eastern lowland valleys.

A.2 Measures of Goal Achievement.

- a. Achievement of sustainable average rate of growth of real per capita income in rural areas of 3% per year by 1982.
- b. 1. Increase in the income of farmers participating in the small farmer production and investment credit program in the target area by \$ 263 per year as a result of such participation.
2. Increase in the income of farmers participating in the small farmer land clearing program in the Humid Chaco area of Tarija Department by \$ 500 per year as a result of such participation.

A.3 Means of Verification.

- a. A.I.D.-financed farm policy studies.
- b. Reports and special studies carried out under various A.I.D.-financed agriculture projects.
- c. Data, reports and special studies of MACA offices of Planning, Economics and Statistics.
- d. National account data of Ministry of Planning.

A.4 Assumptions for Achieving Goal (Targets).

- a. Price incentives for food production continue to be favorable.
- b. GOB provides adequate budget support to food production programs in general.
- c. No major downturn in general economic conditions occurs.
- d. Current political stability continues.

B.1 Project Purpose.

- a. Increase the availability to the small farm subsector of needed inputs, particularly land, and improved seed, and provide the small farmer with the production and investment credit required to purchase such inputs. Develop the agriculture sector's human resources and management capability.

B.2 End of Project Status.

- a. Seed Processing and Storage - 3 new and 3 upgraded seed processing and storage facilities in full operation thus increasing Bolivia's certified seed production capacity by 20 MT per day and storage capacity by 550 MT.

B.3 Means of Verification.

- a. BAB data and records on credit programs.
- b. MACA data and records.
- c. University data and records.
- d. MACA and contractor periodic and final reports on Project.
- e. USAID Project Manager periodic site visits.
- f. Other USAID monitoring activities.

B.4 Assumptions for Achieving Purpose.

- a. Local marketing and pricing mechanism provides incentives for increased food production.
- b. Equipment financed and facilities constructed under Project are adequately maintained.

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b. Credit

- 1) Operational small farmer credit program providing production and investment credit to approximately 8,350 small farmers in target area.
- 2) Availability of about 10,000 hectares of additional cleared land to approximately 2,200 small farmers in Humid Chaco area of Tarija Department as result of small farmer land clearing credit program.

c. Human Resource Development -

Improved quality of professional education in agriculture at the Universidad Mayor de San Simón in Cochabamba and the Universidad Mayor Gabriel René Moreno in Santa Cruz.

d. Sectoral Management and Coordination

- 1) Improved sectoral planning, coordination and management at MACA's central level.
- 2) New agricultural service centers for the Departments of Potosí and Tarija in operation.

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C.1 Outputs.

a. Seed Processing and Storage

1) Seed Processing and Storage

Facilities

a) New

b) Upgraded

2) Increased certified seed production capacity (MT)

3) Increased certified seed storage capacity (MT)

4) Counterpart personnel assisted and trained by long-term technical advisors

5) Trained personnel

- Overseas

(1) Academic

(2) Non-academic

b. Credit

1) Operational small farmer production and investment credit program

2) Small farmer participants in production and investment credit program ^{1/}

3) Hectares cleared

4) Small farmer participants in land clearing credit program

5) Counterpart personnel assisted and trained by long-term technical advisors

6) Trained personnel

a) Overseas

- Non-academic

b) In-country

C.2 Magnitude of Outputs.

	1978	1979	1980	1981	1982
1) Seed Processing and Storage Facilities					
a) New	-	-	3	-	-
b) Upgraded	-	-	3	-	-
2) Increased certified seed production capacity (MT)	-	-	20	-	-
3) Increased certified seed storage capacity (MT)	-	-	550	-	-
4) Counterpart personnel assisted and trained by long-term technical advisors	-	-	1	-	-
5) Trained personnel					
- Overseas					
(1) Academic	-	-	1	-	-
(2) Non-academic	2	2	3	3	-
b. Credit					
1) Operational small farmer production and investment credit program	-	x	x	x	x
2) Small farmer participants in production and investment credit program ^{1/}	2,700	4,650	5,700	6,900	8,350
3) Hectares cleared	1,000	2,250	2,250	2,250	2,250
4) Small farmer participants in land clearing credit program	200	500	500	500	500
5) Counterpart personnel assisted and trained by long-term technical advisors	-	-	2	1	-
6) Trained personnel					
a) Overseas					
- Non-academic	-	4	4	2	-
b) In-country	-	10	10	-	-

C.3 Means of Verification.

- a. BAB data and records on credit programs.
- b. MACA data and records.
- c. MACA and contractor periodic and final reports on Project.
- d. USAID Project Manager periodic site visits.
- e. Other USAID monitoring activities.

C.4 Assumptions for Achieving Outputs.

- a. GOB makes budget provision for and provides its inputs on a timely basis.
- b. Adequate number of qualified personnel available for training.

^{1/} Includes Agriculture Sector I program participants.

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	1978	1979	1980	1981	1982
<u>c. Human Resource Development</u>					
1) New National Entomology Laboratory	-	-	-	-	-
2) Trained Personnel					
- Overseas					
- Academic	-	-	6	6	-
<u>d. Sector Management and Coordination</u>					
1) New agricultural service centers	-	-	2	-	-
2) Improved sectoral planning, coordination and management at MACA's central level	-	-	x	x	x
3) Counterpart personnel assisted and trained by long-term technical advisors	-	-	-	2	1
4) Trained personnel					
a) Overseas					
(1) Academic	-	-	-	2	-
(2) Non-academic	-	2	4	2	4
b) In-country	10	10	10	-	-

D.1 Inputs.

a. A.I.D.

	1978	1979	1980	1981	1982
1) <u>Grant</u>					
- Technical Assistance					
- Long-term (222 wm)	-	570	680	400	200
2) <u>Loan</u>					
a) Technical Assistance					
- Short-term (43 wm)	40	95	55	55	35
b) Training					
- Overseas					
(a) Academic (294 wm)	-	50	127	118	-
(b) Non-academic (69 wm)	8	32	37	29	9

D.2 Implementing Target Type and Quantity (U.S.\$ Thou.).

D.3 Means Of Verification.

A.I.D. and GOB project records.

D.4 Assumptions for Providing Inputs.

Inputs will be available when needed.

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	1978	1979	1980	1981	1982
c) Equipment and Vehicles					
(1) Seed Processing Machinery and Equipment	-	55	100	200	-
(2) Other Equipment and Materials	-	660	100	-	-
(3) Vehicles (28)	-	240	-	-	-
d) Loan Capital					
(1) SFCP Regular Fund	500	600	700	800	900
(2) SFCP Land Clearing Fund	245	1,470	245	245	245
e) Seed Rotating Fund	32	32	62	62	62
f) Construction	-	275	480	420	-
Inflation (15%)		All years--1,670			
Contingency (5%)		All years-- 560			
b. <u>GOB</u>					
1) Training					
- In-country	10	20	20	-	-
2) Loan Capital					
- SFCP Regular Fund	170	205	240	275	310
3) Seed Rotating Fund	18	18	38	38	38
4) Administration	394	700	740	769	737
Inflation (15%)		All years--710			
Contingency (5%)		All years--235			
c. <u>CODETAR</u>					
1) Construction	75	-	-	-	-
2) Administration	43	43	43	43	43
Inflation (15%)		All years--40			
Contingency (5%)		All years--15			

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ANNEX 2

AGRICULTURE SECTOR II PROJECT
BAR CHART

1977 1978 1979 1980 1981 1982 1983

I. Seed Processing & Storage

A. Technical Assistance

- 1. Long-term (18 w/m)
- 2. Short-term (10 w/m)

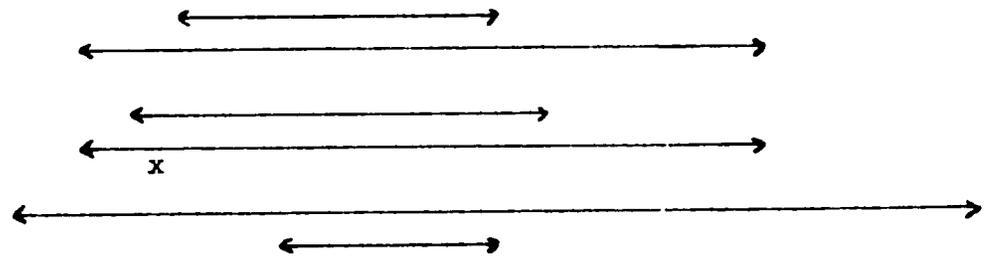
B. Overseas Training

- 1. Academic (18 w/m)
- 2. Non-Academic (24 w/m)

C. Equipment and Vehicles

D. Rotating Fund

E. Construction



II. Small Farmer Credit

A. Production & Investment Credit

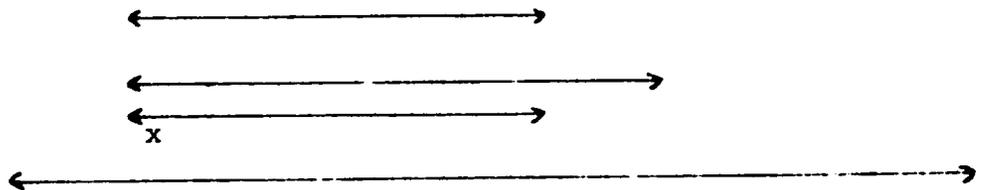
- 1. Technical Assistance
Long-Term (24 w/m)

2. Training

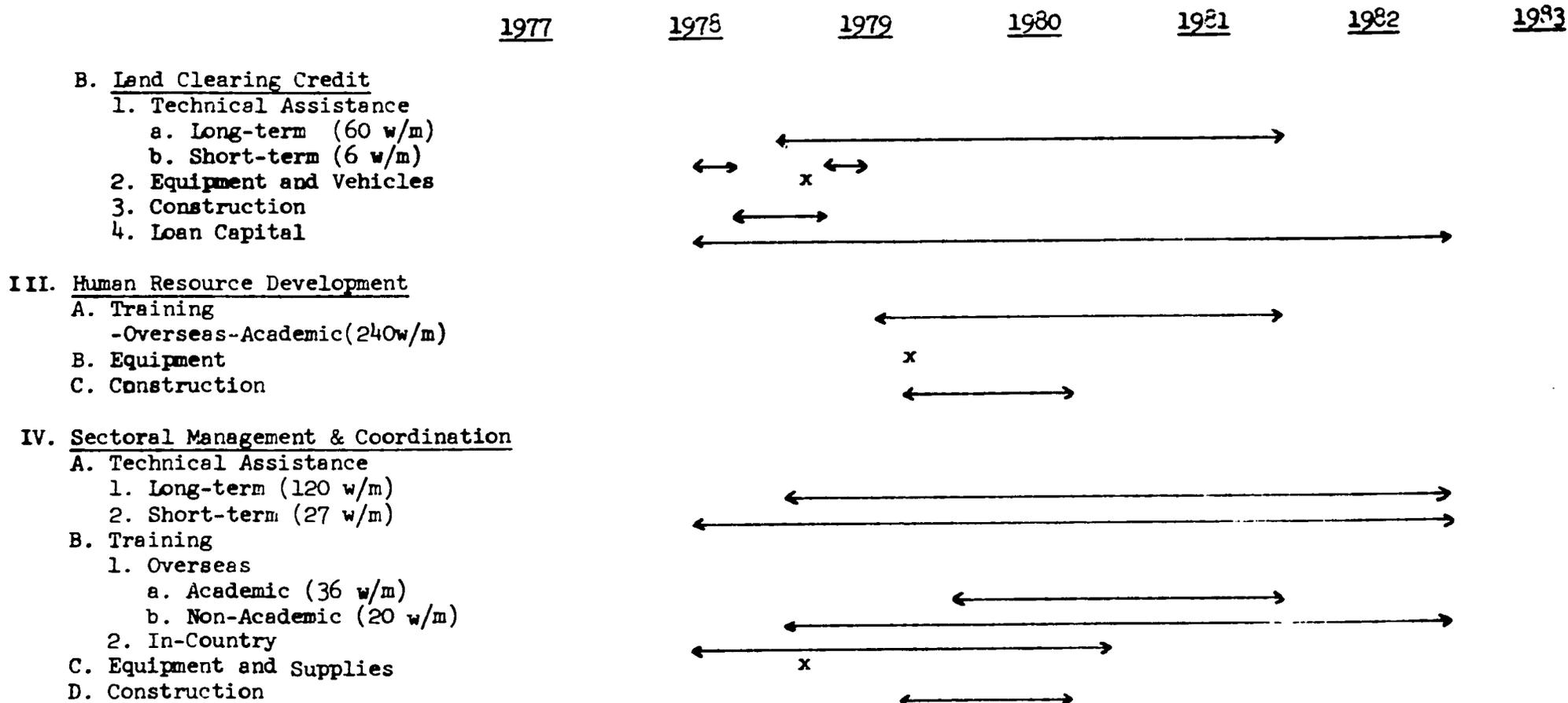
- a. Overseas Non-Degree (25w/m)
- b. In-Country

3. Equipment and Vehicles

4. Loan Capital



15/6/79



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ANNEX H

Agriculture Sector II Project

Statutory Checklist

I. COUNTRY CHECKLIST

A. GENERAL CRITERIA FOR COUNTRY

1. FAA Sec. 116. Can it be demonstrated that contemplated assistance will directly benefit the needy? If not, has the Department of State determined that this government has engaged in consistent pattern of gross violations of internationally recognized human rights? Yes, project is specifically designed to benefit the rural poor.

2. FAA Sec. 481. Has it been determined that the government of recipient country has failed to take adequate steps to prevent narcotics drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully? No.

3. FAA Sec. 620(a). Does recipient country furnish assistance to Cuba or fail to take appropriate steps to prevent ships or aircraft under its flag from carrying cargoes to or from Cuba? No.

4. FAA Sec. 620(b). If assistance is to a government, has the Secretary of State determined that it is not controlled by the international Communist movement? Yes.

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6. FAA Sec. 620(c). If assistance is to government, is the government liable as debtor or unconditional guarantor on any debt to a U.S. citizen for goods or services furnished or ordered where (a) such citizen has exhausted available legal remedies and (b) debt is not denied or contested by such government? No.
6. FAA Sec. 620(e) (1). If assistance is to a government, has it (including government agencies or subdivisions) taken any action which has the effect of nationalizing, expropriating, or otherwise seizing ownership or control of property of U.S. citizens or entities beneficially owned by them without taking steps to discharge its obligations toward such citizens or entities? No.
7. FAA Sec. 620(f); App. Sec. 108. Is recipient country a Communist country? Will assistance be provided to the Democratic Republic of Vietnam (North Vietnam), South Vietnam, Cambodia or Laos? No.
8. FAA Sec. 620(i). Is recipient country in any way involved in (a) subversion of, or military aggression against, the United States or any country receiving U.S. assistance, or (b) the planning of such subversion or aggression? No.
9. FAA Sec. 620(j). Has the country permitted, or failed to take adequate measures to prevent, the damage or destruction, by mob action, of U.S. property? No.

10. FAA Sec. 620(1). If the country has failed to institute the investment guaranty program for the specific risks of expropriation, inconvertibility or confiscation, has the AID Administrator within the past year considered denying assistance to such government for this reason?

Bolivia has instituted the investment guaranty program.

11. FAA Sec. 620(o); Fishermen's Protective Act, Sec. 5. If country has seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters,

Bolivia has taken no such actions.

a. has any deduction required by Fishermen's Protective Act been made?

b. has complete denial of assistance been considered by AID Administrator?

No.

12. FAA Sec. 620(q); App. Sec. 504. (a) Is the government of the recipient country in default on interest or principal of any AID loan to the country? (b) Is country in default exceeding one year on interest or principal on U.S. loan under program for which App. Act appropriates funds, unless debt was earlier disputed, or appropriate steps taken to cure default?

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

The CY 1977 Budget for military purposes represents approximately 17% of total budgeted expenditures of the GOB. Approximately \$1.4 million has been budgeted for the purchase of non-sophisticated military equipment.

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14. FAA Sec. 620(t). Has the country severed diplomatic relations with the United States? If so, have they been resumed and have new bilateral assistance agreements been negotiated and entered into since such resumption? No.
15. FAA Sec. 620(u). What is the payment status of the country's U.N. obligations? If the country is in arrears, were such arrearages taken into account by the AID Administrator in determining the current AID Operational Year Budget? Bolivia is not in arrears.
16. FAA Sec. 620A. Has the country granted sanctuary from prosecution to any individual or group which has committed an act of international terrorism? No.
17. FAA Sec. 666. Does the country object, on basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. there to carry out economic development program under FAA? No.
18. FAA Sec. 669. Has the country delivered or received nuclear reprocessing or enrichment equipment, materials or technology, without specified arrangements on safeguards, etc.? No.
19. FAA Sec. 901. Has the country denied its citizens the right or opportunity to emigrate? No.

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B. FUNDING CRITERIA FOR COUNTRY

1. Development Assistance Country
Criteria

a. FAA Sec. 102(c), (d). Have criteria been established, and taken into account, to assess commitment and progress of country in effectively involving the poor in development, on such indexes as: (1) small-farm labor intensive agriculture, (2) reduced infant mortality, (3) population growth, (4) equality of income distribution, and (5) unemployment.

Yes.

b. FAA Sec. 201(b)(5), (7) & (8);
Sec. 208; 211(a)(4), (7). Describe extent to which country is:

- (1) Making appropriate efforts to increase food production and improve means for food storage and distribution.
- (2) Creating a favorable climate for foreign and domestic private enterprise and investment.
- (3) Increasing the public's role in the developmental process.
- (4) (a) Allocating available budgetary resources to development.

Bolivia is making appropriate efforts with respect to food production, storage, and distribution. AID Loans 511-L-042, 511-T-050, 511-T-052, 511-T-053, 511-T-056 and this loan will contribute to these efforts.

The GOB program emphasized creation of a favorable climate for selected foreign and domestic private enterprise and investment. It is seeking special exemption within the Andean Economic Market for certain investments.

The GOB continues to take in active role in the development process and in so doing to increase popular participation.

(b) Diverting such resources for unnecessary military expenditure and intervention in affairs of other free and independent nations.

The GOB is not interfering in the affairs of other free and independent nations.

- (5) Making economic, social, and political reforms such as tax collection improvements and changes in land tenure arrangements, and making progress toward respect for the rule of law, freedom of expression and of the press, and recognizing the importance of individual

The GOB is making these efforts.

freedom, initiative, and private enterprise.

- (c) otherwise responding to the vital economic, political, and social concerns of its people, and demonstrating a clear determination to take effective self-help measures.

The 2003 appears to be doing this in an increasing effective this manner.

- c. FAA Sec. 201(b), 211(a). Is the country among the 20 countries in which development assistance loans may be made in this fiscal year, or among the 40 in which development assistance grants (other than for self-help projects) may be made?

Yes.

- d. FAA Sec. 115. Will country be furnished, in same fiscal year, either security supporting assistance, or Middle East peace funds? If so, is assistance for population programs, humanitarian aid through international organizations, or regional programs?

No.

2. Security Supporting Assistance Country Criteria

N.A.

- a. FAA Sec. 502B. Has the country engaged in a consistent pattern of gross violations of internationally recognized human rights? Is program in accordance with policy of this Section?

N.A.

- b. FAA Sec. 531. Is the assistance to be furnished to a friendly country, organization, or body eligible to receive assistance?

N.A.

- c. FAA Sec. 609. If commodities are to be granted so that sale proceeds will accrue to the recipient country, have Special Account (counterpart) arrangements been made?

II. PROJECT CHECKLIST

A. GENERAL CRITERIA FOR PROJECT

1. App. Unnumbered; FAA Sec. 613(b)

(a) Describe how Committees on Appropriations of Senate and House have been or will be notified concerning the project; (b) is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than \$1 million over that figure plus _____)

(a) Congress will be notified using standard notification procedures.

(b) Yes.

2. FAA Sec. 611(a)(1). Prior to obligation in excess of \$100,000, will there be (a) engineering, financial, and other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?

Such planning has taken place and cost estimates made.

3. FAA Sec. 611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectation that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?

Ratification of loan agreement by GOR will follow shortly after signature as in all cases of past loan agreements.

4. FAA Sec. 611(b); App. Sec. 101. If for water or water-related land resource construction, has project met the standards and criteria as per Memorandum of the President dated Sept. 5, 1973 (replaces Memorandum of May 15, 1962; see Fed. Register, Vol 38, No. 174, Part III, Sept. 10, 1973)?

N.A.

5. FAA Sec. 201(c). If project is capital assistance (e.g., construction), and all U.S. assistance for it will exceed \$1 million, has Mission Director certified the country's capability effectively to maintain and utilize the project? Yes.
6. FAA Sec. 209, 619. Is project susceptible of execution as part of regional or multilateral project? If so why is project not so executed? Information and conclusion whether assistance will encourage regional development programs. If assistance is for newly independent country, is it furnished through multilateral organizations or plans to the maximum extent appropriate? No.
7. FAA Sec. 601(a); (and Sec. 201(f) for development loans). Information and conclusions whether project will encourage efforts of the country to: (a) increase the flow of international trade; (b) foster private initiative and competition; (c) encourage development and use of cooperatives, credit unions, and savings and loan associations; (d) discourage monopolistic practices; (e) improve technical efficiency of industry, agriculture and commerce, and (f) strengthen free labor unions. The Project will increase the technical efficiency of agriculture by helping to alleviate deficiencies in technology, public services, factor and product markets, and human capital.
8. FAA Sec. 601(b). Information and conclusion on how project will encourage U.S. private trade and investment abroad and encourage private U.S. participation in foreign assistance programs (including use of private trade channels and the services of U.S. private enterprise). Project will have limited effect in this area except for sales of goods by private U.S. suppliers.

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9. FAA Sec. 612(b); Sec. 636(h). Describe steps taken to assure that, to the maximum extent possible, the country is contributing local currencies to meet the cost of contractual and other services, and foreign currencies owned by the U.S. are utilized to meet the cost of contractual and other services.

Bolivia will make contribution in excess of 25% of project costs.

10. FAA Sec. 612(d). Does the U.S. own excess foreign currency and, if so, what arrangements have been made for its release?

The U.S. does not own excess foreign currency in Bolivia.

B. FUNDING CRITERIA FOR PROJECT

1. Development Assistance Project Criteria

9. FAA Sec. 102(c); Sec. 111; Sec. 281a. Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production, spreading investment out from cities to small towns and rural areas; and (b) help develop cooperatives, especially by technical assistance, to assist rural and urban poor to help themselves toward better life, and otherwise encourage democratic private and local governmental institutions?

Project is specifically designed to involve rural farmers in improving agricultural practices.

10. FAA Sec. 103, 103A, 104, 105, 106, 107. Is assistance being made available: (include only applicable paragraph -- e.g., a, b, etc. -- which corresponds to source of funds used. If more than one fund source is used for project, include relevant paragraph for each fund source.)

- (1) (103) for agriculture, rural development or nutrition; if so, extent to which activity is specifically designed to increase productivity and income of rural poor; (103A) if for agricultural research, is full account taken of needs of small farmers;
- Project designed to improve agricultural practices of small farmers. All research undertaken will be oriented toward small farm production.
- (2) (104) for population planning or health; if so, extent to which activity extends low-cost, integrated delivery systems to provide health and family planning services, especially to rural areas and poor;
- N.A.
- (3) (105) for education, public administration, or human resources development; if so, extent to which activity strengthens nonformal education, makes formal education more relevant, especially for rural families and urban poor, or strengthens management capability of institutions enabling the poor to participate in development;
- N.A.
- (4) (106) for technical assistance, energy, research, reconstruction, and selected development problems; if so, extent activity is:
- N.A.
- (a) technical cooperation and development, especially with U.S. private and voluntary, or regional and international development, organizations;
- (b) to help alleviate energy problem;
- (c) research into, and evaluation of, economic development processes and techniques;

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(d) reconstruction after natural or manmade disaster;

(e) for special development problem, and to enable proper utilization of earlier U.S. infrastructure, etc., assistance;

(f) for programs of urban development, especially small labor-intensive enterprises, marketing systems, and financial or other institutions to help urban poor participate in economic and social development.

(4) (107) by grants for coordinated private effort to develop and disseminate intermediate technologies appropriate for developing countries.

N.A.

c. FAA Sec. 110(a); Sec. 208(e). Is the recipient country willing to contribute funds to the project, and in what manner has or will it provide assurances that it will provide at least 25% of the costs of the program, project, or activity with respect to which the assistance is to be furnished (or has the latter cost-sharing requirement been waived for a "relatively least-developed" country)?

Bolivia has agreed to provide at least 25% of the costs of the project and agreed project budget so reflects.

d. FAA Sec. 110(b). Will grant capital assistance be disbursed for project over more than 3 years? If so, has justification satisfactory to Congress been made, and efforts for other financing?

N.A.

e. FAA Sec. 207; Sec. 113. Extent to which assistance reflects appropriate emphasis on; (1) encouraging development of democratic, economic, political, and social institutions; (2) self-help in meeting the country's food needs;

Local community organizations to play important role in project implementation.

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(v) improving availability of trained worker-power in the country; (4) programs designed to meet the country's health needs; (5) other important areas of economic, political, and social development, including industry; free labor unions, cooperatives, and Voluntary Agencies; transportation and communication; planning and public administration; urban development, and modernization of existing laws; or (6) integrating women into the recipient country's national economy.

F. FAA Sec. 281(b). Describe extent to which program recognizes the particular needs, desires, and capacities of the people of the country; utilizes the country's intellectual resources to encourage institutional development; and supports civic education and training in skills required for effective participation in governmental and political processes essential to self-government.

Project will provided needed agricultural assistance and training to small farmers and will improve the human resource base in agriculturally related services.

F. FAA Sec. 201(b)(2)-(4) and (8); Sec. 201(e); Sec. 211(a)(1)-(3) and (8). Does the activity give reasonable promise of contributing to the development; of economic resources, or to the increase of productive capacities and self-sustaining economic growth; or of educational or other institutions directed toward social progress? Is it related to and consistent with other development activities, and will it contribute to realizable long-range objectives? And does project paper provide information and conclusion on an activity's economic and technical soundness?

Yes, increases in small farmers agricultural production is basic to production capacities of the rural population.

h. FAA Sec. 201(b)(6); Sec. 211 (a)(6), (6). Information and conclusion on possible effects of the assistance on U.S. economy, with special reference to areas of substantial labor surplus, and extent to which U.S. commodities and assistance are furnished in a manner consistent with improving or safeguarding the U.S. balance-of-payments position.

U.S. suppliers will be eligible to supply commodities for the Project.

2. Development Assistance Project
Criteria (Loans only)

No other financing sources available for this Project in this area of Bolivia.

a. FAA Sec. 201(b)(1). Information and conclusion on availability of financing from other free-world sources, including private sources within U.S.

b. FAA Sec. 201(b)(2); 201(d). Information and conclusion on (1) capacity of the country to repay the loan, including reasonableness of repayment prospects, and (2) reasonableness and legality (under laws of country and U.S.) of lending and relending terms of the loan.

Lending terms are legal under U.S. and Bolivian Law. Loan is within debt-carrying capacity of Bolivia.

c. FAA Sec. 201(e). If loan is not made pursuant to a multilateral plan, and the amount of the loan exceeds \$100,000, has country submitted to AID an application for such funds together with assurances to indicate that funds will be used in an economically and technically sound manner?

Yes.

d. FAA Sec. 201(f). Does project paper describe how project will promote the country's economic development taking into account the country's human and material resources requirements and relationship between ultimate objectives of the project and overall economic development?

Yes.

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e. FAA Sec. 202(a). Total amount of money under loan which is going directly to private enterprise, is going to intermediate credit institutions or other borrowers for use by private enterprise, is being used to finance imports from private sources, or is otherwise being used to finance procurements from private sources?

More than seven million dollars is expected to be used to finance procurements from private sources.

f. FAA Sec. 620(d). If assistance is for any productive enterprise which will compete in the U.S. with U.S. enterprise, is there an agreement by the recipient country to prevent export to the U.S. of more than 20% of the enterprise's annual production during the life of the loan?

Not Applicable.

3. Project Criteria Solely for Security Supporting Assistance

N.A.

FAA Sec. 531. How will this assistance support promote economic or political stability?

4. Additional Criteria for Alliance for Progress

(Note: Alliance for Progress projects should add the following two items to a project checklist.)

a. FAA Sec. 251(b)(1), -(8). Does assistance take into account principles of the Act of Bogota and the Charter of Punta del Este; and to what extent will the activity contribute to the economic or political integration of Latin America?

Yes. Integration effect is minimal.

b. FAA Sec. 251(b)(8); 251(h). For loans, has there been taken into account the effort made by recipient nation to repatriate capital invested in other countries

Yes.

by their own citizens? Is loan consistent with the findings and recommendations of the Inter-American Committee for the Alliance for Progress (now "CECUCES," the Permanent Executive Committee of the OAS) in its annual review of national development activities?

Yes.

III. STANDARD ITEM CHECKLIST

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small business to participate equitably in the furnishing of goods and services financed?

Yes, loan agreement and implementation procedures will so provide.

2. FAA Sec. 604(a). Will all commodity procurement financed be from the U.S. except as otherwise determined by the President or under delegation from him?

Yes.

3. FAA Sec. 604(d). If the cooperating country discriminates against U.S. marine insurance companies, will agreement require that marine insurance be placed in the U.S. on commodities financed?

Bolivia does not so discriminate.

4. FAA Sec. 604(e). If offshore procurement of agricultural commodity or product is to be financed, is there provision against such procurement when the domestic price of such commodity is less than parity?

Not Applicable.

5. FAA Sec. 608(a). Will U.S. Government excess personal property be utilized wherever practicable in lieu of the procurement of new items?

Yes.

6. FAA Sec. 901(b). (a) Compliance with requirement that at least 50 per centum of the gross tonnage of commodities (computed separately for dry bulk carriers, dry cargo liners, and tankers) financed shall be transported on privately owned U.S.-flag commercial vessels to the extent that such vessels are available at fair and reasonable rates. Yes, loan agreement will so provide.
7. FAA Sec. 621. If technical assistance is financed, will such assistance be furnished to the fullest extent practicable as goods and professional and other services from private enterprise on a contract basis? If the facilities of other Federal agencies will be utilized, are they particularly suitable, not competitive with private enterprise, and made available without undue interference with domestic programs? Yes.
8. International Air Transport. Fair Competitive Practices Act, 1974 Yes.
If air transportation of persons or property is financed on grant basis, will provision be made that U.S.-flag carriers will be utilized to the extent such service is available?
- B. Construction
1. FAA Sec. 601(d). If a capital (e. g., construction) project, are engineering and professional services of U.S. firms and their affiliates to be used to the maximum extent consistent with the national interest? Yes.
2. FAA Sec. 611(c). If contracts for construction are to be financed, will they be let on a competitive basis to maximum extent practicable? Yes.
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3. FAA Sec. 620(k). If for construction of productive enterprise, will aggregate value of assistance to be furnished by the U.S. not exceed \$100 million? Yes.

C. Other Restrictions

1. FAA Sec. 201(d). If development loan, is interest rate at least 2% per annum during grace period and at least 3% per annum thereafter? Yes.
2. FAA Sec. 301(d). If fund is established solely by U.S. contributions and administered by an international organization, does Comptroller General have audit rights? Not Applicable.
3. FAA Sec. 620(h). Do arrangements preclude promoting or assisting the foreign aid projects or activities of Communist-Bloc countries, contrary to the best interests of the U.S.? Yes.
4. FAA Sec. 630(i). Is financing not permitted to be used, without waiver, for purchase, long-term lease, or exchange of motor vehicle manufactured outside the U.S. or guaranty of such transaction? Yes.
- Will arrangements preclude use of financing:
- a. FAA Sec. 114. to pay for performance of abortions or to motivate or coerce persons to practice abortions? Yes.
- b. FAA Sec. 620(g). to compensate owners for expropriated nationalized property? Yes.

- c. FAA Sec. 660. to finance police training or other law enforcement assistance, except for narcotics programs? Yes.
- d. FAA Sec. 662. for CIA activities? Yes.
- e. App. Sec. 103. to pay pensions, etc., for military personnel? Yes.
- f. App. Sec. 106. to pay U.N. assessments? Yes.
- g. App. Sec. 107. to carry out provisions of FAA Sections 209(d) and 251(h)? (transfer to multilateral organization for lending). Yes.
- h. App. Sec. 501. to be used for publicity or propaganda purposes within U.S. not authorized by Congress? Yes.

ANNEX I

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

I, Frank B. Kimball, the principal officer of the Agency for International Development in Bolivia, having taken into account, among other factors, the maintenance and utilization of projects in Bolivia previously financed or assisted by the United States, do hereby certify that in my judgment Bolivia has both the financial and human resources capability to effectively maintain and utilize the capital assistance project for agricultural development activities titled: AGRICULTURE SECTOR II.



Frank B. Kimball
Director, USAID/Bolivia



ANNEX J

Government of Bolivia Application for Assistance

MINISTERIO DE FINANZAS
BOLIVIA

La Paz, 24 AGO 1977

Señor

Frank B. Kimball
Director de la Misión Económica de los
Estados Unidos en Bolivia

Presente

Estimado señor Kimball:

REF: Solicitud de Asistencia Financiera Externa de A.I.D. para el Programa de Desarrollo Sectorial N° II.

El Gobierno de Bolivia mediante el Ministerio de Asuntos Campesinos y Agropecuarios ha desarrollado un programa cuyo objetivo primordial es el de incrementar el ingreso per capita y el nivel de vida del campesinado boliviano. Este programa extenderá el radio de acción geográfica del Proyecto Sectorial I para incluir la región de los valles ubicados en la zona sur del país, a saber, los Departamentos de Chuquisaca, Potosí y Tarija.

El propósito específico del programa es el de incrementar la disponibilidad de insumos necesarios para el sector de los pequeños agricultores, particularmente habilitación de tierras agrícolas, riego, semillas mejoradas, y crédito de inversión y producción requeridos para adquirir estos insumos. El desarrollo de los recursos humanos al servicio del sector agropecuario y el mejoramiento de la planificación, coordinación, y gerencia del sector público agropecuario también formarán parte del programa.

El programa constará de cinco partes:

- a) El incremento en la capacidad de producción y almacenamiento del Programa Nacional de Semillas;
- b) Un estudio básico del sub-sector de mini-riego y mediano tamaño que incluirá un programa de acción para su desarrollo en los próximos siete a diez años, y la capacidad instalada para mejorar la calidad y disponibilidad de datos meteorológicos, hidráulicos, y geológicos en

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MINISTERIO DE FINANZAS
BOLIVIA

áreas con potencial para sistemas pequeños medianos de riego.

- c) La ampliación del Programa de Crédito para pequeños Agricultores operado por el Banco Agrícola bajo el préstamo Sectorial I, extendiéndolo a la zona sud del país. Este mismo renglón también financiará el desmonte de aproximadamente 10.000 hectáreas de tierras agrícolas adjudicadas a pequeños agricultores del Chaco Húmedo en el departamento de Tarija.
- d) La modernización parcial del equipo de laboratorio, aulas y trabajo de campo para las facultades de ciencias agrícolas de las universidades de San Simón de Cochabamba y Gabriel René Moreno de Santa Cruz de la Sierra y la provisión de estudios de post-grado para los catedráticos más sobresalientes de estas facultades.
- e) El reforzamiento de las actividades de planificación, coordinación y gerencia del sector público agropecuario a través del perfeccionamiento de los sistemas de recolección de datos y su manejo; el refinamiento de los métodos de planificación y control de ejecución; y la modernización de los sistemas administrativos del sector. Asimismo, con el fin de mejorar la coordinación y gestión del sector público agropecuario a nivel departamental, se establecerán "Centros de Servicio Agrícola" - en Tarija y Potosí que centralizarán bajo el mismo techo todas las entidades de MACA activas en esas regiones.

Con el fin de respaldar este programa el Gobierno de Bolivia está dispuesto a tomar las siguientes medidas:

1. Asignar los presupuestos de las instituciones del sector público agrícola en niveles adecuados para permitir reclutar y retener profesionales de demostrada capacidad dándoles los emolumentos merecidos; aumentar el personal en las actividades de semillas, riego, y planificación donde existen déficits de técnicos; más el cumplimiento con los requisitos de aportes - en un mínimo del 25% como contrapartida a los fondos de A.I.D. par asegurar el efectivo y eficiente desenvolvimiento de las operaciones programadas durante el periodo de desembolso del -

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MINISTERIO DE FINANZAS
BOLIVIA

préstamo y su oportuna continuación después de la terminación del Programa de Desarrollo Sectorial..

El Gobierno de Bolivia se encuentra en las etapas finales de formulación de Planes Operativos para 1978 en los cuales se establecerán las asignaciones presupuestarias convenidas.

2.- Continuar los esfuerzos ya en marcha tendientes a mejorar los sistemas y procedimientos administrativos, presupuestarios, contables de planificación y control de ejecución del Ministerio de Asuntos Campesinos y Agropecuarios y de sus organismos descentralizados.

3.- Seguir apoyando la reforma administrativa del Banco Agrícola de Bolivia con especial énfasis en el fortalecimiento y agilización de los servicios destinados al pequeño agricultor.

El costo total de este programa, a ejecutarse en un período de cinco años, se estima en \$us.22.195.000 de los cuales el Gobierno de Bolivia se compromete a aportar \$us. 6.695.000.- y solicita de la Misión a su digno cargo un préstamo de \$us. 12.500.000 y una donación complementaria de \$us. 3.000.000.

Entendemos que los plazos acostumbrados seguirán vigentes, tales como, cuarenta años con un período de gracia de diez años y un interés anual del 2% durante el período de gracia y 3% por los siguientes treinta años.

En la seguridad de que nuestra solicitud pueda ser considerada y atendida favorablemente, y agradeciéndole por su atención, nos es grato expresarle las muestras de nuestra consideración y estima.

Cnl. DEM. Alberto Natusch Busch
Ministro de Asuntos Campesinos
y Agropecuarios

Lic. Carlos Calvo
Ministro de Finanzas

DRAFT PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

Name of Country: Bolivia
Name of Project: Agriculture Sector II
Project Number :

Pursuant to Part I, Chapter 1, Section 103 of the Foreign Assistance Act of 1961, as amended, and in furtherance of the Alliance for Progress, I hereby authorize a loan in an amount not to exceed Twelve Million Five Hundred Thousand United States Dollars (\$12,500,000) (the "Loan") to the Republic of Bolivia ("Government of Bolivia") to assist in financing certain foreign exchange and local currency costs of goods and services required for the project (the "Project") which consists of (1) seed processing and storage facilities; (2) agricultural credit for production, investment and land clearing; (3) human resources development; and (4) agriculture sector management and coordination.

The entire amount of the Loan financing herein authorized for the Project will be obligated when the Project Agreement is executed.

I approve the total level of AID appropriated funding planned for the grant-funded portion of the Project of not to exceed Three Million United States Dollars (\$3,000,000) (the "Grant"), during the period FY 1978 through FY 1982 subject to the availability of funds in accordance with AID allotment procedures. I approve no obligation of the Grant in FY 1977 upon the signing of the Project Agreement.

I hereby authorize the negotiation and execution of the Project Agreement by the officer to whom such authority has been delegated in accordance with AID regulations and delegations of authority, subject to the following essential terms, covenants and major conditions together with such other terms and conditions as AID may deem appropriate:

1. Interest Rate and Terms of Repayment (Loan)

The Government of Bolivia shall repay the Loan to A.I.D. in United States Dollars within forty (40) years from the date of first disbursement of the loan, including a grace period of not to exceed ten (10) years. The Government of Bolivia shall pay to A.I.D. in United States Dollars interest from the date of first disbursement of the Loan at the rate of (a) two percent (2%) per annum during the first ten (10) years, and (b) three percent (3%) per annum thereafter, on the outstanding disbursed balance of the Loan and on any due and unpaid interest accrued thereon.

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7. Source and Origin of Goods and Services (Loan)

Except as A.I.D. may otherwise agree in writing, goods and services financed by A.I.D. for the loan shall have their source and origin in countries included in A.I.D. Geographic Code 941 or in Bolivia, with the exception of ocean shipping financed for the Loan which shall be procured in any eligible source country except Bolivia.

8. Source and Origin of Goods and Services (Grant)

Except as A.I.D. may otherwise agree in writing, goods and services financed by A.I.D. for the Grant shall have their source and origin in countries included in A.I.D. Geographic Code 000.

9. Conditions Precedent to Initial Disbursement

Prior to any disbursement or to the issuance of any commitment documents under the Project Agreement, the Government of Bolivia shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

- (i) a legal opinion of the Attorney General of Bolivia or other legal counsel acceptable to A.I.D. to the effect that the Project Agreement has been duly authorized and/or ratified by the Government of Bolivia and executed on its behalf and that it constitutes a valid and legally binding obligation of the Government of Bolivia, in accordance with all its terms; and
- (ii) a certified statement of the name of the person(s) authorized under the Project Agreement to act as the Government of Bolivia's representative under the Project Agreement with authenticated specimen signatures of said representatives.

10. Conditions Precedent to Disbursements Other Than for Technical Assistance

Except as A.I.D. may otherwise agree in writing, prior to any disbursement or the issuance of any commitment documents under the Project Agreement, to finance other than technical assistance, the Government of Bolivia shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

- (i) a financial plan for the Project specifying the amount and timing of the Government of Bolivia's contributions during the life of the Project;
- (ii) a time-phased implementation plan including all Project activities;
- (iii) a plan for the maintenance of vehicles and equipment procured with Loan funds.

Conditions Precedent to Disbursement for Credit Fund Capitalization

Except as A.I.D. may otherwise agree in writing, prior to any disbursement or the issuance of any commitment documents under the Project Agreement to finance credit fund capitalization, the Government of Bolivia shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

- (i) evidence of the adoption by the Bolivian Agricultural Bank ("BAB") of the simplified small farmer loan application form for both the Agriculture Sector I project credit program and the credit programs included in this Project;
- (ii) a plan for the simplification of the BAB small farmer loan application processing procedure for both the Agriculture Sector I project credit program and the credit programs included in this Project; and
- (iii) a plan for ensuring that the Corporación Boliviana de Fomento ("CBF") edible oil processing plant at Villamontes pays farmers in cash for their peanuts and soybeans at the time of delivery.

7. Conditions Precedent to Disbursement for Any Individual Construction Subproject

Except as A.I.D. may otherwise agree in writing, prior to any disbursement or the issuance of any commitment documents under the Project Agreement to finance any individual construction subproject, the Government of Bolivia shall furnish to A.I.D. in form and substance satisfactory to A.I.D.:

- (i) evidence of clear title to the land upon which construction is to take place;
- (ii) final plans and specifications, bid documents, bid awards and contracts for construction for the individual subprojects;
- (iii) a maintenance plan for the facilities to be constructed.

8. Special Covenants

Except as A.I.D. may otherwise agree in writing, the Government of Bolivia shall covenant that:

- (i) adequate operational budgets will be provided to all Government of Bolivia agencies actively involved in the Project;

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- (ii) the full value of the small farmer lending funds under the Project will be maintained and repayments to such funds will be utilized for relending to eligible small farmers for production and investment credit;
- (iii) an effective program of maintenance and repair, including necessary funding therefor, will be carried out for all equipment provided and facilities constructed under the Project.

Administrator

Date

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