PROJECT DATA SHEET

A = Add, C = Change, D = Delete: A

Amendment Number

CODE 3

2. COUNTRY/ENTITY: BOLIVIA

3. PROJECT NUMBER: 511-0543

4. BUREAU/OFFICE: LA 05

5. PROJECT TITLE (maximum 40 characters): CHAPARE REGIONAL DEVELOPMENT

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 08 DD 31 YY 88

7. ESTIMATED DATE OF OBLIGATION (Under 'B.' below, enter 1, 2, 3, or 4)

A. Initial FY 83 B. Quarter 2 C. Final FY 88

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total						
(Grant)	(1,143)	( )	(1,143)	(4,400)	(-)	(4,400
(Loan)	(4,394)	(2,098)	(6,492)	(5,310)	(4,690)	(10,000
Other U.S. 1.						
Other U.S. 2.						
Host Country		11,712	11,712		21,863	21,863
Other Donor(s)						
TOTALS	5,537	13,810	19,347	9,710	26,553	36,263

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1) FN	253 B	210	210	—	—	1,000	10,000	4,400	10,000
(2)									
(3)									
(4)									
TOTALS				—	—	1,000	10,000	4,400	10,000

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 140 150 070 240 210

11. SECONDARY PURPOSE CO

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	BS	BR					
B. Amount	-	-	-				

13. PROJECT PURPOSE (maximum 480 characters)

To modify and improve the agricultural and forestry production system of farmers in the Chapare to respond better to diverse, profitable marketing opportunities provided under sustained, environmentally compatible, medium technology production models.

14. SCHEDULED EVALUATIONS

Interim MM 12 YY 85 MM 12 YY 86 Final MM 08 YY 88

15. SOURCE/ORIGIN OF GOODS AND SERVICES

☒ 000 ☒ 941 ☒ Local ☐ Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a ____ page PP Amendment.)

17. APPROVED BY

Signature

Title: Henry H. Bassford, Mission Director

Date Signed: MM 05 DD 31 YY 83

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTI

MM DD YY

AID 1330-4 (8-79)

ACRONYMS USED IN THE PROJECT PAPER

ABD	=	All But Degree
AC	=	Agropecuaria Copacabana
AFP	=	Agricultural and Forestry Production
AID	=	Agency for International Development
APL	=	Milk Producers Association of Cochabamba
BCB	=	Central Bank of Bolivia
BC	=	Bank of Cochabamba
CDF	=	National Forestry Department
CDSS	=	Country Development Strategy Statement
CIAT	=	International Tropical Agricultural Center
CIFEMA	=	Center for Investigation, Development and Extension in Agricultural Mechanization
COPLACO	=	Regional Committee for Agricultural Planning and Coordination
CORDECO	=	Regional Development Corporation of Cochabamba
CP	=	Condition Precedent
ENDE	=	National Power Company
ERBOL	=	Radio School of Bolivia
FAO	=	Food and Agricultural Organization of the United Nations
FCC	=	Federation of Chimore Colonists
FEAT	=	Special Agricultural Federation of the Tropical Chapare
FENACRE	=	National Federation of Savings and Loan Cooperatives
GOB	=	Government of Bolivia
HPI	=	Heifer Project International
IBTA	=	Bolivian Institute of Agricultural Technology
ICI	=	Intermediate Credit Institution
IDB	=	Inter-American Development Bank
IC	=	Integral Cooperatives
IICA	=	Inter-American Agricultural Sciences Institute
IMF	=	International Monetary Fund
IMPA	=	Agglomerated Wood Industry

INC	=	National Colonization Institute
INM	=	Bureau for International Narcotics Matters
INALCO	=	National Institute of Cooperatives
IRR	=	Internal Rate of Return
LDF	=	Livestock Development Fund
MACA	=	Ministry of Campesino Affairs and Agriculture
MPC	=	Ministry of Planning and Coordination
MR	=	Micro-Region
NDCDS	=	National Directorate for the Control of Dangerous Substances
NPV	=	Net Present Value
OCC	=	Opportunity Cost of Capital
ONCICOOP	=	National Office of Integral Cooperatives
PACD	=	Project Activity Completion Date
PL 480	=	United States Public Law 480
PRODES	=	Project for the Development of the Chapare and Yungas
PS	=	Private Sector
SDBT	=	Secretariat for the Development of the Bolivian Tropics
SNDC	=	National Community Development Service
SNC	=	National Road Service
SNRA	=	National Service for Agrarian Reform
SSB	=	Single Sideband
USAID/B	=	United States Agency for International Development/Bolivia

PROJECT PAPER

CHAPARE REGIONAL DEVELOPMENT

TABLE OF CONTENTS

		Page
PART I.	Summary and Recommendations	1
	A. Face Sheet	
	B. Recommendations	4
	C. Project Development Team	4
PART II.	Project Rationale/Background and Description	6
	A. Country Setting	6
	1. Economic	6
	2. Agriculture	6
	B. Project Setting	8
	1. General	7
	2. Agricultural Overview	11
	3. Project Beneficiaries	13
	C. Bolivia and the Coca Problem	15
	1. Coca Production and the Illegal Market	15
	2. Development Obstacle	16
	3. Control Plan	18
	a. Background	18
	b. Development of a Control Plan	18
	c. Linkage Between Progress on Coca Control and the Disbursement of Development Project Funds	20
	D. Relationship to Other Development Activities in Project Area	22
	E. USAID Assistance Strategy	23
PART III.	Project Goal, Purpose and Strategy	25
	A. Project Goal	25
	B. Project Purpose	25
	C. Project Strategy	25
	1. General Strategy	25
	2. Project Strategy	26

Page

D. End of Project Status 30

1. Agricultural and Forestry Production 30

a. Research and Extension 30
b. Agricultural Credit 30

2. Agribusiness Development and Marketing 31
3. Project Administration/Institutional Development 31
4. Coca Reduction and Control 31

PART IV. Project Description 32

A. Agricultural and Forestry Production 32

1. Constraints 32
2. Production Strategy 32

a. Systems Research and Extension 33
b. Diagnostic Studies 33
c. Representative-Demonstration Farms 34

3. Extension Element 34
4. Group Methods 36
5. Individual Farmer Assistance 37
6. Nurseries 37
7. Credit 37

a. Objective 37
b. Credit Channels 37
c. Production Credit Demand 39

B. Agroindustrial Development and Marketing 42

1. Objective 42
2. Marketing Constraints 42
3. Strategy 42
4. Profiles of Large-Scale Interventions 42

a. Citrus Fruit Processing and Marketing 43
b. Particle Board Manufacturing and Processing 47
c. Hog Fattening 50
d. Kudzu and Banana Dehidration Agroindustry Project 54

5. Financing for Large-Scale Agroindustrial Sub-Projects 57

6. Medium Small-Scale - Processing and Production 58

Page

C. Project Administration and Institutional Development 61

1. Institutional Constraints 61
2. Strategies to Overcome Deficiencies 62

a. President of the Nation 64
b. Inter-Ministerial Commission for Development 64
c. Secretariat for the Development of The Bolivian Tropics (SDBT) 64
d. Chapare District Consultative (CODICH) 65
e. Executing Agencies 66

- IBTA 66
- CORDECO 67
- Small Farmer Lending Institutions 69
- ICIs 71

D. Cost Estimate and Financial Plan 72

1. Flows of Funds to Implementing Agencies 72

a. FENACRE 72
b. SDBT 72
c. IBTA 73
d. CORDECO 73
e. ICI's 73

2. Project Accounting and Disbursing System 73
3. Summary Cost Estimate 76
4. Summary Disbursement Schedule 77

PART V. Summary of Project Analysis 78

A. Technical Feasibility Summary 83

1. Land Use Capability 83
2. Forestry 84
3. Agriculture 84
4. Crop Selection 84
5. Level of Technology 85
6. Sustained Production 86
7. Research/Extension 87

Page

B. Environmental Summary 87

1. Description of Chapare Environment 87
2. Alternatives for Development 87
3. Improving Land Use in the Chapare 88
4. Adverse Effects of No. Project 88
5. Specific Environmental Issues 88

C. Economic Analysis 89

1. Introduction 89
2. Project Administration 89
3. Marketing Development 89
4. Farm Level 91

D. Institutional Analysis 105

1. FENACRE 105
2. IBTA 108
3. Bank of Cochabamba 110
4. CORDECO 112
5. SDBT 114
6. Alternative Project Administration Models 116

E. Social Analysis Summary 118

1. Bacground 118
2. Potential Constraints 118

PART VI. Project Implementation Arrangements 121

A. Administration Arrangements 121

1. Role and Responsibilities of USAID 121
2. Role of SDBT 122

B. Implementation Period 122

C. Implementation Plan 128

D. Implementation Procedures 132

E. Evaluation Plan 133

ANNEXES

A. Chapare Land Use

B. Log Frame

C. Financial Exhibits

D. Detailed Disbursement Schedule

E. Profiles of Small-Medium Scale Agroindustry Projects

F. Project Issues

G. 611e Certificate

H. Application Letter

I. Draft Authorization

J. Statutory Check List

K. IEE

L. PID Cable

M. Bibliography.

I. SUMMARY AND RECOMMENDATIONS

A. Summary

This project will improve the agricultural and forestry systems of farmers in the Chapare region of Bolivia so that they will respond to a variety of profitable marketing opportunities developed through direct program linkages with lead agroindustries. Realization of this objective is based on a demand-pull strategy through which enhanced market demand for agricultural and forestry commodities will stimulate increases in production. In turn, these production increases will result in an improved income and standard of living for Chapare farmers. It is expected that, in conjunction with a parallel INM-supported control program, this project will facilitate a reduction in Chapare farmer production of coca destined for illicit international markets.

The project consists of three principal, integrally related components: (1) agricultural/forestry production; (2) agrobusiness development and marketing; and (3) project administration/institutional development. The agricultural/forestry production element is composed of applied tropical agricultural research and extension (including such items as off-station research on demonstration farms, use of mass media and paraprofessionals, farmer scholarships and group teaching methods), and production credit. The underlying principle of all production-related activities is adaptation to the ecological realities of the region. Accordingly, research and extension initiatives will be focused on developing and diffusing technological packages tailored to the environmental conditions of the Chapare's various ecological zones.

The agroindustrial development/marketing component consists of a two-track approach to alleviating the Chapare's key marketing constraints, namely the inaccessibility of markets for Chapare commodities, and farmers' inadequate awareness of potential markets. Track one is a grouping of four large-scale initiatives (each costing more than US$600,000) for which there are identified, committed, well-established private sector Bolivian investors. The four subprojects are citrus fruit processing, particle board production, swine fattening and kudzu* dehydration. Each of these interventions has been subject to production, processing and marketing feasibility analyses, all of which have indicated that the activities are financially sound investments with acceptable rates of return for both the investors and the Chapare farmers. All four subprojects deal with products already being grown in the Chapare and will therefore provide an immediate financial return to participating farmers.

Track two will involve a minimum of 10 small to medium scale processing activities. The majority of these subprojects will be located in

---

* Kudzu is a high protein legume which has great value as animal feed.

the Chapare, and will, when feasible, promote local entrepreneurship, including management and ownership by campesinos. Amoung the investment opportunities from which subprojects will be chosen are beekeeping, cattle breeding, water buffalo, tea production, wooden crate manufacture, fish production and storage, and rice milling. Prior to selection and funding, each of the activities will be subjected to marketing and production feasibility studies to determine profitability as business ventures and return to the farmers.

The project administration/institutional development element will provide the required degree of cross-sectoral coordination in project planning, participation of the beneficiaries and linkage to coca control efforts. The key role in the administrative framework is assigned to the Secretariat for the Development of the Bolivian Tropics (SDBT). The Secretariat will be responsible for overseeing and coordinating the activities financed by 1) this project, 2) the related A.I.D. loans for infrastructure, and 3) other donors. The Secretariat will be a dependency of the Ministry of Planning and Coordination (MPC) and will report directly to an Interministerial Committee made up of the sub-secretaries from those ministries (Finance, Interior, Defense, Foreign Affairs, Agriculture, Health, Education, Planning and Transportation) directly involved with the Chapare program. The Committee will provide overall policy guidance to SDBT and approve operating plans and budgets.

The principal executing agencies will be the Bolivian Institute of Technical Assistance, (IBTA), the Federación of Savings and Loan Cooperatives (FENACRE), other Intermediate Credit Institutions (i.e. ICIs - private banks), and private sector enterprises. IBTA, through a decentralized headquarters in the Chapare, will implement matters related to agricultural/forestry research and extension. FENACRE recently was given ICI status and will serve as a channel for the delivery of production credit to farmers, mount savings mobilization campaigns, and help organize producers' groups in direct response to the agroindustry initiatives. CORDECO will be involved in promoting and financing the small-medium scale agroindustry component. The ICIs, particularly the Banco de Cochabamba (BC), will be involved in savings mobilization, agricultural production credit, and the financing of agroindustrial initiatives. The various private sector enterprises will implement the agroindustrial activities for which they will receive financing from this project.

By the end of the project, there will be in place a combination of public and private sector applied research and extension capacities established in the Chapare to promote improvements in agricultural and forestry production and diversified farming. A self-sustaining credit system, which will offer realistic rates of interest, and a savings mobilization program will also be established. In the context of agribusiness development, the project will help develop systems for processing and marketing Chapare commodities and will install an information clearing house for local and regional marketing of Chapare products. At the end of the five year period, an institutional structure will exist with a human resource base adequate to manage the delivery of project inputs and to coordinate with the coca control program.

While the production and marketing strategies included in this project will significantly increase farmer productivity and income, certainly no one crop, and probably no combination of crops, will fully match the income generated from the sale of illegal coca. Accordingly, a coca reduction and control effort, which increases the risk of production to the farmer, depresses the price of coca, and coincides chronologically and geographically with development activities, is a sine qua non for the successful implementation of this project. The presence of the sub-secretary of the Ministry of Interior on the Ministerial Committee which oversees SDBT will assure communication between development and control entities. SDBT and the National Directorate for the Control of Dangerous Substances (NDCDS) will each present six month operational plans to the Committee for review; it is at this point that control and development plans will be harmonized.

The project beneficiaries will be the approximately 60,000 residents of the Chapare. The vast majority are recent immigrants from the highland regions of Bolivia and earn their livelihood through slash and burn tropical agriculture. They will receive the technical assistance furnished by the project's research and extension activities as well as increased earnings through participation in the agroindustrial/marketing interventions.

The project will last for five years. Its total cost will be $36,263 million. The A.I.D. contribution will be $10 million in loan funds and $4 million in grant funds. This will be completed by $10 million in Title III resources, a $872,000 contribution from the Government of Bolivia (GOB) and $10.99 million from the ICI's and from the private sector investors.

Table No.1

SUMMARY PROJECT BUDGET
(US$ 000)

	A. I. D.			Host Country				
Components	Grant	Loan	Total	GOB	Title III	Private Sector	Total	Total
I. Agribusiness Development/Marketing	-	5,258	5,258	-	-	9,741	9,741	14,999
II. Project Admin./ Institutional Development	978	872	1,850	192	-	75	75	2,117
III. Agricultural and Forestry Product.	3,422	3,394	6,816	680	10,000	1,175	11,855	18,671
Subtotal	4,400	9,524	13,924	872	10,000	10,991	21,863	35,787
Contingency	-	476	476	-	-	-	-	476
Total	4,400	10,000	14,400	872	10,000	10,991	21,863	36,263

B. Recommendations

The USAID/Bolivia project committee has determined that the proposed activities are technically, administratively and financially feasible within the five-year life-of-project period. The specific analysis carried out during the project design did not identify any serious obstacles to project implementation and indicated that the project can achieve its purpose. Special attention was paid to the marketing, ecological, and institutional issues identified in the PID review cable (see Annex L). The project was reviewed and approved by the USAID/Bolivia committee, which determined that all issues had been satisfactorily addressed in the project paper. Both the Project Development Team and the Reviewing and Approval Committee conclude that the project is technically, economically, socially, administratively, environmentally, and financially sound and recommend that the project be approved and that an A.I.D. loan for $10.0 million and a grant for $4.0 million be authorized.

C. Project Development Team

1. The Project Development Team was composed of the following USAID/Bolivia staff members:

William G. Kaschak) Chairmen
John A. Fasullo)
Luis Ampuero, Agricultural Economist
Jorge Calvo, Agronomist
Oscar Antezana, Program Economist
Robert V. Thurston, Rural Development Officer
Gustavo Vega, Financial Analyst
Michael H. Lofstrom, Project Development Officer
Luis Montero, Financial Analyst
Raul Pinto, Financial Analyst
José Isaac Torrico, Credit Analyst

2. The following consultants and AID/W personnel assisted in the preparation of the project paper:

Douglas Pool, Natural Resource Utilization Expert
James McCaffrey, Regional Environmental Analyst
Jerry Ladman, Credit Specialist
Joseph Tosi, Land Use Expert
Gregory Morris, Hydrologist
Peter Bayley, Fisheries Expert
Cesar Amorin, Market Expert
Raul Hinojosa, Livestock Specialist (LAC/DR)
David Sanderfer, Extension Specialist
Juan Belt, Economist (LAC/DR)
James Riordan, Economist
Jeffrey Nash, Farmer Organization Specialist
Austin Hawes, Pest Management Expert
Alfredo Baigorri, Marketing Specialist (Coopers & Lybrand)

Juan Carlos Quiroga, Land Use Expert
Hector Nogales, Financial Analyst
Stephen Wiles, Cooperative Specialist

3. The following GOB and Bolivian private sector personnel played important roles in the development of the project:

Arturo Nuñez del Prado, Minister of Planning and Coordination
Flavio Machicado, Minister of Finance
José Pérez, Minister of Defense
Alfonso Criales, Undersecretary for Planning, Ministry of Planning and Coordination
Oswaldo Antezana, PRODES
José Antonio Ayala, PRODES
Lucio Juarez, Geologist
Héctor Nogales, Economist (NACA)
Luis Sánchez, Hydrologist (CORDECO)
Daniel Guerra, INC
Daniel Candia, University "Gabriel René Moreno" Santa Cruz, Bolivia
Marco Antonio Téllez, FENACRE
Cándido Pastor, CDF
Guido Quiroga, Bank of Cochabamba
Mario Ballón, Marketing
Carlos Hofiman, PRODES

4. The project was reviewed by the following USAID/Bolivia Officers:

David A. Cohen, Mission Deputy Director
Joe O. Hill, Jr., Mission Controller
Roberto León de Vivero, Mission Program Officer

5. The project was approved by:

Henry H. Bassford, Mission Director

II. PROJECT RATIONALE/BACKGROUND AND DESCRIPTION

A. Country Setting

1. Economic

Bolivia is the fifth largest country in South America in terms of land area, has a population of only 6 million, and possesses an abundance of natural resources. Minerals, natural gas and petroleum form the industrial base that has been the mainstay of the economy. Despite this intrinsic wealth, the country is beset with economic problems. The per capita GNP of $580 is the lowest in South America. Over sixty-four percent of the population lives in conditions below the poverty line, estimated at $220 per capita and the lowest 60 percent of the economically productive population receives only 13 percent of the national income. Recently, the drastically declining purchasing power of the peso has compounded the economic problems of the country. In dollar terms, many people are earning less than 20 percent of the amount they were earning at the outset of 1982*.

2. Agriculture

Since the 1952 revolution, successive Bolivian governments have publically proclaimed agriculture to be a primary investment sector. However, the growth rate of the sector during the past twenty years has not kept pace with the economy as a whole. For example, in 1960, agriculture accounted for 29 percent of the country's GDP; currently, it is responsible for only 16 percent of the GDP. Moreover, over the last four years, growth in agricultural production has fallen behind growth in population.

The sector is composed of two distinct sub-systems: small scale peasant farming and large scale commercial production. The small scale sub-system is, for the most part, located in the altiplano (high plain) and highland valley regions. It is characterized by cultivation of traditional food staples (e.g. tubers, legumes, cereals) using traditional technology. Farm sizes are small (2-3 hectares), the minifundio is the most prevailing land tenure pattern, and production is oriented primarily to household consumption with limited participation in commercial markets. The large commercial sub-system is centered in the eastern piedmont and lowlands - although this area also includes a relatively high percentage of subsistence farmers. Accordingly, holdings in the eastern lowlands range from minifundios to moderate sized farms, in the 20 to 50 hectare category, to estates with hundreds of hectares. Cultivation techniques are relatively modern, and production is geared to market sale, which can be noted from the principle crops grown - cotton, sugar cane, rice, oil seeds, coffee and tobacco.

---

* Further details of the current economic crisis and its impact on the society are available in the USAID/Bolivia FY 1985 CDSS.

Despite agriculture's importance and potential, the GOB has been slow to allocate sufficient resources and priority to the sector. In the 1978-80 period, an average of only 3 percent of total central government expenditures was assigned to the sector. This represented the second lowest public sector contribution to agriculture in the entire Latin America/Caribbean region. A chronically deficient, overly-centralized Ministry of Agriculture and Campesino Affairs (MACA) has not furnished the support services required by the sector. In 1980, there were only 100 Government extension agents in the country (an average of 0.17 agent per 1,000 farmers), and research expenditures (0.34 percent of the agricultural GDP) were the lowest per 1,000 hectares of available agricultural land amoung countries in the region. Furthermore, agricultural credit has not been provided in adequate amounts nor in a timely fashion. Key production inputs (e.g. fertilizers, pesticides, seeds and farm machinery) have often been lacking, and pricing policies for agricultural commodities have tended to favor urban consumers over producers. Finally, the marketing of agricultural products has received little overall policy and/or analytical attention.

B. Project Setting

1. General

The project area, the Chapare, is located within a vast subtropical rainforest in central Bolivia about 560 Km. southeast of La Paz (see map 1). The Chapare is bounded on the west and south by the eastern most range of the Andes mountains, on the east by the Ichilo river and on the north by the Ibosoro river. Villa Tunari, the region's largest town, is 160 Km. northeast of Cochabamba.

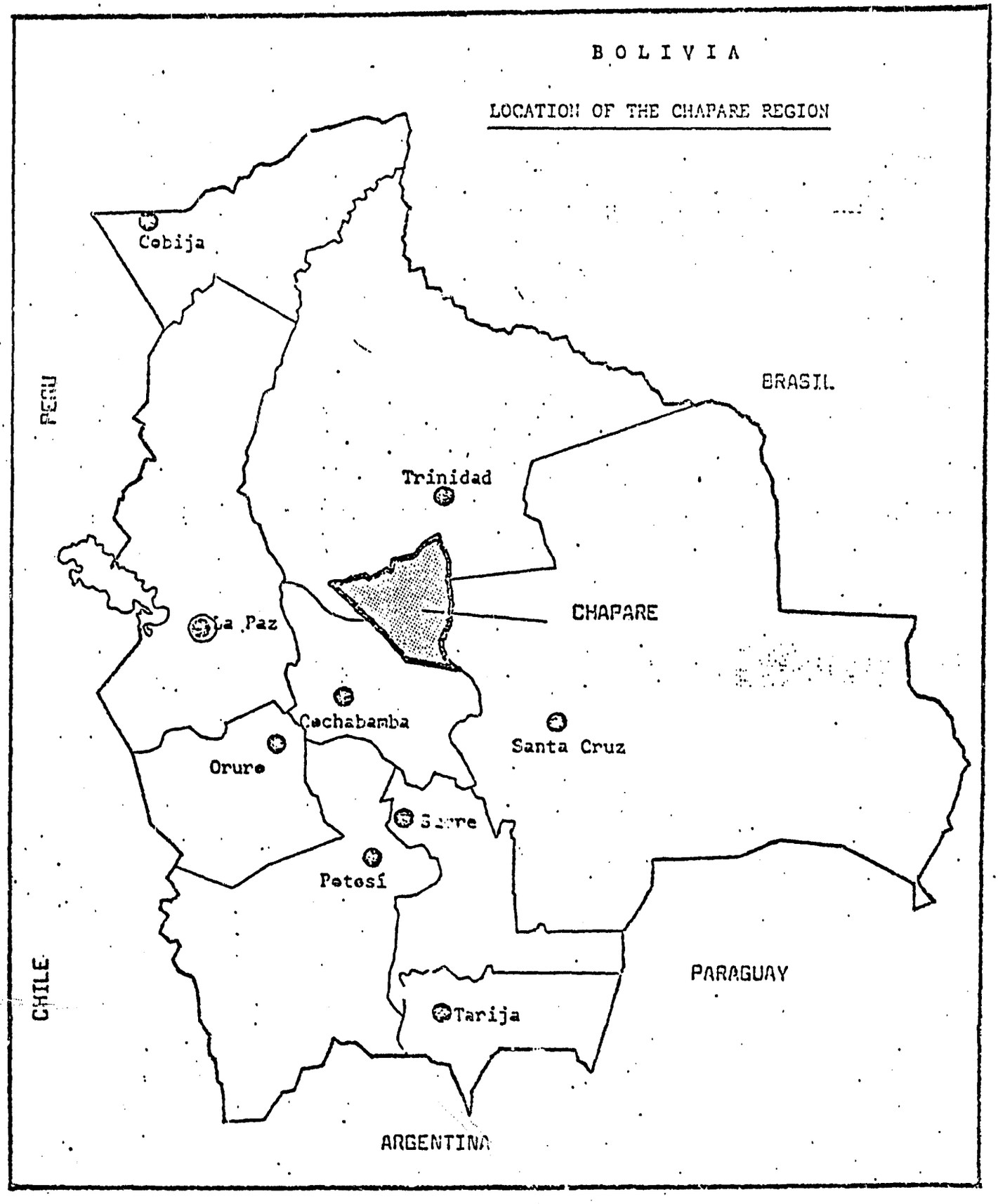
The entire Chapare region is estimated to contain 2.5 million hectares. The project area, however, is considerably smaller, limited to approximately 422,000 hectares and includes about 12,000 farm families*. While the Chapare is an integral whole with respect to ecological and social considerations, for purposes of project implementation, the area has been divided into nine micro-regions (see map 1) which encompass 6 separate life zones**. The relationships between the micro-regions and the life-zones are illustrated in Chart 1.

---

* The land capability analysis prepared by Dr. Joseph A. Tosi shows that the 147,000 hectares originally reported in the PID included only those areas occupied by colonists. The 422,000 ha. cover all land (concessional and public) included in the project area.

** "Life zone" is the physical environment of a delimited geographic area as defined in terms of bioclimate, landforms and physiology and soils and drainage.

MAP 1


BOLIVIA
LOCATION OF THE CHAPARE REGION
Cobija
PERU
BRASIL
Trinidad
CHAPARE
La Paz
Cochabamba
Santa Cruz
Oruro
Sucre
Potosí
CHILE
PARAGUAY
Tarija
ARGENTINA

Map 2
MICRO REGIONS

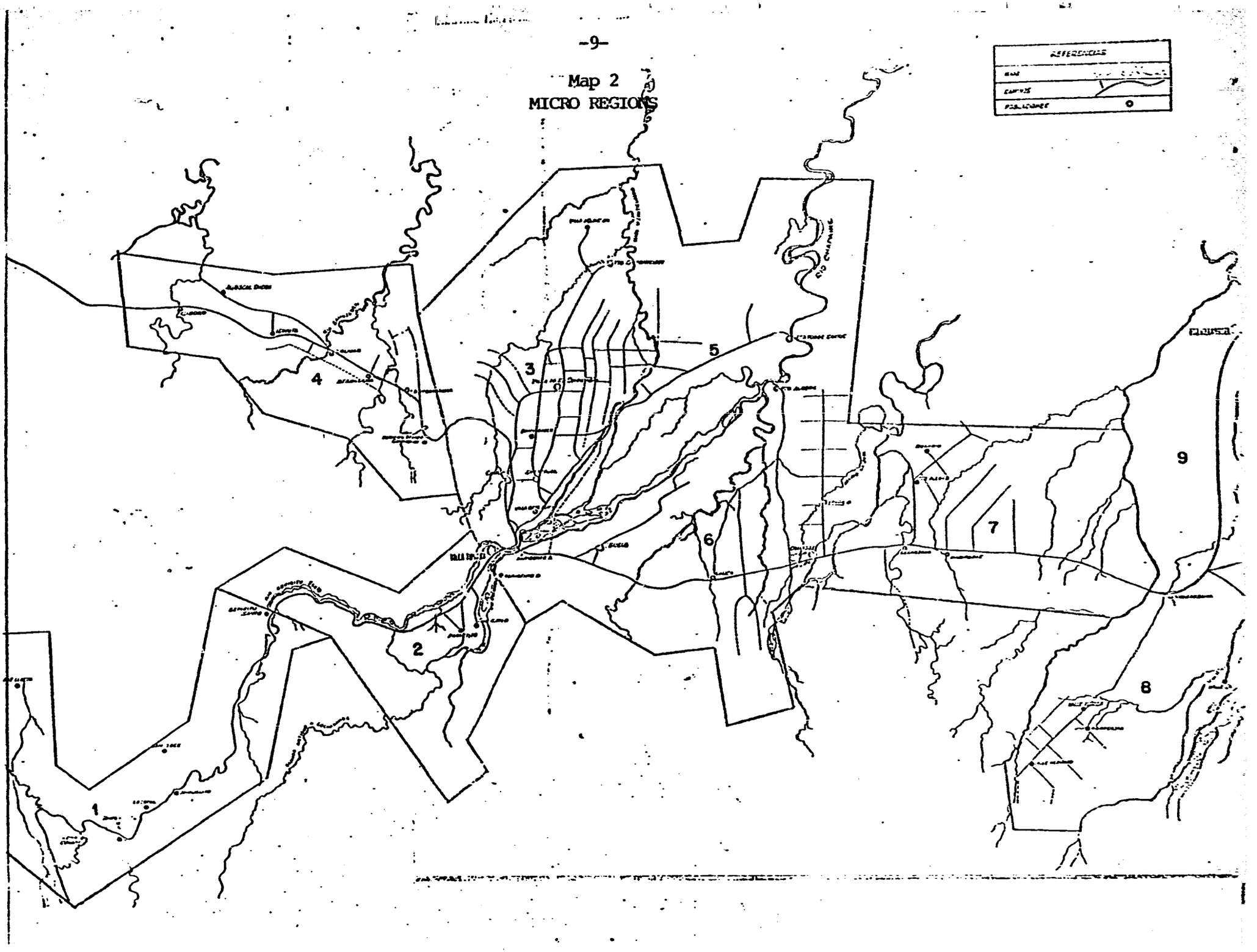


TABLE No. 2

LIFE-ZONE/MICRO-REGION RELATIONSHIP

Life Zones	Symbol	Micro-Regions	Place Name
1. Tropical moist forest	bh-t	Northern tip of mr * 9	Pto.Villarroel
2. Subtropical wet forest	bnh-st	Nearly all of mr 9, most of 5, no parts of mrs 3,6 and 7. EA part of mr 8.	Ivirgarzama.Pto. Todos Santos. Pto.San Francisco,Pto.Aurora, Valle Sajta.
3. Tropical wet forest	bnh-t	Lowest elevations of mrs 3,4,6,7 & 8, southern part of mr 5.	Villa 14 Sep. Eterzama Ibuelo, Mariposa, Valle Ivieza.
4. Subtropical rain forest	bp-st	Middle to lower elevations of mr 2, foothills bordering mrs 4,6,7 & 8.	Villa Tunari
5. Subtropical lower montane wet forest	bnh-mb	Valleys in mr 1.	Espíritu Santo
6. Subtropical lower montane rain forest	bp-mb	Highest elevations of mr 1.	Tablas Monte

* mr = micro region

The region is 200 to 1 ,200 meters above sea level, has an average temperature of 22°C and yearly rainfall which ranges between 2,730 and 4,875 millimeters. It is dominated by two types of landforms: low hills and alluvial plains. The low hills form a narrow area of transition between the Yungas, a part of the high Cordillera Oriental rising some 5,000 meters, and the Chapare's alluvial plains.

The soils in the Chapare are of recent origin. They are clay based, but vary considerably in quality, ranging from the rich alluvial soils along the river beds to poor heavy soils further inland. The best soils for agriculture are on the natural levees of the rivers. Erosion, excessive moisture in the soils due to seasonal flooding, rapid loss of fertility through leaching, bad drainage, acidity and lack of organic

materials are the main soil factors limiting agriculture in the Chapare.

The region is seriously lacking in social infrastructure. The present road system within the Chapare is inadequate. While there is a good road into the area, routes within the region vary from poor to non-existent. Many of the existing roads are impassable during the wet season (October-May) and even those that are open all year are rutted, slow, dangerous and destructive to motor vehicles. Electricity is available only from scattered small diesel generators whose output is highly unreliable. Potable water systems are present in only a few of the settlement areas, and health services are in critically short supply. While there is, for the present time, an adequate number of primary schools, opportunities for secondary education are virtually non-existent.

2. Agricultural Overview

a. Technology

Farming, on a small scale, is the principle occupation of most Chapare residents. Holdings are individually owned by nuclear family units and range in size from 10-20 hectares. Given the dense vegetation cover and fragile soil composition, diversified slash and burn, semi-permanent farming, in which short-term cropping cycles are interspersed with longer periods of fallow, is the predominant agricultural system employed. Moreover, the multiple life-zones found in the Chapare dictate the existence of a variety of diversified farming systems, each adapted to a specific ecological niche*.

Typically, the forest is cut, burned and planted with annual crops (e.g. corn, rice and cassava). Coca is frequently planted in combination with the annuals which provide partial shade until the coca seedling becomes established. Normally, the newly cleared lands are sowed with annuals for only one or two cropping cycles because of decreasing yields attributable to soil nutrient depletion and increasing weed and insect competition.

Commonly, perennial crops (e.g. bananas, plantains, citrus and papaya) are interplanted with annuals. This enables the perennial crops to take advantage of the available nutrients and reduces weed and pest competition. While the annual crops are providing family staples and perhaps a small cash income during the first year after forest clearing, the permanent crops are becoming established. Perennials, such as plantains, bananas and papaya, can be harvested within a year after planting, while citrus, cacao and trees left for timber require a minimum of 3 years to

---

* A complete listing of the agricultural sub-systems is found in Hoffmann, 1983.

reach first harvest. This production system of combining annuals and perennials provides a short-term source of income, imitates natural forest succession, minimizes labor and material inputs needed for weed and pest control, and establishes long-term production at a low initial cost.

Small scale animal raising is a typical complement to ground and tree crop production. Most families raise pigs, barnyard fowl and cattle for household consumption purposes.

By and large, farmers have been in the region for only about fifteen to twenty years, migrating from highland regions with a totally different physical environment and production tradition. They have learned what they know about dealing with the Chapare's ecology by painstaking personal effort, taking the example of earlier colonists and each other. Accordingly, the technology employed by the vast majority of farmers is extremely traditional. Farm implements are limited to rudimentary hand tools, and there is only sporadic, scattered use of modern inputs such as fertilizers, improved seed varieties, pesticides and insecticides.

In part, the persistence of traditional technology is a reflection of the absence of an effective market demand for Chapare commodities. The demand for Chapare products is either so limited or unknown to the farmers that it does not trigger the more widespread use of modern inputs to increase production levels. The only exception to this general condition exists with regard to coca production. The market for coca clearly exists, and it is the one crop in the Chapare on which the farmers are making investments in inputs to enhance yields. In short, coca production practices are a prime example of Chapare farmers responding to the forces of market demand.

b. Agricultural Production

Of the 147,000 settled hectares in the Chapare, approximately 48,000 hectares (32 percent) are cultivated; 42,000 hectares (29 percent) are in fallow or natural forest second growth; and an estimated 46,000 hectares (31 percent) are still virgin forest (see Annex A, Exhibits 1 and 2). Coca, with 35,000 hectares planted, is the most extensively grown crop, followed by rice (10,416 hectares), citrus (9,098 hectares), banana and plantain (8,000 hectares), yuca (2,910 hectares), and corn (2,440 hectares). Numerous other annuals and perennials are grown in lesser quantities. (See Annex A, Exhibit 3). The existance of this particular mix of crops is a direct response to the environmental conditions of the Chapare. Each of these commodities is suitable, with varying degrees of effectiveness, to the extreme wetness and high soil alkalinity which predominate in the region.

Given the predominance of traditional technology, with the exception of coca, the crop yields achieved have been alarmingly low. For example, in the 1982 crop season, the estimated yield per hectare for rice was .98 metric tons followed by 6.8 metric tons for citrus, 9.7 metric tons

for banana and 9.0 metric tons for plantain. The cassava harvested averaged 8.5 metric tons per hectare, while the corn crop had a hectare average of .72 metric tons. In comparison, 1982 per hectare yields for the same crops in Santa Cruz, an area with advanced technology, were 1.65 metric tons for rice, 14 metric tons for citrus, 15.7 metric tons for banana, 10 metric tons for plantains, 14 metric tons for cassava, and 1.19 metric tons for corn. It is anticipated that production levels in the Chapare will rise significantly with the application of improved technological practices and modern inputs. The employment of such practices and inputs will be stimulated by increased market demand.

3. Project Beneficiaries

Virtually all of the residents of the Chapare are immigrants from other regions of Bolivia. The highest portion, 80 percent, are natives of the Cochabamba valley. At the level of the individual family, the migration takes place in stages. Typically, the husband will make the move first in search of a homestead; often initial entree to the Chapare is made as a casual worker for a relative or a friend from the native village. Once the homestead is established, the husband is joined by the remainder of the family, and the process begins of clearing the forest and preparing the land for planting. Rarely do families abandon their holdings in their native communities. Therefore, simultaneously, a second process of periodic migration, to and from the Chapare, begins, coinciding with respective periods of planting and harvesting in the highlands and lowlands.

Although colonizers began moving into the region during the 1920's, the majority of the inhabitants are relatively recent arrivals who have come to the area either under the aegis of one of a variety of "directed" colonization programs or as a result of spontaneous settling. The current population is estimated at over 60,000. From 1967 to 1979, the number of colonies grew from 54 to 183. Such development as has occurred to date is, for the most part, a product of the efforts of the colonists themselves with little assistance from the Government. The length of period of settlement is an important variable concerning the ability of Chapare farmers to respond to agroforestry and agroindustrial initiatives. For those families in stage one (i.e. less than five years of settlement), energies are dedicated to establishment of the homestead, initial land clearing and the sowing of subsistence crops (principally rice) complemented by limited planting of perennials (coca and citrus fruit). Holdings in this stage are technologically the most primitive in the Chapare and do not have the on-farm infrastructure to respond easily to interventions predicated on a moderately advanced level of technology. Accordingly, stage one farms will require intervention packages which are tailored to their limited level of development as well as the micro-environment in which they are located. Holdings in stage two (more than five years of settlement), while retaining a subsistence component, tend

to be more advanced in terms of hectareage cleared and in farm infrastructure, and have an increased focus on the production of commodities for market. Their moderately enhanced level of development will enable them to react more readily to production technologies linked to marketing activities.

Regardless of whether colonies originated through spontaneous or directed settlement processes, today, in terms of social organization, there is no appreciable difference between the two. The basic social and economic unit is the nuclear family. This is the group within which social exchanges take place, psychological support is given, and standards for prescribed and prohibited behavior are established. In the context of economic activity, each member who is physically able participates in sharing the workload. The physically more demanding tasks, such as land clearing and land preparation for planting, are carried out by the adult males. Women assist with the field work and carry out a full complement of domestic chores. Older children help with field tasks and also are often assigned the responsibility of tending to the family's livestock.

Beyond the family, there is an extremely limited sense of community; and social and economic relationships are characterized by flexible networks of individuals who temporarily coalesce to achieve a given objective. The coalitions tend to be among people from a specific geographic area (e.g. a given settlement) and, hence, have a certain local identity; their objectives are tangible and success is anticipated. Examples of such groupings are committees to find support to carry out a civic task such as the construction or equipping of a school or a health post, or the repair of a road. Alliances among neighboring farmers also are formed to seek technical assistance to solve a particular problem. Arrangements are made between a particular grower and a middleman for the sale of produce. In all cases, the relationship is temporary, terminating when the purpose has been accomplished, and entails no continuing obligations for the parties involved.

Even the sindicatos, multipurpose civic-political organizations in the Chapare, are partially characterized by these temporary coalitions among participating members. Colonists in the Chapare often initially join sindicatos for the sole purpose of securing title to a landholding. Normally, individuals remain active in the organization until the title is obtained, after which their level of participation decreases. The one exception to this trend occurs in the context of political lobbying. In this area, the sindicatos have been able to sustain, to some degree, rank and file interest by voicing grievances of Chapare residents and soliciting assistance for the area.

The sindicatos do represent a political force in the Chapare and must be taken into account in the implementation of the project. While their involvement in the daily intervention of individual sub-

projects will be limited, the leaders of the two principle sindicatos federations, Federación Agropecuaria del Chapare Tropical (FEAT) and the Federación de Colonistas de Chimoré (FCC) will be consulted on overall project execution.

The Chapare farmers' view of the world is considerably different from small farmers in other areas of Bolivia. Initially, these people are migrants from poor subsistence farming areas in the country, which are quite dissimilar ecologically from the Chapare. The history of migrations worldwide indicates that it is generally the most capable segment of a group of people that chooses to migrate. These are also people who are inclined to take a higher level of risk. The implication of this is the existence of a recipient group receptive to innovation and change. Another way in which Chapare farmers differ from traditional campesinos is their marked desire to have control over their own destiny. Repeatedly, in project design related research, campesinos expressed a strong preference to participate actively in development interventions. Moreover, they exhibit noticeably broader aspirations than typical Andean subsistence farmers. They are concerned about obtaining what they consider to be quality schooling for their children to elude the drudgery and social stigma associated with subsistence farming. The farmers make or plan to make substantial investments, for example, in real estate in urban areas, and they demand social services (electricity, potable water, adequate housing, etc.) found in the cities.

This pioneering spirit of a migrant to broaden his horizons is, in part, a result of the cash generated by the coca boom which has brought Chapare farmers in contact with the consumer tendencies of the country's urban cultural mainstream. It is also attributable to the relatively higher level of formal training which Chapare farmers possess. While most Chapare residents are native Quechua speakers, over 90 percent of the male population are also conversant in Spanish. More than 70 percent of the adult males can read and write, and 85 percent of the children of primary school age are enrolled in school. The latter fact is attributable to the comparatively advanced education infrastructure in the Chapare - nearly 50 percent of all colonies have both schools and teachers.

In direct contrast to the above average educational services, health infrastructure is far below par. Potable water systems are virtually non-existent, and the few health posts that do exist are poorly staffed and often lacking in basic equipment and medicine. Correspondingly, the health status of the population is among the worst in Bolivia. Infant mortality rates are alarmingly high (14.3 per 1,000 births) as is the incidence of diseases such as gastroenteritis, tuberculosis and malaria.

C. Bolivia and the Coca Problem

1. Coca Production and the Illegal Market

Bolivia is the source of approximately one-half of the

cocaine that reaches illicit world markets. The estimated annual value of this trade is $ 2 billion. Involved in this illicit economic activity are about 20,000 rural families who produce coca, an activity which is adversely affecting the economic, social and political welfare of the country.

Coca production in Bolivia is concentrated primarily in two regions - the Yungas and the Chapare (see map 3). The Yungas has traditionally supplied the legal domestic and export markets, whereas widespread, generally uncontrolled coca production in the Chapare, largely for illicit markets, is a more recent development which began approximately 20 years ago, coinciding with the initiation of significant colonization efforts.

The Chapare produces an estimated 80 percent of the coca grown in the country, which accounts for 90 to 95 percent of the Bolivian product entering the illegal market. Moreover, coca production in the Chapare has more than doubled since 1979, attributable to the increased number of small farmers migrating to the area, incresing international demand for cocaine, and the fact that the Chapare produces a coca leaf with high alkaline content preferred by cocaine producers.

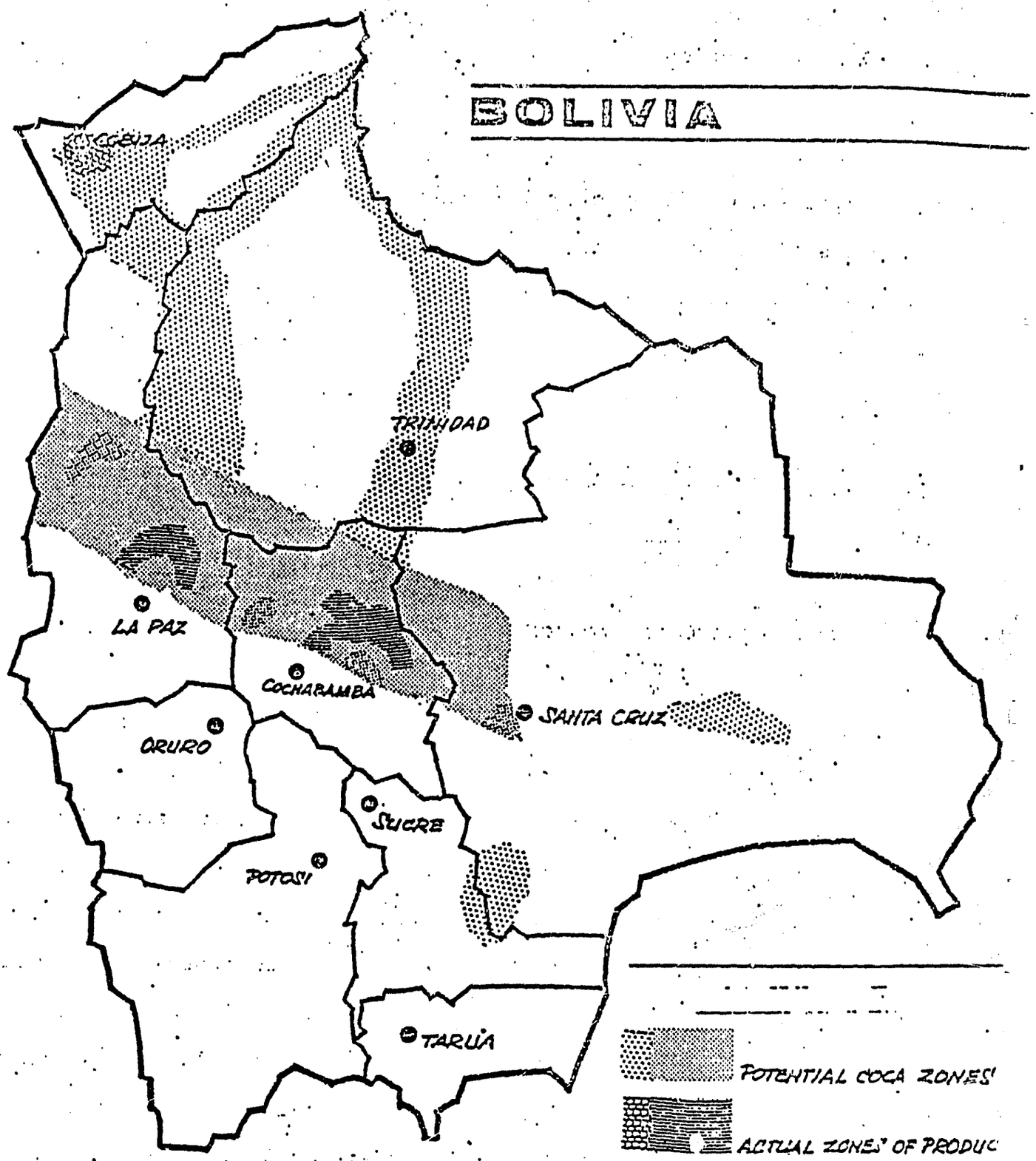
2. Development Obstacle

The heavy reliance of Chapare farmers on coca as a primary cash crop is a serious obstacle to the development of the region. Succinctly, to the extent that the growers continue to realize a high return on investment in coca (current estimates are that it annually generates $7,500 per hectare, a price that far outearns the potential return from any other crop), they will not be favorably inclined to produce alternative legitimate commodities. To this must be added considerations of a series of uncertainties, from the farmer's perspective, of substituting dependence on coca with a combination of other crops to generate income. In most cases, new crops require periods of experimentation and adaptation before proving to be economically successful. Moreover, markets for the new crops must be explored and proven to be feasible. (The coca market, albeit risky, is known to exist and be feasible). In combination, these factors could seriously constrain full realization of the Chapare's legitimate agricultural potential, which, if achieved, would provide a significant stimulus to the country's economy.

By extension, continued reliance on coca is a serious constraint to the successful implementation of this project. While the production and marketing strategies included in this project will significantly increase farmer productivity and income, certainly no one crop, and probably no combination of crops, will fully match the income generated from the sale of illegal coca. Accordingly, a coca reduction and control effort, which increases the risk of production to the farmer, depresses the price of coca, and coincides chronologically and geographically with development activities is a sine qua non for the successful implementation of this project.

Map 3

Actual and Potential Coca Production Zones



Source: Masi Report, October 17, 1979 - Coca Marketing, Monitoring and Control in Bolivia.

3. Control Plan

a. Background

While GOB efforts to control coca production and trafficking since signing the 1961 Single Convention on Narcotics generally have been ineffective, several positive actions have been taken which have direct bearing on this project. In 1977, the Chapare-Yungas Development Project (PRODES) was established to study project possibilities for substitution and diversification of crops in Bolivia's two major coca growing areas. Subsequently, in 1980, PRODES' charter was revised, designating it as the executing agency for crop diversification and development activities. A third action was a March-May 1981 operation in the Yungas and the Chapare to disrupt and interdict coca leaf marketing. This operation caused a temporary reduction in the price of a bale (125 lbs.) of coca leaf from $b 7,000 to $b 500 - a dramatic illustration of how similar control interventions in the future could depress the price of illegal coca. The 1981 operation was followed by additional actions to disrupt coca production and trafficking. A new narcotics law was passed in late 1981, several major traffickers were arrested, and a number of people in the government of that time known to be involved in the drug trade were removed from office. In 1982, a pilot erradication/control program was undertaken in Yapacaní, Santa Cruz -- an area where the cultivation of coca was entirely prohibited. This program eliminated 86 hectares of illegal coca. Simultaneously, in a nearby area, 250 clandestine cocaine "factories" were destroyed.

The most positive anti-coca initiatives have been those taken by the current government, headed by President Hernan Siles Zuazo. Siles, both before and after taking office, publicly declared war on cocaine trafficking. Not only did he remove from the government and the military a substantial number of officials who were drug traffickers, but, in March 1983, he also established a presidential advisory board and inter-ministerial coordinating commission to handle narcotic matters. Moreover, in April 1983, President Siles signed a communique with U.S. Attorney General William French Smith emphasizing the GOB's desire to eliminate the cultivation and trafficking of illegal coca and cocaine in Bolivia, including a commitment to lower the level of coca production to the level of legal demand. The GOB has also arrested several class one international narcotics traffickers during the past several months. GOB cooperation with the U.S. Embassy Narcotics Unit on the development of a coca control plan is in process. The GOB, since the advent of the Siles Government, has demonstrated an increasingly serious attitude toward the control of illegal drugs in Bolivia.

b. Development of a Control Plan

Over the past several months, the U.S. Embassy Narcotics Unit has been discussing the formulation of a coca control plan with elements

of the Bolivian police and the Interministerial Commission on Narcotics. These discussions have not been completed, although substantial progress has been made. It is important to note that the signing of the Chapare Regional Development Project will not take place until a fully accepted coca control plan has been agreed upon in writing by the GOB and the USG.

The coca control program, as currently conceived, will have six significant elements. The first of these is aimed at reducing the level of coca production to the level of legal demand. It will establish a method to certify legally grown coca and will involve a census of existing coca production and the determination of how much of that amount can be retained to meet legal demand. Legal coca cultivation will be certified and exempted from forced erradication. The program will determine both voluntary and involuntary methods of erradicating illegally grown coca.

The second element of the program will involve the development of a means to control the legal sale of coca leaves. Coca has been used for centuries by Bolivia's indigenous population who chew the unprocessed leaves as a means of warding off the effects of the cold and hunger. There are other uses of coca, such as in tea or as a pharmaceutical, which are also considered legal. The mechanism for legal sales must include the means to determine that 1) the coca for sale was legally cultivated, 2) the buyer of the coca is certified as legitimate, and 3) once sold, the coca will not be diverted to illegal use (i.e. maintaining"control" over the coca).

The third program element concerns controlling illegal sales of coca. It will, to some extent, overlap with some of the considerations in the paragraph above. Under this element, a system of check-points and surveillance will be established to curtail illegal movement of coca. The purpose of this element will be to keep coca from moving into illegal channels and to prevent it from eventually becoming processed into cocaine. If the second and third project elements are successful, they will substantially reduce demand resulting in an over supply of coca and a significant reduction in the market price for the product. Large police units will be created and permanently stationed in the Chapare and Yungas to carry out the first three elements of the plan.

The fourth component of the control program will focus on preventing the manufacture of cocaine. The three principal elements of this activity will be: 1) the location and destruction of cocaine processing facilities, 2) the arrest of those involved in the illegal production of cocaine, and 3) the interdiction of the chemicals required for the production of cocaine (e.g. sulphates, sulfuric acid). In addition to the police actions required for the above, an improved intelligence capability will also be required.

The fifth program element will seek to eliminate cocaine trafficking. The amount of processed cocaine and cocaine paste that has been smuggled out of Bolivia has increased in the recent past. To be successful, the GOB must identify and arrest those involved in the trafficking as well as discover and eliminate their means for doing so. These activities will require intelligence and police capabilities, as well as the means to surveil and interdict transportation routes.

The final component will be the establishment of a mechanism to coordinate both the control and development components of the overall program. This mechanism will exist principally within the Interministerial Commission which includes both the police and the development organizations involved in the two aspects of the program. As overall program success is strongly tied to the interrelationship of the two programs, coordination is particularly important. Accordingly, coordination will be a major role of the Commission, which will delegate implementation of certain coordination responsibilities to its constituent Ministries and their dependent agencies (e.g. IBTA, SDBT, the military).

c. Linkage between Progress on Coca Control and the Disbursement of Development Project Funds

As previously noted, the GOB has publicly announced its intention of initiating an energetic program to reduce illegal coca production and combat narcotics trafficking. Follow-through by the Government on these commitments is critical to the success of the development program. To assure that such follow-up occurs, this project includes annual reviews by the Department of State, AID and the Embassy, during which determinations will be made on the progress of both control measures and the advisability of continuing the flow of development resources.

The principle that will guide these determinations is that the GOB is making an honest, concerted effort, within the limits of its bureaucratic capacity, to reduce and control the production of coca. Benchmarks and guidelines are suggested to assist in the evaluation. The benchmarks will not be considered rigid determinants of performance; but, instead, they will be a means of gauging the overall quality of GOB action, given the large number of imposing obstacles to be overcome.

The objective of the Chapare Regional Development Project and the associated Coca Control Program will be to reduce the production of illegal coca by 20,000 hectares within five years. It is expected that this figure will be reached gradually, with less area taken out of production in the first year of the project, and more erradicated later on when control efforts are in full force and reach a peak level of efficiency. Accordingly, project benchmarks are to eliminate 4,000 hectares of production in the first

two years of the project and the remaining 16,000 hectares in the last three years.

Joint AID-State-GOB evaluations of the coca control aspects of the project will take place on a yearly basis, commencing one year after the initial Conditions Precedent to Disbursement are met. These evaluations will gauge the overall advance of the control program in terms of such items as administrative development of a control-reduction force (i.e. police), restoration of civil authority in the Chapare, participation by farmers in the voluntary reduction program, and the effectiveness of compulsory measures (if they are needed). Benchmarks will include such elements as the amount of legal coca marketed through officially established receiving centers (tambos), the number of established and successful operating coca control checkpoints, the number of cocaine processing facilities destroyed, the market price of coca, etc. The final decision, based on the findings of the evaluation, to cease disbursements of all or some elements of the Chapare Regional Development Project would be the responsibility of the United States Ambassador to Bolivia.

D. Relationship to Other Development Activities in Project Area

In support of this project, three recently reactivated AID financed loan projects have been partially refocused to assist with the Chapare development effort. The first, Rural Roads II (061), will contribute $ 9 million for the upgrading of approximately 230 kilometers of secondary roads, including the supporting bridge and drainage work. The work will be managed by the National Road Service (SNC). Through the second, the Rural Potable Water Project (058), approximately $ 1 million will be channeled for the installation of water systems and latrines in the Chapare. These activities will be implemented by the Ministry of Health and Social Welfare. The third project, Village Development (062), will contribute $1.5 million for the construction of community-based infrastructure works (e.g. micro-irrigation and drainage systems, river defense works, bridges, agriculture produce bulking centers, community markets, river port facilities, health posts and schools. The National Community Development Service (SNDC) will carry out these activities.

In addition, PL 480 - Title III resources will also be used to execute the overall Chapare development effort. Approximately $ 7 million will be directed toward small farmer agricultural production credit. This money will be channelled through the National Federation of Cooperatives (FENACRE), and other Intermediate Credit Institutions (ICIs) - principally the Bank of Cochabamba. Additionally, $ 3 million of Title III resources will be provided to FENACRE to carry out cooperative and other farmer organization activities in the Chapare.

While, in terms of funding arrangements, these efforts are separate from the Chapare Project (funds will be disbursed from USAID/Bolivia directly to the implementing agencies), the activities in the Chapare of all three projects will be coordinated with SDBT as part of the overall regional development effort.

The construction of basic infrastructure, namely electrification and roads, is perhaps the most important area to be addressed by other donors in the near term. Recently, the Swedish Government and the GOB agreed to a $2.9 million electrification loan - a portion of which will be directed to the Chapare. An IDB rural electrification project scheduled to begin in 1983 will include approximately $ 3.9 million over three years for the electrification of the region. The IDB, together with the GOB, is also financing the construction of the Chimoré-Yapacaní highway at an estimated total cost of $130 million, which will complete an alternative principal route between Cochabamba and Santa Cruz. Once constructed, this road will offer Chapare farmers access to a greatly expanded market for their agricultural production in Santa Cruz. Export marketing will also be facilitated due to the existing rail connections to both Brazil and Argentina from Santa Cruz. Furthermore, the IDB has recently acquired a $32 million livestock and agricultural credit loan with the GOB and has indicated that a portion of this credit will be made available to Chapare farmers.

The Canadian government, in collaboration with the Inter-American Development Bank (IDB) and the GOB, recently completed the construction of an agricultural technical school in the Chapare with a capacity for training approximately 200 students. In addition, the Nationalist Republic of China has had a technical mission in the Chapare for a number of years working on a pilot tea production and processing project and rice trails. Furthermore, both the Inter-American Agricultural Sciences Institute (IICA) and the UN's Food and Agricultural Organization (FAO) have conducted important studies on the Chapare's productivity and investment potential. Finally, the World Food Program has expressed interest in channelling a portion of its Food-for-Work program to the Chapare.

E. USAID Assistance Strategy

U.S. Government policy in Bolivia seeks improvement in four areas: narcotics control, cooperation with the democratic countries of the West on international issues, continuation of a stable constitutional government (as understood in the Western world) and economic reform which can permit recovery and lead to renewed growth and development. In view of the continued validity of concerns within these areas and the unprecedented food emergency now affecting Bolivia, immediate USAID program objectives will emphasize: (1) support for accelerated economic recovery, (2) response to the food emergency situation, and damage caused to the rural area from the floods and the drought, (3) encouragement of a decrease in illegal coca production and narcotics trafficking, and (4) the expansion of participation of the private sector in the Bolivian economy.

To obtain an accelerated economic recovery, it will be necessary for the GOB to give particular attention to addressing a series of existing macro-economic and other developmental problems which have traditionally plagued Bolivia and are the basic causes of the existing economic crisis. USAID will give particular attention to leveraging its assistance portfolio to bring about policy reforms which can alleviate critical development constraints. Priority areas of concern in the short run include: monetary and fiscal policies, interest rates, agricultural price controls, exchange restrictions on exports, and policies and program to reduce coca production and drug trafficking. USAID will also address balance-of-payments and adjustment problems for economic recovery indirectly by encouraging the GOB to reach agreement with the International Monetary Fund(IMF) and the international banking syndicatos and coordinate with the international and interested bilateral donors to encourage GOB to adopt austerity measures which can contribute to improved economic prospects within a two or three year period. The emergency programs and particularly the recently authorized Policy Reform project (071) are specific project leverage mechanisms which will address many of these constraints.

Current food deficits caused by the twin natural disasters of droughts and floods will be addressed by utilizing PL-480 balance of payments assistance programs to prevent declines in employment and living

standards during the difficult short-range period of economic adjustment. These programs include the emergency supplemental Title II (20,000 metric tons of monetized rice and mixed commodities - La Paz 02059) and Title I/III ($8.8 million of 27,000 metric tons of rice - La Paz 02237) commodities requests, which have recently been approved by AID/W. In addition, the requested $20.0 million disaster relief rehabilitation supplemental (La Paz 03107) would address damages done to the rural area caused by the floods and the drought. This aid will reconstruct damaged infrastructure and provide badly needed medicines and agricultural inputs necessary to bring about short-term recovery in the agriculture sector. Moreover, this assistance will be used as leverage to lay the foundation for a rational agricultural planning policy which can lead to longer-term growth and development of the sector. Lastly, this assistance is seen as being critical in helping to avoid possible political disruption during the next year.

In confronting the coca production and trafficking control issue, efforts will continue to concentrate on helping the GOB develop a genuine and effective anti-narcotics program which will seek to reduce coca production to the legal demand level. This project represents USAID/Bolivia's companion development piece to control efforts. This simultaneaous control and development approach recognized that, given the political and economic conditions in the coca producing zones, and the fact that the reduction of coca cultivation will depend to a great extent on the farmers' receptivity to the control program, effective reduction in coca cultivation will not be accomplished without the concurrent undertaking of regional development activities.

Building on the specific policy and developmental interventions related to the more immediate economic and emergency problems confronting Bolivia during the 1984-1985 period, USAID will concentrate on the longer-term issues of its 1984-1989 CDSS strategy, which focusses on increasing the participation of the private sector. It will do this, first, by addressing related macro-economic and development policy constraints and, second, by reinforcing these policy actions with direct program interventions. The constraint areas to be addressed will include: exchange restrictions on exports, deficient labor legislation, the disproportionate role of the public sector in the economy (state enterprises), the inadequate foreign investment climate and the negative effect of contraband on private sector growth. Certain policies in these constraint areas will build on earlier short-term policies taken by the GOB in response to IMF and other donor conditions, whereas others will only be possible to achieve after significant stabilization of the economy is attained. As fully described in the 1985 CDSS, program interventions in support of these policy objectives will focus on Bolivia's central corridor (La Paz-Cochabamba-Santa Cruz) and concentrate on the agriculture, private and health sectors.

III. PROJECT GOAL, PURPOSE AND STRATEGY

A. Project Goal

The project goal is to stimulate balanced economic development and an enhanced standard of living in the Chapare region resulting from a mixture of public and private sector participation, a diversified economic base and more equitable income distribution.

B. Project Purpose

The project purpose is to modify and improve the agriculture and forestry systems of farmers in the Chapare to respond better to diverse, profitable marketing opportunities provided under sustained, environmentally compatible, medium technology production models.

The achievement of the purpose is dependent upon the accuracy of a series of assumptions. The most important of these is the capability and willingness of the GOB to support a sustained development and narcotics control effort. Critical ancillary assumptions include: (1) an untapped agricultural growth potential exists in the Chapare which is amenable to a regional development project of this nature; (2) the Chapare coca control program will be effective in reducing the quantity of coca produced to legal levels; (3) the coca control program will reduce the price of coca and add a significant risk element to illegal production; (4) Chapare farmers will be receptive to the offerings of the project; (5) the private sector will be willing to invest in the Chapare; and (6) the infrastructure projects planned for the Chapare, both those pertaining to USAID/Bolivia's frozen loans and those of other donors, will be carried out.

C. Project Strategy

1. General Strategy

Realization of the project purpose is based on a demand-pull strategy through which enhanced marketing of agricultural and forestry commodities will stimulate increases in production, and, by extension, an improved income and standard of living for Chapare farmers. Initially, project efforts will concentrate on creating increased demand for existing Chapare crops and activities. Afterwards, the focus will shift to satisfying this demand through the composite of new activities sponsored by the project. Succinctly, it is anticipated that increased market transactions will trigger ancillary "demand-pulls" within the region. For example, increased production will heighten the demand for agriculture inputs such as chemical fertilizers and improved seed varieties. It will also increase the requirements for technical assistance, for example, in the form of skilled researchers and extensionists to guide the application of the new technology. Furthermore, the market pull for Chapare produced and processed commodities will contribute to the formation of additional agroindustries in the region - some of which will include Chapare farmers in manage-

ment and ownership roles. This, in turn, will increase the credit demand for working capital and start-up costs as well as the requirements for organizational development and enterprise management technical assistance. Finally, the synergism of these factors will bring increased income and heightened expectations to Chapare residents, raising the demand for consumer goods and the provision of basic social services.

2. Project Strategy

The project consists of three principal, integrally related components: (1) agricultural and forestry production, (2) agribusiness development, and (3) project administration/institutional development. The project is not only an attempt at achieving coca substitution in the Chapare, but is also a comprehensive effort to develop an agriculturally promising frontier region of Bolivia. The project is an indispensable, integral part of the GOB's coca control program, and, as such, will contribute to important USG objectives in that area. Within the general demand-pull approach, the strategy at the project implementation level, which harmonizes the three components with each other and with coca control efforts, is one which confronts the ecological constraints of the Chapare, the exigencies of the markets for Chapare commodities, and the current limitations of the institutions involved in the project. The strategy also encompasses the need to provide alternatives, to ease the transition of farmers away from coca production.

The agricultural and forestry production elements will modify existing farming systems in the Chapare so as to make them both more efficient and productive. The underlying principle of all activities included in this component will be adaptation to the ecological realities of the region. Accordingly, research and extension initiatives will be focused on developing and diffusing technological packages which are tailored to the environmental probabilities of each of the Chapare's life-zones. The table 3 below illustrates the life-zones in the Chapare, the hectarage of each type of life zone, and the zone's relationship to the administrative sub-divisions (micro-regions) in the Chapare.

TABLE 3

ABSOLUTE AND RELATIVE AREA BY LAND CAPABILITY CLASSES AND MICRO REGIONS IN THE CHAPARE PROJECT AREA UNDER ADVANCED TECHNOLOGY

Micro-region		A. Annual Crops	P. Pasture	C. Permanent Crops	F.1 Forestry	F.2 Forestry	X. Protection	Tota
1	has.	-	775	-	1,050	8,275	88,835	[illegible]
	%	0.0	0.8	0.0	1.1	9.3	99.0	
2	has.	-	70	550	6,402	12,325	15,425	[illegible]
	%	0.0	0.2	1.6	16.4	35.4	44.4	
3	has.	6,025	25,650	6,725	5,400	3,250	1,200	[illegible]
	%	12.5	53.2	13.9	11.2	6.7	2.5	
4	has.	-	15,486	6,566	8,767	9,437	10,547	50,[illegible]
	%	0.0	30.5	13.0	17.2	18.5	20.[illegible]	
5	has.	15,350	8,575	-	7,750	1,250	675	33,[illegible]
	%	45.7	25.5	0.0	23.1	3.7	2.0	
6	has.	-	16,450	4,375	3,475	4,775	10,650	3[illegible],7
	%	0.0	41.4	11.0	8.8	12.0	26.[illegible]	
7	has.	8,525	24,725	4,450	18,425	2,900	5,050	6[illegible],0
	%	13.3	38.6	6.9	28.8	4.5	7.9	
8	has.	375	21,375	1,350	7,175	5,775	3,100	3[illegible],1
	%	1.0	54.6	3.4	18.3	14.8	7.9	
9	has.	3,775	11,225	-	5,450	425	500	2[illegible],3
	%	17.7	52.5	0.0	25.5	2.0	2.3	
Total	has.	34,050	124,331	24,038	63,894	48,412	127,983	422,7
	%	8.1	29.4	5.7	15.1	11.4	30.3	1
		43.2			26.5		30.3	

Best Available Document

There are several examples of how ecological considerations will influence the design of technological packages. As can be seen from Table 3, micro-region 1 includes no significant area of land with agricultural potential at either a traditional or advanced technological level. Ninety percent of micro-region 1 is suitable for protection and the remainder for forest production. With improved technology, it is estimated that some 775 hectares, (8.2 percent) of the forest production land in this region could be converted into permanent crops and pasture areas. Given these conditions, technical assistance will principally promote the development of tree crops. In addition, green leafy vegetables under long-term rotation with timber plantations will be introduced to stabilize land use and heighten productivity in the region without causing further ecological deterioration. Cultivation of lands in the protection category will be legally prohibited and people currently working such lands will be given preference for relocation onto the lower plains.

At the other end of the spectrum, Table 3 points out that micro-regions 3, 5, 7 and 9 contain sizeable quantities of land which, under enhanced technology, can be improved to become Clean Tilled Crop areas (lands that can support continuous open-field cropping and pasturing of livestock without ecological damage) and Permanent Crop and Pasture areas (land that may be used for pasturing livestock or permanent crops e.g. citrus fruit, bananas, palm heart - that do not require clean tillage of the soil). Accordingly, technical packages will consist of recommendations for improving yields of appropriate annual and tree crops and increasing the productivity of livestock.

The key factors that will influence the establishment of research and extension priorities are: (1) the relationship of a given commodity to one of the planned large scale agroindustries, and (2) the need to provide farmers with an immediate source of income to compensate for reductions in coca. Those commodities that are to be processed and marketed through large scale agroindustrial initiatives in the Chapare represent the core of the project's demand-pull strategy. As the markets already have been established, it is imperative that efforts begin early in project implementation to improve the production, qualitatively and quantitatively, of hogs, palm heart, citrus, kudzu, and wood. Accordingly, these commodities will be a high priority of research and extension efforts.

Successful implementation of the Chapare Coca Control Plan requires that control and development efforts be implemented concurrently. Although the control plan provides for a basically repressive program for reduction and control of coca cultivation, it recognizes that farmer cooperation and voluntary reduction of coca production is basic to overall success. To ease the transition to producing smaller quantities of coca, development efforts must be prepared to provide farmers with an immediate, albeit partial, means to compensate for the income lost.

The selection of commodities for large scale processing and marketing partially addresses this requirement. All four products, citrus, kudzu, hogs and wood, are currently produced and available in the Chapare, and require limited research and development to apply appropriate technology that will increase production. These commodities will provide an immediate source of income. Moreover, the technological packages developed for each of the life-zones and corresponding micro-regions will emphasize, to the extent ecologically possible, a combination of short-term return (annual crops, forestry and barnyard livestock) and long-term return (perennial and tree crops) interventions. Institutional limitations on both the control and development aspects of the program prevent the implementation of activities in all areas of the Chapare simultaneously. Accordingly, the implementation strategy, especially with respect to agroindustry production and marketing activities, will follow a geographic phasing pattern until all areas are serviced. Initially, these activities will be concentrated in micro-regions 3 and 7. These two regions were selected because of the heavy concentration of coca production and the development potential of the area (of the micro-regions, these have the highest concentrations of first and second quality agricultural land). Moreover, these are areas in which the crops that will be demanded by large-scale agroindustries are produced. Subsequently, production and large scale marketing activities will be expanded to micro-regions 5 and 9 which are next in order in terms of availability of land suitable for agriculture. Finally the needs of micro-regions 4, 6 and 8 will be addressed. As noted above, other than the introduction of minor technical inputs, micro-regions 1 and 2 will be left as protected areas.

Feasibility studies for the small-scale, Chapare specific agroindustry initiatives will begin early in the implementation period. In order to add an element of equity to the overall development of the Chapare, efforts will be made to place the small projects in micro-regions dominated by the less favorable life zones. Profiles of potential Chapare specific agroindustry activities and the selection criteria to be used for including them in the project appear in Annex E.

As noted previously, three frozen AID loans, all of which provide social infrastructure (e.g. roads, potable water systems, etc.), will form a part of the overall Chapare effort. To demonstrate a development presence throughout the Chapare, infrastructure improvements will be carried out in all micro-regions, with the exception of regions 1 and 2. Institutional limitations will preclude the implementation of each type of activity simultaneously in every micro-region. Therefore, road improvements, an infrastructure element critical to the demand-pull strategy, will follow the course of production and large-scale marketing interventions -- roads will be upgraded first in micro-regions 3 and 7, afterwords in micro-regions 5 and 9 and finally in micro-regions 4, 6 and 8. Community-based development works will be carried out first in micro-regions 5 and 9 and rural sanitation facilities in micro-regions 4, 6 and 8. As the project proceeds,

the zones of concentration for each type of infrastructure will be rotated.

The approach for executing the project administration institutional development component of the project also will follow from the demand-pull strategy. For example, priorities for improving IBTA's capability, especially in terms of human resource development, will be those areas (forest management, tropical soils management, fruit plant improvement and livestock management) which correspond to both large and small scale agroindustry projects. Similarly, organizations such as FENACRE, CORDECO, and the ICIs involved in farmer organization activities and/or the provision of credit to producers will schedule activities to support the large and small scale agroindustry projects first and then branch out of other geographic areas.

D. End of Project Status

With regard to each of the major components, the following objectives will be achieved by the end of the project.

1. Agricultural and Forestry Production

a. Research and Extension

Within the context of research and estension there will be:

(1) a public sector applied agricultural research and extension capacity (i.e. IBTA) established in the Chapare to promote improvements in agricultural and forestry production and diversified farming appropriate for the Chapare;

(2) a complementary private sector research and extension system;

(3) a system for responding to supply-demand relationships between production and marketing;

(4) the availability and diffusion of agricultural and forestry technological packages to improve the agro-forestry production systems of small farmer in the Chapare;

(5) a small farmer organizational structure which will facilitate the meeting of increased production-marketing requirements;

b. Agricultural Credit

Concerning agricultural credit, the end of project status will be:

(1) the establishment of a self-sustaining credit system employing realistic interest rates for both short-and medium-term credit as well as savings mobilization program; and

(2) the creation of diversified agricultural credit delivery mechanisms through which a mix of lending institutions will provide credit to Chapare farmers.

2. Agribusiness Development and Marketing

With respect to this component, by, the end of the project there will be:

a. an information clearing house which can identify local/regional markets for Chapare products.

b. procedures for identifying and testing the feasibility of both large and small subprojects;

c. effective commodity processing and marketing systems.

3. Project Administration/Institutional Development

By the end of the project, there will be an organizational structure with a trained human resource base for managing the delivery of project inputs and coordinating with the coca control program. This structure will include the balanced participation of elements from Bolivia's public and private sector.

4. Coca Reduction and Control

A system to effectively reduce the amount of coca planted to legally acceptable levels, will be in place.

Further details of the end of project status are found in the Logical Framework, Annex B.

IV. PROJECT DESCRIPTION

The project consists of three major components: (1) agricultural and forestry production, (2) agroindustrial development and marketing, and (3) project administration-institution building. This section contains a description of each of these components and its relationship to the overall demand-pull strategy. These descriptions are followed by an elaboration of the financial arrangements that will govern the funding of the various activities.

A. Agricultural and Forestry Production Component

1. Constraints

A variety of ecological factors constitute a key constraint to expanded agricultural and forestry production in the Chapare. Extremely high rainfall (yearly average is 2500 to nearly 5000 mm) and the abrupt transition from broken topography to a nearly level plain are responsible for large areas of land that are poorly drained and subject to compaction and severe flooding. The short dry season results in several liabilities, including insufficient time to clear pasture of weeds, a high seasonal demand for labor as harvest and land-clearing activities tend to coincide, and difficulties in drying and storing certain commodities (e.g. corn, rice). Finally, as noted previously, the soils derived from poor parent material, under wet conditions, develop into a composition that is high in acid and aluminum toxicity and low in nutrients. In sum, because of the ecological conditions, with limited exceptions, the Chapare is not suited to intensive annual crop production, but has significant potential for agricultural and forestry systems and forestry related activities. Not only can yields be increased for most Chapare crops through the application of available technologies, but the relative amounts of land that can be exploited under annual and perennial crop and livestock systems can be increased by 30-35 percent.

In addition to the ecology, there is a related series of secondary constraints which affect production possibilities in the Chapare. These constraints include limited knowledge of improved farming techniques, especially as related to soils management and crop rotation, a dearth of modern agricultural inputs, and limited access to credit.

2. Production Strategy

The strategy to deal with the production constraints flows from the demand-pull approach governing the entire project. Farmers will have no incentive to modify their current systems and undertake new technologies without the clear prospect of a reasonable economic return. The marketing-agroindustrial component of the project is designed to expand profitable, stable markets for existing commercial crops as well as induce the expansion of other crops with favorable commercial potential. Accordingly, commodities that will be the first to receive the attention of research and extension efforts will be citrus fruit, kudzu, wood, hogs,

palm heart, rice, tea, cattle, bees, yuca, corn and pineaple. At a later date, attention will also be given to such products as coffee, cacao, rubber, and bamboo. Activities in the production component, centering on agricultural research and extension and the provision of credit, will increase the technological knowledge available to farmers, enabling them to meet the quantity, quality, and timing requirements of potential markets, while increasing on-farm production efficiency.

a. Systems Research and Extension

The research and extension activities in the project will be coordinated by the Bolivia Research and Technical Assistance Institute (IBTA). Although the thrust of the project is to increase farmer income through direct participation in productive enterprises (i.e. improved farm production and marketing), a certain amount of agricultural research is necessary. However, the emphasis in the design and methodological approach will be to provide pragmatic solutions appropriate for the ecological conditions found in the Chapare, so as to increase production of commodities of consequence in the region. Accordingly, although some investigations will be conducted at IBTA's experimental stations in the Chapare, most will take place on the holdings of Chapare farmers under the very conditions which they (the farmers) experience. In addition, the studies carried out in the Chapare will be linked to tropical agricultural research being conducted in other Latin American countries (e.g. Perú, Brazil and Costa Rica).

b. Diagnostic Studies

Both short-term and long-term improvement of Chapare production systems require further study of the dominant ecological conditions found in the area. The basis of such work will be the land use capability and actual land use research already completed, coupled with more detailed soil fertility and agrometeorological research. The prevailing agricultural and forestry systems used by farmers will be more fully analyzed and experiments and field trials will be undertaken with combinations of annual (e.g. rice, corn, yuca) and perennial (e.g. citrus fruits and woods) crops that show promise for adaptation to the various Chapare life zones. This work will be carried out by teams composed of research technicians, extension agents, and collaborating farmers. Technical assistance advisors will assist in the design and execution of this work. The phasing of this research will coincide with the demand-pull strategy of the project -- i.e. it will be carried out first in those areas immediately affected by the requirements of the large scale agroindustry initiatives of this project. Hence soils and crop research will be carried out initially in micro-regions 3 and 7, thereafter in micro-regions 5 and 9, and, finally, in micro-regions 4, 6 and 8.

c. Representative-Demonstration Farms

A critical element of the pragmatic research and extension approach will be the establishment of representative-demonstration farms. These farms will be holdings of typical small growers in the Chapare who in exchange for technical assistance and inputs will provide land for applied experimentation. It is anticipated that 20 such farms will be established in each of the Chapare's micro-regions, except for the protected areas -- micro-regions 1 and 2. In accordance with the overall demand-pull approach, the geographic sequence of setting up these farms will coincide with the micro-regions that are priorities in terms of potential production capabilities.

With the assistance of extension agents' initial farm plans, including a map of future production subdivisions, cropping and rotation schedules will be developed for these farms. Applying known tecnologies, existing data and research from other analogous humid tropical areas, conditional packages of recommended practices will be defined and implemented or refined under on-farm trial conditions. As needed, on-station research trials will be designed and implemented to gain more exact data than on-farm conditions will allow. As on-farm and on-station data and experience permit, additional farms will be identified to serve as demonstration areas for the systems and production improvement packages being promoted. The farm planning will be an on-going activity conducted by teams of researchers, extensionists and paratechnicians trained in practical farm planning techniques. These plans, developed initially for representative-demonstration farms, will provide farmers with information regarding soils, slope, drainage unit combinations and their production possibilities, crop-forestry adaptations, farming practices, activity calendar and projected financial flows.

3. Extension Element

The main thrust of the extension element will be technical teams made up of professional extension agents and paraprofessional assistants. The former will be university graduates, specialized in agronomy, who will be added to IBTA's Chapare staff. The latter will be recruited from among Chapare farmers and also contracted by IBTA. Over the course of the project, both groups will be given training in tropical farming systems and will work closely with IBTA research specialists in establishing the representative-demonstration farms.

The basis for the design of this component is that it will provide intensive training and supervision as new technology is introduced into farm production systems. Moreover, by complementing the work of professional extensionists with paraprofessionals, the radius of farmers receiving assistance will be significantly increased. Finally, the design provides for a two way flow of information, through a system of referrals, from the farmer to the paraprofessional, to the professional extension agent, and eventually to the researcher and the converse.

It is anticipated that 15 professional extensionists will be recruited over the life of the project. By the fourth year of the project, there will be two agents in each of the seven active micro-regions, plus one agent in micro-region 2. Initially, each agent will concentrate on carrying out diagnostic land use and capability studies and recruit farmers to participate in the representative-demonstration farm program. Farms will be selected on the basis of life zone characteristics and farmer interest. The objective will be to establish a group of farms which, as a whole, reflect the range of environmental possibilities and limitations found in each micro-region. Preference, in terms of initiating activities, will be given to farms which have the best land classification and which are a "type" farm directly linked to a large-scale agroindustry intervention.

After selecting the farmers, each agent will begin a concentrated program of introducing agricultural innovations, compatible with the local environment, to improve the existing farming systems. As a part of the program, agents, assisted by paraprofessionals, will maintain a log on each farm and will establish a firm schedule of bi-weekly visits with each cooperating farmer for a period of one year. Thereafter, the visits will occur less frequently as the team recruits and works intensively with a second group of cooperating farmers. It is expected that this component of the extension program will occupy 60 percent of the agents' working days per month.

Simultaneously, with the start of field activities by extension agents, the process of contracting the paraprofessionals will begin; it is anticipated that a total of 45 will be hired. They will be recruited from among farmers in the Chapare and employed by IBTA on a part-time basis. After an initial period of training in tropical farming systems, the paraprofessionals will be assigned to work with a professional agent in establishing the representative-demonstration farms and other extension activities. The principal functions of the paraprofessionals will be to prepare farmers to participate in the demonstration-representative farm program, assist extension agents during the one year period of intensive work with each group of participating farmers, and provide periodic follow-up after the intensive period has concluded. The methodology they will use in carrying out these tasks is similar to the MEDEX approach used in some rural health programs. That is, they will be equipped to offer established technological packages and recognize symptoms of common problems for which they will recommend standard solutions. Any problem that cannot be treated by a standard solution package will be brought to the attention of a professional extensionist.

Over the life of the project, fifteen 4-person extension teams will be formed. There will be two teams in each of the seven active micro-regions and one team in regions 1 and 2. Each team will be composed of a university trained professional extensionist and three paraprofessionals. In the first year of the project, three of the extension teams concentrating in micro-regions 3 and 7 will focus on introducing technological packages in

support of the citrus, swine, particle board and kudzu agroindustries. The team in micro-regions 1 and 2 will deal almost exclusively with an improved forest production system. In the second year of the project, the remaining 12 extension teams will be organized and fielded.

4. Group Methods

An important complement to the demonstration-representative farm program will be the use of group educational methods to expose the general farming population to improved production techniques. For the most part, these methods will consist of field days focused on aspects of tropical farming systems conducted on a demonstration-representative farm in a given micro-region. Demonstrations and materials for the field days will be prepared and presented by IBTA extension agents and research experts. Printed material, with a very simple format, in support of the demonstrations, will be prepared by technicians at IBTA's Chapare research-extension stations and distributed to farmers in attendance. Once the extension teams are formed, there will be a minimum of three field days per year in each active micro-region covering a variety of agricultural topics.

IBTA's Chapare team will also develop material for radio programs that will be broadcast from a small radio station, financed with project funds, to be located in the Chapare. The radio network will consist of single sideband AM transmitters (SSB) in eight of the nine micro-regions* linked to IBTA's research station in La Jota, and a repeater-transmitter to broadcast programs from the Radio School of Bolivia (ERBOL) station in Cochabamba. Programming will include ERBOL's broadcasts concerning news, nutrition, health, agricultural practices and community organization, in addition to local information on market prices, weather and road conditions, meetings and other items of parochial interest. The project will provide $150,000 in loan funds to procure the necessary equipment, and IBTA will pay for the operation and maintenance of the SSB and broadcasting facilities. The contract for the procurement of the broadcasting equipment will include short-term technical services to train IBTA personnel in its use and maintenance.

To ensure the existence of a two-way communication flow between IBTA technicians and farmers, Community Extension Councils composed of local growers will be organized in every micro-region. Each Council will have 10 members representing different areas within the region. The Councils will meet at least three times yearly and provide inputs for guiding the research and extension program. IBTA extension agents will have the responsibility of organizing these Councils.

---

* As described previously, for purposes of this project, micro-regions 1 and 2 will be covered by one extension team.

5. Individual Farmer Assistance

It is anticipated that farmers, facing a reduction of the coca trade and exposed to improved marketing prospects for other crops and forest products they currently grow, will seek assistance from IBTA technicians. Accordingly, a portion of the time of the researchers, extension agents and paraprofessionals will be dedicated to responding to such ad hoc requests. Again, the team concept will be utilized, with consultation occurring as necessary among farmer, extensionist and researcher to provide an appropriate production strategy or solve a particular problem.

6. Nurseries

PRODES has established seven community nurseries in the Chapare which are producing seedlings and propagation materials (citrus, cacao, peach palm, pineapple, rubber, forest species, etc.) for use by local farmers. IBTA/Chapare will assume responsibility for improving and expanding the community nursery system. It is estimated that a total of 12 nurseries will be needed to improve selected crop lines and agroforestry systems in accordance with the diverse ecological life zones found in the Chapare. Local farmers will pay for nursery stock, but the charge will be adjusted to reflect community contributions (e.g. land, labor for land clearing and minor facility construction) for the construction and maintenance of the nurseries. IBTA will fund the salaries of the technicians assigned to maintain the nurseries. The Institute will receive technical assistance from the National Forestry Department (CDF) in managing the forest species nurseries.

7. Credit

a. Objective

The objective of the credit component is to develop a viable, self-sufficient financial system in the Chapare which will mobilize savings and channel them to their most efficient uses in the region. Consequently, a market-oriented approach to savings mobilization and allocation of credit will be promoted; i.e. positive, real rates of interest will be encouraged for back savings and credit activities which will provide an attractive return to lenders and allocate credit to borrowers on the basis of potential profitability. To complement this, institutional lending practices and criteria will be streamlined to facilitate small farmer participation in production credit programs.

b. Credit Channels

The delivery system for production credit will include various types of ICI organizations including the Bank of Cochabamba (BC), and FENACRE. A total of $7 million, all provided by Title III resources, will be made available for these activities.

The Bank of Cochabamba is the only commercial bank with an office in the Chapare (Villa Tunari - micro-region 3). It has a streamlined,

efficient credit delivery system involving a minimum of paperwork and has done most of its lending to small farmers. In addition, the Bank has operated a highly successful savings mobilization program, due principally to offering attractive rates of interest (34 percent) to Chapare growers. With the initiation of this project, the BC will open a second branch office in Villa 14 de Septiembre (micro-region 3) and plans to establish mobile banks to gather savings and make loans in more remote areas.

The bulk of the costs associated with the expansion and maintenance of the BC's operations in the Chapare will be financed by the Bank. However, Bank personnel will participate in the in-service training courses for FENACRE credit agents to be financed by the project. It is planned that $4 million of Title III funds will be funneled through the BC for production credit in the Chapare. In addition, the Bank's aggressive savings mobilization program is expected to significantly increase its lending capital.

Complementary to the Bank's efforts, an additional $3 million in Title III generated resources for production credit will be channeled through FENACRE. Approximately $1 million of this amount will be distributed through the existing FENACRE cooperatives (Nueva Canaan and La Victoria) and pre-cooperatives (El Piñal, Arco Iris, Tarata, Agropecuaria Multiactiva) in the Chapare. The remaining $2 million will be programmed through the farmer organizations that FENACRE will assist, formed in response to the increased production demands related to the agroindustry sub-projects.

The National Office of Integral Cooperatives (ONCICOOP) will provide technical assistance to these COOPS. AID assistance will be channelled through FENACRE and will consist of training to members on organizational management, lending and borrowing criteria, benefits of saving, and general cooperative principles. The costs of ONCICOOP's activities will be financed with Title III funds.

By the end of year two, it is expected that farmers in all of the active micro-regions will have access to one or more credit sources. The growers will receive assistance in planning and preparing credit requests from the credit agents employed by each of the lending institutions who will work in conjunction with the extension personnel assigned to each given area.

To complement the assistance provided to farmers through production credit, an additional $3 million in Title III monies will be made available for the development of farmer organizations (e.g. cooperatives, growers' associations). A portion of these funds, approximately $672,000, will be used to develop the institutional capacity within FENACRE to carry out these tasks. The balance of the money will be employed in direct support of the farmers organizations that will be formed. For example, these funds will be used to hire administrative personnel and provide logistical support to the livestock breeders' association that will be established in relation to the swine fattening agroindustry initiative financed by this

project (see Section III.B.4. (c) for details). Similarly, these funds will help establish farmer owned input supply outlets. Currently, most of the inputs available in the region are supplied by middlemen who purchase in Cochabamba and re-sell in the Chapare in small volumes at high markups. The exceptions are three successful inputs supply cooperative stores, all located in the Chimoré area. Those stores purchase fertilizers, pesticides, tools and other inputs in bulk for sale to participating farmers at prices 20 percent - 50 percent below those of other retailers. To address farmers' input supply needs, over the life of the project, three additional input supply outlets will be established. They will be located in different micro-regions and cover the entire area.

c. Production Credit Demand

Demand for credit to implement the farming system modification promoted by this project will include financing for inputs (e.g. herbicides, fertilizers, improved seeds and plant material), labor for land clearing and cultivation of tree-bush crops (such as citrus fruits, papaya, and bananas), and the purchase of livestock. Determination of credit demand is based on field study conducted by Dr. Jerry Ladman, a recognized credit expert from Arizona State University. Ladman first analyzed the production probabilities of 9 commodities (see Table 4) that were likely to be planted over the five year life of the project. This analysis considered the full range of constraints (e.g. ecological, marketing, technical and institutional) that impact on production levels. Next, the research method scrutinized the two principal costs of production — inputs and labor. It was assumed that the farmers will need to finance all of the capital goods and 70 percent of the labor. It was further assumed that the cost of the capital goods will increase by 50 percent per year (which approximates the average of the last four years), and that labor costs will increase 30 percent annually (also the past four year average).

The analysis of constraints, combined with the assumptions on the costs of production and estimates of hectareage planted (or size of module in the case of livestock) for each of the swine commodities, provided the calculations of production credit required by the project. As can be seen from Table 3, the credit demand increases annually from $409,000 in the first year to over $4 million in year five, reflecting the ever increasing rhythm of activities. The Table also reveals a total projected credit demand of slightly more than $8 million. The difference between this figure and the $7 million available in Title III resources for production credit will be covered by money generated through savings mobilization campaigns.

TABLE 4

LOAN CAPITAL NEEDED TO FINANCE SELECTED CROPS, AND LIVESTOCK ACTIVITIES, CHAPARE, FIVE-YEAR PROJECT

Crop or Activity	Total No.of hectares or Heads financed	First Year	Second Year	Third Year	Fourth Year	Fifth Year	Total	Cummulative Total
Bananas	350	11.0	33.3	50.1	88.2	20.5	203.1	203.1
Cacao	650	13.2	78.1	240.7	158.4	153.1	643.5	846.6
Cattle Fattening	500	9.2	37.9	57.3	38.9	-	143.3	989.9
Citrus	170	5.4	15.1	37.7	57.5	35.4	151.1	1,141.0
Coffee	250	-	-	108.2	128.9	249.4	486.5	1,627.5
Heart Palm	450	-	30.8	49.9	112.7	893.9	1,087.3	2,714.8
Hogs	15,000	11.8	69.9	78.7	78.7	78.7	317.8	3,032.6
Papaya	320	4.4	14.9	32.1	54.4	88.6	194.4	3,227.0
Pinapple	75	39.8	104.9	166.8	247.4	631.8	1,190.7	4,417.7
Rice	3,500	141.7	90.7	139.9	215.0	621.4	1,199.7	5,617.4
Rubber	500	62.4	124.8	109.8	154.7	1,300.1	1.751.8	7,369.2
Tea	300	110.5	192.6	97.4	105.7	114.9	666.1	8,035.3
TOTAL:		409.4	793.0	1,168.6	1,485.5	4,187.8	8,035.3	

Source: Calculated on the basis of data provided by Nogales Report and data in Feasibility studies by "Asesoramiento Empresarial S.A."

TABLE 5

II. AGRICULTURAL PRODUCTION
(US$ 000)

	A. I. D.				HOST COUNTRY				
	Grant	Loan			GOB	Title III	Private Sector	Total	Grand
	FX	FX	LC	Total	LC	LC	LC	LC	Total
II. Agricultural Production									
1. FENACRE	477	-	-	477	-	672	190	862	1,339
2. IBTA	2,725	847	1,764	5,336	530	-	-	630	5,966
3. CORDECO	220	-	-	220	35	-	-	35	255
4. Farmers Federation	-	-	-	-	-	120	45	165	165
5. Research and Extension	-	-	783	783	15	-	19	34	817
6. Agricultural Production Credit	-	-	-	-	-	7.000	700	7.700	7,700
7. Farmer Organization-Marketing Credit	-	-	-	-	-	2,268	221	2,429	2,429
	3,422	847	2,547	6,816	680	10,000	1,175	11,855	18,671
Contingencies (5%)	-	42	127	169	-	-	-	-	169
	3,422	889	2,674	6,985	680	10,000	1,175	11,855	18,840

B. Agroindustrial Development and Marketing

1. Objective

In keeping with the demand-pull strategy of the project, the objective of the agroindustry component is to further develop regional, national and export markets for Chapare products. This objective will be achieved through a series of specified actions to improve the present marketing system and provide viable marketing alternatives for the area's farmers.

2. Marketing Constraints

As it is currently structured, the Chapare's marketing system is hindered from achieving its full potential by a series of related constraints. Among the key impediments are: (1) limited agroindustrial processing capacity at the local and regional levels, (2) limited knowledge among farmers concerning commodity prices and markets, (3) lack of farmer marketing organizations, (4) government food pricing policies which favor consumers over producers, and (5) an underdeveloped rural infrastructure network - especially with regard to secondary roads, electricity and collection centers. The first three constraints will be addressed by this project. Pricing policy reform will be addressed by USAID/Bolivia's recently authorized Policy Reform project. Questions of infrastructure will be addressed by USAID/Bolivia's Rural Roads II, Village Development and Potable Water projects and the activities of other donors.

3. Strategy

The strategy to be employed by this project to overcome the key marketing constraints will be a two-track approach for the development of agroindustries for processing and marketing of Chapare products. Track one consists of four large scale agroindustrial projects (each costing more than $600,000) for which there are identified, committed private sector Bolivian investors. Track two will be composed of a minimum of ten smaller scale (averaging less than $200,000 apiece) processing and marketing interventions. In this regard, it should be noted that a complementary $ 5 million Chapare marketing and agroindustry project is currently scheduled for FY 1985, that will respond to additional agroindustrial opportunities, which are identified over the next two years.

4. Profiles of Large Scale Interventions

The four large scale interventions are fruit processing, particle board production, swine fattening and kudzu dehydration. For each of the sub-projects, detailed production, processing and marketing feasibility studies have been carried out which indicate that the activities are financially sound investment opportunities with acceptable rates of return for both the investors and the Chapare farmers who will be

producing the raw material. Finally, all four sub-projects deal with commodities already being grown in the Chapare. Accordingly, they will provide an immediate return to the farmers - a matter which is extremely important as income from coca declines in accordance with the reduction program.

a. Citrus Fruit Processing and Marketing

This initiative consists of the processing and marketing of lines of fruits produced in the Chapare. The processing and marketing activities will be undertaken by the Fábrica Nacional de Conservas Dillmann S.A., a Bolivian firm with headquarters and processing facilities in the city of Cochabamba. Dillmann was founded in 1923. Initial activities focussed on the manufacture of sausages and there was a gradual movement into the canning of meats, fruits and vegetables.

In 1976, the Company expanded its operations by building, at an estimated dollar cost at that time of $3.5 million,one of the modern food processing plants in Latin America. Currently, Dillmann is the leading food processing firm in Bolivia in regard to production volumes, product mix (it has 76 different fruit and vegetable items, 43 types of pork/beef byproducts and 16 varieties of canned meats),and quality. Its products enjoy wide acceptance within Bolivia and abroad (Perú) and the Company maintains a nation-wide distribution system. In keeping with the project strategy, this activity will be initiated with farmers in Chapare micro-regions 3 and 7 and then expanded to other zones.

The investment decision for this sub-project is based on the results of a marketing feasibility study conducted by the Coopers and Lybrand Consulting Firm, which estimated a yearly demand (both domestically and in the neighboring countries of Argentina and Chile) of 3.6 million liters of pure fruit juice. Meeting this demand will require the utilization of 13 percent of the Chapare's current annual production of citrus, or approximately 46,000 metric tons produced on slightly more than 4,000 hectares.

(i) Technical Feasibility

Over the life of the project, Dillmann will process, and introduce on the market, several lines of fruit concentrates (oranges, tangerines,grapefruit and pineapple), marmalades and jellies, ice cream flavoring, essential oils for perfume manufacture, and animal feed supplements.

The Company's current processing capacity is 300 metric tons of raw fruit material. Through the purchase of additional equipment, this capacity can be expanded to 1,600 metric tons in the first year, and gradually increase until the sixth year of operation when full capacity of 6,000 metric tons of raw fruit processing will be reached.

The plant's operating capacity will correspondingly increase from 28 percent of maximum capacity in year one to 45 percent in year two, to 57 percent in year three, 74 percent in year four, 91 percent in year five, to full capacity in year six. Production estimates for the first year are 900,000 liters of fruit juices,126,000 kilograms of marmalade, jelly and candy, 24,000 kilograms of essential oils, and 380 metric tons of residue. During the sixth year, when the plant is operating at full capacity, production levels will increase to 3.5 million liters of fruit juices, 450,000 kilograms of marmalade, jelly and candy, 8,600 kilograms of essential oils and 1,350 metric tons of residue.

Transportation of the produce from collection centers in the Chapare will be arranged by Dillmann through contracts with unions of truckers currently operating in the Chapare. The estimated cost of transportation from the collection centers to the plant in the city of Cochabamba is $15 per metric ton. The road upgrading in the Chapare, to be conducted under the Rural Roads II project, will reduce the spoilage loss of fresh produce such as citrus fruit, thereby contributing to the financial return of such agroindustrial interventions.

(ii) Marketing Plan

The commodities (fruit juices , marmalades, essential oils and animal feed) produced will be marketed nationally and internationally, and will be directed at both household and institutional consumers. At the national level, the Coopers and Lybrand marketing study indicates an annual household consumption demand of 2.2 million liters of 90 percent concentrate fruit juices, 21.0 million liters of 15 percent concentrate fruit juices, and 250 metric tons for marmalades, jelly and candy. Yearly consumption demand estimates for the institutional (e.g. restaurants, social clubs, work place cafeterías, etc.) market are projected to be equal to 5 percent of household consumption. Marketing of the products within Bolivia will be carried out through Dillmann's existing sales distribution system. Currently, this system consists of two hundred retail outlets, the majority of which are located in the urban centers of La Paz, Cochabamba and Santa Cruz. While this system functions well, it will be expanded to accommodate increased production levels. Similarly, Dillmann will increase its promotion efforts to facilitate the introduction of the new product lines (i.e. fruit juice concentrates and candy).

With regard to the export market, the feasibility study indicates an annual potential of four million liters of orange and pineapple juice concentrates in the neighboring countries of Peru, Chile and Argentina, as well as Ecuador. The international marketing arrangements (e.g. identification of potential buyers, contract negotiations, customs regulations and shipping) will be managed entirely by Dillmann. To this end, Dillmann will establish offices in the major cities of the countries involved.

(iii) Sub-Project Financial Analysis

The sub-project's incremental investment, or amount of borrowed funds required to finance the proposed project activities, is $ 1.9 million. Approximately 75 percent of the financing will be derived from AID loan funds discounted through the Central Bank, and 25 percent provided by ICI resources. Of the total loan amount, $1.51 million will be used for the purchase of fixed assets, consisting primarily of complimentary fruit processing machinery, light building construction, transport facilities and equipment renovation. In addition, Dillmann will require $ 360,000 in working capital to meet increased administrative costs of operation. The remaining $30,000 in loan funds will be used to cover deferred costs associated with the final engineering design of expanded plant facilities.

As a counterpart to the project's financial requirements, Dillmann has already invested $469,000 in fixed assets (land and building construction) that will be used as the basis for expanded operations in fruit production as envisioned under the sub-project.

The sub-project's Internal Rate of Return, based upon an incremental investment of $1.9 million, is calculated to be 18 percent. The stream of cash flows used to determine the IRR (see Annex C , Exhibit 1) shows a positive cash flow position throughout the seven year projected life of project. In addition, the 18 percent IRR, which is above the project's opportunity cost of 15 percent, is enhanced considerably by the existence of strong domestic demand for fruit juice, large supplies of raw material for fruit production, and good growth potential for fruit products within the Chapare. The provision of applicable technology, an adequate labor force, water resources, and a planned development program within the Chapare target area (including electrification programs, improved road networks and construction of fruit collection centers) indicate further the positive conditions which exist for successful completion of the sub-project's development objectives.

A review of Dillmann's projected balance sheet (see Annex C Exhibit 1) shows that during the initial two years of operation, the company will have a debt to equity ratio of approximately 4.5 to 1. This rate is reduced to 1.2 to 1 at the end of year three, which is substantially stronger than the normally accepted ratio of 3:1. The firm's liquidity position is somewhat restricted in years one and two, reflected by the fact that current liabilities are slightly greater than liquid assets on hand; yet, in year three this ratio is corrected, and increased in year four, demonstrating a healthy liquidity ratio of 2.8:1.

The cost of fruit processing relative to total sales and debt service costs will result in Dillmann experiencing net losses of $68,400 in years one and two. In year three, however, sales are projected to increase by 50 percent, while financial costs

are reduced by 30 percent, producing a net income of $560,000, which increases steadily over the next four years.

It is expected that a satisfactory employment generation ratio, defined by total capital investment compared to the amount of labor utilized under the sub-project, will be realized based upon the project's total investment of $2.37 million ($1.9 million from AID and ICI participations, and $469,000 from the Dillmann counterpart investment). Accordingly, the projected capital/labor ratio of the sub-project is estimated to be 14,350 to 1.

(iv) Social Soundness Impact on Farmers

Production activities related to this sub-project will begin in micro-regions 3 and 7 initially and then expand to other zones in the Chapare. In designated production areas within each region, farmers, with the assistance of FENACRE, will form growers' associations for the purpose of providing Dillmann with the required produce. These associations will have a local base and identity, will be formed to achieve a specific, tangible goal and will be organized (they may be cooperatives or less structured groupings according to the preferences of the members) in keeping with the realities of the small farmer society in the Chapare. The associations will function to negotiate contracts with Dillmann (thereby assuring both a fair price for the growers and the timely delivery of the commodities to the company), establish schedules for the collection of produce, oversee timely payment to farmers - i.e. at the time of delivering the fruit, provide directives to farmers on grading the fruit, and serve as a conduit for the provision of technical assistance and credit.

The small farm citrus producer will require an initial investment of approximately $3,986. This assumes the farmer begins operations with 2.2 hectares of citrus producing land having an estimated value of $3,300, based on the value of one cleared hectare of land ($1,000/hectare) and the added value of 2.2 hectares of citrus trees ($1,100). In addition to the fixed investments in land and citrus trees, the small farmer will need to purchase agrochemicals as well as cover start-up labor and administrative costs, totalling $686. Credit made available through the Title III program will enable the farmer to finance a portion of these costs.

The projected 7 year financial projections for a citrus producer are based upon: (a) labor costs consisting of 198 work days per year at $2 per work day, totalling $396 per year; (b) a cost of $176 per year in agrochemicals needed for citrus trees to reach their full production levels; (c) an administrative opportunity cost to the farmer, estimated to be 20% of total production costs, or $114 per year; and (d) a debt service cost of $70, calculated in year one only, to finance the purchase of agrochemicals. After year one cash flow revenues are sufficient to amortize the remaining debt.

The analysis assumes that the citrus producer currently has 2.2 has. in production, although he is using traditional technology and, consequently, yield projections will remain constant in years one through three (one tree yielding approximately 205 citrus units per year). In year four, greater production yields (300 citrus units per tree), brought about by improved technology, will increase by 33 percent annually through year seven. On the basis of this analysis, the Chapare citrus producer will have an Internal Rate of Return (IRR) on investment of 32 percent. A sensitivity analysis which reduces total citrus revenues by 10 percent and 25 percent over a seven-year period decreases the IRR to 28 percent and 24 percent respectively (Annex C, Exhibit 2). Average annual net profit in year five for 2.2 has. is projected to be $2,692.

b. Particle Board Manufacturing and Processing

The core of this sub-project will be the manufacture and sale of particle board sheets for use in home building and furniture making industries. The raw material will be drawn from the secondary growth forests (chume) of the Chapare, which is currently cut and burned by farmers in the process of clearing land for planting. The manufacturing and marketing activities will be carried out by Industrial Maderera de Prensaje y Afines S.A. (IMPA), a Bolivian Company with installations in Cochabamba.

IMPA was formed in 1978 by the owners of the San Silvestre saw mill located in the Department of Oruro. These owners have a wide experience in the wood and lumbering business.

With the formation of IMPA in 1978, the owners secured a loan through the Banco de Crédito de Oruro to construct a physical plant and purchase the processing machinery. However, a series of subsequent problems, including the Banco de Crédito de Oruro entering into bankruptcy and being intervened by the Central Bank of Bolivia, resulted in an interruption of plant construction (it is 80 percent complete) and installation of the machinery. In October of 1982, IMPA began negotiations with the Banco de Oruro on restructuring its outstanding debt. In April of 1983, the Bank of Oruro agreed to extend the repayment period of the firm's outstanding debt to eight years once IMPA has secured a loan with funds provided by this project.

The marketing feasibility study for this sub-project revealed national yearly demand of 102,000 m3 of unrefined wood products. Moreover, the almost unlimited amount of raw material (wood that is currently being burned during land clearing) holds the promise of future additional expansion to gain a greater share of the unmet market demand.

(i) Processing Plan

IMPA's particle board processing capacity has been designed to produce 10,500 m3 of the finished product per annum. Given

that the physical plant is complete and that the machinery is on-site and needs only to be installed, full production is expected by the end of the first year and maintained thereafter. It must be noted that, with an additional investment of US$ 500,000 for machinery, IMPA will be able to double its capacity, thereby being able to service 20 percent of the national demand. IMPA will finance the cost of transporting the raw material from collection centers in the Chapare to the processing facility in Cochabamba. As in the case of Dillmann, arrangements for transportation will be made with truckers' unions currently operating in the Chapare. The estimated cost of hauling the wood is $175 per truck load with a 10 metric ton capacity. The transportation of the wood will take place during the Chapare's dry season (June-September) and will be stockpiled at IMPA's Cochabamba facilities. A six-month reserve of raw material will be kept on hand at all times to assure continual production at maximum capacity.

(ii) Marketing Feasibility

The feasibility study carried out for this subproject reveals an ample potential market at the national level. The final products will be directed at the housing construction and furniture making industries. Key articles that will be manufactured include interior doors, and door jambs, interior walls, sub-floors, closets, as well as desks, tables and chairs. It is estimated that the typical middle class Bolivian residence includes 17.6 m3 of wood and wood products, which represents 42 percent of IMPA's daily production capacity. In global terms, two single family dwellings would take up the plant's entire daily production. Based on construction projections of the Bolivian Housing Bank, it is estimated that, nationwide, almost 6,000 new single family units will be built annually over the next ten years. This represents a potential yearly demand for particle board products of 101,904 m3, which would consume the plant's production for approximately 10 years.

(iii) Financial Analysis

The total incremental investment required by IMPA to meet the immediate demand for particle board products in Bolivia is $1.5 million, of which approximately 75 percent will be financed with A.I.D. loan funds channelled through the CB, and 25 percent from a local ICI. The purpose of this loan is to: (1) finance the purchase of fixed assets ($ 1.1 million), including wood processing machinery, office furniture, the cost of completing construction of the physical plant, installation of existing equipment, and (2) provide working capital ($ 400,000) for the purchase of production raw materials such as wood, glues and particle board additives. IMPA's contribution to the project is estimated to be $4.68 million, consisting of investments made previously for land, wood processing machinery and construction materials for the completion of the processing plant in Cochabamba.

A seven-year cash flow projection (Annex C, Exhibit 3) was used to estimate the IRR, or interest rate at which the project's discounted net cash flows equal the total investment required by IMPA to renovate and expand its operations. Based on a total project investment of $6,189 million, which includes IMPA's own contribution of $4.68 million, and an incremental investment in borrowed funds of $1.5 million, the project can expect an IRR of 22 percent, well above the estimated opportunity cost of 15 percent.

Given the strong demand for particle board in the housing and furniture industries, sales projections show that, in the first year of activities, all of IMPA's production (10,500 m2) will be absorbed by Bolivian domestic consumer markets, resulting in total sales of $4.89 million. A review of IMPA's income statement (Annex C, Exhibit 3) indicates that in year one, total sales will generate an after tax net profit of $146,300; in the second year of operation, net profit will increase by 37 percent to $201,400.

In the first year of the subproject, IMPA's debt to equity ratio (3.9:1) is slightly above the norm. This situation is attributable to negative net earnings at the start of the subproject, reflective of the fact that a portion of IMPA's debt burden was allocated to the firm's capital account. However, project revenues in years 2-5 substantially improve the debt/equity ratio to a financially sound .45 to 1 by the end of year five. Similarly, IMPA maintains an acceptable liquidity ratio (current assets/current liabilities) throughout the life of the project, reaching an extremely liquid position of 8.6:1 at the end of the fifth year.

In order to adequately staff the Cochabamba wood processing plant, IMPA will have to employ approximately 20 skilled technicians as well as 100 blue-collar workers. By comparing these figures with the project's incremental investment of $1.5 million required to initiate and subsequently expand production and marketing activities, it is estimated that one job will be created for every $12,500 of capital investment made under the project.

(iv) Social Feasibility - Impact on Farmers

The wood to be used for this sub-project is essentially waste material. It will come from the secondary growth forest (chume) that is cut and currently burned as part of land clearing activities, prior to the planting of annual and perennial crops. Designing a profitable use for this material fits well with the existing farming practices in the Chapare. It also takes advantage of an existing resource, and, therefore, will provide an immediate source of income. Its exploitation requires no learning of new practices on the part of the farmers, and it is an element of the normal slash and burn pattern of land clearing.

As with the fruit juice sub-project, producers' organizations will be established to negotiate contracts with IMPA on behalf of the growers and to assure IMPA of timely delivery of the raw material. Again, FENACRE will provide the needed technical assistance to the farmers in terms of institutional organization. In addition, IBTA will furnish technical assistance on proper forest management to avoid a negative impact on the environment.

Since wood in the Chapare region is customarily burned, there is no opportunity cost associated with the harvest ing process contemplated under this sub-project. However, there is an annual labor cost related to cutting, gathering and loading the wood for commercial distribution. The labor requirement is estimated to be four-work days per year for one hectare of chume, or a total labor cost of $8.00 plus a related administrative cost of $2 per year. Assuming average revenues from the sale of one hectare of chume of $75, the annual net profit to the farmer will be $65.

It should also be noted that a small farmer normally incurs an investment cost of approximately $60 for preparing his land once the secondary wood has been cleared. This sub-project activity by providing payment for waste material harvested, will serve to reduce the investment costs normally associated with whatever crop that will subsequently be planted on that hectare. For instance, if bananas were to be planted, the differences in internal rates of return to the small farmer would be 28.9 percent without the wood sub-project versus 33 percent with it (Annex C, Exhibit 4).

c. Hog Fattening

This sub-project deals with the production, fattening. slaughtering, processing and marketing of a variety of swine products, such as fresh canned pork meat, bacon,ham, lard and sausages. It will consist of providing Chapare farmers with modules of 10 piglets to fatten and sell for processing. Technical assistance,annual food supplements and medicines will be furnished with the piglets. The number of modules will be increased from 100 in the first year of operation to 600 per year when the sub-project is at full capacity, which will be reached in year two. Simultaneously to the hog fattening carried out by small farmers, Agropecuarias Copacabana (A.C.), a Bolivian firm located in the Chapare, will raise 8,000 pigs yearly.

A.C. was formed in 1973 and is the most important commercial livestock operation in the Chapare. The company has been involved in pig raising for over 10 years and has developed a cross breed animal (the genetic stock is Duroc, Hamshire and Yorkshire) which is well adapted to the ecological conditions of the region. It is one of the major hog producers in the Cochabamba valley, and the quality of its produce is considered to be excellent by all pork meat processors in Bolivia. According to international experts in swine, A.C. is judged to be one of the best managed hog breeding and raising facilities in tropical Latin America.

Agropecuaria Copacabana's role in this effort will be to provide the piglets to the farmers for fattening. Dillmann S.A. will process the hogs and market the pork byproducts.

The feasibility of this sub-project is based on the results of detailed marketing and production feasibility studies. The former, conducted by Coopers and Lybrand, demonstrated a sizeable unsatisfied domestic demand for pork byproduct line. The latter, carried out by Asesoramiento Empresarial S.A., (AESA), a Bolivian consulting firm, revealed that most Chapare farmers are currently raising hogs (of inferior quality with poor technology) and that production in the Chapare can be increased manyfold without radically disturbing the existing farming systems.

(i) Production Plan

In year one, A.C. will provide 10 piglets to the 30 participating farmers in region 7 for fattening. It is anticipated there will be two fattening cycles in that year and that each cycle will last between five and six months. The terms of participation are that the farmers demonstrate interest in the program, either have or are willing to construct, with local materials, a covered corral and have minimally .1 hectare of bananas and .1 hectare of kudzu to use as animal feed. In addition, the participating farmer must purchase the ten piglets at a unit price of $30 (i.e. $310/module). Title III credit funds will be available to assist the farmers with the purchase.

The piglets, upon delivery to the farmers, will each weigh approximately 15 kilograms. The fattening period will last from five to six months, during which time the average weight per animal is expected to rise a minimum of 90 kilograms. During this period, A.C. will provide the farmers with adequate rations of prepared food supplements and veterinarian services. At the end of the five-six months, A.C. will purchase the fattened animals from the farmers, deducting the costs of food supplements and technical assistance. A.C. will be responsible for delivery of the hogs to Dillmann for slaughtering and processing. In the second year of operation, the number of modules will be increased to 300 and the net profit will expand from micro-region 7 to other areas. In addition, a livestock raisers' association will be formed by participating farmers to organize the distribution of supplemental food and to arrange for production credit and technical assistance.

In addition to the 6,000 hogs that will be produced yearly by the campesinos (600 modules), A.C. will fatten 8,000 animals that will also be processed and marketed by Dillmann. A critical matter that will be addressed early in sub-project implementation will be the design of a plan for the distribution of hogs. The key elements of this plan will be the system of hog fattening in the Chapare and Dillmann's processing schedule.

(ii) Marketing Feasibility

The marketing feasibility study indicated that there is a favorable domestic market for the commodities to be produced by this sub-project. For example, the projected yearly household consumption for fresh pork is approximately 30,000 metric tons. Similar projections with regard to various types of sausages indicate consumption of over 35,000 metric tons, while demand for canned pork products is about 22,000 metric tons and demand for cold cuts is almost 25,000 metric tons. In 1980, the total pork production in the country was 36,000 metric tons. A simple comparison between production and projected demand figures reveals a vast potential market. This potential would be even greater were the institutional (e.g. hotels and restaurants) consumption to be taken into account.*

Similar to the citrus fruit project, marketing of the pork products will be carried out through Dillmann's existing sales distribution systems.

(iii) Financial Analysis

The estimated incremental cost of this sub-project is $1.9 million, and, as in the case of the fruit processing and particle board interventions, hog production will be jointly financed with 75 percent drawn from A.I.D. loan funds discounted through the BCB and 25 percent provided by a local ICI. Approximately $ 1.5 million will be used to expand the swine producing capacity of Agropecuaria Copacabana from 1,800 piglets per year to 14,000 piglets per year, and to provide Dillmann with $400,000 in additional working capital necessary to increase its swine product distribution and marketing systems.

About $ 1.36 million will be employed by A.C. for fixed asset investments in hog pen and fencing material, transport trailers and trucks, and for the purchase of mature hogs for breeding. In addition, A.C. will require $140,000 in working capital to be allocated for the employment of manual labor, hog feed supplies and other operational expenses. A.C. investment contribution to the project is equal to $2.1 million, which includes the provision of land and physical plant in the Chapare, and provides the base for undertaking project activities.

The discounted net cash flows projected over the 7 year life of project are all positive, with the exception of the first year, which shows a deficit of $231,000, as AC's cash inflows in year one are not sufficient to cover the cost of hog production as well as the firm's administrative and financial expenses (see Annex C, Exhibit 5).

---

* While some pork products enter the country through the illegal black market, the quantity is not sufficient to affect significantly the demand-supply ratio.

However, with a projected 65 percent increase in sales in years two through year seven, A.C. will be able to demonstrate sustained growth while generating increased profits. Therefore, given an initial project investment of $ 1.9 million, A.C.'s swine production operation will yield an Internal Rate of Return of 19 percent throughout the life of the project.

Another measure of A.C.'s financial health is found in the firm's capital structure. In the first year of activity A. C. will have a strong debt to equity ratio of .68:1 that steadily improves through year seven, at which point A.C. will have amortized all of its outstanding debt. In addition, although A.C.'s liquidity ratio of current assets to current liabilities will be below normal in year one, this condition is corrected in year two with a ratio of 1.36:1, and is increased to a highly liquid cash position of 17.99:1 by the end of year seven.

The employment generating capabilities of the hog production sub-project are excellent. It is estimated that A.C. will need to fill 17 positions (14 blue collar workers and 3 skilled technicians). In addition, 300 farmers, under a contractual arrangement with A.C., will be actively involved in the raising of piglets. Finally, Dillmann will need to augment its staff by 22 people to efficiently process A.C.'s increased swine production. Accordingly, on the basis of a total investment of $3.26 million ($1.9 million A.I.D. and ICI support, and $1.36 million A.C. counterpart investment), the project will have a capital to labor investment of $ 9,616.

(iv) Social Soundness - Impact on Farmers

This sub-project, as designed, is compatible with existing farming systems and the household division of labor in the Chapare. As mentioned previously, most farmers currently own swine, hence the introduction of the pig modules will not represent a radical change to known procedures, a factor that will contribute to rapid adoption of the modules by farmers. Moreover, animal raising is typically a chore attended to by women and older children. No significant change in this pattern is envisioned under this intervention. The only modification will be an increase of perhaps one-half hour in the work day to care for the hogs properly.

During the first year of the sub-project, FENACRE will assist with the development of a swine producers' association among the participating farmers. As this sub-project will be initiated in Chimoré, this association could be the same as that established for cattle and water buffalo interventions (Annex E). The purpose of this association will be to assist the farmers in contract negotiations with A.C. and serve as a conduit for needed production credit, T.A. and distribution of the required supplemental feed dosages.

Five years after the initiation of activities, it is estimated that Chapare farmers will be fattening 6,000 hogs annually. Assuming two fattening cycles per year with repeat participation by these farmers, approximately 300 families will be benefitted.

The initial investment required by the farmer to participate in this intervention will be the equivalent of $2,076. The investment is based upon: (1) fixed costs of $250 (construction of a hog pen and accompanying water supply system and septic tank), (2) the cost of feed supplements, calculated at $839, and the price of 20 piglets, estimated at $578, and (3) operating expenses comprised of labor costs ($80), the value of farm produced feed - bananas, kudzu and cassava ($86), and the value of technical assistance and veterinary services ($43). Assuming a current price of $1.30 per kilogram (live weight) and a final weight of 95 kilograms per animal, each participating farmer with 20 pigs will have gross annual earnings of $2,470.

As seen in Annex C, Exhibit 6, over a period of 7 years a small farmer producing hogs will realize an Internal Rate of Return of approximately 79 percent based on an initial investment of $2,076 necessary to cover the infrastructural costs of hog production, the purchase of piglets and feed, and the project's start-up operational expenses. By applying a sensitivity analysis to the sub-project's net cash flows projected over seven years (calculated by reducing net revenues by 10 percent and 25 percent), it is apparent that both new IRR's of 69 percent and 52 percent reflect substantial earnings for the small farmer. In terms of net income, the farmer's annual net profit is estimated to be $923.

d) Kudzu and Banana Dehydration Agroindustry Project

This subproject will process and market kudzu and bananas to produce kudzu hay, pellets, and flour, and banana chips and flour to be used as animal feeds. The activities of land clearing and preparation, and kudzu planting, harvesting and processing, will be supervised by the Equipo Chapare (E.C.), which is legally established as a non-profit development group.

Equipo Chapare is one of the few organizations in the region that have been working at the farm level with active programs in crop production and processing. E.C. has been in the Chapare since 1977, and among the services it provides to farmers are: (1) mechanized land clearing, (2) mechanized planting and harvesting of kudzu and marigold flowers and (3) the processing of kudzu and marigold flowers to produce a poultry feed supplement.

From its inception, E.C. has been receiving financial support from the United Methodist Committee on Relief. In addition, it has received funds from Bread for the World, The National Association

for Economic Development, and the Committee for Irrigation and Agricultural Improvement.

(i) Kudzu Production Plan

To increase the existing hectareage planted in kudzu, Equipo Chapare will expand its assistance to farmers in mechanical land clearing, sowing, harvesting and transportation. In the first year of activity, Equipo Chapare will concentrate on harvesting the 120 hectares of kudzu that are currently under production. The amount of kudzu planted will be increased steadily until 268 hectares are cultivated in the subproject's seventh year. It is anticipated that 268 farmers will be involved when the activity reaches full production.

(ii) Processing Plan

The dehydrating plant to be installed in Nueva Canaan-Chimoré by Equipo Chapare will absorb 1,760 metric tons of green kudzu in the first year of operation and expand gradually to almost 12,000 metric tons by year seven. The plant also will process up to 5,345 metric tons of bananas by the seventh year of operation. From the seventh year on, absortion volumes of both fresh kudzu and bananas will remain constant with plant operation at full capacity. (Dehydrated kudzu and bananas are equivalent to one fourth of the volume of the raw material).

During the first three years of the project, a Bolivian-made batch dehydrator, using solar energy and firewood will be employed. Beginning in year four, a U.S. made drum dehydrator, a pelletizing machine, and a mill will be incorporated to the plant. This equipment will cost $ 550,000. Project implementation will also require $ 120,000 for the purchase of an electrical generator, $ 80,000 to pay for final design and start up expenditures, and $ 50,000 to construct personnel housing and storage facilities.

(iii) Marketing Plan

The marketing feasibility study, conducted by the Centro de Asesoramiento Empresarial (CAEM), revealed a current demand among dairy and poultry farmers in the Cochabamba valley for 2,250 metric tons of processed kudzu and bananas for cattle forage, and 330 metric tons for poultry feed. Moreover, projections for the next five years indicate a gradual increase in demand to 2,700 metric tons for forage and 1,170 metric tons for poultry feed. While this demand is partially being met with alfalfa, it is expected that dehydrated kudzu and banana chips will compete favorably for this market because they can be sold at approximately one-half the price.

The marketing of the finished product will be carried out by the Milk Producers Association of Cochabamba (APL). This

association, which specializes in the marketing of dairy farming inputs, has a distribution system with six outlets located throughout the Cochabamba valley. In addition, they have adequate warehouse facilities in the city of Cochabamba.

Owing to the extreme humidity of the region, the finished product cannot be stored in the Chapare. Accordingly, once the feed is processed, it will be transported by Equipo Chapare to APL's warehouses in Cochabamba from where it will be sold through the existing distribution network.

The Cochabamba Association of Poultry Producers will purchase kudzu flour produced by E.C. to be used as a coloring agent in poultry rations; and this Association and the balance of feed producers. in Cochabamba will also purchase banana flour to be used as poultry feed. Volumes are estimated to increase from 830 metric tons in year one of the project to 1,270 metric tons in year five. It should be noted that kudzu flour will substitute for currently imported high priced coloring agents which are employed in poultry rations.

In relation to possible sales of dehydrated kudzu abroad, it is expected that some 800 metric tons per year can be sold in Venezuela and France.

(iv) Financial Analysis

The production of kudzu in the Chapare for commercial purposes will require Equipo Chapare (E.C.) to secure an incremental loan investment of $ 960,000. The loan will be financed with approximately 75 percent of AID loan funds channelled through the BCB and 25 percent from internally generated resources. E.C. will utilize this incremental investment for the purchase of agricultural machinery and related kudzu drying equipment and an electrical generator, as well as for working capital purposes. As a counterpart contribution to the total project cost, E.C. will invest $ 240,000 of its own funds to be applied toward project start-up costs and construction of housing and storage facilities. It will also invest an additional $ 110,000 for agricultural machinery for kudzu production purposes.

The kudzu project has an estimated Internal Rate of Return (IRR) of 24 percent. Even with a negative cash flow of $ 14,000 in year one, an increase in sales of 31 percent in year three, together with a reduction in production and financial costs, yields a net cash flow of $ 180,000 and $ 541,400 in years three and four respectively. Likewise, E.C.'s debt/equity ratio is high in years one and two. However, retirement of its short term debt and strong earnings serve to correct the ratio to an acceptable 2.68:1 by year three, after which E.C. can expect to continue to strengthen its capital position and steadily amortize its long-term debt according to schedule (see Annex C, Exhibit 7). Sound

financial management will be necessary for E.C. to avoid a restricted cash liquidity position in years one to three (Annex C, Exhibit 7). E.C.'s liquidity ratio (current assets/current liabilities) is projected to increase to 3.12/1 in year four and continue to build over the remaining years of the project.

As illustrated in Exhibit 7 , the projected net income to revenues ratio rises from .18:1 in year one to .41:1 in year seven.

(v) Social Soundness - Financial Impact on Farmers

As with the other agroindustry marketing sub-projects, an organization (a Kudzu Growers' Association) will be established among participating farmers. Consistant with social realities of the Chapare, this association will have as an immediate tangible objective the production and sale of kudzu and bananas to Equipo Chapare. The structure and responsibilities of the association's members will be determined by the participants with assistance in organizational development from FENACRE. The Federation will also serve as the channel for production credit to be used for land clearing, purchase of kudzu plant material, sowing and harvesting.

It is expected that, in most cases, participating farmers will provide both kudzu and bananas to Equipo Chapare for processing. The projected initial investment for the kudzu producer is $ 1,580, a figure that assumes the farmer starts operations with 1 hectare of cleared land which has an estimated value of $ 1,000. Besides the investment in land, the participant must purchase agrochemicals, plant material, hand tools, and fertilizers, as well as cover a portion of start-up and administrative costs, totalling $ 580.

Annex C, Exhibit 8 , provides cash flows of a farmer participating in the dehydration sub-project with one hectare planted with a combination of kudzu and bananas. The internal rate of return for this farmer equals 29 percent. Considering net revenue reductions of 10 and 25 percent, the IRR for the farmer drops to 27 and 22 percent, respectively. These figures indicate that this sub-project will be financially attractive to farmers in the Chapare. Annual net income to a small farmer producing one hectare of kudzu and bananas is estimated to be $ 992 beginning in the second year.

5. Financing for Large Scale Agroindustrial Sub-projects

As noted previously, financing for the large scale agroindustrial sub-projects will come from a combination of AID loan (75 per cent) and local ICI resources. Using the procedures established under AID's ongoing A&A loan, AID funds will be disbursed to the Central Bank which will discount an equivalent amount in pesos to the participating ICI. The ICI will provide the remaining 25 percent of the sub-loan from its internally generated resources. Reflows from the portion of the

loans financed by the project will be placed in the A.I.D. Agribusiness and Artisanry account in the Central Bank for future lending. The Central Bank will assume responsibility for repayment of the A.I.D. loan and assume the foreign exchange risk.

The interest rates to be charged to the investor will be based on an indexing system currenty being developed by the GOB with assistance from the International Monetary Fund (IMF). Under this system, the unpaid principal due on the agroindustrial loans funded under the project will be adjusted monthly based on projected annual increases in the La Paz consumer price index. It is expected that the introduction of indexing into the Bolivian Bank System, anticipated by July 1983, will result in real, positive rates of interest.

The loan approval process for the large scale indicatives will require that the proposals from the investors be submitted to the ICI and BCB central office in La Paz for review and evaluation, and then passed on to USAID/Bolivia for final review and approval.

6. Medium-Small Scale Processing and Production

As a complement to the large scale agroindustrial activities, the project will include $750,000 of project loan funds, complemented by $250,000 from CORDECO and/or local ICIs for the development of least 10 smaller scale processing and production activities. These sub-projects will be located, for the most part, in the Chapare and will promote local entrepreneurship, including possible campesino ownership through farmer cooperatives or joint ventures with private investors and/or CORDECO.

SDBT and CORDECO will take the lead in identifying and promoting these initiatives. To this end, the project will furnish SDBT US$150,000 to contract technical experts to carry out the necessary feasibility studies for these sub-projects. The studies will evaluate the sub-projects in terms of marketing feasibility, adequate supplies of raw material (volume and quality), reasonable economic return to producers, employment generation in the Chapare, and adequate management capacity, where and to the extent small farmer participation is feasible. Marketing technical assistance for these sub-projects will also be furnished by SDBT through the marketing unit that will be created with project funds. Other required T.A. will be built into the cost of each sub-project and complemented by IBTA when and where feasible. Like the large scale activities, these Chapare specific initiatives are consistent with the overall demand-pull strategy of the project. In responding to an established market demand, it is expected that these sub-projects will stimulate increased production of Chapare commodities, which, in turn, will generate ancillary demand pulls for those factors (e.g. production inputs, credit, T.A.) required to achieve higher production targets.

Finally, as described in Section II, C.1. the financing and approval processes for the small-medium scale sub-projects will be similar to those used in the USAID/Bolivia Departmental Development Corporations project (064). AID funds will be disbursed to CORDECO, which will open a special account for the subproject in a local ICI, from which the loan will be destined to the borrower. The ICI portion of the sub-project funding will go directly from the participating bank to the borrower. In some cases CORDECO may take an equity position in the activity. Reflows from the AID financed portion of these loans will be placed in a revolving fund for future lending for similar activities. The interest rates on these loans will be determined according to the same indexing principle described above for large scale agroindustry interventions.

The approval process for the small-medium scale interventions will require that the proposals be evaluated jointly by CORDECO, SDBT, and the ICI. They then will be passed on the USAID/Bolivia for final review and approval.

Profiles of eight small-medium scale sub-projects appear in Annex E.

Table 6

MARKETING-AGROINDUSTRIAL DEVELOPMENT
(US$ 000)

	A. I. D.				HOST COUNTRY				
	Grant	Loan			GOB	Title III	Private Sector	Total	Grand
	FX	FX	LC	Total	LC	LC	LC	LC	Total
III. Marketing-Agroindustrial Development									
1. Citrus	-	1,080	288	1,368	-	-	1,001	1,001	2,369
2. Swine	-	1,080	288	1,368	-	-	2,632	2,632	4,000
3. Particle Board	-	788	292	1,080	-	-	5,100	5,100	6,180
4. Kudzu	-	692	-	692	-	-	508	508	1,200
5. Small Industries	-	375	375	750	-	-	500	500	1,250
		4,015	1,243	5,258	-	-	9,741	9,741	14,999
Contingencies (5%)		201	62	263	-	-	-	-	263
		4,216	1,305	5,521	-	-	9,741	9,741	15,262

C. Project Administration - Institutional Development

1. Institutional Constraints

The ability of GOB development agencies to provide services to small farmers in the Chapare is inhibited by a number of related institutional deficiencies. Perhaps the most important of these deficiencies, limited coordination and dispersion of functions among implementing agencies, is manifested through overlapping functions, organizational rivalries, and poor coordination among the entities associated with Chapare development. At one level there is a surfeit of institutions involved in the region. To illustrate, the Ministry of Agriculture and Campesino Affairs (MACA) is rperesented by line offices for research and extension (IBTA), agricultural reform (SNRA), land tenure (INC), and special service offices - Program for the Development of the Yungas and Chapare (PRODES) and the National Community Development Service (SNDC). In addition, the Ministries of Health, Education, Public Works, and Interior, and a number of autonomous or semi-autonomous entities such as the Regional Development Corporation for Cochabamba (CORDECO) and the Bolivian Agricultural Bank (BAB), have a presence in the area. Coordination among these organizations is poor. For example, PRODES and CORDECO have had difficulty agreeing on a division of labor for program planning and project implementation. IBTA, PRODES, CORDECO and the University of San Simón maintain separate project portfolios and discrete cadres of extension agents -- all working to promote their own objectives. Finally, there has been virtually no contact between these institutions as a group and the coca control authorities. While a varied institutional base per se is not bad, the continued absence of workable linkages among institutions prevents the effective delivery of services to the zone's target group.

A related constraint is a deficient human resource base within Bolivian development agencies, a situation attributable to multiple causes. The universities and technical schools responsible for training skilled manpower for agriculture and rural development are seriously weak in curricula, laboratory and library resources. Within the development agencies themselves, in-service and on-the-job training programs are infrequent and poorly organized. Staff turnover, due to sub-standard salaries and working conditions, is a chronic problem. Finally, with specific regard to the project, the Chapare is viewed as a remote frontier area, and, accordingly, it is not attractive to qualified technicians as a place to live and work.

A third institutional constraint is extremely limited management capability. Owing to their recent arrival in the area, limited human resource base, and high personnel turnover, Chapare development organizations suffer from severe management deficiencies. GOB agencies experience difficulty in planning interventions and in providing adequate logistical support to their personnel. PRODES is more effective than the line agencies with which it must work, but its managerial capabilities must be improved

along with those of the implementing agencies in the region. The same holds true for the campesino organizations with which these agencies will work.

A fourth problem is a bias held by agricultural researchers and extension agents for serving larger farmers who have the ability to absorb improved technologies more readily. Research activities tend to focus on particular crops, a practice that is geared more to the monocultural farming strategy of larger growers than to the farming systems approach employed by small farmers. Also, given the limited number of extension agents in the Chapare, they can serve only a relatively few clients. Invariably, agents are drawn to service larger growers for reasons of closer social ties and the larger grower's receptivity to new technologies.

A final constraint is the chronic budget limitations which GOB agencies experience, a situation that has been exacerbated recently due to Bolivia's present economic crisis. To illustrate, IBTA is unable to properly deploy extension units in the Chapare for lack of operating funds to purchase gasoline and keep the few vehicles it has in a resonable state of repair. The lack of operating capital similarly constrains the implementation capacity of other agencies.

2. Strategies to Overcome Deficiencies

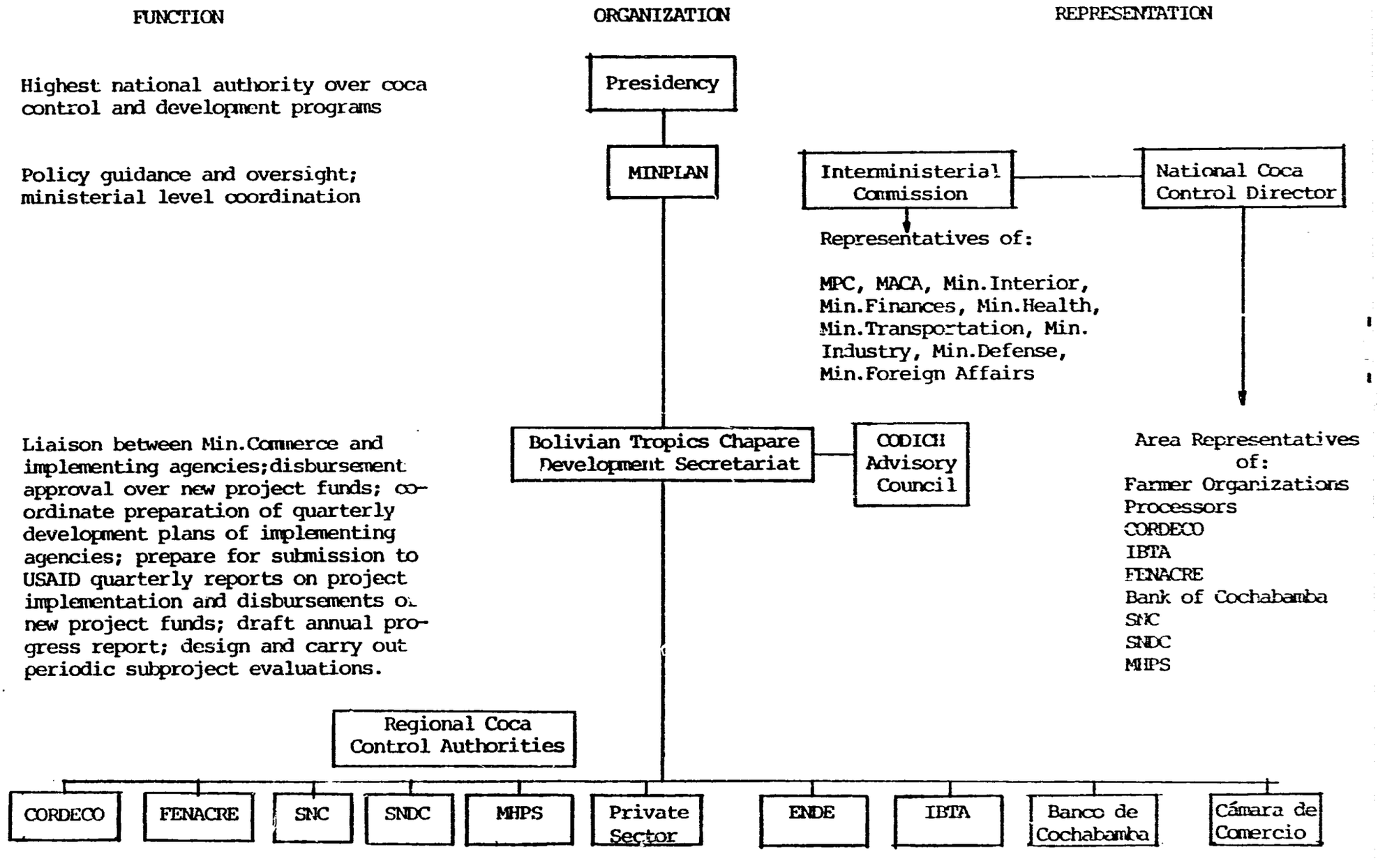
To overcome the critical institutional constraints, a number of alternative project administration models were considered. These included the (1) MASI model which proposed project implementation through the creation of vertically integrated, public sector corporations, (2) the CORDECO model which had as its centerpiece the Regional Committee for Agricultural Planning and Coordination (COPLACO) which would have conducted the planning and financing of development activities in the Chapare, and (3) the PRODES coordination/implementation model in which PRODES would have had responsibility for planning, coordinating,supervising and, in some cases, implementing the numerous components of the project. (Complete descriptions of each of these alternatives are contained in Section V-6 - Summary of Administrative Feasibility).

The PID for this project supported the PRODES Coordination/ Implementation model. However, political events that have taken place since the PID was submitted in May, 1982 have weakened PRODES to the point that USAID/Bolivia and the GOB have judged PRODES to be inacapable of coordinating project implementation.

The organizational approach selected for the project will provide the necessary degree of coordination in project planning, capability to deal with a range of sectors, linkage to the highest levels of national authority, participation of farmers' groups, and a tie, albeit somewhat removed, with coca control efforts. The following exhibit illustrates the institutions involved with the project and their relationships to each other. The exhibit also outlines the functions of each principal organization.

CHART 1

INSTITUTIONAL ORGANIZATION
FOR
CHAPARE REGIONAL DEVELOPMENT PROJECT



(a) President of the Nation

The Presidency will provide the highest level of executive support and prominence to Chapare development and coca control activities. As noted previously, President Siles has publicly stated his intention of combating cocaine trafficking and reducing the production of coca to legal quantities (e.g. the joint communique signed with U.S. Attorney General William French Smith). His continued support is a critical element to the success of both the coca control effort and the development program.

(b) Inter-Ministerial Commission for Development

The project will be based administratively in the Ministry of Planning and Coordination (MPC) under the direction of the sub-secretary for Coordination. The sub-secretary will be assisted in carrying out his responsibility by an Interministerial Commission made up of sub-secretaries from those ministries (Finance, Interior, Defense, Foreign Affairs, Agriculture, Health, Education and Transportation) directly involved in the Chapare program. The presence of the sub-secretary from the Ministry of Interior will provide linkage to the newly established Coca Control Commission, thereby assuring coordination between the control and development programs at the highest administrative levels. The Interministerial Commission will meet periodically (e.g. semi-annually) to provide policy guidance to the Secretariat for Development of the Bolivian Tropics (SDBT), approve operating plans and project activity budgets and review the progress of development activities.

(c) Secretariat for the Development of the Bolivian Tropics (SDBT)

The key role in the administrative framework is assigned to SDBT. The Secretariat will report directly to the Interministerial Commission and will be responsible for overseeing the implementation of project activities approved by the Commission. It will prepare semi-annual operating plans and budgets, in coordination with each of the executing agencies, for presentation to the Commission and USAID for approval. Once the plans and budgets are approved SDBT will enter into agreements with the executing agencies to implement specific subprojects and authorize disbursement of project loan and counterpart funds. Each executing agency will be accountable for keeping current its own portion of the counterpart contribution under the pari passu disbursement system*. SDBT also will be charged with coordinating all project funded procurement, including development of T.A., terms of reference, commodity bidding documents and contracts. These tasks will be carried out in close cooperation with the executing agencies requiring such procurements. Further, the Secretariat will have overall responsibility for coordinating project evaluation activities. Finally, while SDBT will promote small business development in the Chapare, in conjunction with CORDECO, by contracting for services to carry out feasibility studies relative to such

---

* Details of the pari passu system appear in Section IV.D. Project Financing.

enterprises and serving as a clearing house for marketing information for Chapare investment opportunities, it will not be involved in the review and approval process for either small-medium scale or large scale interventions.

SDBT will be composed of a Directorate and two main divisions -- technical coordination and administration. The technical division will consist of a division chief assisted by specialists in agricultural production, agroindustrial development, regional planning, public works, field coordination, and evaluation. The administrative division, in addition to a division chief, will include a controller with one assistant, a contract specialist and a general services officer. Both divisions will have the secretarial and other support staff necessary to execute their assigned functions. The key personnel for SDBT will be appointed by the Interministerial Commission. The appointment of the director, the two division chiefs and the remainder of the technical staff will be subject to the approval of AID and the project contains a Condition Precedent to initial disbursement to this effect.

To help develop the human resource base of the Secretariat, technical assistance and training will be programmed. Long term technical assistance will include a regional planner for five years and an agribusiness development specialist for four years. In addition, 15 person months short-term TA will be provided in critical skill areas such as tropical agricultural, project evaluation and social science. Training will be limited to short-term courses, complemented by seminars and workshops on matters related to regional planning for social and economic development.

The base salaries of all SDBT personnel will be financed by GOB counterpart funds. Project loan funds will be used to supplement the salaries of key personnel to assure that high quality professionals are hired for these positions. In addition, project funds will underwrite some logistical support costs (e.g. procurement of 3 four-wheel drive vehicles, office rental, etc.) and training for SDBT staff. Details of project and GOB financing for SDBT appear in Section IV. D - Project Financing.

(d) Chapare District Consultative Council (CODICH)

The Council will be composed of the chiefs of the Cochabamba Departmental branches of the project's principal implementing agencies, as well as of representatives of the major private sector entities and farmer organizations involved in the project. Specific implementation problems encountered in the project will be submitted to this group by SDBT for resolution. The preparation of proposed operating plans and budgets by SDBT will be coordinated through CODICH to facilitate the participation of CODICH members in the process. Once prepared, and approved by CODICH, plans and budgets will be submitted by SDBT to the Interministerial Commission for approval. CODICH will meet quarterly or more frequently if required. It will be SDBT's responsibility to prepare issues and specific problems for presentation to the council.

(e) Executing Agencies

The principal subproject executing entities will be IBTA and FENACRE, in conjunction with the private sector.

(1) Bolivian Institute for Agriculture Development (IBTA)

IBTA will implement activities related to agroforestry research and extension. Their programs will be carried out in accordance with the basic project strategy, namely, enhancement of existing farming systems in accordance with the ecological potential of each of the Chapare's micro-regions in support of the market demand-pull for the area's commodities. The center of IBTA's Chapare activities will be the Chipiriri and La Jota research stations which will be linked to off-station representative-demonstration farms and other outreach activities. The objective will be to conduct experiments, and subsequently develop appropriate technological packages under the same conditions experienced by Chapare farmers.

To implement this applied research and extension program, considerable modification in the number, mix and skill levels of IBTA/Chapare personnel is required. At the outset of the project, an experienced senior agricultural technician will be recruited to serve as director of the program undertaking the overall management of research and extension activities. Two division chiefs - one for research and one for extension will be hired to manage activities in each of these areas. These two positions will be filled by individuals with M.S. degrees in relevant fields of agriculture and experienced in implementing agricultural programs. Administration of project funds for all production activities, with the exception of credit, will be the responsibility of IBTA/Chapare. The Institute's management staff will also include an accountant with experience in procurement and one bookkeeper.

Within the research component, 9 technicians, with a minimum B.S. level training, and 9 recent university graduates, who lack only their undergraduate theses to complete their degrees (ABD's), will be hired to carry out the applied research program and manage the plant material nurseries. Among the specialities to be included in this technical cadre will be tropical cropping systems, soil/plant nutrition, pest management, entomology/plant pathology, tropical forestry, animal husbandry, farm management, and production economics. The research priorities undertaken by this unit will be established to coincide with the commodities required by the agro-industry initiatives supported by the Project.

The extension staff will be expanded to include 2 B.S. level professionals (a rural sociologist/communications expert and a farm planner) and 15 B.S. level extension agents. In addition, IBTA will contract 45 paraprofessionals on a part time basis. Details of the IBTA/Chapare staff appear in Table 7.

To assist with the institutional development of IBTA/Chapare, and to enable it to carry out its assigned tasks, the project will finance

both technical assistance (TA) and training. Long term technical assistance will total 29 person years of expertise covering such fields as tropical crop ecology, cropping systems and agroforestry, soils management, extension, pest management forestry, farm planning and soils . The long term TA will be complemented by 30 person months of short term technical assistance in speciality areas like aquaculture, aviculture, animal husbandry, pasture management, and animal nutrition.

TABLE No. 7

IBTA/CHAPARE PERSONNEL REQUIREMENTS

Position Title	Number	Ed. Level	Assistance Number	Assistance Ed. Level
Management				
Program Director	1	M.S.		
Research Director	1	M.S.		
Extension Director	1	M.S.		
Accountant	1	B.S.		
Bookkeeper				
Procurement	1			
Research				
Tropical Cropping Systems Specialist (Agroforestry)	1	M.S.	1	ABD
Soils/Plant Nutrition Specialist	1	B.S.	1	ABD
Pest Management Specialist	1	B.S.	1	Student
Entomology/Plan Pathologist	1	B.S.	1	Student
Tropical Forestry Specialist	1	B.S.	2	ABD
			1	Student
Animal Husbandry/Forage	1	B.S.	1	ABD
			1	Student
Crop Specialist	1	B.S.	1	ABD
Production Economist	1	B.S.	1	ABD
			1	Student
Farm Management Specialist	1	B.S.	1	ABD
			1	Student
Extension				
Rural Sociologist/Communications Expert	1	B.S.	1	Student
Farm Planning Specialist	1	B.S.	1	ABD
Extension Agents	15	B.S./ABD		
Paraprofessionals	45			
Radio Operator	1	ABD		

The project will provide for training of IBTA/Chapare personnel utilizing several approaches. Over the life of the project four long-term participants will be sent to the Center for Tropical Agriculture Research, Investigation and Education (CATIE) for M.S. level training - two in crop production, and one each in animal production and forestry, all with agricultural and forestry coursework included in their curricula. Six additional participants will be sent abroad for M.S. training in tropical agriculture, pest management and farm management. Starting early in the project, two separate groups (16-20 each) of IBTA/Chapare personnel will attend two-week CATIE short-courses on agricultural and forestry funded by the project. This uniform orientation to agricultural and forestry systems, methodologies and information sources will provide the basis for forging a shared and common framework for the continued work of the IBTA/Chapare technical team.

In-service training will be a regular feature of the project. Technical assistance advisors will have training responsibilities built into their work plans. The senior Bolivian specialists will similarly program 10 percent of their time for staff training activities.

As noted in Table 7, 9 student training positions (becarios) are included in the staffing pattern. These positions will be filled by university students pursuing undergraduate degrees in agriculture. Becarios will receive a stipend (maintenance allowance) instead of a salary and will be assigned to work under the supervision of senior specialists on a mutually agreed upon research topic. It is anticipated that, based on previous incountry experiences, the work of another 15-30 becarios can be directed by long-term technical assistance advisors. In addition to bolstering the manpower of the program at very low costs, the becario program will provide tropical agriculture exposure to future agronomists and their respective university departments.

IBTA/Chapare will function in a highly decentralized fashion, having its own Director and budgetary and management authority. The program will receive a budgetary allotment from IBTA, but will receive program guidance, approval and oversight from a local Board of Directors composed of representatives of local producer organizations, agroindustry groups and any other primary clients served by the organization. During the life of the project both USAID/Bolivia and the SDBT will participate as non-voting members of the Board. The Board of Directors will also have approval authority regarding the selection of the IBTA/Chapare Director. The Director, in turn, will have selection and approval over project personnel. The ability of IBTA/Chapare to increase its financial support will depend on how effective the organization is, through both research and extension activities, in delivering tangible benefits to its clients in terms of effective technological packages, diagnostic services, and, in general, farmer profit generating assistance. To the extent that IBTA/Chapare diversifies its economic support base, the greater its regional ties, acceptance and orientation will be, and the less susceptible to IBTA/National budgetary and personnel fluctuations it will

become. By the end of project, it is estimated that IBTA/Chapare will receive 70 percent of its budget from IBTA, 20 percent from farmer organizations, and 10 percent from agroindustries.

The GOB contribution to the operating costs of IBTA/Chapare will pay the base salaries of all techinical personnel and contribute to other operating costs (value of IBTA/Chapare installations and expendable supplies, per diem and materials). It is estimated that these costs will require more than twice IBTA/Chapare's current annual budget to the equivalent of US$110,000.

In addition to providing $2.75 million in grant for T.A., project monies will be used to supplement IBTA/Chapare salary levels in order to provide the positive incentive packages necessary to recruit and retain the quality of techinicians required to implement the project. These packages will consist of hardship differentials and housing for those professionals assigned to the Chapare and training. Project funds also will be used to: (1) supplement the normal IBTA budget allocations for gasoline, and maintenance of vehicles, (2) procure transportation (10 four wheel drive vehicles, 5 trailbikes, 2 small buses, 1 short bed truck, 2 small (45 hp) tractors and accompanying flatbed trailers (15 ft.), (3) restore the physical plants and purchase laboratory equipment for the two research stations, (4) procure small farm implements and equipment, (5) provide for short-term and long-term training, (6) construct small office/residence extension centers. The estimated cost of this support, over the life of the project, is $2,600 million.

(2) Departamental Development Corporation of Cochabamba (CORDECO)

CORDECO's role in the project will be to promote, in conjunction with the Secretariat, the development of the small-medium scale agroindustry sub-projects. The corporation will have the responsibility of identifying potential investment opportunities and presenting them to the Secretariat, which, in turn, will contract for services to carry out the appropriate feasibility studies. Once the studies are completed, and assuming they determine that the interventions are viable, CORDECO, in consultation with A.I.D. and a participating ICI will approve funding for the sub-projects. Thereafter, the Corporation will open a special account for the activity in an ICI as a mechanism for passing the funds on to the ultimate borrower. Funds from the repayment of these small-medium scale agroindustries will be put into a revolving fund by CORDECO to carry out similar activities in the future.

(3) Small Farmer Lending Institutions Banco de Cochabamba (BC) and Federation of Savings and Loan Cooperatives (FENACRE).

As described in section IV A-3 (Credit), the Banco de Cochabamba and FENACRE-affiliated credit unions will be the main channels of

distributing credit in the Chapare. Once the Bank installs its mobile units to complement the existing branch office in Villa Tunari it will have appoximately 8 credit agents and support staff in the project area. BC credit agents will participate, jointly with IBTA extensionists as well as field representatives from FENACRE, in project financed training courses. The purpose of the seminars will be to harmonize the provision of credit with farm planning, and train agents in methods of dealing with small farmers in a colonization context. The estimated cost of expanding the BC's infrastructure base in the Chapare is US$75,000 which will be borne entirely by the Bank. The Bank's home office in the city of Cochabamba will manage its over-all lending activities in the Chapare.

FENACRE will be a conduit for providing agricultural production credit and mobilizing savings. It will also be the key entity for developing farmer organizations and promoting small scale agroindustry in the Chapare. The key guiding principles will be to bring the service to the farmer (i.e. placement of credit agents in the Chapare) by coordinating with extension agents to assure borrowing requests are based on a rational farm plan and reasonable real interest rates. It is anticipated that increased savings can be captured because of the proximity of services and the payment of more attractive interest rates.

FENACRE's approach in developing farmer organizations will be based on the realities of the social organization of Chapare residents. Realizing that beyond the level of the nuclear family social relationships are characterized by loose networks of individuals who join together to achieve, FENACRE will promote the most flexible type of organization possible. While cooperatives will not be discarded, the structural configuration will take the form most preferred by the growers in any specific location. They will be organized for a defined, and, to the extent possible, immediately realizable end, such as production to service an agroindustry sponsored by the project, or the procurement of agricultural inputs. The responsibilities of the members of the group will be defined by the participants. There will be a limitation placed on the number of activities in which any one group becomes involved and evolution into new activities will take place only when the organization is prepared to do so.

To successfully execute this range of activities, FENACRE must undergo some structural modifications, especially with regard to personnel composition and skill mix. To this end, FENACRE will hire a Chapare program coordinator, 10 new credit agents, and 6 community organization specialists. All of these positions will be filled by individuals with minimally B.S. or ABD (all but undergraduate degree) university training. Moreover, with the initiation of this project the Federation will open a regional office in the Chapare.

The base salaries of the credit agents and community organizers will be paid for by FENACRE. The project will provide for hardship bonuses and housing. The project also will finance the branch office

in Villa Tunari, including office equipment and materials, the procurement of 12 vehicles and other logistical support items such as gasoline, and local travel. The estimated cost to the project of this support is US$672,000 to be financed with Title III funds.

A combination of training and long-term and short-term technical assistance will be provided to FENACRE to assist in the execution of project activities. The training will consist of short courses (in country) and in service seminars and workshops on techniques for lending to small farmers and farmer organization. The long-term T.A. will consist of a credit advisor/community organization specialist who will serve for a 3 year period. This advisor will work with the FENACRE affiliated credit unions to institute sound savings and lending practices, to establish criteria for delinquency and default, prepare guidelines for dealing with transaction and administrative costs, and formulate arrangements between private enterprises and producers which assure the entrepreneurs of timely delivery of commodities which meet the required quality and quantity specifications while also guaranteeing the farmers a fair price for their products. The long-term advisor will be complemented by 15 person/months of short term assistance that will be focused primarily on providing in-service training courses to credit agents from FENACRE and the ICIs to upgrade lending and savings mobilization skills. A total of $477,000 of project funds have been reserved for these technical assistance requirements.

(4) ICI's

The ICI's, principally the Banco de Cochabamba and the Banco de Crédito de Oruro, will be involved with the financing of the large scale agroindustry sub-project. As discussed in Section IV, B.-Agroindustry Development-Marketing, 75 percent of the loan monies for these initiatives will be furnished by the project and the remaining 25 percent will come from the ICI's.

Once the proposals for the large scale interventions have been reviewed and approved jointly by A.I.D. and the Central Bank, the Bank will discount the required dollar equivalent in pesos to the participating ICI for disbursement to the borrower. Reflows from these loans will be placed in USAID/Bolivia Agroindustry and Artisanry account with the Central Bank for future lending.

As discussed in Section IV. C, a prerequisite for ICI participation in this project is the existence of a development department. Both ICI's that will play a principle role in the project meet this requirement. The BC has a unit consiting of an economist, an agronomist, and a financial analyst. In addition, the Bank will add three more professionals, who are currently in training, to this staff. The development department of the Banco de Crédito de Oruro is made up of an economist, and one financial analyst. They will add, in the near future, an industrial engineer to this group.

D. Cost Estimate and Financial Plan

1. Flow of Funds to Implementing Agencies

The total cost of activities to be financed under this project is $33,834 million. The AID contribution will be $14,440 million of which the loan will provide $10.0 million and the grant $4.4 million. Loan funds will be distributed as follows: · $3,426 for agricultural production, $5,258 for agroindustry and marketing and $978,000 for institutional development. With regard to the grant funds $3,422 will be used for agricultural production and $978 will be directed toward institution building. AID is providing 43 percent of the total project cost while the host country contribution is 57 percent.

The multipel funding sources (AID grant, AID loan, Title III), coupled with the variety of implementing agencies involved with the project, account for a complex disbursement system. The following schema, which emphasize the type(s) of funds to be managed by each executing organization, explain the manner in which project resources will be channeled.

a. FENACRE

FENACRE will be involved with two types of project financing. First, grant funds will be used to finance technical assistance. Payments for such assistance will be made directly from AID to contractors. Second, Title III funds, for agricultural production credit and development of farmer organization will be disbursed directly by the Title III Secretariat to FENACRE according to quarterly budget requirements.

b. SDBT

SDBT will benefit from U.S. grant and loan monies as well as GOB cash contributions. The grant funds, to finance both long-term and short-term technical assistance will be passed directly by AID to the contractors. Under the loan, payment for some items (e.g. vehicles) will be made directly by AID to the suppliers. However, payments for other activities (e.g. institutional operating support) will be disbursed by AID to SDBT. The GOB cash contribution will go directly from the National Treasury to the SDBT for deposit in a special account established for this project.

c. IBTA

IBTA also will receive grant funded technical assistance as well as loan and GOB cash support. All grant funds will be disbursed directly by A.I.D. to the contractors. Under the loan two types of disbursement flows to IBTA will be followed: (1) direct payments from A.I.D. to suppliers for vehicles, trailers, equipment and long-term training, and (2) payments, in pesos, from A.I.D. to IBTA/Chapare to the suppliers for the costs of construction, operating support, in-country training, and the procurement of miscellaneous inputs.

d. CORDECO

As with regard to the other implementing agencies, disbursements for grant funded technical assistance will be made directly from A.I.D. to the contractors. Loan funds for small-medium scale agroindustry sub-projects will be disbursed in pesos to CORDECO who will in turn pass the money on to the ultimate borrower. Repayments of these sub-loans to CORDECO will be used to establish a revolving fund for future small-medium scale agroindustry projects.

e. ICI's

The ICI's will be involved with Title III and project loan funds. Title III resources, to be used for agricultural production loans, will be disbursed from the Title III Secretariat directly to the corresponding ICI's. Loan funds, to be used to finance the four large-scale agroindustrial/marketing sub-projects, will be disbursed in dollars from A.I.D. to the BCB which will discount a peso equivalent to the ICI's which in turn will pass the money on to the ultimate borrower. As noted above, 75 percent of the incremental financing for the large-scale agroindustrial sub-projects will be financed with A.I.D. funds and the balance (25 percent) furnished by the participating ICI. Reflows from the repayment on the A.I.D. portion of the loan will be placed in the USAID/Bolivia supported Agroindustry and Artisanry account in the Central Bank for financing similar activities in the future.

2. Project Accounting and Disbursing System

This system, referred to also as the "pari-passu" system, has been implemented in the one USAID/Bolivia project (rural Education II - 057) that has been fully reactivated. Experience to date indicates that it will be very successful in accomplishing its established goals. The system provides for advances of A.I.D. project and GOB counterpart local currency funds on a quarterly basis to two special project bank accounts. The implementing agencies will be responsible for disbursing funds from the special accounts in accordance with procedures already developed. USAID/Bolivia dollar payments for foreign technical assistance and commodity procurement will not be made through the special accounts but directly to the suppliers of the commodities and services. In order to implement the project, USAID/Bolivia, the Ministry of Planning and Coordination (MPC),

SDBT, FENACRE, CORDECO, PS entities, IBTA, and the Ministry of Finance (MOF) have agreed on detailed budgets for counterpart contributions. The MOF, in the 1982 negotiations for the reprogramming of the suspended projects, has agreed to implement the revised disbursement system for all reactivated and new projects, where applicable. The MOF examined the budget for the present project in detail before committing itself to provide the counterpart required. The private sector organizations have agreed to provide the resources necessary for their participation when required.

The most important feature of the new system is that it operates on a pari passu basis. Each quarter, participating entities will prepare an estimated budget for the upcoming three-month period along with reports on the use of funds already advanced. USAID/Bolivia's disbursement of funds for each quarter to the project's special account will be contingent upon the MOF's disbursement of funds to the counterpart special account during the quarter, for GOB agencies. If GOB funds are not deposited in the amounts agreed upon as required by MPC and IBTA, USAID/Bolivia will withhold further disbursements to the organization that is behind schedule in its contributions until the contributions are brought up to date. This disbursement system is intended to improve administration of project funds by shifting more project implementation responsibility to the GOB and yet retain adequate USAID/Bolivia control without the necessity of prior review of every transaction. It will also help ensure that counterpart funds are made available in the amounts required when needed; and it will provide a more systematic means of monitoring project implementation. The MPC, IBTA and FENACRE will maintain separate accounting books and records for the project.

The private sector organizations will be obligated to provide similar reports to those required for the GOB agencies but will not be obligated to deposit their counterpart contributions into a special account.

TABLE 8

INSTITUTIONAL DEVELOPMENT
(US$ 000)

	A. I. D.				HOST COUNTRY				
	Grant	Loan			GOB	Title III	Private Sector	Total	Grand
	FX	FX	LC	Total	LC	LC	LC	LC	Total
I. Institutional Development									
1. SDBT	978	195	677	1,850	192	-	-	192	2,042
2. Banco de Cochabamba	-	-	-	-	-	-	75	75	75
	978	195	677	1,850	192	-	75	267	2,117
Contingencies (5%)	-	10	34	44	-	-	-	-	44
	978	205	711	1,894	192	-	75	267	2,161

TABLE 9

SUMMARY COST ESTIMATE
US$ 000)

	A. I. D.			HOST COUNTRY				
	Grant	Loan	Total	GOB	Title III	Private Sector	Total	Total
I. Institutional Development								
1. SDBT	978	872	1,850	192	-	-	192	2,042
2. Banco de Cochabamba	-	-	-	-	-	75	75	75
	978	872	1,850	192	-	75	267	2,117
II. Agricultural Production								
1. FENACRE	477	-	477	-	672	190	862	1.339
2. IBTA	2,725	2,611	5,336	630	-	-	630	5,966
3. CORDECO	220	-	220	35	-	-	35	255
4. Farmers Federation	-	-	-	-	120	45	165	165
5. Research and Extension	-	783	783	15	-	19	34	817
6. Agricultural Production Credit	-	-	-	-	7,000	700	7,700	7,700
7. Farmer Organization Marketing Credit	-	-	-	-	2,208	221	2,429	2,429
	3,422	3,394	6,816	680	10,000	1,175	11,855	18,671
III. Marketing - Agroindustrial Development								
1. Citrus	-	1,368	1,368	-	-	1,001	1,001	2,369
2. Swine	-	1,368	1,368	-	-	2,632	2,632	4,000
3. Particle board	-	1,080	1,080	-	-	5,100	5,100	6,180
4. Kudzu	-	692	692	-	-	508	508	1,200
5. Small Industries	-	750	750	-	-	500	500	1,250
	-	5,258	5,258	-	-	9,741	9,741	14,999
	4,400	9,524	13,924	872	10,000	10,991	21,863	35,787
Contingencies (5%)	-	476	476	-	-	-	-	476
	4,400	10,000	14,400	872	10,000	10,991	21,863	36,263

Percentages

AID	40%
Host Country	60%

TABLE 10

SUMMARY DISBURSEMENT SCHEDULE

(US$ 000)

	1983		1984		1985		1986		1987		1988		
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	TOTAL
A.I.D.													
GRANT													
I. Institutional Development													
1. SDBT	-	-	248	-	248	-	262	-	110	-	110	-	978
II. Agricultural Production													
[illegible]	-	-	139	-	140	-	154	-	30	-	14	-	477
[illegible]	-	-	346	-	927	-	375	-	375	-	402	-	2,725
[illegible]	-	-	110	-	110	-	-	-	-	-	-	-	220
	-	-	1,143	-	1,425	-	791	-	515	-	526	-	4,400
LOAN													
I. Institutional Development													
1. SDBT	1	10	75	225	30	135	30	105	30	105	29	97	872
II. Agricultural Production													
1. IBTA	-	3	553	712	103	264	63	264	64	264	64	257	2,611
2. Research and Extension	-	-	-	155	-	157	-	158	-	158	-	155	783
III. Marketing Agroindustrial Credit													
1. Citrus	-	-	1.080	288	-	-	-	-	-	-	-	-	1,368
2. Swine	-	-	1.080	288	-	-	-	-	-	-	-	-	1,368
3. Particle Board	-	-	788	292	-	-	-	-	-	-	-	-	1,080
4. Kudzu	-	-	692	-	-	-	-	-	-	-	-	-	692
5. Small Scale Industries	-	-	125	125	250	250	-	-	-	-	-	-	750
	1	13	4,393	2,085	383	806	93	527	94	527	93	509	9,524
Total A.I.D.	1	13	5,536	2.085	1.808	806	884	527	609	527	619	509	13,924
HOST COUNTRY													
GOB													
I. Institutional Development													
1. SDTB	-	13	-	36	-	36	-	36	-	37	-	34	192
II. Agricultural Production													
1. IBTA	-	1	-	288	-	87	-	86	-	86	-	82	630
2. CORDECO	-	-	-	7	-	7	-	7	-	7	-	7	35
3. Research and Extension	-	-	-	7	-	2	-	2	-	2	-	2	15
	-	14	-	338	-	132	-	131	-	132	-	125	872

TABLE 10 (Cont.)

	1983		1984		1985		1986		1987		1988		
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	TOTAL
TITLE III													
II. Agricultural Production													
1. FENACRE	-	7	-	313	-	90	-	90	-	90	-	82	672
2. Farmers Federation	-	-	-	120	-	-	-	-	-	-	-	-	120
3. Agricultural Production Credit	-	-	-	1,000	-	1,000	-	2,000	-	2,000	-	1,000	7,000
4. Farmer Organization Marketing Credit	-	-	-	310	-	310	-	620	-	620	-	348	2,208
	-	7	-	1,743	-	1,400	-	2,710	-	2,710	-	1,430	10,000
PRIVATE SECTOR													
I. Institutional Development													
1. Banco de Cochabamba	-	-	-	15	-	15	-	15	-	15	-	15	75
II. Agricultural Production													
1. FENACRE	-	3	-	38	-	38	-	38	-	38	-	35	190
2. Farmers' Federations	-	-	-	12	-	6	-	8	-	9	-	10	45
3. Research and Extension	-	-	-	3	-	5	-	4	-	4	-	3	19
4. Agricultural Production Credit	-	-	-	100	-	100	-	201	-	199	-	100	700
5. Farmer Organization-Marketing Credit	-	-	-	31	-	31	-	62	-	62	-	35	221
III. Marketing-Agroindustrial Credit													
1. Citrus	-	-	-	1,001	-	-	-	-	-	-	-	-	1,001
2. Swine	-	-	-	2,632	-	-	-	-	-	-	-	-	2,632
3. Particle Board	-	-	-	5,100	-	-	-	-	-	-	-	-	5,100
4. Kudzu	-	-	-	508	-	-	-	-	-	-	-	-	508
5. Small Scale Industries	-	-	-	167	-	333	-	-	-	-	-	-	500
		3	-	9,607	-	528	-	328	-	327	-	198	10,991
Total Host Country	-	24	-	11,688	-	2,060	-	3,169	-	3,169	-	1,753	21,863
Sub-total	1	37	5,536	13,773	1,808	2,866	884	3,696	609	3,696	619	2,262	35,787
Contingencies (5%) 1/	-	1	220	104	19	40	5	26	5	26	5	25	476
Grand Total	1	38	5,756	13,877	1,827	2,906	889	3,722	614	3,722	624	2,287	36,263

1/ The 5% contingencies are applicable to A.I.D. loan funds.

NOTES TO SUMMARY COST ESTIMATE AND FINANCIAL PLAN

A. AID Funds

1. Grant

a) Institutional Development

(i) SDBT

-Technical Assistance. $978,000 will be provided to finance the following: (a) $ 880,000 for two long-term technicians in Regional Development and Agrobusiness Development during five and three years respectively, and (b) $ 98,000 for Short-term technicians for approximately 10 w/m.

b) Agricultural Production

(i) FENACRE

-Technical Assistance. $ 477,000 will finance (a) $ 330,000 for a Cooperative Development Specialist (3 years), and (b) $ 147,000 for 15 w/m of short-term technicians.

(ii) IBTA

-Technical Assistance. $ 2.73 million will finance the following: (a) $ 2.53 million for seven long-term technicians for approximately 23 work years, and (b) $ 195,000 for approximately 20 w/m of short-term technical assistance.

(iii) CORDECO

-Technical Assistance. $ 220,000 will be provided to cover the cost of a Project Development Specialist during two years.

2. Loan

a) Institutional Development

(i) SDBT

-Management and technical staff salaries. $435,000 will cover the salaries of the technical and administrative staff and 75 percent of the costs for topping-off salaries for drivers, secretaries and a messenger.

-Vehicles. $45,000 will cover the purchase of three 4x4 jeep type units.

-Operating support. $ 142,000 will finance the following costs: (a) $ 50,000 for payment of the SDBT office rent during the LOP, (b) $ 82,000 for the cost of travel and per diem, and (c), $ 10,000 for office supplies and communications.

-Training. $ 100,000 will cover the short-term training cost of ten persons for six months each in the U.S. or T.C.

-Constructions. $ 150,000 will finance the cost of the construction of an Agricultural Service Center in the Chapare area.

b) Agricultural Production

(i) IBTA

-Management and Technical Staff Salaries.- $ 884,000 will finance salaries of technical personnel in the Chapare including hardship bonus.

-Vehicles and Equipment. $ 477,000 will cover the purchase of the following: (a) $ 160,000, 10 vehicles 4X4 jeep type, (b) $ 25,000 1 short bed truck, (c) $ 50,000 1 microbus, (d) $ 32,000 9 motorcycles, (e) $ 30,000 2 tractors and trailers, (f) $ 50,000 laboratory equipment and supplies, (g) $ 25,000 audiovisual equipment and, (h) $ 55,000 office equipment.

-Operating support. $ 315,000 will finance the following costs: (a) $ 250,000 for fuel, oil, spare parts and vehicle maintenance, and (b) $ 65,000 for office supplies, and communications.

-Training. $ 420,000 will be provided to finance (a) $ 280,000 long-term training of seven professionals in the U.S. or a T.C. during two years each, (b) $ 120,000 short-term training of six persons per year during three months each, approximately 90 trainee/months, and (c) $ 20,000 short-term in-service training for the technical and administrative personnel in the Chapare.

-Constructions and installations. $ 515,000 will be provided to finance (a) $ 200,000 for the purchase of 10 trailers for the technical staff and for the long-term technical assistance contractors, and (b) $ 315,000 for the construction cost of the following: living quarters for the TDYers and bachelors ($30,000), dinning hall and kitchen ($ 30,000), laboratory and office building, expansion and improvement ($ 64,000), experimental substations ($ 86,000), living quarters and offices for extension agents ($ 75,000), and a vocational school ($ 30,000).

-Research and Extension. $ 783,000 will finance studies, campe-

sino scholarships, farmer training and purchase of miscellaneous materials and equipment for representative demonstration farms and nurseries.

c) Marketing - Agroindustrial Credit. $5.26 million includes (a) $4.51 million credits for citrus, swine, particle board and kudzu loans, and (b) $750,000 for small scale industries credits.

B. Host Country Contribution

1. GOB

a) SDBT

-Institutional Development. $192,000 will cover the cost of the office staff salaries, operating support and the land value for the construction of the agricultural service center.

b) IBTA

-Agricultural Production. $630,000 will finance the following costs: basic staff salaries of personnel in Chapare, travel and per diem of personnel not directly involved in the project, and salaries of personnel in long-term training. The above amount includes the value of land and existing facilities contributed for the construction of this component.

c) CORDECO

-Staff salaries and operating support. $35,000 represents the cost of salaries, office supplies and equipment for the counterpart to the Project Development Specialist.

-Research and Extension. $15,000 includes the administration support for the plant nurseries, extension material and equipment.

2. Title III

a) FENACRE

-Agricultural Production. $672,000 will finance the following: (a) $228,000 for management and technical staff salaries, (b) $250,000 for the purchase of 10 vehicles, 4 motorcycles and office equipment, (c) $140,000 for operating support, and (d) $80,000 for courses, seminars and in-service training.

-Farmers' Federations. $120,000 will finance the purchase of 2 dump trucks and the cost of construction of 2 community centers .

-Agricultural Production Credit. $ 7 million will finance loan capital for agroindustrial credits to small farmers to be administered by FENACRE and ICIs.

-Farmer Organization-Marketing Credit. $ 2.2 million will cover the cooperative development and credit activities.

3. Private Sector

a) Banco de Cochabamba

-Institutional Development. $ 75,000 will cover the cost of administrative support for the small farmers' credit program.

b) FENACRE

-Agricultural Production. $ 190,000 will finance: (a) 25% of the salaries of personnel involved in the project, (b) operating office support, and (c) salaries of personnel attending courses and seminars.

-Farmers Federations. $ 45,000 will cover (a) the cost of fuel, oil, parts and maintenance of two dump trucks, and (b) the cost of land and maintenance of two community centers.

-Research and Extension. $ 19,000 will cover the cost of the utilization of private farms for studies and demonstrations.

c) FENACRE - ICIs

-Agricultural Production Credit. $700,000 represents operating costs for the credit activities handled by FENACRE and the ICIs.

d) FENACRE

-Farmer Organization - Marketing Credit. $ 221,000 represents operating costs for the administration of the Cooperative development and credit activities.

e) Marketing - Agroindustrial Credit. $ 11.0 million represents in-kind contributions for the following industries receiving the loans: (a) $ 10.49 million citrus, swine, particle board and kudzu, and (b) $ 500,000 in-kind contributions from small scale industries.

V. SUMMARY OF PROJECT ANALYSES

A. Technical Feasibility Summary

1. Land Use Capability

Land use capability classification is a prerequisite to planning for successful and sustainable rural land occupancy. The term refers to the ecological suitability of any homogeneous plot of land for specified types of economic utilization on a continuous basis without causing deleterious effects in the short or long term in the original productive capacity of the land. Based on classification of land use capability, the Chapare region (422,000 has.) has a moderate agricultural potential depending on the level of technology employed. Approximately 32 percent of the total land area in the project area is suitable for any type of agriculture (annuals, permanent crops, pastures, agroforestry) at traditional levels of technology. Under advanced technology, which assumes medium levels of inputs (fertilizer, pesticide, improved varieties), approximately 43 percent of the lands are classified as agricultural.

Current land use, although never quantitatively mapped, is generally consistent with land use capability at traditional levels of technology except in the physiographic regions located on the slopes of the Andes, particularly micro-regions 1 and 2 and the slopes of micro-regions 3, 4, 6, 7, 8. In these areas, colonists have spontaneously settled lands classified as suitable for forestry or protection. The settlement of the Andean slopes and the Amazonian lowlands is a consequence of minifundia and marginal productivity of sierra farmers and the realities of the rural-urban social migration process. Every effort should be made to confine further settlement and promote a more intensive agroforestry on the level lowlands classified as subtropical wet forest and tropical moist forest.

Two micro-regions (1 and 2) located in the mountains have no agricultural potential at all. These are recommended for protection of natural forests with some limited managed forest production. Much of the remainder of the lands in the lowlands are too wet for annual cropping and pasture production, but have a high potential for agroforestry and managed forest production.

The technical analysis treats the nine micro-regions in detail in terms of land use capability and crop ecology and proposes possible development options in view of the regions' ecological limitations, especially overly wet climates, exceedingly poor soils and periodic flooding.

The excessively wet climate (annual rainfall ranges from 2500-5000 mm) is characterized by no effectively dry month which results in continuously saturated soils that make field operations for planting or harvesting of annual crops difficult or impossible. Successful pasture management is difficult due to low carrying capacity, poor forage quality

low in net energy and protein content, and competition and invasion of woody growth. Burning of pastures is difficult or impossible in this ever-wet climate. Traditional large-scale beef production is not recommended, but family size livestock operations including pigs and beef cattle (3-5 has) will be developed in appropriate areas especially in the northern and northeastern portion of the project which has a somewhat drier climate and better soils. Because water buffalo are adapted to exploiting the native plants in the wet tropics, they offer another possibility for livestock production to the Chapare. However, experimental work is imperative if economically efficient systems of production using water buffalo are to be developed.

2. Forestry

Historical reports indicate that the Chapare forest on the Andean foothills and lowland plains was among the tallest, contained the largest trees, had the greatest variety of species and the greatest timber volumes of any forests in Bolivia. As has been the case elsewhere in the tropics, this forest luxuriance was mistakenly interpreted as an opportunity for agriculture (rather than forestry), and a large portion of the original forest has been cleared. There is still a very high forestry potential in the Chapare in areas such as the tropical wet forest life zone where few alternative development opportunities exist. Both forestry and agroforestry can be expected to yield positive and permanent benefits to colonists in the subtropical wet forest life zone.

Under traditional shifting cultivation, the Chapare farmers rotate crops with natural second growth forest. This process allows the colonists to cultivate and harvest satisfactory, if not high, crop yields, on a periodic basis without the costly application of herbicides or fertilizers. Fast-growing pioneer species rapidly invade abandoned fields and develop into a moderately tall and dense forest within ten years, thus indicating the high potential for managed natural forest production as a viable alternative to agriculture. Recent reports indicate about 60 cubic meters of usable wood per hectare of 5 year old second growth. In the current practice of clearing and burning natural second growth every 3-5 years to make room for 1-2 years of annual crop or longer rotations with bananas, an enormous volume of wood suitable for industrial purposes is lost. Based on feasibility studies, the Chapare project will develop markets for wood products such as paper pulp, charcoal, boxes, crates and treated posts. The agroforestry component will also develop technical packages for the reestablishment of the more valuable natural tree species as well as the managment of tree crops where appropriate.

3. Agriculture

To realize the agricultural/forestry potential of the Chapare requires the efficient management of existing production systems. The project goals of the production component will initially emphasize the

improvement of the local farm economy and simultaneously promote marketing and industrialization of agricultural production to regional and national markets. Quantification and location of appropriate lands has already been documented in the land use capability map. It is not anticipated that the project will significantly change land use patterns so that human carrying capacity can be increased. Rather, a beneficial result of successful agroforestry production will be that rural populations become more stable as permanent crops become of harvestable age.

Annual crops will continue to provide the staples for rural families, but permanent tree crop and agroforestry will be encouraged where suitable for the particular soil and climatic constraints of the Chapare.

4. Crop Selection

Despite the fact that there is a long list of crops that will grow in the Chapare, crop selection will be based on land use capability, market and agroindustrial potential, cultural acceptability and economic viability. With the exception of peach palm, all crops are considered traditional and are grown in the region, some on a limited scale. The best sustained agricultural/livestock production system is also the most ecologically and economically sound management of the Chapare.

Rice, the only crop that can be continuously cultivated profitably, will be promoted on fertile alluvial soils. On most of the soils of the lowland plains, tree crops, such as plantains, bananas, papaya, rubber, peach palm, are the most suitable crops that can be managed for sustained production. Pineapples are, and should continue to be, produced realizing that eventually fertilizer will have to be applied in order to maintain high yields. Since bananas and citrus are produced in the largest volumes in the region, the marketing and agroindustrial component of the project will promote improved fruit quality and alternative uses that will improve small farmer incomes. Small areas of coffee, tea, and cacao will be promoted since these crops are ecologically adapted and a national market potential exists. Peach palm now grows in the Chapare and is cultivated around rural dwellings. Based on the feasibility study, commercial scale plantings will be encouraged as part of the agroforestry production scheme. International markets are already developed for the production of palm hearts.

5. Level of Technology

The particular level of technology utilized in the Chapare will be determined by the prices received by farmers, production risks, and technology transfer. Initially, it is recommended that the agricultural production components emphasize currently utilized agroforestry or mixed cropping systems that provide sustained production without expensive inputs. As market conditions, as well as fruit quality, improve and processing outlets are established, medium levels of inputs will be feasible. Technology is available to increase the yields of specific crops by adding

fertilizer and improving levels of farm management; but the profitability of coca and the current market conditions do not justify those added costs under present conditions.

The production technology to be promoted in this project is relatively modest. There are no complex, elaborate or new technologies to be introduced to the Chapare which do not already exist there in at least moderate versions. Improvements of these technologies will be developed with appropriate research and extension activities.

The success of the activities proposed under the agricultural production component will depend upon the acceptability and capacity of farmers to absorb improved technologies.

Many Chapare farmers view the strong demand for coca as a "prolonged wind fall" that could collapse rapidly should effective means be employed to curtail either the demand or the supply of coca leaves from Bolivia. Consequently, many farmers are anxious to undertake investments, even though they are less profitable than coca, in order to diversify their production so that they would be able to maintain some semblance of the level of living to which they have become accustomed. Likewise, there are farmers who have not grown coca for religious regions, or had land use restrictions prohibiting coca cultivation as originally outlined in the directed colonization schemes that are seeking ways to improve their incomes through crop intensification or new crops, both of which would require agricultural credit.

6. Sustained Production

All agroforestry and livestock production systems recommended will be based on sustained yields utilizing the benefits of closed nutrient cycling. Even though most soil and plant deficiencies can be resolved through liming and fertilization, the costs are high and the economic viability needs to be documented in order to wisely recommend rates of fertilization, etc. Alternative methods of maintaining soil fertility such as planting of legumes (i.e. *Erythrina*, *Gliricidium*, kudzu) which fix nitrogen, or cropping rotations and associations which include legumes have been tested and are readily used by Chapare farmers. The advantages of these local practices which maintain soil fertility will be viewed by researchers and extensionists as practical alternatives to continuous cultivation and widespread use of fertilizers and incorporated into the agricultural/livestock production activities proposed for the Chapare.

7. Research/Extension

Any expansion or strengthening of research/extension must be designed in terms of beneficial results anticipated. Short-term results in investments made in research/extension are doubtful unless a coca reduction and rural development program are initiated. The relative advantage of any increase in production levels of commercial crops made

possible by improved management and technology must exceed the benefits and risks obtained from growing coca.

By establishing a special IBTA/Chapare office with independent funding, the development efforts for research/extension can be concentrated to achieve uniformity and coordination for the various production components proposed. Likewise salaries need to be supplemented in order to maintain well-qualified personnel.

Since there are very few trained professionals in development of humid tropical agriculture, training both locally and internationally needs to focus on animal and crop production systemsappropriate for the humid tropics.

B. Environmental Summary

1. Description of Chapare Environment

The entire Chapare region is characterized by an extremely wet climate. Temperatures are warm in most of the region which lies on the Amazon plain at elevations below 300 meters above sea level (masl); but portions of the Chapare lie at higher elevations with cooler temperatures. The region's very high rainfall gives rise to numerous rivers which cut across it. These rivers flood frequently and they have unstable channels which shift course unexpectedly. River channel instability requires cautious location of structures.

Chapare soils are generally acidic and infertile. On steep land,soils tend to be shallow and erodable,whereas on the plain,they are deeper but often poorly drained. During the rainy season, November to April, there is a good deal of standing water in flat areas.

Forests occur as the predominant natural vegetation throughout the Chapare. These forests are very dense except in some swampy areas. On the plain,they are tall, becoming shorter with increasing elevation. They exhibit great diversity of plant species and, when unaltered, harbor large, diverse populations of wildlife. Forests have been greatly altered in the region, which now has large amounts of second growth. Wildlife populations have been depleted close to settled areas.

Fish are found in all the Chapare's rivers providing subsistence and, on the Ichilo River, a commercial fishery. Fisheries in the region could be managed for increased production.

2. Alternatives for Development

There appear to be two classes of alternatives for development. One is to modify and improve the existing small farm system. The other is to replace the existing system with a large scale industrial system. The second alternative seems unwise given the region's poor soil, adverse

climate, and pattern of land holdings. The first alternative, then, improving the existing system, has been chosen as the preferred alternative for development and forms the basis for the project described in this PP.

3. Improving Land Use in the Chapare

The project seeks to improve land use in the Chapare by a combination of improved technology, adaptive research and extension. The project will work with existing crops and technologies and also will introduce new ones. Technologies will be selected in accordance with land use capability and ecological suitability. These selection criteria assure environmental soundness as well.

4. Adverse Effects of No Project

If the Chapare is not developed through land use systems that are consistent with land use capability, there is risk the area will be degraded. For one reason or another, farmers could try to increase production on poor lands by reducing forest fallow, in other words by keeping more land in continuous cultivation. This could deplete soil fertility to the point where it could not be restored and land would have to be abandoned. The project, then, by relying on suitable land use and appropriate technology, will avoid environmental damage that could occur in absence of the project.

5. Specific Environmental Issues

Protection of Isoboro - Secure National Park: Isoboro-Secure National Park lies just north of the settled part of the Chapare, across the Isoboro River. It is a vast reserve for flora, fauna and native peoples, but one which is poorly protected. The GOB proposes building a road through the middle of the park to link Cochabamba to the Beni. Part of the road has been built from the Chapare into the southern section of the park. The road draws settlers who clear land as well as hunt, fish and extract timber from the park.

The project will protect the park from increased incursion by requiring the GOB, as a condition precedent to the project, to agree to halt construction of the road indefinitely and encourage settlers to leave the park.

Fishing Regulation: Currently, commercial fishing is prohibited in the Ichilo River from November through February. This causes disruption in fish supplies, locally and in Cochabamba, as well as disruption of fishermen's livelihoods. It does not conserve fish, however, as limitation of their numbers comes from factors other than fishing during the proscribed time. Under the project, Bolivian officials will review and revise fishing regulations to make them more appropriate.

C. Economic Analysis

1. Introduction

The Chapare Regional Development Project has been thoroughly analyzed from three distinct economic perspectives: (a) the industrial level, consisting of four large agroindustrial enterprises and 10 small scale enterprises, (b) the farm level, which analyzes individual small farmer economic conditions, and (3) the project's return on total incremental investment costs and benefits. In each case, the project was found to be economically sound. The paragraphs below describe each of the analyses and their fundings.

As described in Section III, C, the project consists of three integrally-related components: (1) Institutional Development, (2) Agricultural Production, and (3) Marketing and Agroindustrial Development. The total project budget for these components is $36,263 million (Section IV,D.). When fixed assets (i.e. in-kind contributions of $8.25 million) are deducted, the total incremental investment of the project is $28.0 million. The project is based on a demand-pull strategy through which enhanced marketing of agricultural and forestry commodities will stimulate increases in production and, by extension, an improved income and standard of living for Chapare farmers. The purpose of this section is to determine the economic feasibility of the activities which make up the project and for which A.I.D. and host country financing will be required.

2. Project Administration/Institutional Development

A.I.D. financing for this component includes $872,000 in loan funds for SDBT to finance operational support, training, construction and the purchase of vehicles. Grant funds totalling $978,000 will also be made available to SDBT for both long-term and short-term technical assistance to be provided over the life of the project. Counterpart contributions of $267,000 will be derived from GOB salary and operational support, and administrative support from the Banco de Cochabamba.

3. Marketing-Agroindustrial Development

The selection of agroindutries to be financed under the project was based on the following criteria: (1) demonstration of ample affective demand for domestic and export markets (in the case of export markets, Bolivia must be competitive)*, (2) sufficient supply of raw materials in the region, and (3) availability of a processing technology suitable to the conditions of the Chapare.

---

* Demand prospects are analyzed in Amorin, 1983.

The component is comprised of two types of interventions, large and small-medium scale projects, which combined have a private sector counterpart participation of $9.741 million. This contribution will include $1.49 million in incremental investments provided by the ICI's, and approximately $8.25 million in in-kind contributions from the agro-industrial firms receiving credit under the project.

The small-medium scale interventions will consist of a minimum of 10 discrete subprojects, with a total cost of $ 1.0 million. The A.I.D. loan will finance $750,000 of this amount and the ICI's will provide the balance. Moreover, there will be a direct investor contribution of $250,000. While final feasibility studies for these subprojects have not been conducted yet, preliminary calculations of the economic prospects of a number of the proposed activities demonstrate, on the average, IRRs which exceed 20 percent.

The large scale initiatives are a group of four agroindustrial ventures for which detailed feasibility studies have been completed. The total investment costs at 1983 prices are estimated at $5.74 million, of which the A.I.D. loan contribution will amount to $4.5 million. The ICI's contribution will total $1.24 million. In determining the benefits and costs of the large-scale agroindustries, data from the four detailed feasibility studies (see Section IV, B.) were used. Where possible, taxes and subsidies were eliminated from the data. Shadow prices were not included in the analysis. As noted in Section IV, B., the IRRs and Benefit Cost (B/C) calculations for the four large agroindustrial projects are as follows: Citrus IRR 47.7 percent, B/C 1.32; Swine IRR 34.7 percent, B/C 1.39; Particle Board IRR 60.4 percent, B/C 11.8; and Kudzu IRR 37.2 percent, B/C 1.6. (see Table 12).

Since all the previous calculations depend in part on some imprecise estimations of costs and benefit flows (both due to the assumptions inherent in the project and to the use of market prices), a sensitivity analysis on the IRRs was performed. The IRRs are high for the project as a whole as well as for each individual component. The IRR's are based on expected values, and it could be argued that they must necessarily be high because of the significant risks entailed in investing in an economy that is presently in a state of substantial disequilibrium.

Because of data and time constraints, it was not possible to carry out a formal risk analysis of the project. In lieu of this, switching values were computed for the most important variables affecting the IRR of the project. Switching values are defined as the percentage by which costs must increase or benefits must decrease for the project IRR to be lowered to 15%, the rate used as the opportunity cost of capital (OCC). Switching values were calculated for the revenue, investment and operating costs of each enterprise, as well as for the total project revenues and costs.

The switching values for the revenues and costs of each enterprise underestimate, to some extent, the sensitivity of the IRR. This results from the calculation procedure, where one variable is changed while others are assumed to remain constant. The correlation between variables is likely to be higher for operating costs, lower for benefits and investment costs. On the other hand, the switching values calculated on the basis of total project investment costs, operating costs, and benefits, most likely overstate the sensitivity of the IRR. Table 13 below presents the switching values for the proposed large scale elements of the project, and for the total project as well. All calculations are made in percentages.

Table 13

	Revenue	Investment	Operating Costs
Citrus	-21	+110	+ 35
Swine	-17	+ 74	+ 30
Particle Board	-43	+154	+146
Kudzu	-31	+ 98	+·80
Total	-23	+ 56	+ 71

This means that project benefits can be lowered by 23%, or investment costs increased by 56%, or operating costs increased by 71%, and the project would still have an IRR of 15%.

4. Farm Level

Loan funding to the Agricultural and Forestry Production component of the project will consist of $3.39 million for research and extension activities to be carried out by IBTA for the benefit of the small farmers. In addition, grant funding of $3.4 million will be made available to finance long-term and short-term technical assistance for IBTA, FENACRE and CORDECO. Moreover, approximately $680,000 in GOB counterpart and $10 million in Title III generated resources will provide for small farmer credit demand ($7 million) over the course of the project, and to finance the formation of farmer organizations and related marketing activities ($3 million). This component will also have private sector financial input estimated at $1,175 million, consisting of operating credits to small farmers (channeled through ICI's and FENACRE) and institutional budgetary support supplied by FENACRE, farmer federations and other farmer organizations.

Using primary available data on the region, an economic analysis was conducted of a representative 10.23 hectare Chapare farm. Activity on this farm, assuming full participation in the project, is presented in Table 14. Per State 260450, the assumption of crop mix on the farm includes 0.5 hectares of coca, the legal mazimum permitted. The mix of crops on the representative farm also assumes that 5 hectares of wooded land (i.e. 50 percent of the land available) that is not now being used for commercial purposes.

The basic crop mixture is typical for the region, although variation in the ecological zone would result in some crops being emphasized over others in certain locales. The price of coca, over the five year period of projection, is held constant at the current open market rate; although, in fact, this price should drop substantially as control program efforts are increasingly successful through the life of the project.

Table 14 assumes that as hectares of second growth wood products are harvested, the cleared land is put to alternative crop use. Thus, for example, in year 1, when one hectare of wood is harvested (Wood (H)), that hecatae is planted in rice (Δ^1rice). The table additionally assumes that citrus yields increase over baseline production by 46 percent in year 4 (citrus plus Δ^4citrus) and 95 percent in year 5 (citrus plus Δ^4 plus Δ^5 citrus) as the mature trees become more productive and respond to project-financed fertilizer inputs and improved technology applications.

Table 14 also indicates that the increase in farmer income in year 5 (end of project) when compared with year 0 (pre-project) is 130 percent. Assuming that 2.5 persons are employed on a typical Chapare farm, the average per capita salary earned at the end of the fifth year is $314 per month as shown in Table 15. This compares very favorably with the Bolivian minimum wage ($62/month) and the monthly income of salaried day laborers in the Chapare region ($78/26 work day month).

Table 16 considers what would happen if a farmer ceased to produce the legal 0.5 hectares of coca and replaced this crop with either rice, citrus or bananas. By year 5, by substituting rice for coca, net farm income will decrease by approximately 20 percent. Similar declines by year 5 for substituting citrus and bananas for the 0.5 ha. of coca would be 20.8 percent and 21.8 percent, respectively. Net per capita monthly income would be $252 $249, and $246 substituting for rice, citrus, and bananas, respectively.

The farm level IRR, based on a weighted average of crop mix per hectare for the Chapare small farmer (see Table 17) is equal to 66.6% with 0.5 hectares of coca, and 50.84% without coca production.

Farm Level IRR
Table 17

	IRR %	Weight factor/ha.	Weighted IRR
Citrus	32	.339	10.85
Coca	207.8	.076	15.79
Maize	79.48	.061	4.85
Rice	132.76	.108	14.34
Banana	28.85	.049	1.41
Wood	29.0	.153	4.44
Swine	79.0	.015	1.18
			66.63% with coca
			50.84% with out coca

The conclusion from this analysis is that in either reducing coca cultivation to the legal maximum or eliminating it entirely, with the project, farmer income can be expected to substantially exceed the Bolivian minimum wage. At the projected income level, the Chapare farmer will be able to maintain a more than adequate standard of living.

5. Return to Total Incremental Investment.

Benefit streams were calculated from the returns to the agroindustrial and farm level perspectives. The benefit/cost (B/C) flows used for discounting are presented in Table 18 . As can be seen from the Table, the B/C ratio for the project is 1.75 and the IRR for the project is 40.5 percent.

Table 18

	1/ IRR	2/ PV	3/ NB/I	4/ B/C
	(%)	($us million)	ration	ratio
Citrus	47.7	3.0	2.56	1.32
Swine	34.7	1.9	2.00	1.39
Particle Board	60.4	11.8	3.15	1.93
Kudzu	37.2	1.6	2.64	1.63
Agricultural Production	-	-10.8	-	-
Institutional Development	-	- .004	-	-
Contingencies	-	- .125	-	-
Entire Project	40.47	7.37	2.35	1.75

1/ Internal Rate of Return
2/ Net Present Value (i = 0.15) in $US
3/ Present value of revenue minus present value of costs of operation as a ratio of athe present value of investment (1 = 0.15)
4/ Gross benefit as a ratio of investment plus operating costs (i = 0.15)

The project will generate other benefits for which no formal calculations have been made. In the context of economic viability the agricultural production and institutional development components were assigned full costs in the project's overall IRR calculation, without calculating corresponding benefits. Since some of these costs must be incurred to assure the success of the project, it is assumed that many indirect benefits also can be attributed to the institution building and production activities. In addition, small farmer beneficiaries of the four large agroindustrial marketing projects are estimated at 1,100 of the 12.000 households in the Chapare. It is certain that many more farmers will benefit directly and indirectly from the small-medium scale interventions as well as from the agricultural and forestry production initiatives. Likewise, there are unquantifiable social and political benefits associated with a reduction in the level of coca being grown in the Chapare. Accordingly, for this reason, IRR calculations are considered to be understated.

Table 12

ANNUAL FLOWS FOR THE FOUR LARGE-SCALE AGROINDUSTRIES AND CALCULATION OF THE INTERNAL ECONOMIC RATE OF RETURN

IRR	ITEM \ YEAR	0	1	2	3	4	5	6	7
60.43%	Particle Board								
	Revenue	-	4,885	4,885	4,885	4,885	4,885	4,885	4,885
	Investment	5,500	-	-	-	-	-	-	-
	Oper.Costs	-	1,435	1,435	1,435	1,435	1,435	1,435	1,435
	Balance	-5,500	3,450	3,450	3,450	3,450	3,450	3,450	3,450
34.74%	Swine								
	Revenue	-	1,330	1,915	1,915	1,915	1,915	1,915	1,915
	Investment	1,900	-	-	-	-	-	-	-
	Oper.Costs	-	973	1,031	1,031	1,031	1,031	1,031	1,031
	Balance	-1,900	357	919	919	919	919	919	919
47.72%	Citrus								
	Revenue	-	2,420	2,420	2,420	2,420	2,420	2,420	2,420
	Investment	1,900	-	-	-	-	-	-	-
	Oper.Costs	-	1,450	1,450	1,450	1,450	1,450	1,450	1,450
	Balance	-1,900	970	970	970	970	970	970	970
37.18%	Kudzu								
	Revenue	-	352	537	704	1,055	1,055	1,055	1,055
	Investment	960	-	-	-	-	-	-	-
	Oper.Costs	-	180	208	333	371	361	361	361
	Balance	-960	172	329	371	684	694	694	694
PV 4.16	Institutional Development	24	599	464	453	302	285	-	-
PV 10,800.4	Agricultural Production	14	4,544	3,479	4,132	4,008	2,596	2,596	2,596

(CONT.)

	ITEM \ YEAR	0	1	2	3	4	5	6	7
PV 124.8	Contingencies	1	424	59	31	31	30	30	30
40.47%	Total Project								
	Benefits	-	10,714	12,949	13,914	15,695	16,765	16,740	16,740
	Investment	10,299	5,667	4,302	4,916	4,541	3,211	2,926	2,826
	Oper.Costs	-	4,038	4,124	4,249	4,287	4,277	4,277	4,277
	Balance	10,299	1,009	4,523	4,749	6,867	9,177	9,537	9,637

TABLE 14

Year 0

Crops	Has	Unit	Cost/Unit	Prod./yr	Price	Gross Income	Cost of Prod.	Net Income
Citrus	2.2	100	.38	1,809	.96	1,737.0	686.7	1,050.3
Bananas	.32	100 lbs.	.25	54.5	2.0	109.0	13.6	95.4
Coca	.50	100 lbs.	51.7	30.0	125.0	3,750.0	1,551.0	2,199.0
Rice	.71	100 lbs.	10.5	15.8	38.0	600.0	165.9	434.1
Maize	.40	100 lbs.	3.2	17.4	17.5	304.5	55.7	248.8
Wood	5.0							-
Other crops	1.1					131.7	65.8	65.9
Total	10.23					6,632.2	2,538.7	4,093.5

Year 1

Crops	Has	Unit	Cost/Unit	Prod./yr	Price	Gross Income	Cost of Prod.	Net Income
Citrus	2.2	100	.38	1,809	.96	1,737.0	686.7	1,050.3
Bananas	.32	100 lbs.	.25	54.5	2.0	109.0	13.6	95.4
Coca	.50	100 lbs.	51.7	30.0	125.0	3,750.0	1,551.0	2,199.0
Rice	.71	100 lbs.	10.5	15.8	38.0	600.0	165.9	434.1
A[1] Rice	1.0	100 lbs.	10.5	22.3	38.0	847.4	234.4	613.0
Maize	.40	100 lbs.	3.2	17.4	17.5	304.5	55.7	248.8
Wood	4.0	-	-	-	-	-	-	-
Wood (H)	(1.0)	m^3	.44	22.0	3.4	75.0	9.7	65.3
Swine	.1	pig	103.8	20.0	137.6	2,753.0	2,076.0	677.0
Kudzu	1.0	kg	.007	35,000	.01	327.0	240.0	87.0
Total	10.23					10,502.9	5,033.0	5,469.9

Year 2

Crop	Has	Unit	Cost/Unit	Prod./yr	Price	Gross Income	Cost of Prod.	Net Income
Citrus	2.2	100	.38	1,809	.96	1,737.0	686.7	1,050.3
Bananas	.32	100 lbs.	.25	54.5	2.0	109.0	13.6	95.4
Coca	.50	100 lbs.	51.7	30.0	125.0	3,750.0	1,551.0	2,199.0
Rice	.71	100 lbs.	10.5	15.8	38.0	600.0	165.9	434.1
A[1] Rice	1.0	100 lbs.	10.5	22.3	38.0	847.4	234.4	613.0
A[2] Rice	1.0	100 lbs.	10.5	22.3	38.0	847.4	234.4	613.0
Maize	.40	100 lbs.	3.2	17.4	17.4	304.5	55.7	248.8
Wood	3.0	-	-	-	-	-	-	-
Wood (H)[1]	(1.0)	-	-	-	-	-	-	-
Wood (H)[2]	(1.0)	m^3	.44	22.0	3.4	75.0	9.7	65.3
Swine	.1	pig	81.3	20.0	137.6	2,753.0	1,626.0	1,127.0
Kudzu	1.0	kg	.003	35,000	.01	327.0	90.0	237.0
Total	10.23					11,350.3	4,667.4	6,682.9

Year 3

Crop	Has	Unit	Cost/Unit	Prod./yr	Price	Gross Income	Cost of Prod.	Net Income
Citrus	2.2	100	.38	1,809	.96	1,737.0	686.7	1,050.3
Bananas	.32	100 lbs.	.25	54.5	2.0	109.0	13.6	95.4
Coca	.50	100 lbs.	51.7	30.0	125.0	3,750.0	1,551.0	2,199.0
Rice	.71	100 lbs.	10.5	15.8	38.0	600.0	165.9	434.1
A^1 Rice	1.0	100 lbs.	10.5	22.3	38.0	847.4	234.4	613.0
A^2 Rice	1.0	100 lbs.	10.5	22.3	38.0	847.4	234.4	613.0
Maize	.40	100 lbs.	3.2	17.4	17.5	304.5	55.7	248.8
A^3 Maize	1.0	100 lbs.	3.2	43.5	17.5	761.2	139.2	622.0
Wood	2.0	-	-	-	-	-	-	-
Wood $(H)^1$	(1.0)	-	-	-	-	-	-	-
Wood $(H)^2$	(1.0)	-	-	-	-	-	-	-
Wood $(H)^3$	(1.0)	m^3	.44	22.0	3.4	75.0	9.7	65.3
Swine	.1	pig	81.3	20.0	137.6	2,753.0	1,626.0	1,127.0
Kudzu	1.0	kg	.003	35,000	.011	409.0	100.0	309.0
Total	10.23					12,193.5	4,816.6	7,376.9

Year 4

Crop	Has	Unit	Cots/Unit	Prod./yr	Price	Gross Income	Cost of Prod.	Net Income
Citrus	2.2	100	.38	1,809	.96	1,737.0	686.7	1,050.3
A[4] Citrus		100	.38	831	.96	797.8	315.8	482.0
Bananas	.32	100 lbs.	.25	54.5	2.0	109.0	13.6	95.4
Coca	.5	100 lbs.	51.7	30.0	125.0	3,750.0	1,551.0	2,199.0
Rice	.71	100 lbs.	10.5	15.8	38.0	600.0	165.9	434.1
A[1] Rice	1.0	100 lbs.	10.5	22.3	38.0	847.4	234.4	613.0
A[2] Rice	1.0	100 lbs.	10.5	22.3	38.0	847.4	234.4	613.0
A[4] Rice	1.0	100 lbs.	10.5	22.5	38.0	847.4	234.4	613.0
Maize	.40	100 lbs.	3.2	17.4	17.5	304.5	55.7	248.8
A[3] Maize	1.0	100 lbs.	3.2	43.5	17.5	761.2	139.2	622.0
Wood	1.0	-	-	-	-	-	-	-
Wood (H)[1]	(1.0)	-	-	-	-	-	-	-
Wood (H)[2]	(1.0)	-	-	-	-	-	-	-
Wood (H)[3]	(1.0)	-	-	-	-	-	-	-
Wood (H)[4]	(1.0)	m^3	.44	22.0	3.4	75.0	9.7	65.3
Swine	.1	pig	81.3	20.0	137.6	2,753.0	1,626.0	1,127.0
Kudzu	1.0	kg	.003	35,000	.014	490.0	105.0	385.0
Total	10.23					13,919.7	5,371.8	8,547.9

Year 5

Crop	Has	Unit	Cost/Unit	Prod./yr	Price	Gross Income	Cost of Prod.	Net Income
Citrus	2.2	100	.38	1,809	.96	1,737.0	686.7	1,050.3
A^4 Citrus		100	.38	831	.96	797.8	315.8	482.0
A^5 Citrus		100	.38	880	.96	844.8	334.4	510.4
Banana	.32	100 lbs.	.25	54.5	2.0	109.0	13.6	95.4
A^5 Banana	1.0	100 lbs.	.25	170.2	2.0	340.4	42.5	297.9
Coca	.5	100 lbs.	51.7	30.0	125.0	3,750.0	1,551.0	2,199.0
Rice	.71	100 lbs.	10.5	15.8	38.0	600.0	165.9	434.1
A^1 Rice	1.0	100 lbs.	10.5	22.3	38.0	847.4	234.4	613.0
A^2 Rice	1.0	100 lbs.	10.5	22.3	38.0	847.4	234.4	613.0
A^4 Rice	1.0	100 lbs.	10.5	22.3	38.0	847.4	234.4	613.0
Maize	.40	100 lbs.	3.2	17.4	17.5	304.5	55.7	248.8
A^3 Maize	1.0	100 lbs.	3.2	43.5	17.5	761.2	139.2	622.0
Wood $(H)^1$	1.0	-	-	-	-	-	-	-
Wood $(H)^2$	1.0	-	-	-	-	-	-	-
Wood $(H)^3$	1.0	-	-	-	-	-	-	-
Wood $(H)^4$	1.0	-	-	-	-	-	-	-
Wood $(H)^5$	1.0	m^3	.44	22.0	3.4	75.0	9.7	65.3
Swine	.1	pig	81.3	20.0	137.6	2,753.0	1,626.0	1,127.0
Kudzu	1.0	kg	.003	35,000	.016	572.0	105.0	468.0
Total	10.23					15,186.9	5,748.7	9,439.2

2

Table 16

COMPARISON OF CROP NET INCOME (IN $) BY SUBSTITUTING RICE, CITRUS AND BANANA FOR COCA (BY MONTH)

Year	w/Coca	Rice	Citrus	Banana
1	182.3	119.2	116.9	114.0
2	222.8	159.7	157.4	154.4
3	245.9	182.8	180.5	177.6
4	284.9	221.8	219.6	216.6
5.	314.6	251.5	249.3	246.0

TABLE 16

EFFECT ON NET INCOME BY SUBSTITUTING RICE, CITRUS, AND BANANA FOR COCA

($US)

Rice

Year	w/o Coca	w/Coca	Balance	% Change
1	3,577.2	5,469.9	-1,892.7	-34.6
2	4,790.2	6,682.9	-1,892.7	-28.3
3	5,484.2	7,376.9	-1,892.7	-25.6
4	6,655.2	8,547.9	-1,892.7	-22.1
5	7,546.5	9,439.2	-1,892.7	-20.0

Citrus

Year	w/o Coca	w/Coca	Balance	% Change
1	3,507.3	5,469.9	-1,960.6	-35.9
2	4,722.3	6,682.9	-1,960.6	-29.3
3	5,416.3	7,376.9	-1,960.6	-26.6
4	6,587.3	8,547.9	-1,960.6	-22.9
5	7,478.6	9,439.2	-1,960.6	-20.8

Banana

Year	w/o Coca	w/Coca	Balance	% Change
1	3,419.8	5,469.9	-2,050.1	-37.5
2	4,632.8	6,682.9	-2,050.1	-30.7
3	5,326.8	7,376.9	-2,050.1	-27.8
4	6,497.8	8,547.9	-2,050.1	-24.0
5	7,381.1	9,439.2	-2,050.1	-21.8

D. Institutional Analysis

1. National Federation of Savings and Loan Cooperatives (FENACRE)

a. Legal Status and Objectives

FENACRE is the country's largest cooperative organization. This private institution was legally constituted on February 16, 1962 by Resolution No. 001 of the National Directorate for Cooperatives and is subject to legal supervision by the National Institute of Cooperatives. By Supreme Decree No. 19331 signed December 1982, FENACRE was recognized as an Intermediate Credit Institution and authorized to channel Central Bank of Bolivia (BCB) credit resources.

FENACRE's principal function is to serve as a conduit for financial resources and assistance to one hundred and sixty-five Savings and Loan cooperative affiliates in order to accelerate their development and the improvement of the socioeconomic condition of their members through urban and rural productive activities. The specific objectives of FENACRE are the following: (1) promote the organization of savings and loan cooperatives, (2) provide technical assistance to cooperatives, (3) develop uniform administrative and accounting systems for cooperatives, (4) promote educational programs, (5) publish educational materials, (6) supervise member cooperative compliance with cooperative laws and regulations, (7) obtain life and fidelity bond insurance for cooperative members and officials, and (8) represent and assist cooperatives in their dealings with government entities.

b. Membership and Financial Soundness

The FENACRE 1982 Annual Report indicates that there are 165 affiliated cooperatives with a total of 227,770 members. Of this membership, some 58,000 members are rural dwellers. As of December 31, 1982, savings of cooperative members totalled $7.06 million, and the cooperative loan portfolio was $24.7 million. The reserves and capital of FENACRE total $19.85 million, and the institution is completely solvent. Over the past years, FENACRE has utilized external resources of some $141,000 from the Latin American Confederation of Savings and Loan Cooperatives (COLAC) and other international and national sources, and repayments have been made on schedule.

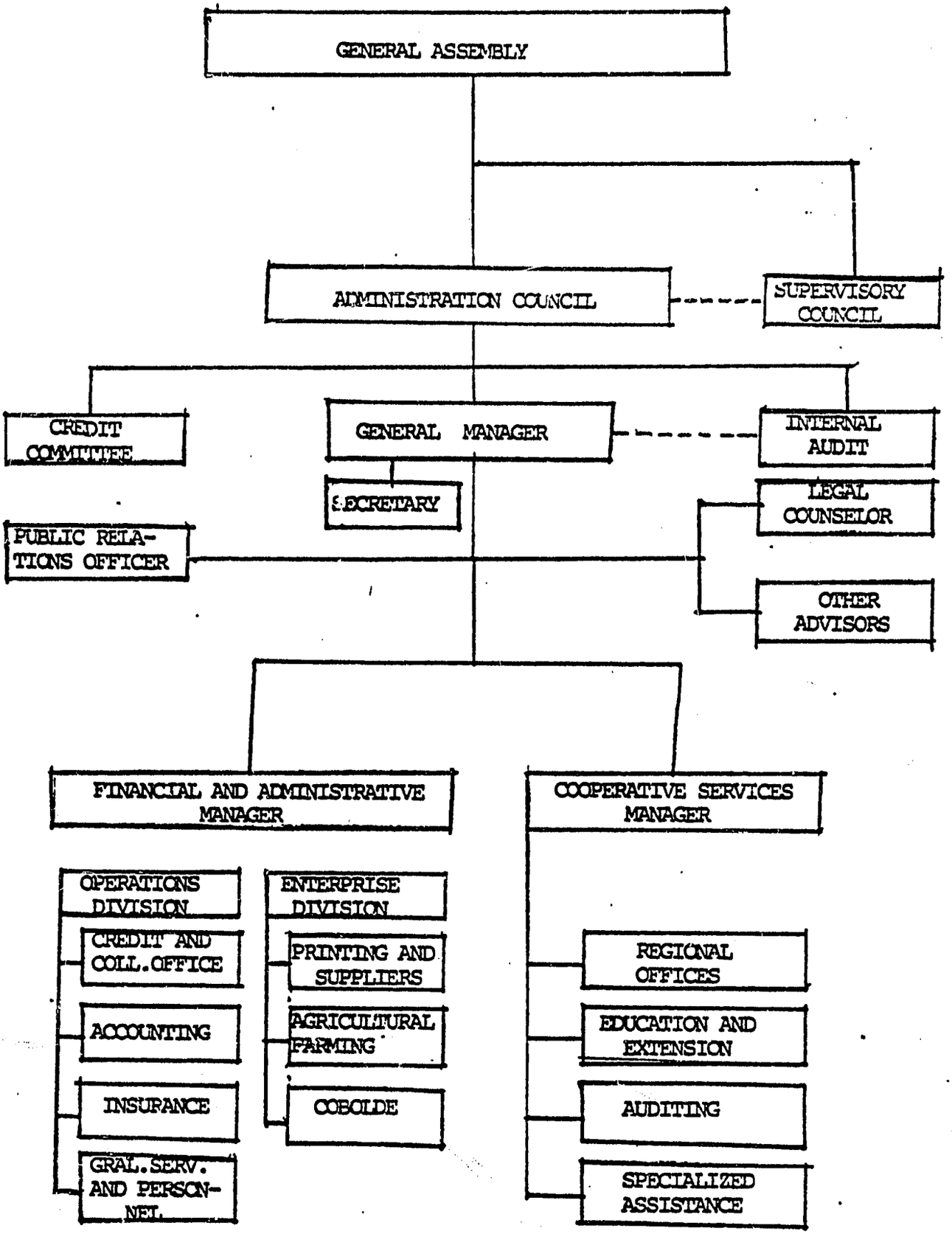
c. General Organization and Personnel

The present organization of FENACRE has a General Manager who is governed and supervised by an Administration Council similar in function to a board of directors. The General Manager is assisted by Auditing and Legal Offices. Under the General Manager are two major Managements units, the Administration-Financial Management Unit and the Cooperative Services Management Unit. Within the former are the Enterprise Division and Operations Division. (see Chart 2).

CHART 2

F E N A C R E

ORGANIZATION CHART



(1) Approved by the Administration Council on February 19, 1983

The main office of FENACRE is located in Cochabamba (38 employees). There are regional offices in La Paz (7 employees), Santa Cruz (5 employees), Sucre, Trinidad and Oruro (1 employee in each). The FENACRE affiliates employ more the six hundred professional managers, accountants and other administrative personnel.

d. Capacity to Carry Out Rural Programs

FENACRE has utilized loan and grant funds from several AID and COLAC sources to expand agricultural, agroindustry and artisanry lending through its cooperatives. In addition, FENACRE over the past three years, has, with P L 480 Title III financial support and AID project funded technical assistance, established a specialized unit to provide managerial, administrative, marketing, financial and planning assistance to agricultural cooperatives. This unit works with six large cooperatives and is being expanded as a permanent self-financing consulting operation within the Enterprise Division of FENACRE.

e. Participation in the Project

FENACRE will participate in the project in the following areas: (1) assist in the strengthening of existing savings and loan cooperatives and the formation of new ones in order to provide Chapare farmers with credit and savings services, (2) assist farmer groups to organize and manage new production/marketing oriented organizations, (3) act as a link between farmers' organizations and prospective commodity buyers, assisting the producers in contract terms and prices as well as helping to ensure the fulfillment of the agreements, (4) provide technical assistance and credit to cooperatives and producer groups for marketing of agricultural products including local handling, processing, packing and storage, (5) effect wholesale purchases of foodstuffs, inputs and other needed supplies and help organize cooperative distribution mechanisms, and (6) provide technical assistance to producer cooperatives and organizations in administration, accounting, cooperative training, handling of savings and loans, and management.

To carry out its project related activities, FENACRE will establish an office in the Chapare area and staff it with additional credit and other administrative/technical personnel to attend to the various needs of farmer cooperatives and organizations. FENACRE will also set up the administrative mechanisms within its Financial and Administrative Unit to properly manage expanded credit operations.

The various analyses of FENACRE's institutional capacity to carry out the activities noted above indicate that FENACRE can assume these responsibilities with relatively modest support from this project. Obviously, the availability of credit is critical to an expansion of FENACRE's operations in the Chapare, and this will be made available through the PL 480 Title III Program.

2. Bolivian Institute of Agricultural Technology (IBTA)

a. General Organization and Objectives

IBTA was created by Supreme Decree No. 13168, dated December 10, 1975 and its statutes approved by Supreme Decree No. 13594, dated May 20, 1976. This semi-autonomous organization constitutes the major public sector agricultural extension and research arm and is attached to the Ministry of Campesino Affairs and Agriculture. IBTA has its own Executive Director who has budgetary, administrative and programmatic authority within the organization. The Director responds to a board of directors composed of Ministry and other related program representatives. IBTA's principal objective is the improvement of agricultural production through the development and diffusion/transfer of agricultural technology.

IBTA operates in eight of Bolivia's nine Departments and has fully staffed Departmental Offices in La Paz, Oruro, Potosí, Chuquisaca, Tarija, Cochabamba and Beni. Typically, the departmental office in Cochabamba is directed by a Regional Chief who coordinates all research and extension activities. A Director of Research oversees the activities of the four experimental stations in the department. Each station has a director, administrator, program technicians and supporting personnel. The extension program has two supervisors, one for the valleys and one for the tropical zone (Chapare). Extension agents are assigned within each zone. (see Chart 3).

b. IBTA-Chapare

Within the Chapare, IBTA operates two experiment stations, La Jota and Chipiriri. The La Jota station conducts research mainly on annual and perennial crops,such as corn, rice, cassava, citrus and cacao. It is relatively well-equipped and the employees have adequate offices and living quarters. The personnel at La Jota include a director, an administrator, a field chief, five technicians, a tractor operator and four manual laborers.

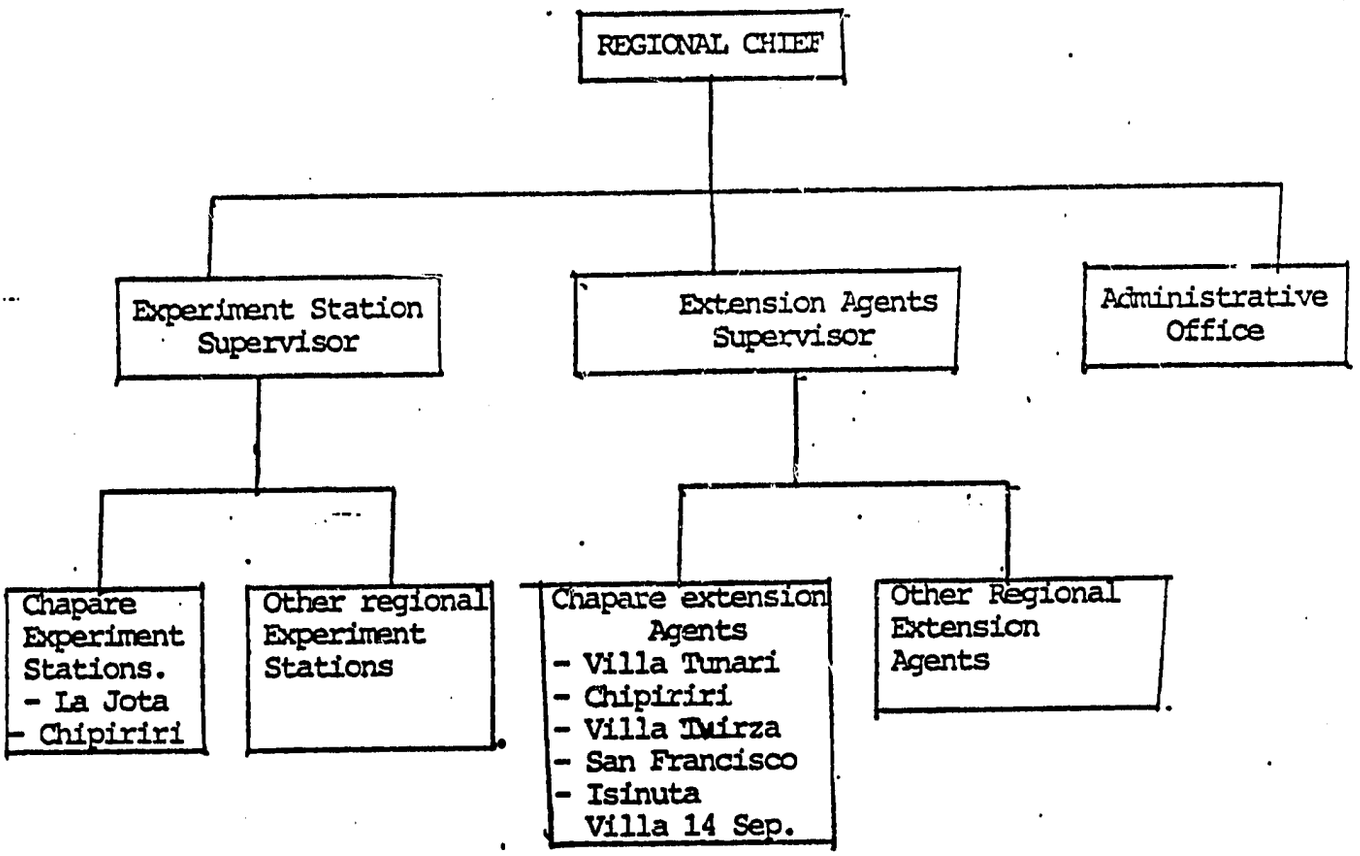
The Chipiriri station is responsible principally for research related to pasture improvement, livestock and perennials. The physical plant at the station, including laboratories, office space and living quarters, is substandard and in need of considerable upgrading. The personnel configuration at Chipiriri includes a director, an administrator, a field chief, four technicians, four nurserymen, a tractor operator, and a driver.

Six extension agents work in the Chapare from bases located in La Jota and Chipiriri. They cover the following areas: (1) Villa Tunari, (2) Chipiriri, (3) Villa Ivirza, (4) San Francisco, (5) Isinuta, and (6) Villa 14 de Septiembre. The main activities are: (1) technology transfer, (2) crop promotion, (3) inter-institutional coordination, and (4) campesino organization.

CHART 3

I B T A

COCHABAMBA REGIONAL OFFICE



c. Participation in the Project

In order to carry out its role within the project, IBTA/Chapare will undergo significant changes. The number and skill mix of research personnel will be modified to reflect the agricultural and forestry emphasis and expanded program of on-farm adopted Research. The budget requirements for both research and extension activities will be increased to take into account the additional personnel, elevated salaries and incentives, higher travel and other recurrent costs. At the same time, IBTA/Chapare will require significant program and budgetary autonomy and authority, given the weak delegation of such authority within IBTA's current hierarchical structure.

In fact, the project will support the development of a decentralized regional model, which can serve to restructure IBTA operations elsewhere. A high degree of local participation in, and control of, the research and extension programs will be built into IBTA/Chapare through research and extension councils and monetary contributions provided by the beneficiaries of the services. Such a model is already successfully operating in Santa Cruz and the Tropical Agriculture Research Center (CIAT/Santa Cruz) has effectively replaced IBTA througnout that Department. IBTA is willing to introduce the more decentralized and locally oriented/supported model given the considerable success of CIAT/Santa Cruz, the benefits of greater clientele participation and orientation, and IBTA's own budgetary restrictions which preclude almost all centrally-funded improvements of the current program. In view of IBTA's interest, the project will provide for the start-up costs and a portion of the recurrent costs through the early phase of IBTA/Chapare's development. With this and other assistance planned under the project, IBTA/Chapare will be capable of carrying out its responsibilities and role.

3. Bank of Cochabamba (BC)

a. Background

The Bank of Cochabamba began operations in August 1962. Since that time, it has grown rapidly to rank among the leading banks in the country with overall assets of $34 million. The BC maintains its central offices in La Paz, and currently has nine branch offices distributed among Bolivia's major cities. Moreover, the Bank in the near future will open twelve additional branches, three of which will be in departmental capitals, with the remainder located in rural areas, including the Chapare.

Particularly noteworthy of the BC is its experience with Central Bank rural credit refinancing lines. As of March 31, 1983, the Bank's refinancing portfolio was the equivalent of $8.5 million. This represented a 30.5 percent share of refinancing activities which was almost four times larger than the share of its nearest competitor.

b. Institutional Soundness

The organizational structure of the Bank is indicative of an efficiently run operation. Overseeing all operations is a board of directors composed of extremely well qualified businessmen. While the Board concerns itself with general policy formulation and periodic review of the Bank's status, it delegates responsibility for management of daily affairs to an Executive President who is assisted by an executive staff numbering 15 people. This core staff is complemented by 206 service and support personnel distributed throughout the Bank's 10 branch office network.

As noted above, the assets of the BC equaled $34.2 million. At the end of 1982, the total loan portfolio was $13.9 million; time deposits for the same period were reported to be $10.3 million, and savings accounts $6.2 million. According to Bolivian Central Bank reports, the BC ranks third in size and operations among the eighteen commercial banks operating in the country.

c. Activities in the Chapare

The BC is the only commercial bank operating in the Chapare. The branch office at Villa Tunari was opened in 1975 and is currently staffed by a manager, 3 tellers and other support staff. The record of this branch office with regard to savings mobilization is impressive. As of December 31, 1982, the branch had a savings portfolio of 1,691 accounts with a volume equivalent to $284,536. In one quarter (i.e. by March 31, 1983) the volume of savings rose to $472,411.

The Chapare branch also has broad experience with agricultural loans. For example, in 1982, it held 97 percent of the region's year-end portfolio of money borrowed for agricultural purposes. Operating much like a credit union, it has a simple credit delivery system which is efficient for both the bank and the borrower. There is little paperwork, and the client can borrow up to three times the amount he has on deposit in a savings account. The office operates on a personalized service-oriented basis which fits well with the rural small town atmosphere which is dominant in the Chapare.

d. Participation in the Project

The Bank's participation in the project will be two tier. First, it will mobilize savings and be a source of agricultural production credit for Chapare farmers. Second, as an Intermediate Credit Institution, it will participate, with other ICI's, in the review, approval and cofinancing of agroindustrial activities supported by this project. Concerning the first function, the BC will expand its infrastructure in the Chapare, opening a second branch office and introducing a number of mobile units. Sufficient staff will be deployed to run these new installations. With regard to the

second function, the Bank's branch in Cochabamba already has a development department with a core staff. This staff will be enhanced in the near future with the arrival of three new officers who are currently in a training course financed by the Bank.

4. Departmental Development Corporation of Cochabamba (CORDECO)

a. Legal Status and Objectives

CORDECO operates under the legal base establishing all nine of the country's Development Corporations, which is the General Law of Regional Development Corporations. The broad purpose of the Corporation is to promote economic and social development within the region. This is carried out through: 1) the development of a regional plan, 2) preparation of studies and establishment of development strategies and development/investment priorities, 3) the preparation and promotion of programs and projects consistent with national and regional objectives, 4) participation in project implementation directly, jointly or indirectly through public and private groups, and 5) coordination of development activities within the region.

b. General Organization, Financial and Human Resources

The President of CORDECO is the political spokesman and top decision-maker for the corporation. He, in turn, responds to a board of directors made up of key public and civic representatives in the Department. Below the President is an Executive,or Operations, Director charged with the day-to-day management of the corporation. In support of this office are the following staff offices: Technical Council, Consultative Council, Administrative Analysis, Legal Advisor, Program Control, Administration and Public Relations. There are three major implementing/operational branches -- Planning and Coordination, Project and Program Execution and Enterprises (see Chart 4).

CORDECO derives its operating budget from taxes, the national treasury, and from profits, rents and other resources obtained from its various activities. The investment budget comes principally from the national budget, grants and internal and external sources, including the PL 480 Title III Program. The main financial limitations relate to investments, as available resources are basically adequate to cover operating costs.

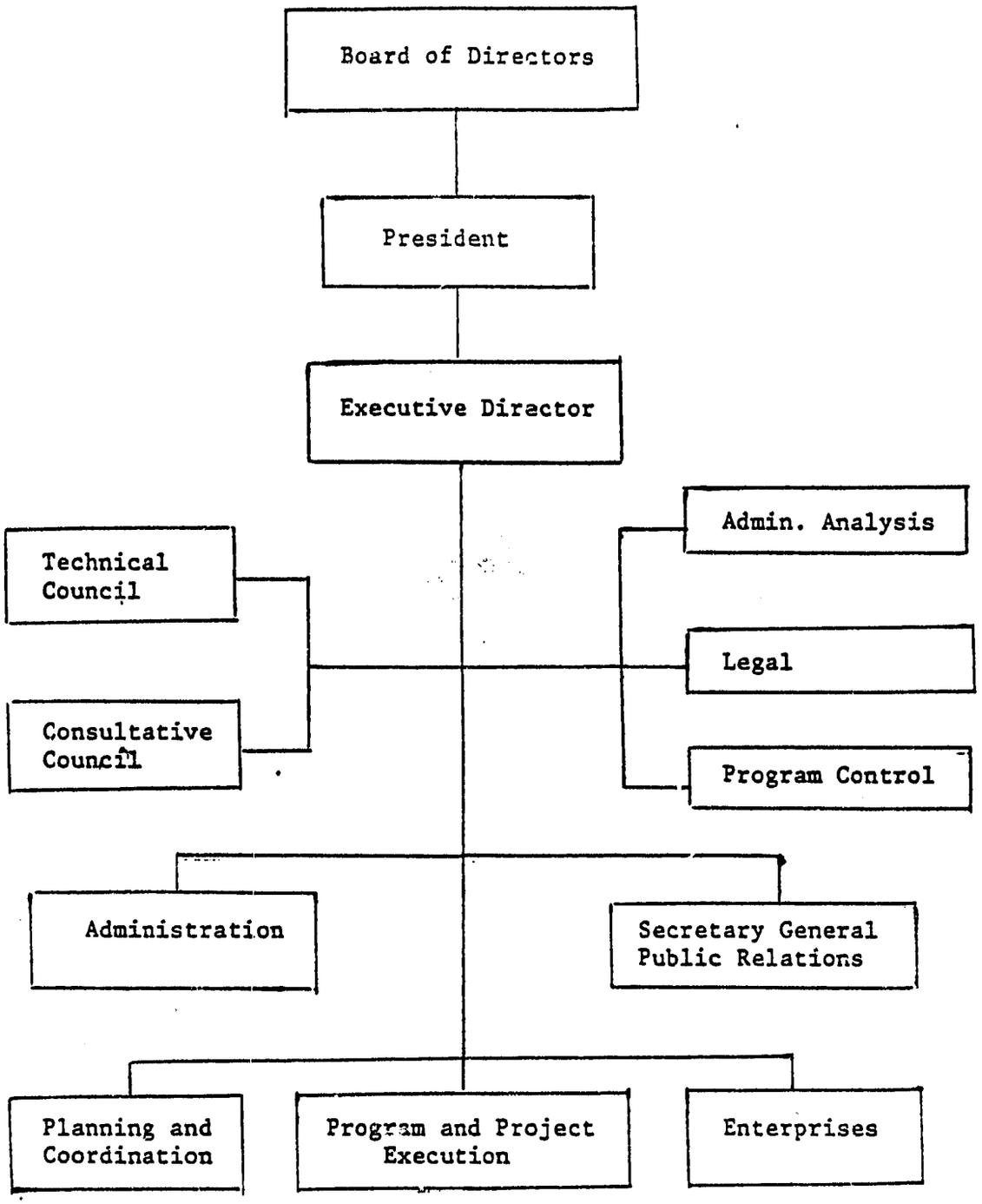
CORDECO has a total staff consisting of 519 employees, of which 164 are assigned to project-related work. There are 83 technical specialists within the three operations branches, including 28 agronomists and 10 economists. In general, the technical staff is relatively well paid and enjoys considerable job stability.

c. Capacity to Carry Out Rural Projects

CORDECO's main development priority is rural development, and it currently has a significant portfolio in this field. Among activities

CHART 4

ORGANIZATION PATTERN - CORDECO



it is currently financing is an experimental tea production and processing project in the Chapare. Five of CORDECO's projects are financed with PL 480 Title III funds and these are being successfully executed and administered.

Under the AID-funded Rural Development Planning Grant (511-0471), the Mission currently provides one long-term Bolivian advisor to CORDECO to assist in the area of project development, planning and administration. Additional assistance is being furnished on project design and management systems, as well as in planning methods. The grant will also provide funding for a specialized project accountant. The accompanying Development Corporations Loan (064) will make additional short-term assistance available for feasibility, marketing and other project design analyses. This loan also establishes a financial system for project funding which encourages the corporation to promote and help develop privately sponsored and operated rural enterprises.

d. Participation in the Project

CORDECO's role in the project is to identify, promote, help develop and finance small-scale local enterprises in the Chapare. CORDECO has ample experience working with farmer groups and organizations and in assisting such groups to develop and implement small-scale projects. In addition to production specialists and economists, CORDECO has industrial engineers, chemical engineers , civil engineers and sociologists on its staff. Project financing will not be required by CORDECO to carry out this function. In sum, the role CORDECO is to play in the project is feasible, administratively manageable and will require minimal project support other than for the investment funds for the local enterprises.

5. Secretariat for the Development of the Bolivian Tropics (SDBT)

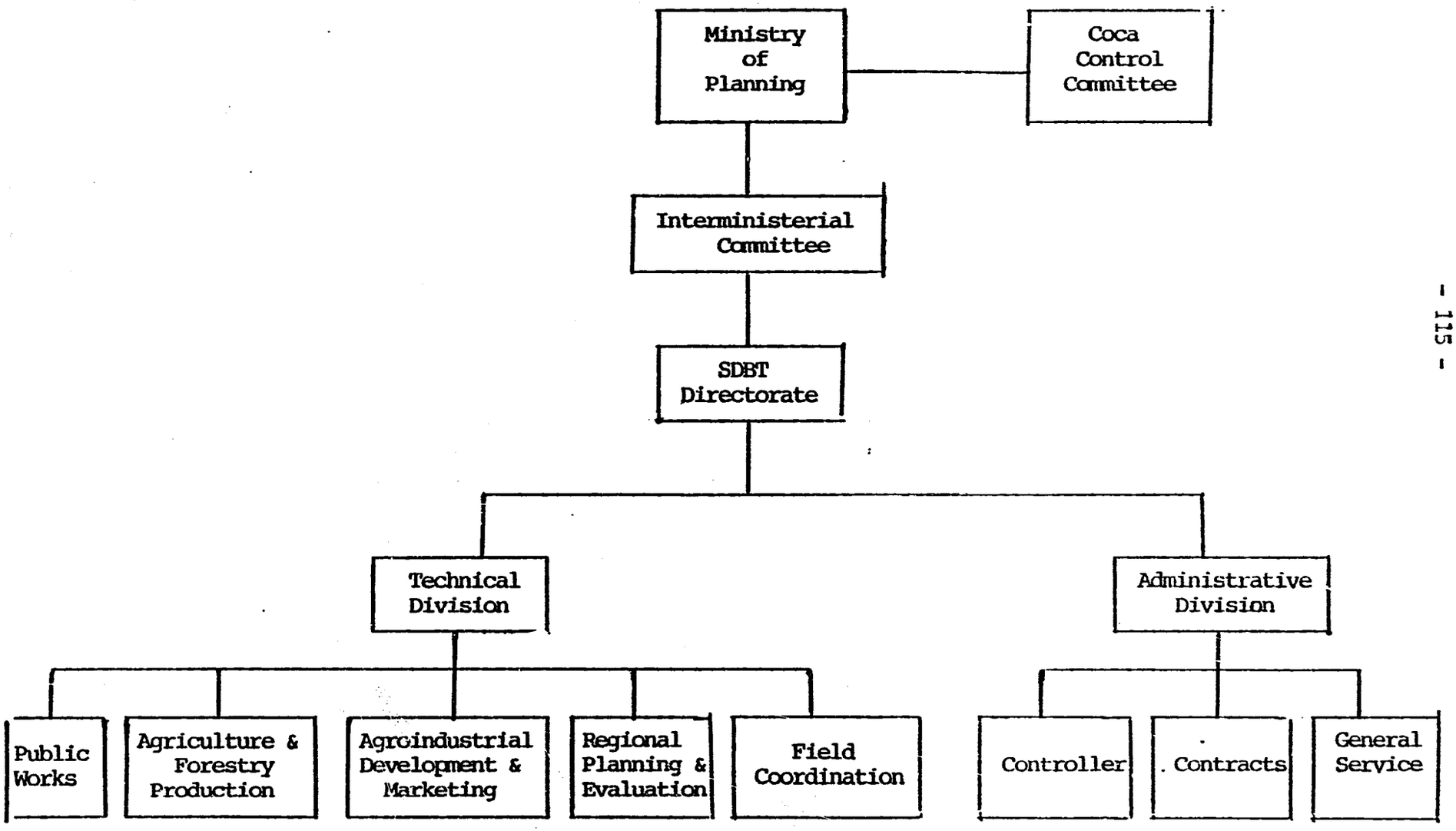
Given the multisectoral and interinstitutional nature and implications of development activities in the Chapare, and eventually in the Yungas and other eastern zones, coupled with the need to provide greater complementarity between development and control activities in coca producing areas, the GOB has determined that a special Chapare level coordinating body is required. This entity, the Secretariat for Development of the Bolivian Tropics (SDBT), is being set up administratively within the Ministry of Planning and will receive, through the Sub-Secretary of Coordination of that Ministry, direction and policy guidance from an Inter-ministerial Commission in which all national level government organizations key to development in the Bolivian Tropics and coca control are represented.

At the same time, and in order to ensure project-level participation and operational coordination, the SDBT will interact with a local advisory council (CODICH) made up of beneficiaries and implementing agencies within the Chapare. These relationships are diagrammed in Section III. C.2 of the paper.

CHART 5

ILLUSTRATIVE ORGANIZATION

SECRETARIAT FOR THE DEVELOPMENT OF THE BOLIVIAN TROPICS (SDBT)



SDBT will be composed of a Directorate and two main divisions — technical coordination and administration. The technical division will consist of a division chief assisted by specialists in agricultural production, agro-industrial development, regional planning, public works, field coordination and evaluation. The administrative division, in addition to a division chief, will include a controller with one assistant, a contract specialist and a general services officer. Both divisions will have the secretarial and other support staff necessary to execute their assigned functions. The key personnel of SDBT will be appointed by the Interministerial Commission. The appointment of the director, the two division chiefs and the remainder of the technical staff will be subject to the approval of AID; the project contains a Condition Precedent to disbursement to this effect.

To help develop the human resources base of the Secretariat, technical assistance and training will be programmed. Long term technical assistance will include a regional planner for a period of two years. In addition, 15 person months of short-term TA will be provided in critical skill areas such as tropical agricultural, project evaluation and social science. Training will be limited to short term courses, complemented by seminars and workshops on matters related to regional planning for social and economic development.

The base salaries of all SDBT personnel will be financed by GOB counterpart funds. Project loan funds will be used to supplement the salaries of key personnel to assume that high quality professionals are hired for these positions. In addition, project funds will underwrite some logistical support costs (e.g. procurement of 4 four-wheel drive vehicles, per diems, office rental, gasoline, etc.) and training for Secretariat staff. Details of project and GOB financing for SDBT appear in Section IV. D. - Project Financing. (see Chart 5 for Organizational Structure of the Secretariat).

6. Alternative Project Administration Models

Below are descriptions of three administration models that were considered before deciding on the approach (SDBT as a central coordinating role) that will be issued to implement this project.

a. MASI Model - This scheme, proposed by the team which made recommendations for the Chapare in 1979, envisaged the establishment of an Area Development Authority which would be responsible for planning, financing, servicing and monitoring all development activities in the Chapare. Project implementation was to be carried out by line agencies through project agreements with the Authority, or via contracts with private firms. This plan also envisaged the establishment of vertically integrated, public sector corporations. These corporations were to be sponsored by the Authority and undertake the entire gamut of production, processing, and marketing activities for specific Chapare crops. Long-range plans, project schedules and annual budget proposals of the Authority were to be subject to the review and approval of a Control Council established simultaneously with the Authority.

In addition to not providing a clear linkage to coca control efforts or to higher national authorities, the drawbacks of this model are that (a) it would require the immediate appointment of more high level managerial talent then the GOB could muster, and (b) it would rely on the creation of more state-owned corporations, which the GOB can ill afford and more likely than not would doom the project to failure.

b. PRODES Model - Under this format, initially proposed by PRODES, PRODES would take the lead in planning, financing and, in most instances, implementing discrete projects. In cases where PRODES lacked specific implementation capability, or could not contract to obtain it, it would sign agreements with line ministries and/or private sector entities.

This type of arrangement would rely much too heavily on a single institution to carry out a multi-faceted project, and exclude key entities such as CORDECO from playing the roles they should in the project. It also would not provide the desired linkage to high level national authorities.

c. CORDECO Leadership Model - This strategy, suggested by CORDECO, would have as its centerpiece the Committee for Agriculture Planning and Coordination (COPLACO) which already exists on paper. Under the jurisdiction of CORDECO, COPLACO would carry out the planning and coordination of development activities in the Chapare. Through it, PRODES, along with IBTA, MACA, SNC and sindicato federations would be afforded a role in the design and implementation of Chapare projects. The main drawback of this plan is that COPLACO's activities are limited to the agricultural sector, thus it could not coordinate the multisectorial program planned for the Chapare. In addition, the private sector would not be included in Chapare planning; CORDECO is not strong enough to spearhead the Chapare development effort; and, once again, there would neither be linkages to the control effort nor to the national level of Government.

E. Social Analysis Summary

1. Background

A complete description of the project beneficiaries appears in Section II, B. The following is a discussion of the principal potential social constraints that must be overcome to assure successful project implementation.

2. Potential Constraints

a. Risk Behavior

The first social constraint is concerned with the risk behavior of the participating farmers. Adoption of new technologies (e.g. modifications of existing farming systems) is hindered or enhanced by the risk management conduct of the intended beneficiaries. To the extent that they are risk adverse the adoption process is retarded. Conversely, to the degree that they are risk takers the probabilities for accepting innovation are increased.

Farmers in the Chapare can be characterized as opportunitists yet measured risk takers. They assume risk but they do so in such a way so as to minimize the possibility of loss. However, by minimizing the potential loss, they also reduce the possible gain. In a phrase, the Chapare farmers deal with uncertainity by "hedging bets".

The clearest indication of their willingness to take risks is the fact that the wide majority have migrated to the Chapare from areas of the country with radically different social settings, climates and farming conditions. Making such a move entails confronting a certain level of economic risk and social dislocation. To reduce the uncertainities involved with this significant change, a number of tactics are employed. A key strategy is to become engaged simultaneously in multiple economic activities. For example, while starting a homestead in the Chapare, farmers retain, and continue to work, the holding they own in their native highland villages. Operating farms, in two different ecological zones, reduces the chance of total loss in the event of an economic set-back. Similarly, a family will manage its homestead in the Chapare, while some of its members earn income as day laborers either in the Chapare or in another area of the country. The guiding principle of these strategies is that the family unit distribute resources and efforts among a number of economic pursuits always keeping an alternative(s) to avoid financial ruin in the case of a serious reverse to any of the components.

In this case, risk behavior on the part of Chapare farmers comes into play with regard to the potential income loss from a reduction in the amount of coca planted. From the perspective of the farmers, coca is one more of a series of income generating activities-- one more way to "spread out" the risk of a tenuous economic situation. They are involved in it because it

provides a good economic return. However, if the risk related to producing the crop were to rise or if the revenue it generated were to fall significantly, their strategy of "hedging bets" would come into play and lead them to seek money generating alternatives. Recent history attests to this behaviorial pattern. A control intervention carried out in the Chapare in 1981 caused a sharp decline in the price of coca, from $b.7,000 to $b.500 for a 125 lbs. bundle. While the depressed price lasted only three months, during this period, IBTA and other development organizations working in the Chapare were besieged with requests from farmers for plant materials and technical assistance related to other crops. Accordingly, if the control program is successful in depressing the price of coca and keeping it at a low level and increasing the risk to growing illegal amounts of the plants, the opportunism and "hedge betting" mentality which motivates Chapare farmers in economic matters will cause them to gravitate toward alternative crops.

b. Linkage between Farmers and Industries

A second potential social constraint is the linkage between the farmers and the private sector businessmen with regard to the agroindustiral sub-projects. Each group comes from a separate segment of society and in addition to considerable mutual ignorance, there is evidence of mutual distrust and precedents of attempted explotation.

The problem is one of structuring the relationship in such a way so as to protect the farmers form exploitation at the hands of the industrialists, who are clearly in a superior position in terms of economic and political influence and power, while simultaneously guaranteeing the industries with timely delivery of produce in the required quantities and qualities. The strategy used in the project to achieve this end will be to organize farmers into producer organizations to service each agroindustry. The organizations (cooperatives, associations) will negotiate contracts with the industry concerning the terms for provision of commodities to the industries and payment to the farmers. The contracts will be legally binding and enforceable by Bolivian Civil authorities. The project will provide, through FENACRE, technical assistance to the farmers in organizing groups and negotiating with the companies.

c. Social Organization

The description of the project beneficiaries (see Section II, B, 3) indicates that because the Chapare is a frontier area and because most of the residents are recent immigrants from diverse regions of Bolivia, the sense of community in the region is extremely underdeveloped. Beyond the nuclear family the dominant types of social relationships are loose networks of individuals who join together to achieve a specific purpose. Most often, the ends are tangible and their realization is immediate. Once the objective is gained the union disbands and there are no lingering social responsibilities among the individuals involved. Subsequently new coalitions, with new groups of people are formed to achieve other objectives of common interests to the participants.

The project requires, especially with regard to the agroindustry development/marketing component, that Chapare farmers organize into groups to effect successful implementation. The strategy to achieve this end will be to structure the farmers groups in a way that is compatible with the fluid social structure of the region. Accordingly, the groups will be organized for a specific purpose-- viz. production for an agroindustry supported by the project. The benefit (payment for produce) will be tangible and realizable in a relatively short time frame. The members of the group will have considerable voice in determining the form (cooperative, associations, etc.) that the organization takes as well as the responsibilities of the members to the organization and vice versa. Finallly, participation in a producers group will obligate the members to interact only to achieve the objective for which the group exists, viz. participation in an agroindustrial endeavor. Creation of any social ties or responsibilities in addition to this will be at the discretion on the members.

VI. PROJECT IMPLEMENTATION ARRANGEMENTS

A. Administrative Arrangements

1. Role and Responsibilities of USAID

The project will be managed by a designated project manager in the Office of Rural Developmet (RDD) of USAID/Bolivia who will be responsible for monitoring the progress of inputs and project activities. The project manager will work closely with the SDBT, IBTA, FENACRE and other executing agencies to: assure compliance with the terms and conditions of the Project Agreement, verify that proper procedures are followed for all procurement, contracting and management, and help solve any implementation problems or project issues that arise.

A Mission project committee composed of the project manager and representatives of other Mission offices will review project status monthly, identify potential problems in implementation, develop appropriate solutions and prepare a monthly status report.

The Project Development and Implementation Office (PD&I) will be responsible for preparing the Project Agreement as well as Project Implementation Letters (PIL's). The Office of the Controller will review all disbursement requests for conformity with A.I.D. regulations and ensure that appropriate accounting practices are followed by the GOB and other participating organizations. The Office of Development Planning and Evaluation (DP&E) will coordinate all evaluations in conjunction with the project manager and will advise on data base requirements for the project.

2. Role of the Secretariat for the Development of the Bolivian Tropics (SDBT)

SDBT will be a decentralized and autonomous agency of the MPC that will be responsible for overseeing and coordinating the implementation of project activities approved by the Interministerial Commission (see IV.C.). It will prepare semi-annual operating plans and budgets, in coordination with each of the executing agencies, for presentation to the Commission and USAID.

SDBT will also be charged with coordinating with the principal project implementing agencies all project-funded procurement, including T.A., terms of reference, commodity bidding documents, and contracts. These tasks will be carried out in close cooperation with the executing agencies requiring such procurements.

Finally, SDBT will promote small business development in the Chapare, contract for services to carry out studies relative to the feasibility of such enterprises, and act as a clearing house for marketing information relative to Chapare investment opportunities.

B. Implementation Period

A five-year implementation period is proposed for A.I.D. participation in this project. However, it is expected that to accomplish the objective of a reduced dependence on coca as the major source of farmer income will require ten years or more. Equipment purchases and delivery should be completed within two years. Participation of long-term and short-term technical experts will be phased over the life of the project to coincide with the implementation of discrete activities.

C. Implementation Plan

The following is a chronological listing of the expected project actions to be taken by the USAID and the implementing entities.

Date	Activity
1983	- Coca Control Plan approved and signed by GOB and USG.
September	- Project Agreement signed.
October	- Implementation Letter No.1 issued explaining how to fulfill initial Conditions Precedent (CPs).
November	- Enabling legislation passed by Bolivian Congress. . Coca Control Plan approved by Bolivian Congress. - Initial CPs met including: . Signed agreement between the GOB and the USG on coca control. . Executive Secretariat (SDBT) established and funding provided by GOB. . Director of SDBT appointed. . SDBT core staff employed and located in Cochabamba. - Implementation letter issued explaining procurement procedures, pari passu system, disbursement regulations and accounting system.
December	- SDBT transfers nursery facilities to IBTA. - PIO/C issued for procurement agent. - A.I.D. issues PIO/Ts (LITA) for Regional Development Specialist and Agribusiness Development/Marketing Specialist to assist SDBT. - Proposals for 2 large scale agroindustries projects (citrus and swine) received and reviewed by BCB and USAID/Bolivia.

Date	Activity
	- IBTA names technical and administrative staff, after which A.I.D. issues PIO/Ts for short-term technical assistance to GOB for development of operational plan for research, extension and training activities.
	- Working agreement signed between SDBT/IBTA and FENACRE.
	- FENACRE core staff employed and located in Villa Tunari.
	- Detailed commodity procurement plan completed.
	- PIO/Ts for ST SDBT marketing advisor and public works specialist developed and issued by Mission.
	- PIO/Ts for LT cooperative/credit advisor for FENACRE developed and issued by Mission.
	- PIO/T for LT project development specialist for CORDECO developed and issued by Mission.
	- PIO/Ts for LT research and extension advisors for IBTA developed and issued by Mission.
	- Annual work plan, including budget, prepared by SDBT.
	- Begin construction of living quarters for IBTA and FENACRE technicians working in Chapare.
1984	
January	- Five-year Chapare Regional Development Plan prepared by SDBT.
	- GOB Coca Control Plan operational in the Chapare.
	- IBTA begins research and extension work on citrus, kudzu, palm heart, rice, tea, cattle, bees, yuca, corn, pineapple, hogs and wood.
	- Four extension agents hired.
	- Four Representative /Demonstration (R/D) farms established in each of the micro-regions (MR) except for the protected areas (MRs 1 and 2).
	- Proposals for 2 large scale agroindustries (kudzu and particle board) received and reviewed by BCB and USAID/Bolivia.

Date	Activity
	- Farm plans developed for the 28 R/D farms.
	- On-station research trials started.
	- FENACRE LT credit/cooperative development specialist hired.
	- CORDECO LT project development specialist hired.
	- IBTA long-term advisors hired.
	- SDBT Regional Development Specialist and Agrobusiness Development Marketing Specialist hired.
	- Procurement Agent contracted.
February	- IBTA paraprofessional assistants (32) recruited and initial training begins.
	- Seven extension teams formed.
	- PIO/C for IBTA radio equipment issued by Mission.
	- Short-term technical assistance on-board with IBTA to advise extension teams.
	- Short-term technical assistance on-board with FENACRE to develop strategy for forming farmer organizations.
	- Building construction starts on two IBTA sub-stations.
	- Short-term marketing advisor on-board with SDBT.
	- Detailed procurement plan developed.
	- PIL issued by Mission describing information required to meet CP to disbursement on credit element.
	- Citrus and swine agroindustry subprojects begin.
	- Credit agreement between ICIs and SDBT signed.
March	- Bank of Cochabamba opens second branch office in Villa 14 de Septiembre.
	- Community Extension Councils formed.
	- Kudzu and particle board agroindustry projects begin.
	- Two of five new nurseries established.
	- Technological packages (4) applicable to ecology and agroforestry potential of Chapare developed by IBTA.

Date	Activity
	- Construction on IBTA-sponsored vocational school facilities starts.
	- Credit funds for large-scale agrobusiness enterprises disbursed.
April	- Farmer field day training in agroforestry conducted.
	- IBTA long-term tropical crops specialist, agro-forestry specialist and farm planning specialist hired.
	- Work on upgrading two IBTA research facilities in the Chapare started.
	- IBTA radio equipment installed.
	- In-country short-term training in radio communications for IBTA technicians begins.
	- In-country short-term training in cooperative marketing for FENACRE technicians begins.
	- Research training and services laboratory equipment arrives.
	- IBTA/FENACRE living quarters completed.
May	- Credit funds to small-scale agrobusiness enterprises in the Chapare disbursed (2 activities).
	- Short-term training in project monitoring for SDBT technicians starts.
	- Diagnostic studies on ecological characteristics affecting soils and crop conditions in MRs 3 and 7 started.
	- IBTA Long-term Animal Production Specialist and Soil Management Specialist hired.
	- Work begins on construction of two Federation Community Centers.
June	- Farmer field day training in tropical agricultural farming practices conducted.
	- One of three remaining nurseries established.
	- Research work on cacao and rubber begins.

Date	Activity
	- Construction work on two IBTA sub-stations completed.
July	- Short-term training in farm management techniques for IBTA technicians starts.
	- Short-term training in tropical farming systems for IBTA paraprofessional starts.
	- Technical transfer information messages (400) relative to tropical agriculture produced and diffused.
	- Work on upgrading three IBTA research facilities in the Chapare completed.
August	- Two new farmer associations in the Chapare established and functioning.
	- Construction of Community Centers completed.
	- Diagnostic studies for MRs 3 and 7 completed.
	- Remaining 11 extensionists and 32 paraprofessionals hired; remaining 11 extension teams formed.
	- Long-term training for IBTA technicians (3) in tropical agriculture starts overseas.
September	- Two remaining IBTA nurseries established.
	- Research work on coffee and bamboo started.
	- Diagnostic studies started in MRs 5 and 9.
	- Short-term technical assistance in agricultural extension and animal production for IBTA arrives.
October	- Diagnostic studies started in MRs 4, 6 and 8.
	- Short-term technical assistance in small farmer credit for FENACRE arrives.
	- Imported motorcycles and vehicles arrive.
	- Short-term technical assistance in agribusiness promotion for SDBT arrives.
November	- Diagnostic studies for MRs 5 and 9 completed.

Date	Activity
	- Farmer field day on training in pest management conducted.
	- Technological packages (2) relative to tropical agricultural crop production developed and disseminated by IBTA.
	- Dumptrucks and house trailers arrive.
December	- Project evaluation, including progress made relative to coca control efforts, conducted.
	- Full extension program in operation.
1985	
January	- Diagnostic studies for MRs 4, 6 and 7 completed.
	- Short-term technical assistance in animal production for IBTA arrives.
	- Short-term training in animal husbandry for IBTA technicians starts.
February	- Four new R/D farms established in MRs 2 through 9.
	- Short-term technical assistance in project administration for SDBT arrives.
	- Additional staff (4) hired by FENACRE.
	- Short-term technical assistance in regional planning for SDBT technicians starts.
	- Farmer field day training in animal husbandry conducted.
	- Technical packages (4) on agroforestry systems developed and disseminated by IBTA.
	- IBTA paraprofessional assistants (13) recruited and initial training begins.
April	- Short-term technical assistance in community organizations for FENACRE arrives.
	- Additional staff (10) hired by IBTA.
	- Short-term training in small farmer credit for FENACRE begins.

Date	Activity
	- Work on upgrading remaining IBTA research facility begins.
	- Technical transfer information messages (700) produced and diffused.
July	- Farmer field day training in animal production conducted.
	- Credit funds for small-scale enterprises disbursed (2 activities).
August	- Long-term training for three IBTA technicians in tropical agriculture starts overseas.
	- Paraprofessional training sessions (4) carried out.
September	- Credit unions established and functioning in MRs 3, 4, 8 and 9.
	- Short-term TA in tropical agriculture and soils management for IBTA arrives.
October	- Technical packages (3) on poultry production and farm management developed and disseminated by IBTA.
	- Chapare farmer associations (2) established and functioning.
	- Short-term TA in marketing for FENACRE arrives.
	- Short-term training in agribusiness promotion starts.
December	- Annual evaluation, including progress made in implementing the GOB coca control plan, conducted.
1986	
January	- Farmer field day training in farm planning and post-harvest losses conducted.
February	- Short-term technical assistance in soil management for IBTA arrives.
	- Short-term training in tropical crop ecology provided IBTA technicians.
	- Short-term TA in rural savings mobilization for FENACRE arrives.
	- Short-term training in rural savings mobilization provided FENACRE technicians.

Date	Activity
March	- Short-term TA in tropical agriculture for SDBT arrives.
April	- Short-term TA cooperative management for FENACRE arrives.
	- Technical packages (5) on swine production developed and disseminated by IBTA.
	- Chapare farmer association (1) established and functioning.
	- Short-term training in cooperative administration provided FENACRE technicians and cooperative managers.
June	- Farmer field day training in forest management conducted.
	- Short-term TA in pasture management for IBTA arrives.
	- Short-term training in cropping systems provided IBTA technicians.
	- Paraprofessional training sessions (4) carried out.
	- Short-term TA in farm association organization for FENACRE arrives.
	- Short-term training in cooperative education for FENACRE.
	- Credit disbursed for small scale enterprises in the Chapare. (3 activities)
July	- Short-term TA in tropical horticulture for SDBT arrives.
	- Short-term training in market promotion provided SDBT technicians.
August	- Long-term training in tropical agriculture for three IBTA technicians completed.
	- Long-term training in crop production for 3 IBTA technicians starts overseas.
	- Technical transfer information messages (900) produced and diffused.
September	- Farmer field day training in animal production conducted.
	- Short-term TA in farm planning for IBTA arrives.
	- Short-term training in extension provided IBTA technicians.

Date	Activity
	- Technical packages (4) on farmer associations and cooperatives developed and disseminated by IBTA.
November	- Short-term TA in project evaluation for SDBT arrives.
	- Short-term training in project budgeting provided SDBT technicians.
December	- Annual evaluation, including progress achieved in implementing GOB coca control plan, conducted.
1987	
January	- Farmer field day training in farm management conducted.
	- Chapare farmer association (1) established and functioning.
February	- Short-term TA in aquaculture and aviculture for IBTA arrives.
	- Technical packages (5) on agriculture and aviculture developed and disseminated by IBTA.
	- Short-term training in aviculture and aquaculture provided IBTA technicians.
June	- Farmer field day training in crop management conducted.
	- Short-term TA in animal nutrition for IBTA arrives.
	- Short-term training in pest management provided IBTA technicians.
	- Paraprofessional training sessions (3) carried out.
July	- Short-term TA in agricultural cooperative development for FENACRE, arrives. - Credit funds for small scale enterprises disbursed (2 activities). - Technical packages (4) on tropical agriculture developed and disseminated by IBTA.
	- Short-term training in integral cooperative development provided FENACRE technicians.
August	- Long-term training in crop production for three IBTA technicians completed.
	Technical transfer information messages (1200) produced and diffused.

Date	Activity
September	- Farmer field day training in tropical agriculture conducted.
	- Short-term TA in tropical crop ecology for IBTA arrives.
	- Short-term training in animal production provided IBTA technicians.
	- Short-term TA in cooperative accounting systems for FENACRE arrives.
	- Short-term training in general cooperative administration provided cooperative managers.
December	- Annual evaluation, including progress made in implementing GOB coca control plan, conducted.
1988	
January	- Farmer field day training in agroforestry systems conducted.
	- Chapare farmer association (1) established and functioning.
February	- Short-term TA in forest management for IBTA arrives.
	- Short-term training in animal production provided IBTA technicians.
	- Short-term TA in pest management for IBTA arrives.
	- Technical packages (5) on farming systems and pest management developed and disseminated by IBTA.
March	- Farmer field day training in cropping systems conducted.
	- Short-term TA in tropical agriculture for IBTA arrives.
	- Technical transfer information messages (1200) produced and diffused.
	- Short-term training in farming systems provided IBTA technicians.
May	- Paraprofessional training sessions (3) carried out.
	- Farmer field day training in pasture management conducted.
	- Short-term TA in cooperative extension for FENACRE arrives.
	- Credit funds for small scale enterprises disbursed (1 activity).

Date	Activity
	- Short-term training in cooperative lending provided cooperative members and FENACRE technicians.
June	- Technical packages (4) on agroforestry management and cropping systems developed and disseminated by IBTA.
August	- Final evaluation, including an examination of the GOB's coca control efforts in the Chapare, conducted.
September	- PACD

D. Implementation Procedures

As indicated in Section IV.D.2. Project Accounting and Disbursement System, the Mission has designed a comprehensive project implementation strategy. The accounting and disbursement scheme described in Section IV.D.2. is a part of the overall system which requires, in addition to the quarterly budget and disbursement process, a comprehensive budget for the life of the project tied to the estimated quarterly disbursements. This budget is to be revised once a year, or more often if necessary, to reflect the changes that occur in this as in any dynamic project. The yearly revised overall budget then will become the guide for the quarterly budgets for the following implementation year.

The financial reporting strategy is designed to provide data for disbursements and furnish a comprehensive financial progress reporting system that will monitor the progress of the project by component and by budget line item for A.I.D., GOB and Private Sector contributions.

The implementation system also requires a procurement plan which will have sufficient detail to indicate when, what and by whom procurement actions are to be taken. This plan is to be developed jointly by the SDBT and USAID/Bolivia.

It is expected that, because of the complexity of the project and the commodity procurement requirements of the various participating entities, USAID/Bolivia will contract directly with a procurement agent for the development of the final specifications of commodities to be acquired and for their procurement. This will overcome possible delays attributable to counterpart organization deficiencies in procurement that have historically been experienced in Bolivia.

Similar to counterpart procurement for commodities, the GOB has a demonstrated limited ability to execute procurement of technical services from abroad. Therefore, the Mission will contract directly all technical assistance provided from sources outside Bolivia. Procurements of technical assistance from within Bolivia will be affected by the cooperating entity.

E. Evaluation Plan

1. General

The evaluation plan is designed to examine activities at two distinct yet related levels: 1) achievement of project purpose, and 2) implementation of the coca control program. The evaluations will be carried out on a yearly basis throughout the life of the project beginning one year after GOB compliance with the Conditions Precedent to initial disbursement. In combination with project monitoring activities, the yearly evaluations will measure progress on both development and control fronts and provide the basis for making mid-course corrections in the design of project elements.

2. Responsibilities

The evaluation unit within SDBT will be responsible for collecting and analyzing the data required for measuring progress toward achievement of project purpose. NCDS will coordinate the gathering of data to gauge progress of the control program. This unit will be responsible for establishing and managing a system that will facilitate the storage, retrieval and analysis of these data. Project fund and technical expertise will be provided to SDBT to assist in designing the information system. Finally, the SDBT evaluation unit will be assisted in carrying out the yearly reviews by USAID/Bolivia's PD&I office, personnel from the MACA, the Coca Control Program and Bolivian and U.S. consultants as needed.

3. Data Requirements

The data requirements for the evaluation exercise are divided into three types:

a. Baseline Data

Accurate baseline data on the social and economic status of the target population will be necessary to gauge the effects of the project on the beneficiaries and measure progress in the reduction of coca hectareage* Some of this information is already available in MACA. Data that is lacking will be collected early in project implementation through use of the Area Sample Frame method.

Baseline data on the financial status of the participating agroindustries also will be required to measure the impact of the project on these firms. For the four firms participating in the Project, this information (e.g. balance sheets and financial statements) was obtained while designing the project. These data will be compared to similar information in future years to determine impact of the intervention on the private firms. An identical process of comparing baseline financial status with financial

---

* Additional information items to measure success of the control program are found in Section II. C.

data during the course of the project will be used to judge impact of the project on the firms involved in the small-medium scale activities.

b. Survey Data

The Area Sample Frame will provide the framework for collecting benchmark statistics to measure the impact of project activities on the recipient farm population at intervals during the life of the project. Included among the data items to be measured are:

- receptivity of beneficiaries to technical interventions
- yield levels of crops
- livestock herd sizes
- production credit demand
- types of crops cultivated
- degree of change from original cropping systems
- income
- living conditions
- number of farmer organizations formed
- level of participation by individuals in former organizations
- attitudes concerning permanence in the Chapare
- degree of change in locus of investment (i.e. within the Chapare or elsewhere)
- degree of campesino involvement in management of agroindustry

c. Project Data

These types of data include financial expenditures, project acquisitions, and physical outputs (e.g. number of representative/demonstration farms established, number of field days carried out, amount of production and marketing credit disbursed, etc.). Financial data will be obtained from the accounting unit of the GOB organizations involved in project implementation on a regular (quarterly) basis. Information on physical inputs, outputs, and some of the immediate effects will be obtained through the information system established within SDBT with data inputs provided by field technicians from the executing entities (e.g. IBTA, FENACRE, ICI's, CORDECO). The availability of these data will allow comparison of actual input activities and output with the project implementation plan. Funds to carry out the evaluations of both control and development activities will be furnished by INM.

ANNEX A, EXHIBIT 1

Chapare Land Use

Type of Colonization	Area Settled (ha)	Area Cultivated (ha)	Average Cultivated Area Per Farm (ha)	Area in Fallow (ha)	Area in Forest (ha)
Directed	69,880	12,805	3.77	9,800	45,275
Spontaneous	76,840	34,767	4.55	17,700	23,973
Totals	146,620	47,572	4.31	27,500	69,248

a/ Source: MASI, 1979.

ANNEX A, EXHIBIT 2

DISTRIBUTION OF LAND AND LAND AREA FOR DIRECTED AND SPONTANEOUS COLONIZATION AREAS OF THE CHAPARE[a/]

Type of Colony	Number of Colonies	Number of Parcels	Estimated Area (ha)
Spontaneous	117	8,281	82,810
Semi-directed	42	1,972	39,440
Directed	24	1,193	24,260
TOTAL	183	11,446	146,510

a/ Source: MASI, 1979.

ANNEX A, EXHIBIT 3

AREA CULTIVATED, PRODUCTION, AND CROP YIELDS IN EIGHT MICRO-REGIONS IN THE CHAPARE - 1980-81 a/

Crops	Number of Farms	Area (ha) in development	Area (ha) in production	Area (ha) Total	Production (Tons)	Yield (T/ha)
Annuals						
Rice	7,688	-	10,416	10,416	11,100	1.1
Yuca	8,303	-	2,910	2,910	29,042	10.0
Corn	3,971	-	2,440	2,440	3,853	1.6
Peanuts	1,640	-	269	269	313	1.2
Watermelon	126	-	92	92	859	9.3
Taro	2,198	-	336	336	1,071	3.2
Tomato	73	-	5	5	92	18.3
Other	2,460	-	1,020	1,020	-	-
Totals	26,459	-	17,488	17,488		
Permanent						
Oranges	9,920	4,165	1,925	6,090	33,948	17.6
Limes	6,279	454	265	719	4,861	18.4
Mandarin	7,639	1,279	572	1,851	6,480	11.3
Grapefruit	3,241	330	108	438	1,858	17.2
Banana/ Plantain	6,459	1,029	7,008	8,037	143,067	20.4
Coca b/	9,590	1,189	11,615	12,804	24,104	2.1
Papaya	1,045	70	166	236	1,626	9.8
Rubber	338	174	-	174	-	-
Coffee	190	9	-	9	-	-
Cacao	486	128	5	133	3	4.1
Avocado	3,316	308	97	405	885	9.1
Totals	48,503	9,135	21,761	30,896		

a/ Source: PRODES - MACA. 1982.

b/ 1982 estimates of coca area is judged to be between 35,000 - 37,000 hectares (Guerra Mercado, 1982).

ANNEX B - PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

Life of Project: From FY83 to FY88
US Funding:14.4 million
Date Prepared: May 22,198

Project Title and Number: Chapare Regional Development

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Goal: To stimulate balanced economic development and an enhanced standard of living in the Chapare region resulting from a mixture of public and private sector participation, a diversified economic base and more equitable income distribution.	Measurement of Goal Achievement: a. Income of Chapare residents equals the median for Bolivia by 1988. b. Increased production of non-coca crops. c. Increased production of non-coca crops and livestock.	a. Evaluations of various components of Chapare project. b. Data, reports and special studies initiated by SDBT and the MPC's policy unit. c. Survey of farm families. d. GOB records and census. e. Account data of the BCB and the ICIs involved in the project.	a. Price incentives for foods and non-edible forestry production continue to be favorable. b. General economic conditions in the country will improve. c. Chronic political instability will ameliorate. d. Domestic and international markets for cash crops will continue to develop.
Project Purpose: To modify and improve the agricultural and forestry production system of farmers in the Chapare to respond better to diverse, profitable marketing opportunities provided under sustained, environmentally compatible medium technology production models.	Conditions that will indicate purpose has been achieved: EOPS 1. Agricultural and Forestry Production: a. Research & Extension -An applied agricultural research and extension capacity (i.e.IBTA)established in the Chapare to promote improvements in production and diversified farming appropriate for the Chapare. -Complementary private sector research and extension system in place.	-Periodic evaluation of project components. -Final project evaluation. -USAID/B Project Manager's periodic site visits. -Regular reports of T.A. team members. -Yearly progress reports from SDBT. -Minutes from international tropical agricultural meetings.	Key Assumptions: 1. a.-Capability and willingness of the GOB to support a sustained development and narcotics control effort. -The existence of an untapped agricultural growth potential in the Chapare which is amenable to a regional development project of this nature, -Chapare farmers will be receptive to what the project has to offer.

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
	-Available and diffusion of agricultural and forestry technical packages to improve the agro-forestry production of small farmers in the Chapare established. -System for responding to suply-demand relationships between production and marketing in place.		No severe or prolonged weather or other environmental conditions occur which affect agricultural production. -Infrastructure projects planned for the Chapare, both those pertaining to USAID/Bolivia's frozen loans and those of other donors will be carried out.
	b. Agricultural Credit -A self-sustaining credit system which includes realistic interest rates for both short and medium-term credit as well as savings mobilization in place.	-Credit lending institution records. - Yearly progress reports from SDBT.	b.-Commercial banks continue to be interested in development lending.
	2. Agribusiness Development: - An information clearing house for local/regional markets established. - Procedures for identifying, testing the feasibility and financing both large and small scale agro-industry project for the Chapare in place. - Commodity processing and marketing systems established.	2. Periodic evaluation of project components. -Final project evaluation. -USAID/B Project Manager's periodic site visits. -Yearly progress reports from SDBT. -Credit lending institutions' records. -Private Sector entities' marketing reports.	2. -The incentives for investment established by this project are sufficient to encourage firms to enter the economy.
	3. Project Administration:	3. Periodic evaluation of project components.	3. The GOB is willing and able to implement a sustained development efforts of this nature.

137

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
	- An organizational structure with sufficient human resource base for managing the delivery of inputs and coordinating with the coca control program established.	- Final project evaluation. - USAID/B Project Manager's periodic site visits. - Reports of T.A. team members. - USAID/B Controller's records of pari passu performance. - Yearly progress reports from SDBT.	
	4. Coca Reduction and Control: - Control plan that brings about a reduction in the amount of illegal coca produced. - An institutional system to diversify agricultural production in the Chapare while lessening its dependence on coca as a major income crop in place.	4. - NDCDS and other GOB reports and records. - Periodic evaluation of project.	4. - The Chapare coca control program will be effective in reducing the guaranty of coca produced legal levels. - The coca control program will reduce the price of coca and add a significant risk element to illegal production. - Farmers will accept incentives to reduce coca production.

148

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS					MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Outputs:	Magnitude of Outputs:						
1. Agricultural and Forestry Production	1984	1985	1986	1987	1988		1. GOB makes budget provision for and provides its contribution on a timely basis.
a. Research & Extension						a. - Periodic evaluations of project components.	a.
- Professional researchers and extensionists hired and trained.	23	10	-	-	-	- Regular reports of TA team members.	- Research and extension personnel available and willing to work in project area.
- Paraprofessionals hired and trained.	32	13	-	-	-	- USAID/B Project Manager's periodic site visits. - Final project evaluation.	- Qualified counterparts will be available to work with technical advisors.
- Technological packages applicable to ecology and agro-forestry potential of Chapare developed.	6	7	9	9	9	- IBTA records.	- Technical advisors hired on a timely basis.
- Model farms established throughout the region to serve as training and demonstration locations for farmers and paratechnicians.	28	28	28	28	28		- Sufficient number of Chapare farmers interested in becoming paraprofessionals.
- Farmer field days conducted.	3	3	3	3	3		- Small farmer's willing to work with IBTA extension agents.
- Paraprofessional training sessions carried out.	4	4	4	3	3		

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS					MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
- Tech transfer information messages produced an diffused.	400	700	900	1200	12000		
- Research facilities at 3 IBTA stations in the Chapare upgraded.	2	1	-	-	-		
- Farmer associations (e.g. cooperatives) for producting in direct relation to processing marketing activities in place.	2	2	1	1	1		
- IBTA professional staff in receipt of long-term training in tropical agriculture.	3	3	1	-	-		
- Technology transfer system in place.	- improved quality and quantity of extension services offered.					- IBTA records.	
b. <u>Agricultural Credit</u>	b.					b.	b.
- Production/Enterprise loans made.	5,758	1,500	2,000	2,000	1,000	- Financial institution reports.	- Resources for loan capital become available as planned.
- FENACRE credit specialists and community organization specialists hired and trained.	15	4	-	-	-	- Reports of TA team members. - Periodic project evaluations. - USAID/B Project Manager's periodic site visits.	- Farmers receptive to modifications in their farming systems. - Markets exist for enhanced production.
- In-service training conducted.	25	30	35	40	40	- SDBT yearly reports.	- Suitable candidates available.
- Short-term courses carried out.	12	2	2	2	2	- Final project evaluation.	- Farmer supplies will be readily available at reasonable prices.
- Bank branch offices established in the Chapare.	1	-	1	-	-		

142

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
- Credit and savings associations established in the Chapare.	- An established and well functioning financial system in which ICIs and cooperatives provide credit and generate savings mobilization in the region.	- ICI's financial reports.	- ICIs become involved in Chapare. - Demand for production credit remains high.
	- FENACRE expands its operations by adding three new credit unions.	- Existence of 3 FENACRE credit unions and Federation's credit files.	- Savings mobilization is attractive to Chapare farmers.
	- Improved inter-institutional coordination between extension services and financial institutions.	- Periodic evaluation reports.	- Extension and research efforts create credit demand.
	- Financial institutions using positive real interest rates for both loans and savings.	- Financial institution reports.	
	- BC expands its Villa Tunari office and adds two new branches in the Chapare.	- Existence of 3 BC offices in the Chapare and Bank's files.	
2. Marketing/Agroindustrial Development	Magnitude of Outputs: 1984 1985 1986 1987 1988		
a. Large scale: a minimum of four large scale agroindustrial projects functioning.	4 - - - -	a. Periodic project evaluations. - Periodic visits of USAID/B Project Manager.	a. Private entrepreneurs willing to invest in the Chapare can be found.
- Regional, national and export demands for Chapare products expanded. - Key marketing constraints overcome.	- Existence of (a) plans and investors for fruit processing facility, dehydration plant, hog fattening operation and particle board plant; (b) physical facilities, (c) output of adequate volume and quality and (d) profitable cash flow.	- Records of private sector companies. - SDBT reports. - Final evaluation.	- Credit will be available as planned. - Demand-supply relationships will be no worse 4 to 15 years hence than those conservatively projected in feasibility reports - Farmers will be prepared to participate despite the long-term nature of certain investments.

143

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
	1984 1985 1986 1987 1988		
b. Small medium scala enterprises: (Chapare specific) a minimum of 10 small projects functioning.	2 2 3 2 1	b. - Periodic project evaluations. - Periodic visits of USAID/B Project Manager. - Records of enterprises developed. - SDBT reports. - Final evaluation.	b. - Private entrepreneurs and farmer groups willing to invest in the Chapare can be found. - Beneficiaries will want to form associations and cooperatives. - Chapare farmers can be organized to manage small enterprise ventures. - markets for small enterprise ventures. - Markets for small enterprise generated produce prove feasible. - Credit will be available as planned. - Control plan introduced for coca. - No major ecological disasters will occur.
- Local entrepreneurship, including campesino ownership, in the Chapare promoted.	- Existence of: (a) plans and investors for enterprises relative to: the illustrative activities: buffalos, tea, beekeeping, palm heart, rice mill, banana fig, icehouse, charcoal and box and wood products; (b) physical facilities; (c) output of adequate volume and quality and (d) profitable cash flow.		
- Marketing of Chapare agroforestry commodities enhanced.	- Evidence of a strengthened marketing mechanisms relative to Chapare commodities.		
- Increased demand for Chapare project supported products created.			

144

NARRATIVE SUMMANRY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATIONS	IMPORTANT ASSUMPTION
3. Project Administration	3.	3.	3.
a. Inter-ministerial committee established to provide overall policy guidance to SDBT.	a.-Establishment of the legal basis for the Inter-ministerial committee.	a.- GOB legislation and decrees.	a.- existence of mandate from GOB to carry out responsibilities. - GOB willingness to undertake development effort of this nature.
b. SDBT established and functioning as overall project coordinating body.	b.- Establishment of the legal basis for SDBT. - Establishment of an adequately staffed executive and administrative structure to plan monitor and control the implementation of the Chapare project and exert its leadership in the Chapare. - Authorization and appropriation of operating funds to meet its project responsiblities. - Evidence of change occuring in the Chapare as a result of SDBT's project coordinating role.	b.- GOB legislation and decrees. - Periodic project evaluations. - USAID/B Project Manager's visits. - Reports of TA team members. - Examination of budget and fiscal condition. - SDBT reports. - GOB statistics.	b.- Sufficient GOB counterparts to adequately staff SDBT. - Timely arrival of TA. - Willingness of implementing agencies to cooperate in executing project.

145

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
c.- IBTA functioning as overall research and extension body serving the needs of Chapare farmers. - A staff of trained technology transfer technicians and administrators of sufficient size to extend new technologies to farmers in the Chapare.	c. A structure in place capable of delivering new technologies to 80% of small/medium producers in the Chapare on a yearly basis by 1986, with an adoption rate of 60%	c.- Periodic project evaluations. - USAID/B Project Manager's visits. - Final evaluation.	c.- Sufficient GOB counterparts to adequately staff IBTA. - Timely arrival of TA. - New technologies are made available throughout the life of the project.

Inputs	Magnitude of Inputs 1984	1985	1986	1987	1988	Total		
1. AID								1. AID and counterpart funds are disbursed as required.
a. Loan Funds							GOB and USAID accounting records.	
1) Agricultural and Forestry Production								
- Research and Extension	155	157	158	158	155	783		
2) Marketing/Agroindustrial Development.								
- Large-scale enterprises.	4508	-	-	-	-	4508		
- Small/medium-scale enterprises.	250	500	-	-	-	750 */		
3) Project Administration/ Institutional.								
- SDBT	311	165	135	135	126	872		
- IBTA	1268	367	327	328	321	2611		
Total loan	6492	1189	620	621	602	9524		

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS						MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
b. Grant								
1) Agricultural and Forestry Production								
- IBTA	646	927	375	375	402	2,725		
- FENACRE	139	140	154	30	14	477		
- CORDECO	110	110	-	-	-	220		
2) Institutional Development								
- SDBT	248	248	262	110	110	978		
Total Grant :	1,143	1425	791	515	526	4,400		
c. Total AID :	7,635	2,614	1,411	1,136	1,128	13,924		
2. Host Country	1984	1985	1986	1987	1988	Total		
a. GOB (Agricultural and Forestry Production and Project Administration/Institutional Development)	352	132	131	132	125	872		
b. Title III (FENACRE, Farmer Federations Agricultural Production credit, and Farmer organization/marketing credit)	1,750	1,400	2,710	2,710	1,430	10,000		
c. Private Sector (Agricultural and Forestry Production, Institutional Development and Agribusiness Development/ Marketing-Credit)	9,610	528	328	327	198	10,991		

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS						MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
d. Total Host Country	11,712	2,060	3,169	3,169	1,753	21,863		
3. Loan contingencies (5%)	325	59	31	31	30	476		
4. Project Total	19,672**	4,733	4,611	4,336	2,911	36,263		

*/ Includes $39,000 in CY'83 Project funds, of which $24,000 is counterpart funding.

**/ Although financing for small/medium-scale enterprises will become available during the first two years of the Project, such activities will be carried out over the life of the project as indicated in 2.b. above.

148

A X C EXI 1

FINANCIAL EXHIBIT

DILLMANN - TROPICAL FRUIT JUICE PLANT

INDUSTRIAL PLANT TROPICAL FRUIT JUICE

(Figures in Thousands of Dollars)

	Before the New Loan	Incremental Investment	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
A. BALANCE SHEET										
Assets										
Current Assets	-	360	360	495.1	202.2	537.2	855.3	1,413.2	2,040.7	3,062.5
Non-Current Assets	469	1,540	2,009	1,805.5	1,602.0	1,398.5	1,195.0	991.5	843.6	695.7
Total Assets	469	1,900	2,369	2,300.6	1,804.2	1,935.7	2,050.3	2,404.7	2,884.3	3,758.2
Liabilities										
Current Liabilities	-	360	360	668.0	548.0	428.0	308.0	308.0	-	-
Non-Current Liabilities	-	1,540	1,540	1,232.0	924.0	616.0	308.0	-	-	-
Equity	469	-	469	469.0	469.0	469.0	469.0	469.0	469.0	469.0
Retained Earnings	-	-	-	(68.4)	(136.8)	422.7	965.3	1,627.7	2,415.3	3,289.2
Total Liabilities and Equity	469	1,900	2,369	2,300.6	1,804.2	1,935.7	2,050.3	2,404.7	2,884.3	3,758.2
B. INCOME STATEMENT										
Revenues										
- Sales				1,507.0	1,507.0	2,273.6	2,273.6	2,273.6	2,273.6	2,273.6
- Sale Costs				537.6	537.6	803.1	803.1	803.1	803.1	803.1
Gross Profits				969.4	969.4	1,470.5	1,470.5	1,470.5	1,470.5	1,470.5
Other Costs				277.8	277.8	277.8	277.8	277.8	222.1	222.1
Financial Costs				760.0	760.0	588.8	417.6	246.4	123.2	-
Net Income Before Taxes				(68.4)	(68.4)	603.9	775.1	946.3	1,125.2	1,248.4
Taxes				-	-	44.4*	232.5	283.9	337.6	374.5
Net Income After Taxes				(68.4)	(68.4)	559.5	542.6	662.4	787.6	873.9
C. CASH FLOW										
Net Income After Taxes				(68.4)	(68.4)	559.5	542.6	662.4	787.6	873.9
Plus Depreciations and Amortizations				203.5	203.5	203.5	203.5	203.5	147.9	147.9
Less Incremental Investment		(1,900)		-	-	-	-	-	-	-
Total Monetary Cash Flow		(1,900)		135.1	135.1	763.0	746.1	865.9	935.5	1,021.8
Financial Internal Rate of Return 20 Percent										
D. FINANCIAL RATIOS										
1. Efficiency Ratios										
a. Return on Sales										
Net Income/Revenues				-	-	0.25	0.24	0.29	0.35	0.38
b. Return on Equity										
Net Income/Equity				-	-	0.63	0.38	0.32	0.27	0.23
c. Return on Assets										
Net Income Assets				-	-	0.29	0.26	0.27	0.27	0.23
2. Debt to Equity Ratio										
a. Total Liabilities/Total Equity				4.7	4.4	1.2	0.43	0.15	-	-
b. Current Assets/Current Liabilities				0.74	0.37	1.25	2.78	4.59	-	-

* Use of losses in years 1 and 2 to decrease taxes.

ANNEX C, EXHIBIT 2

SMALL FARMER RETURN ON INVESTMENT (CITRUS PRODUCTION) *

(Figures in Dollars)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
A. INCOME STATEMENT								
1. Fixed Expenditure								
Agrochemical		176.0	176.0	176.0	176.0	176.0	176.0	176.0
Subtotal		176.0	176.0	176.0	176.0	176.0	176.0	176.0
2. Operating Cost								
Labor		396.0	396.0	396.0	396.0	396.0	396.0	396.0
Administrative Cost		114.4	114.4	114.4	114.4	114.4	114.4	114.4
Financial Cost		70.4	-	-	-	-	-	-
Subtotal		580.8	510.4	510.4	510.4	510.4	510.4	510.4
Total Costs		756.8	686.4	686.4	686.4	686.4	686.4	686.4
3. Revenues								
Sales								
1,809 units - 100 each/unit price per 100 $0.96		1,736.6	1,736.6	1,736.6	2,534.4 1/	3,379.2 2/	3,379.2	3,379.2
4. Net Income		979.8	1,050.2	1,050.2	1,848.0	2,692.8	2,692.8	2,692.8
B. CASH FLOW								
Net Income		979.8	1,050.2	1,050.2	1,848.0	2,692.8	2,692.8	2,692.8
Incremental Investment 3/	3,986.4	-	-	-	-	-	-	-
Net Cash Flow	(3,986.4)	979.8	1,050.2	1,050.2	1,848.0	2,692.8	2,692.8	2,692.8
Internal Rate of Return 32 Percent								
C. SENSITIVITY ANALYSIS								
Decrease of 10% Net Income								
Net Cash Flow	(3,986.4)	881.8	945.2	945.2	1,663.2	2,423.5	2,423.5	2,423.5
Internal Rate of Return 28 Percent								
Decrease of 25% Net Income								
Net Cash Flow	(3,986.4)	734.9	787.6	787.6	1,386.0	2,019.6	2,019.6	2,019.6
Internal Rate of Return 24 Percent								

1/ Increase of 831 units of 100.
2/ Increase of 880 units of 100.
3/ Include opportunity cost of land $1,500 per hectare.
* Development of 2.2 hectares.

ANNEX C, EXHIBIT 3
PARTICLEBOARD PROJECT
(Figures in Thousands of Dollars)

	Before the New Loan	Incremental Investment	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
A. BALANCE SHEET										
Assets										
Current Assets	-	400	400.0	470.2	1,910.5	2,910.9	4,394.5	6,172.8	7,434.4	8,
Non-Current Assets	5,517.0	1,100	6,617.0	5,244.8	3,872.6	2,500.4	1,128.2	750.0	667.9	
Total Assets	5,517.0	1,500	7,017.0	5,715.0	5,783.1	5,411.3	5,522.7	6,922.8	8,102.3	9,
Liabilities										
Current Liabilities	1,315.0	400	1,715.0	266.7	847.2	713.8	713.8	713.8	713.8	
Non-Current Liabilities	3,184.5	1,100	4,284.5	4,284.5	3,570.7	2,856.9	2,143.1	1,429.3	715.5	
Equity	1,503.6	-	1,503.6	1,503.6	1,503.6	1,503.6	1,503.6	1,503.6	1,503.6	1,
Retained Earnings	(1,315.0)	-	(1,315.0)	(1,168.7)	(967.3)	(491.9)	333.3	2,447.2	4,340.5	6,
Gains Due to Revaluations	828.9	-	828.9	828.9	828.9	828.9	828.9	828.9	828.9	
Total Liabilities and Equity	5,517.0	1,500	7,017.0	5,715.0	5,783.1	5,411.3	5,522.7	6,922.8	8,102.3	9,
B. INCOME STATEMENT										
Revenues										
Sales				4,886.0	4,886.0	4,886.0	4,886.0	4,886.0	4,886.0	4,
Sale Costs				1,366.0	1,366.0	1,366.0	1,366.0	1,366.0	1,366.0	1,
Gross Profits				3,520.0	3,520.0	3,520.0	3,520.0	3,520.0	3,520.0	3,
Other Expenses				1,439.2	1,439.2	1,439.2	1,439.2	445.2	149.2	
Financial Cost				1,934.5	1,879.4	1,605.4	1,255.6	960.9	666.1	
Net Income Before Taxes				146.3	201.4	475.4	825.2	2,113.9	2,704.7	2,
Taxes *				-	-	-	-	-	811.4	
Net Income After Taxes				146.3	201.4	475.4	825.2	2,113.9	1,893.3	2,
C. CASH FLOW										
Net Income After Taxes				146.3	201.4	475.4	825.2	2,113.9	1,893.3	2,
Plus Depreciations and Amortizations				1,372.2	1,372.2	1,372.2	1,372.2	378.2	82.1	
Less Incremental Investment		(1,500)		-	-	-	-	-	-	
Total Monetary Cash Flow		(1,500)		1,518.5	1,573.6	1,847.6	2,197.4	2,492.1	1,975.4	2,
Financial Internal Rate of Return (Incremental Investment) 110 Percent										
Financial Internal Rate of Return (Total Investment Minus Gains due to Revenues)		(6,188)		1,518.5	1,573.6	1,847.6	2,197.4	2,492.1	1,975.4	2,
Financial Internal Rate of Return 22 Percent										
D. FINANCIAL RATIOS										
1. Efficiency Ratios										
a. Return on Sales										
Net Income/Revenues				0.03	0.04	0.10	0.17	0.43	0.39	
b. Return on Equity										
Net Income/Equity				0.44	0.38	0.47	0.45	0.54	0.32	
c. Return on Assets										
Net Income/Assets				0.03	0.03	0.09	0.15	0.31	0.23	
2. Debt to Equity Ratio										
a. Total Liabilities/Total Equity				3.91	3.24	1.94	1.07	0.45	0.21	
b. Current Assets/Current Liabilities				1.76	2.26	4.08	6.16	8.65	10.42	

* According to Bolivian Development Law first five years are tax free.

ANNEX C, EXHIBIT 4
SMALL FARMER RETURN ON INVESTMENT (WOOD PRODUCTION)
(Figures in Dollars)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
A. INCOME STATEMENT								
1. Fixed Expenditure	-	-	-	-	-	-	-	-
2. Operating Cost								
Labor	8.0	-	8.0	8.0	8.0	8.0	8.0	8.0
Administrative Cost 1/	52.0	-	2.0	2.0	2.0	2.0	2.0	2.0
Financial Cost		-	-	-	-	-	-	-
Sub-Total	8.0	-	10.0	10.0	10.0	10.0	10.0	10.0
Total Cost	8.0	-	10.0	10.0	10.0	10.0	10.0	10.0
3. Revenues								
Sales								
1 hectare of wood		75.0	75.0	75.0	75.0	75.0	75.0	75.0
4. Net Income		75.0	65.0	65.0	65.0	65.0	65.0	65.0
B. CASH FLOW								
Net Income		75.0	65.0	65.0	65.0	65.0	65.0	65.0
Incremental Investment	60	-	-	-	-	-	-	-
Net Cash Flow	(60)	75.0	65.0	65.0	65.0	65.0	65.0	65.0
Internal Rate of Return greater than 90 percent	(60)	75.0	65.0	65.0	65.0	65.0	65.0	65.0
C. SENSITIVITY ANALYSIS								
Decrease of 10% Net Income								
Net Cash Flow	(60)	67.5	58.5	58.5	58.5	58.5	58.5	58.5
Internal Rate of Return 90 percent								
Decrease of 25% Net Income								
Net Cash Flow	(60)	56.2	48.7	48.7	48.7	48.7	48.7	48.7
Internal Rate of Return 86 percent								

1/ $52 Admin. Cost represents initial investment in preparing land for crop production after harvesting of wood.

ANNEX C, EXHIBIT 5
SWIPE

(Figures in Thousands of Dollars)

	Before the New Loan	Incremental Investment	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Ye
A. BALANCE STATEMENT										
Assets										
Current Assets	-	1,108.8	1,108.8	241.5	536.2	767.3	1,392.4	2,080.7	2,832.1	3,[illegible]
Non-Current Assets	2,167	791.2	2,958.2	2,879.2	2,800.2	2,721.2	2,642.2	2,563.2	2,516.4	2,[illegible]
Total Assets	2,167	1,900.0	4,067.0	3,120.7	3,336.4	3,488.5	4,034.6	4,643.9	[illegible],348.5	6,1
Liabilities										
Current Liabilities	-	1,108.8	1,108.8	472.5	394.4	158.2	158.2	158.2	158.4	
Non-Current Liabilities	-	791.2	791.2	791.2	633.0	474.8	316.6	158.4	-	
Equity	2,167	-	2,167.0	2,167.0	2,167.0	2,167.0	2,167.0	2,167.0	2,167.0	2,1
Retained Earnings	-	-	-	(310.0)	142.0	688.5	1,392.8	2,160.3	3,023.1	3,[illegible]
Total Liabilities and Equity	2,167	1,900.0	4,067.0	3,120.7	3,336.4	3,488.5	4,034.6	4,643.9	5,348.5	6,1
B. INCOME STATEMENT										
Revenues										
Sales				2,707.0	4,474.0	4,474.0	4,474.0	4,474.0	4,474.0	4,4
Cost of Sales				1,875.0	2,836.0	2,836.0	2,836.0	2,836.0	2,836.0	2,8
Gross Profits				832.0	1,638.0	1,638.0	1,638.0	1,638.0	1,638.0	1,6
Other Costs				462.0	680.5	680.5	680.5	680.5	648.6	-
Financial Costs				680.0	505.5	411.0	253.2	190.0	126.6	
Net Income				(310.0)	452.0	546.5	704.3	767.5	862.8	9
C. CASH FLOW										
Net Income				(310.0)	452.0	546.5	704.3	767.5	862.8	9
Plus Depreciation				79.0	79.0	79.0	79.0	79.0	46.8	
Less Incremental Investment		1,900.0		-	-	-	-	-	-	
Total Monetary Cash Flow		(1,900.0)		(231.0)	531.0	625.5	783.3	846.5	909.6	9
Financial Internal Rate of Return 19 Percent										
D. FINANCIAL RATIOS										
1. Efficiency Ratios										
a. Return on Sales										
Net Income/Revenues				-	0.10	0.12	0.16	0.17	0.19	
b. Return on Equity										
Net Income/Equity				-	0.20	0.19	0.20	0.18	0.17	
c. Return on Assets										
Net Income/Assets				-	0.14	0.16	0.17	0.17	0.16	
2. Debt to Equity Ratio										
a. Total Liabilities/Total Equity				0.68	0.44	0.22	0.13	0.07	0.03	
b. Current Assets/Current Liabilities				0.51	1.36	4.85	8.80	13.15	17.88	

Note: According to the Consulting Firm - Enterprise is tax exempt.

ANNEX C, EXHIBIT 6

SMALL FARMER RETURN ON INVESTMENT (HOG PRODUCTION)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year
A. Income Statement								
1. Fixed Expenditures								
Pig pen	200							
Water Supply	50							
Septic Tank	200							
Piglets (20)	578		578	578	578	578	578	57
Balanced Feed	839		839	839	839	839	839	83
Sub-Total Fixed Expenditures	1,867	-	1,417	1,417	1,417	1,417	1,417	1,417
2. Operating Costs								
Labor	80		80	80	80	80	80	80
Crop by Products	86		86	86	86	86	86	86
T.A. and Veterinary Services	43		43	43	43	43	43	43
Financial Costs		204	204	204	204	204	204	204
Sub-Total Operating Costs	209	204	413	413	413	413	413	413
3. Revenues								
Pig Sales	-	2,753	2,753	2,753	2,753	2,753	2,753	2,753
4. Net Revenues	(2,076)	2,549	923	923	923	923	923	923

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Yea
B. Cash Flow								
Net Cash Flow 1/	(2,076)	2,549	923	923	923	923	923	
Internal Rate of Return	79%							
C. Sensitivity Analysis								
Decrease of 10% Net Income								
Net Cash Flow	(2,076)	2,294	831	831	831	831	831	
Internal Rate of Return	69%							
Decrease of 25% Net Income	(2,076)	1,912	692	692	692	692	692	
Internal Rate of Return	52%							

1/ Initial Investment includes Construction Cost of Pig pen; Water Supply; Septic tank; purchase of piglets and Balance Feed; and Operating and Start-up Costs.

ANNEX C, EXHIBIT 7

KUDZU - EQUIPO CHAPARE

(Figures in Thousands of Dollars)

	Before the New Loan	Incremental Investment	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Yea
A. BALANCE SHEET										
Assets										
Current Assets	-	250.0	250	153.0	89.2	43.2	442.6	898.3	1,411.8	1,98
Non-Current Assets	240	710.0	950	879.0	808.0	737.0	666.0	595.0	524.0	45
Total Assets	240	960.0	1,200	1,032.0	897.2	780.2	1,108.6	1,493.8	1,935.8	2,43
Liabilities										
Current Liabilities	-	250.0	250	167.0	226.0	142.0	142.0	142.0	142.0	-
Non-Current Liabilities	-	710.0	710	710.0	568.0	426.0	284.0	142.0	-	-
Equity	240	-	240	240.0	240.0	240.0	240.0	240.0	240.0	24
Retained Earnings	-	-	-	(85.0)	(136.8)	(27.8)	442.6	969.8	1,553.8	2,19
Total Liabilities and Equity	240	960.0	1,200	1,032.0	897.2	780.2	1,108.6	1,493.8	1,935.8	2,43
B. INCOME STATEMENT										
Revenues										
Sales				595.1	595.1	779.8	1,169.8	1,169.8	1,169.8	1,169.
Cost of Sales				198.6	198.6	255.5	374.7	374.1	374.1	374.
Gross Profits				396.5	396.5	524.3	795.7	795.7	795.7	79
Other Costs				97.5	97.5	97.7	98.1	98.1	98.1	98.
Financial Cost				384.0	350.8	317.6	227.2	170.4	113.6	56.
Net Income				(85.0)	(51.8)	109.0	470.4	527.2	584.0	64
C. CASH FLOW										
Net Income				(85.0)	(51.8)	109.0	470.4	527.2	584.0	64
Plus Depreciations and Amortizations				71.0	71.0	71.0	71.0	71.0	71.0	7
Less Incremental Investment		960.0		-	-	-	-	-	-	-
Net Cash Flow		(960.0)		(14.0)	19.2	180.0	541.4	598.2	655.0	711
Internal Rate of Return 24 Percent										
D. FINANCIAL RATIOS										
1. Efficiency Ratios										
a. Return on Sales										
Net Income/Revenues				-	-	0.14	0.40	0.45	0.50	0.
b. Return on Equity										
Net Income/Equity				-	-	0.51	0.69	0.44	0.33	0.
c. Return on Assets										
Net Income/Assets				-	-	0.14	0.42	0.35	0.30	0.
2. Debt to Equity Ratio										
a. Total Liabilities/Total Equity				5.66	7.69	2.68	0.62	0.23	0.08	-
b. Current Assets/Current Liabilities				0.92	0.39	0.30	3.12	6.33	9.94	-

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
B. Cash Flow								
Net Income		110	485	834	710	992	798	798
Initial Investment 1/	(1,580)							
Internal Rate of Return	29%							
C. Sensitivity Analysis								
Decrease of 10% Net Income								
Net Cash flow	(1,580)	99	437	751	639	893	718	718
Internal Rate of Return	27%							
Decrease of 25% Net Income								
Net Cash Flow	(1,580)	83	364	626	533	744	599	599
Internal Rate of Return	22%							

1/ Initial Investment includes estimated land value of $1,000 and related production costs of $580.

ANNEX C, EXHIBIT 8

SMALL FARMER RETURN ON INVESTMENT (KUDZU PRODUCTION)
(Figures in Dollars)

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
A. Income Statement								
1. Fixed Expenditures								
Planting Material (Kudzu)	100							
Planting Material (Banana)	200				200			
Hand Tools	200		20	20	20	20	20	20
Insecticides	20		60	60	60	60	60	60
Fertilizers	60							
Land Value	1,000							
Sub-Total Fixed	1,580		80	80	280	80	80	80
2. Operating Costs								
Labor (Banana)		50	28	40	40	40	30	30
Labor (Kudzu)			70	80	85	85	85	85
Equipment Maintenance				15	15	15	15	15
Working Capital			100					
Sub-Total Operating		50	198	135	140	140	130	130
Total Operating and Fixed		50	278	215	420	220	210	210
3. Revenues								
Banana Sales		160	436	640	640	640	436	436
Kudzu Sales		–	327	409	490	572	572	572
Total Revenue		160	763	1,049	1,130	1,212	1,008	1,008
4. Net Income		110	485	834	710	992	798	798

DISBURSEMENT SCHEDULE

(US$ 000)

	1983		1984		1985		1986		1987		1988		
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	TOTAL
A.I.D.													
GRANT													
I. Institutional Development													
1. SDBT													
Technical Assistance													
(1) Long Term (1-5/yr, 1-3yr)	-	-	220	-	220	-	220	-	110	-	110	-	880
(2) Short Term	-	-	28	-	28	-	42	-	-	-	-	-	98
II. Agricultural and Forestry Production													
1. FENACRE													
Technical Assistance													
(1) Long Term (1-3/yr)	-	-	110	-	110	-	110	-	-	-	-	-	330
(2) Short Term	-	-	29	-	30	-	44	-	30	-	14	-	147
2. IBTA													
Technical Assistance													
(1) Long Term (3-5/yr, 4-2/yr)	-	-	616	-	897	-	330	-	330	-	357	-	2,530
(2) Short Term	-	-	30	-	30	-	45	-	45	-	45	-	195
3. CORDECO													
Technical Assistance													
(1) Long Term (1-2/yr)	-	-	110	-	110	-	-	-	-	-	-	-	220
Total Grant	-	-	1,143	-	1,425	-	791	-	515	-	526	-	4,400
LOAN													
I. Institutional Development													
1. SDBT													
Management and Technical Staff Salaries	-	7	-	87	-	87	-	87	-	87	-	80	435
Vehicles and Equipment -Vehicles (3)	-	-	45	-	-	-	-	-	-	-	-	-	45

(CONT.)

	1983		1984		1985		1986		1987		1988		
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	TOTAL
Operating Support													
-Office Rent	1	-	10	-	10	-	10	-	10	-	9	-	50
-Travel and Per Diem	-	2	-	16	-	16	-	16	-	16	-	16	82
-Office Supply and Communications	-	1	-	2	-	2	-	2	-	2	-	1	10
Training													
-Short Term	-	-	20	-	20	-	20	-	20	-	20	-	100
Constructions													
-Agricultural Service Center	-	-	-	120	-	30	-	-	-	-	-	-	150
II. Agricultural and Forestry Production	1	1[illegible]	75	225	30	135	30	16[illegible]	30	105	29	97	872
1. IBTA													
Management and Technical Staff Salaries	-	3	-	132	-	190	-	190	-	190	-	179	884
Vehicles and Equipment													
-Vehicles (10)	-	-	160	-	-	-	-	-	-	-	-	-	160
-Short Bed Truck (1)	-	-	25	-	-	-	-	-	-	-	-	-	25
-Microbuses (1)	-	-	50	-	-	-	-	-	-	-	-	-	50
-Motocycles (9)	-	-	32	-	-	-	-	-	-	-	-	-	32
-Tractors and Trailers	-	-	80	-	-	-	-	-	-	-	-	-	80
-Laboratory Equipment and Supplies	-	-	50	-	-	-	-	-	-	-	-	-	50
-Audio Visual Equipment	-	-	25	-	-	-	-	-	-	-	-	-	25
-Office Equipment and Radio Transceivers	-	-	5	50	-	-	-	-	-	-	-	-	55
Operating Support													
-Fuel, oil, parts and vehicle maintenance	-	-	-	2	-	61	-	61	-	61	-	65	250
-Office supplies and communications	-	-	-	13	-	13	-	13	-	13	-	13	65
Training													
-Long Term	-	-	80	-	80	-	40	-	40	-	40	-	280
-Short Term	-	-	46	-	23	-	23	-	24	-	24	-	140

(CONT.)

	1983		1984		1985		1986		1987		1988		
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	TOTAL
Constructions and Installations													
-Living quarters technical staff, TA(10 trailers)	-	-	-	200	-	-	-	-	-	-	-	-	200
-Living quarters TDYs and IBTA personnel	-	-	-	30	-	-	-	-	-	-	-	-	30
-Dining Hall and Kitchen	-	-	-	30	-	-	-	-	-	-	-	-	30
-Laboratory and office Bldg.expansion and improvement	-	-	-	64	-	-	-	-	-	-	-	-	64
-Building construction for experimental substations	-	-	-	86	-	-	-	-	-	-	-	-	86
-Living quarters and offices for extension agents	-	-	-	75	-	-	-	-	-	-	-	-	75
-Vocational School	-	-	-	30	-	-	-	-	-	-	-	-	30
	-	3	553	712	103	264	63	264	64	264	64	257	2,611
2. Research and Extension													
-Diagnostic surveys	-	-	-	13	-	14	-	14	-	14	-	13	68
-Representative-demonstration farms	-	-	-	8	-	9	-	9	-	9	-	8	43
-Plant nurseries	-	-	-	20	-	20	-	21	-	21	-	20	102
-Plant materials	-	-	-	34	-	34	-	34	-	34	-	34	170
-Production feasibility studies for agroindustry	-	-	-	34	-	34	-	34	-	34	-	34	170
-Farmer training	-	-	-	12	-	12	-	12	-	12	-	12	60
-Campesino scholarship	-	-	-	17	-	17	-	17	-	17	-	17	85
-Extension material and Equipment	-	-	-	17	-	17	-	17	-	17	-	17	85
	-	-	-	155	-	157	-	158	-	158	-	155	783

(CONT.)

	1983		1984		1985		1986		1987		1988		TOTAL
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	
III. Marketing Agroindustrial Credit													
- Citrus	-	-	1,080	288	-	-	-	-	-	-	-	-	1,368
- Swine	-	-	1,080	288	-	-	-	-	-	-	-	-	1,368
- Particle Board	-	-	788	292	-	-	-	-	-	-	-	-	1,080
- Kudzu	-	-	692	-	-	-	-	-	-	-	-	-	692
- Small Scale Industry	-	-	125	125	250	250	-	-	-	-	-	-	750
	-	-	3,765	993	250	250	-	-	-	-	-	-	5,258
Total Loan	1	13	4,393	2,085	383	806	93	527	94	527	93	509	9,524
Total A.I.D.	1	13	5,536	2,085	1,808	806	884	527	609	527	619	509	13,924
HOST COUNTRY GOB													
I. Institutional Development													
1. SDBT													
Staff Salaries	-	2	-	26	-	26	-	26	-	26	-	24	130
Operating Support													
-Fuel, oil, parts and vehicle maintenance	-	-	-	8	-	8	-	8	-	9	-	9	42
-Office supplies and Communications	-	1	-	2	-	2	-	2	-	2	-	1	10
Construction													
-Agricultural service center	-	10	-	-	-	-	-	-	-	-	-	-	10
	-	13	-	36	-	36	-	36	-	37	-	34	192

(CONT.)

	1983		1984		1985		1986		1987		1988		
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	TOTAL
II. Agricultural and Forestry Production													
1. IBTA													
Staff Salaries	-	1	-	48	-	70	-	70	-	70	-	66	325
Operating Support													
-Travel and per diem	-	-	-	1	-	2	-	1	-	1	-	1	6
Training													
-Long Term	-	-	-	15	-	15	-	15	-	15	-	15	75
Constructions and Installations													
-Living Quarters TDY and IBTA personnel	-	-	-	10	-	-	-	-	-	-	-	-	10
-Dinning hall and kitchen	-	-	-	13	-	-	-	-	-	-	-	-	13
-Laboratory and office Bldg.expansion and improvement	-	-	-	71	-	-	-	-	-	-	-	-	71
-Building construction for experimental sub-stations	-	-	-	37	-	-	-	-	-	-	-	-	37
-Living quarters and offices for extension agents	-	-	-	80	-	-	-	-	-	-	-	-	80
-Vocational School	-	-	-	13	-	-	-	-	-	-	-	-	13
	-	1	-	288	-	87	-	86	-	86	-	82	630
2. CORDECO													
Staff Salaries	-	-	-	6	-	6	-	6	-	6	-	7	31
Operating Support													
-Office supplies, office space, etc.	-	-	-	1	-	1	-	1	-	1	-	-	4
	-	-	-	7	-	7	-	7	-	7	-	7	35
3. Research and Extension													
-Plant nurseries	-	-	-	5	-	-	-	-	-	-	-	-	5
-Extension material and equipment	-	-	-	2	-	2	-	2	-	2	-	2	10
	-	-	-	7	-	2	-	2	-	2	-	2	15
Total GOB	-	14	-	338	-	132	-	131	-	132	-	125	872

	1983		1984		1985		1986		1987		1988		
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	TOTAL
TITLE III													
II. Agricultural and Forestry Production													
1. FENACRE													
Management and Technical Staff Salaries	-	4	-	46	-	46	-	46	-	46	-	40	228
Vehicles and Equipment													
-Vehicles (10)	-	-	-	160	-	-	-	-	-	-	-	-	160
-Motorcycles (4)	-	-	-	14	-	-	-	-	-	-	-	-	14
-Office equipment	-	-	-	50	-	-	-	-	-	-	-	-	50
Operating Support													
-Fuel, oil, parts and maintenance of vehicles	-	2	-	24	-	25	-	25	-	25	-	24	125
-Office supplies and communications	-	1	-	3	-	3	-	3	-	3	-	2	15
Training													
-Courses, seminars and in-service training	-	-	-	16	-	16	-	16	-	16	-	16	80
	-	7	-	313	-	90	-	90	-	90	-	82	672
2. Farmers Federations													
Vehicles													
-Dump trucks	-	-	-	60	-	-	-	-	-	-	-	-	60
Constructions													
-Community Centers	-	-	-	60	-	-	-	-	-	-	-	-	60
	-	-	-	120	-	-	-	-	-	-	-	-	120
3. Agricultural and Forestry Production Credit													
-FENACRE	-	-	-	430	-	430	-	855	-	855	-	430	3,000
-ICIs	-	-	-	570	-	570	-	1,145	-	1,145	-	570	4,000
	-	-	-	1,000	-	1,000	-	2,000	-	2,000	-	1,000	7,000
4. Farmer Organization-Marketing Credit													
-FENACRE	-	-	-	310	-	310	-	620	-	620	-	348	2,208
Total Title III	-	7	-	1,743	-	1,400	-	2,710	-	2,710	-	1,430	10,000

	1983		1984		1985		1986		1987		1988		
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	TOTAL
TITLE III													
II. Agricultural and Forestry Production													
1. FENACRE													
Management and Technical Staff Salaries	-	4	-	46	-	46	-	46	-	46	-	40	228
Vehicles and Equipment													
-Vehicles (10)	-	-	-	160	-	-	-	-	-	-	-	-	160
-Motorcycles (4)	-	-	-	14	-	-	-	-	-	-	-	-	14
-Office equipment	-	-	-	50	-	-	-	-	-	-	-	-	50
Operating Support													
-Fuel, oil, parts and maintenance of vehicles	-	2	-	24	-	25	-	25	-	25	-	24	125
-Office supplies and communications	-	1	-	3	-	3	-	3	-	3	-	2	15
Training													
-Courses, seminars and in-service training	-	-	-	16	-	16	-	16	-	16	-	16	80
	-	7	-	313	-	90	-	90	-	90	-	82	672
2. Farmers Federations													
Vehicles													
-Dump trucks	-	-	-	60	-	-	-	-	-	-	-	-	60
Constructions													
-Community Centers	-	-	-	60	-	-	-	-	-	-	-	-	60
	-	-	-	120	-	-	-	-	-	-	-	-	120
3. Agricultural and Forestry Production Credit													
-FENACRE	-	-	-	430	-	430	-	855	-	855	-	430	3,000
-ICIs	-	-	-	570	-	570	-	1,145	-	1,145	-	570	4,000
	-	-	-	1,000	-	1,000	-	2,000	-	2,000	-	1,000	7,000
4. Farmer Organization-Marketing Credit													
-FENACRE	-	-	-	310	-	310	-	620	-	620	-	348	2,208
Total Title III	-	7	-	1,743	-	1,400	-	2,710	-	2,710	-	1,430	10,000

(CONT.)

	1983		1984		1985		1986		1987		1988		
	FX	LX	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	TOTAL
PRIVATE SECTOR													
I. Institutional Development													
1. Banco de Cochabamba													
Operating Support	-	-	-	15	-	15	-	15	-	15	-	15	75
II. Agricultural and Forestry Production													
1. FENACRE													
Management and Technical Staff Salaries	-	2	-	20	-	20	-	20	-	20	-	18	100
Operating Support													
-Travel and per diem	-	1	-	3	-	3	-	3	-	3	-	2	15
-Office supplies and communications	-	-	-	1	-	1	-	1	-	1	-	1	5
-Office space	-	-	-	10	-	10	-	10	-	10	-	10	50
Training													
-Courses, seminars and in-service training	-	-	-	4	-	4	-	4	-	4	-	4	20
	-	3	-	38	-	38	-	38	-	38	-	35	190
2. Farmers Federations													
Vehicles													
Dump trucks	-	-	-	2	-	5	-	7	-	8	-	8	30
Constructions													
Community centers	-	-	-	10	-	1	-	1	-	1	-	2	15
	-	-	-	12	-	6	-	8	-	9	-	10	45
3. Research and Extension													
-Representative-Demonstration Farms	-	-	-	1	-	2	-	2	-	2	-	1	8
-Production Feasibility Studies for Agro-industries	-	-	-	1	-	1	-	1	-	1	-	1	5
-Farmer Training	-	-	-	1	-	2	-	1	-	1	-	1	6
	-	-	-	3	-	5	-	4	-	4	-	3	19
4. Agricultural and Forestry Production Credit													
-FENACRE	-	-	-	43	-	43	-	86	-	85	-	43	300
-ICIs	-	-	-	57	-	57	-	115	-	114	-	57	400
	-	-	-	100	-	100	-	201	-	199	-	100	700

(CONT...)

	1983		1984		1985		1986		1987		1988		
	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	FX	LC	TOTAL
5. Farmer Organization-Marketing Credit -FENACRE	-	-	-	31	-	31	-	62	-	62	-	35	221
III. Marketing-Agroindustrial Credit													
-Citrus	-	-	-	1,001	-	-	-	-	-	-	-	-	1,001
-Swine	-	-	-	2,632	-	-	-	-	-	-	-	-	2,632
-Particle Board	-	-	-	5,100	-	-	-	-	-	-	-	-	5,100
-Kudzu	-	-	-	508	-	-	-	-	-	-	-	-	508
-Small scale industries	-	-	-	167	-	333	-	-	-	-	-	-	500
	-	-	-	9,408	-	333	-	-	-	-	-	-	9,741
Total Private Sector	-	3	-	9,607	-	528	-	328	-	327	-	198	10,991
Total Host Country	-	24	-	11,688	-	2,060	-	3,169	-	3,169	-	1,753	21,863
Sub-total	1	37	5,536	13,773	1,808	2,866	884	3,696	609	3,696	619	2,262	35,787
Contingencies (5%)[1/]	-	1	220	104	19	40	5	26	5	26	5	25	476
GRAND TOTAL	1	38	5,756	13,877	1,827	2,906	889	3,722	614	3,722	624	2,287	36,263

[1/] The 5% contingencies are applicable to A.I.D. loan funds.

PROFILES OF SMALL-MEDIUM SCALE AGROINDUSTRY PROJECTS

The following are brief profiles of small-medium scale agro-industrial efforts that will be considered for funding. As mentioned previously, feasibility studies for these activities will be carried out to determine their financial viability and positive impact on Chapare farmers before they are funded.

1. Beekeeping - Honey and Beeswax Production

The honey production project will be a five-year two phased effort consisting of: (1) a limited production phase at the farm level to determine insect behavior, honey yields, and the most appropriate types of materials and equipment for achieving maximum production, and (2) a full production-marketing phase supported by required technical assistance. The Sociedad Apícola Industrial y Comercial "La Reina" S.R.L. (La Reina), a private Bolivian firm, is an interested investor. The owners of La Reina have considerable experience in the beekeeping industry as exemplified by the lead role they have played in the formulation of a private beekeepers association for Cochabamba, they have also presented, in coordination with IBTA, a series of courses on beekeeping for the general public, designed and produced beekeeping equipment, and have carried out research on how to genetically improve bee populations.

During the limited production phase, twenty beehives will be distributed to ten different farm families who will receive training in beekeeping. The cost of these beehives will be paid with the products obtained in the experiments (principally honey and beeswax). In this phase, farm level data will be collected concerning insect behavior, honey and beeswax yields, and the most appropriate materials and equipment for the region.

After the successful completion of the limited production phase, the full production phase will begin. In this phase, modules, consisting of two beehives will be distributed to participating farmers. The number of participants, each with 20 beehives, will expand gradually from 100 in the first year of full production to 600 in year five. Farmers will be required to finance the elements (bee populations, equipment for constructing beehives, technical assistance and training) of the subproject. These matters will be furnished by La Reina. Credit to procure these items will be available through the Title III program.

While a detailed feasibility study has not yet been carried out, preliminary observations indicate a significant demand for bee by-products. Currently, the potential demand for honey is conservatively estimated at

100 tons per month. To reach this level of production, 60,000 beehives would be required, yet there are only 3,000 beehives in the country. In addition, the yearly national deficit of beeswax is estimated at 500 kilograms, a factor which significantly expands the potential market.

The production potential for bees in the Chapare appears to be very favorable. The main source of pollen is the flowers of citrus trees, of which there are 2,186 hectares in production and 4,165 hectares in growth. The flowering period for the different varieties of citrus lasts from March to September, which is the period of low honey production in other areas of Cochabamba. The citrus flower population of the Chapare can easily support 1,200 beehives. The subproject will be located in those micro-regions (4, 5, 8 and 9) that have the highest incidence of citrus trees.

Net benefits to participating farmers will depend on the number of beehives they keep. A farmer can obtain a yearly net income of $32.5 with one beehive, $600 with ten beehives (the minimum size for a secondary family activity), $1,850 with thirty beehives (the optimum size for a secondary family activity), $2,950 with fifty beehives (the minimum size for a primary family activity), and $5,950 with one-hundred beehives (the optimum size for a primary family activity).

2. Tea Production - Marketing

This subproject represents a five year effort and deals with processing and marketing tea currently grown in the Chapare. CORDECO is about to complete installation of a tea processing plant in the Chimore region of the Chapare; however, this plant has a limited capacity (50 metric ton/year) and can handle only about 60 percent of the Chapare's tea production. Accordingly, this subproject will promote development of a farmer tea processing organization as a complement to CORDECO's activities. The organization will include about 50 growers and take the structural format (e.g. cooperative, association, etc.) preferred by the members. The processing technology will be manual for the most part, with a capacity to handle 30 tons per year.

The estimated cost of this intervention is $80,000. The A.I.D. contribution of $45,000 would be used for technical assistance and operational support (e.g. credit for the purchase of rubbing tables and sacks) for the farmers' processing association. This amount will be supplemented by a CORDECO contribution of $15,000. The farmers contribution, the value of their existing tea plantations and tea rubbing tables, is estimated at $20,000 for the aggregate of the 50 growers involved.

Preliminary indications are that there is more than adequate demand for tea at the national level and that possibilities exist for exporting the product. Current estimates place the yearly demand at 160 metric tons. Traditionally, most of Bolivia's domestic demand for tea

has been satisfied with imports. However, the accelerated devaluation of the peso which began in 1981, has caused local importers to look increasingly toward domestic sources of supply. In this context, Hansa Ltda., a major marketeer of tea in Bolivia, has expressed interest in purchasing all the tea that can be produced in the Chapare.

Currently, there are approximately 45 hectares of tea under cultivation in the Chapare; twenty-two hectares on land belonging to CORDECO, with the balance owned by farmers in the Chimoré (micro-region 7) area. It is estimated that these holdings can produce 80 metric tons of dry tea annually. Assuming that each of the growers has one-half hectare in tea, and a yield of 4,140 Kg. of green leaves per hectare, the gross income to each participating farmer will be approximately $3,300 per annum. Subtracting costs of production, yearly net profit is estimated at $ 1,230.

3. Water Buffalo

This subproject will consist of the breeding and distribution of water buffalo to participating farmers using the method employed by the Heifer Project International (HPI). The buffalos will be used for animal traction, and milk, and beef production. The subproject will purchase 100 buffalo cows already in the Chapare, which are currently owned by IBTA, the Instituto Nacional de Colonización (INC) and the University of San Simón in Cochabamba; and import five breeding bulls to genetically renovate the existing stock. Under the distribution program, pregnant cows will be delivered to each participating farmer. As payment for the initial pregnant cows, each farmer will be required to turn over the first two female calves to the Program. These calves, when mature, will be impregnated and passed on to other farmers to increase the size of the program. All male calves, as well as female calves in excess of two, become the property of the participating farmers.

The estimated incremental cost of this subproject is $120,000, 75 percent ($90,000) will be drawn from A.I.D. loan funds, while the balance will be furnished by CORDECO or a local ICI. Approximately one-sixth of this sum will finance the purchase of breeding bulls, while the remainder will be used to provide institutional support to the Livestock Development Fund of the Chapare (LDF). Project loan funds will provide operating support to the LDF. CORDECO will furnish technical assistance on matters of organizational development. Additionally, the Center for Research, Draining and Extension in Agricultural Mechanization (CIFEMA) will train farmers in buffalo management, develop technology (e.g. harnesses, yokes, plows, etc.) appropriate for buffalo use in the Chapare, and assist participating farmers to maintain logs on the utilization of the animals.

Preliminary research suggests that the water buffalo is ideally suited for the Chapare's environment. It is able to thrive on the existing vegetation, is unaffected by the excessive precipitation and insects, and its docility makes it easily manageable by small farmers.

Moreover, the water buffalo holds promise for a variety of uses that are important to Chapare farmers. Their potential in the context of animal traction can resolve problems related to transportation of produce from the fields to collection points, as well as in field preparation for planting. In addition, buffalo meat has been marketed successfully in the city of Cochabamba. Finally, it can be assumed that, once commercial volumes of buffalo milk are produced in the Chapare, a soft cheese industry could develop to service a local market that is currently being satisfied with cheese produced elsewhere in Bolivia and abroad.

In the first year of the subproject, 50 farmers will receive impregnated cows. Gradually, the number of participants will increase to 150 in the sixth year of activity. It is conservatively estimated that annual net farm income from the sale of meat and milk will be approximately US$ 1,500 in the first year of activity and will increase thereafter.

4. Cattle Breeding and Fattening

Like the water buffalo activity, the cattle breeding and fattening subproject will be a five-year effort designed along the lines the Heifer model. The modules will consist of distribution of two female cows to participating farmers; one will be given on a loan basis and the second will be purchased by the farmer. In addition, participating farmers will receive a loan, in kind, for seeds and for fencing one hectare of pasture. At the end of the fourth year of participation, farmers will repay the loan, returning to the project three offsprings, two of which will be females of three years of age and be left with 5 animals. In turn, the two females, upon reaching maturity, will be provided to new entrants of the program.

The subproject will be managed by LDF, which will be responsible for purchasing the initial lot of breeding stock, enlisting farmers to participate in the program, arranging with IBTA for needed technical assistance, providing farmers with the in-kind loans, and assisting with marketing of the meat. In conjunction with the water buffalo subproject, CORDECO will provide LDF with assistance in organizational development and loan portfolio.

The estimated incremental cost of this subproject in $250,000. Of this amount $ 185,000 will be financed with A.I.D. funds and CORDECO or a local ICI will provide $65,000. The loan funds will be used to finance the procurement of breeding stock, and institutional support for LDF. Additionally participating farmers will contribute $219,000 for the purchase of heifers and breeding bulls and payment of veterinary services. Credit requirements will be drawn from Title III resources.

Preliminary indications on the marketing and production elements of this activity are favorable. The principal market will be the city of Cochabamba. The current beef consumption in the city is 7,200 metric tons per annum. Moreover, the demand for beef is expected to rise annually by

3.5 percent, assuming a 3.25 yearly population growth, a 1.0 percent annual rise in income and a .25 percent income elasticity of demand for beef.

With respect to production potential, the current cattle population numbers approximately 16,000 head. It is estimated that there are about 124,000 hectares of land in the Chapare suitable from raising cattle. With an average carrying capacity of two head per hectare, the Chapare has the potential to handle 248,000 animals without negatively affecting the environment. Nine years after this subproject begins, 3,000 animals will be introduced into the area.

This subproject will fit well into the fabric of the current farming systems of the Chapare. Pasture development will be integrated with on-going land clearing and annual crop (e.g. rice) cultivation activities. Moreover, the tending of the animals by women and children is congruent with existing division of labor patterns within Chapare households. After four years of participating in the program, farmers will be able to repay all outstanding obligations to the LDF, and begin to build up a small herd, which is expected to number 11 and be worth $3,200 after eight years of his entrance into the program.

5. Palm Heart (Pejibaye) Production and Processing

Pejibaye is a triple purpose (palm heart, edible fruit and wood) fruit found growing wild in the Chapare. Its presence in the wettest parts of the region indicates a proven adaptability to both the extremely wet climate and the generally fragile soils of the region. Hearts of palm from these trees and other wild palm varieties are now canned and exported in limited quantities. There is a seed source from wild pejibaye palms in the Chapare that can be utilized for establishing new plantings. Small scale processing plants can be installed and managed easily by small farmers.

Pejibaye can be grown successfully in three agricultural land capability classes (annual crops, pasture and permanent crops). It might also be grown in the better forestry class land (F), but this is not recommended for commercial production without extensive trials.

On the basis of project related research, it is estimated that over 50,000 hectares in the Chapare are suitable for commercial production of pejibaye, assuming the use of improved technology. The micro-regions most appropriate for palm heart production for using improved technology are 7 (14,963 has.), 3 (14,255 ha.) and 5 (10,766 has.). The activity will be initiated in these regions and then expanded to other areas.

Although pejibaye palm has high productivity in the Chapare, its full potential will not be realized unless adequate processing facilities are established close to the major production areas. Processing locally will reduce post harvest loss caused by long distance shipment of highly perishable products, alleviate higher shipping costs, and provide a source of employment within the Chapare.

Two to three mobile palm heart processing facilities will be established near the production areas. Consideration will be given to involving campesinos in the management of the processing either independently or in a joint venture with a private entrepreneur. CORDECO will assist the farmers in organizational development matters.

The industrial palm heart processing plant has the potential to perform multiple functions. It is able to process palmito and, in season, other fruits as well. In addition, it could be adapted to process fruit into flour for animal and, perhaps human consumption.

This activity would increase the income level of approximately 1,000 small farmers throughout seven of the nine micro-regions of the Chapare by assisting them in planting, cultivating, harvesting and marketing one hectare of pejibaye, primarily for heart of palm. When in full production, the annual net cash return to each farmer is expected to be approximately $1,800.

It is estimated that $375,000 will be required to finance the cost of this activity, $280,000 from the A.I.D. loan and $95,000 from CORDECO or a local ICI. Approximately $285,000 would be needed for plant construction and equipment, and $95,000 for operational expenses.

6. Banana Fig Production and Marketing

This intervention will consist of the dehydration and marketing of banana figs. The Bolivian firm, Bananas Bolivianas, is an interested investor in this activity. Using rudimentary facilities and equipment, this firm, in 1982, processed and exported approximately 100 metric tons of the product to Europe. Two food processing firms, one in Italy and one in the United States, have each requested deliveries of 50 metric tons per year, and Bananas Bolivianas has been contacted by 60 potential importers in Europe and the United States who have shown interest in the product after having received samples of it.

Preliminary studies carried out by CORDECO and the consulting firm ICBOL-FRANKLIN indicate a current demand for 3,500 metric tons of banana figs in the western industrialized countries. The United States alone imports more than 200 metric tons of banana figs per year; Japan imports 640 metric tons, and Argentina, France, Germany, Belgium and Switzerland import some 1,000 metric tons per year. World demand is estimated to be growing at a rate of 3 percent per year.

Bananas Bolivianas estimates that with an additional investment in equipment and operating capital of $372,160, it could expand its current processing capacity from 60 metric tons to 300 metric tons.

Currently, approximately 11,000 hectares (producing 107,800 metric tons) of bananas are being cultivated in the Chapare. The majority of this production is the "Dwarf Cavendish" variety, which produce a banana fig of excellent quality. About 30 percent (32,340

metric tons) of the current banana production is lost due to inadequate market infrastructure and poor post-harvest handling. Capturing only about six-percent of this loss (2,100 metric tons annually which can produce 300 metric tons of banana figs) will be sufficient to satisfy Bananas Bolivianas expanded processing capacity.

In providing an outlet for some 7,000 metric tons of fresh bananas per year, this subproject will benefit a large number of farm families in the Chapare. Of particular importance is the fact that it will absorb production that is currently being lost. Assuming a market price of $21,22 per metric ton of fresh bananas, the net annual benefit of the banana fig agroindustry project to the Chapare farmer is equal to $18,56 per metric ton sold, or a net profit per hectare of bananas harvested of $297.

7. Fisheries Development

The fisheries initiative will be a five year effort to expand commercial fishing operations in the Chapare. The subproject will be implemented by the Fishing Cooperative of Puerto Villarroel — which has an ongoing, though inefficient, fishing industry in the region. Loan monies will be used to increase the size of the existing fleet and provide adequate shore-based back-up facilities. Fleet expansion will entail the purchase of two ponton boats ("mother ships" equipped with 30 horsepower outboard motors and two insulated cold storage boxes (each with a capacity of 2 tons) to store the catch. A variety of equipment (e.g. nets, lines, hooks, anchors, sinkers, and floats) will also be required to upgrade the fishing operations. The build-up of shore facilities will include enlarging the marine engine repair and maintenance shop, constructing an ice plant for fish storage and providing refrigerated transportation (an ice truck) to carry the produce to Cochabamba. The estimated incremental investment for this activity is $250,000. As with all the agroindustrial initiatives under this project, A.I.D. loan monies would provide 75 percent (approximately $190,000) of the total amount, while a local ICI or CORDECO furnishes the balance.

On the basis of research conducted in 1982 by Walters et al, preliminary indications for an increased market demand for fresh fish are extremely positive. The study suggests that, in the cities of La Paz and Cochabamba, an additional 3-4 tons/day could be marketed.

It is anticipated that an expanded fisheries development effort would provide approximately 55 new work places in the Chapare (mechanics, ice plant operators, input supply merchants, fishermen) and significantly enhance the standard of living of those people already involved in the fishing industry.

8. Box and Wood Products Factory

While currently available data is limited, on site observations

suggest substantial losses of fresh produce (fruits and vegetables) are attributable to post harvest handling deficiencies. A considerable part of this problem centers on the lack of adequate containers for the shipment of commodities. Currently, fresh produce is shipped in bulk in open trucks. The creation of a box and wood products factory in the Chapare would be a significant measure toward reducing the economic loss from produce damaged while being transported.

This subproject will be added on to an operating small-scale saw mill in the Chapare in order to take advantage of existing expertise, physical plant and machinery. There are several such mills in the region that are owned and operated by Chapare residents who are classified among the beneficiants of this project. Accordingly, this initiative will be, in effect, a campesino owned and managed agroindustry.

FENACRE will assist the saw mill owners with the organizational matters related to expanding operations to include the box factory. As with all farmer organization activities, the management structure which the factory takes will be based on the preferences of the participants.

Preliminary indications are that a very large market exists for wooden crates. For example, the annual production of citrus in the Chapare is 94,480 metric tons. Assuming the manufacture of a crate with a capacity for 20 kilograms of produce, approximately 500,000 such units would be needed. Moreover, there is the potential demand related to other fresh commodities (e.g. papaya, pejibaye), as well as other wood products such as fermentation trays and pallets for processing tea, cacao and rubber.

The estimated incremental investment is $100,000; seventy five thousand would be drawn from A.I.D. loan funds and the balance will be provided by an ICI or CORDECO. These monies will be used to purchase additional machinery, expand the physical plant and provide working capital. Initial calculations are that this operation will create 20-25 new blue collar jobs in the Chapare. To this must be added the benefits that will accure to farmers who sell their wood to the factory.

ISSUES

1. Feasibility of Carrying Out the Project in a Coca-Producing Area.

A major concern of the Chapare project PID submitted in May 1982 was that farmers would have no incentive to participate in development activities as long as they could continue cultivating coca at a relatively substantial profit. While this concern is still valid, as pointed out in the PP, the Siles Government has taken some very important measures (e.g. removal of drug traffickers from the government and the military, establishment of an Inter-ministerial Commission to handle narcotic matters, and the signing of a communique with U.S. Attorney General William French Smith reaffirming GOB policy to reduce the amount of illegal coca being grown in Bolivia and to combat narcotics trafficking). Moreover, this project paper contains a condition prohibiting signature of the Project Agreement until there is a mutually agreed upon and signed coca control plan. The PP emphatically states that this project must be implemented concurrently with a control program for either to succeed. With an operational control program, the risk management behavior of Chapare farmers, which is a combination of opportunism and qualified risk taking, will induce them to seek alternatives to coca production as their main source of income.

2. Institutional Weaknesses

The PID guidance cable pointed out the history of institutional weakness in Bolivia and questioned the arrangements suggested for the implementation of this project. The direct role of the Presidency of Bolivia has been retained because that level of authority may be a needed to assure uninterrupted implementation of both control and development efforts.

However, several significant changes have been made in the project administration strategy since the PID was presented. First, the Secretariat for the Development of the Bolivian Tropics (SDBT) has replaced PRODES as the coordinating agency of the project. This change was precipitated by a series of politically motivated actions within the Ministry of Campesino Affairs and Agriculture (MACA) which drastically reduced PRODES' operational effectiveness. To avoid the impact of extreme political partisanship on the project, USAID/Bolivia will have the right of approval of all principal officers appointed to SDBT. The PP has a Condition Precedent to this effect. Second, the "parent ministry" for the coordinating entity was switched from MACA to the Ministry of Planning and Coordination (MPC). This move was undertaken because of the need for a governing ministry which has multisectoral responsibilities, thereby making administrative oversight of the project more in line with the project components. Third, an Interministerial Commission, chaired by the Sub-Secretary of the MPC and including sub-secretaries of the ministries involved with Chapare development and control efforts, Agriculture, Transportation, Defense, Health, Treasury, Education and Interior was established. This Commission will provide policy guidance to SDBT. The

presence of the Sub-Secretary from the Ministry of Interior will provide a direct link to the Commission for Narcotics Control, thereby establishing a mechanism for coordination between control and development efforts. Fourth, the role of the central organization (i.e. SDBT) was reduced from coordination and implementation, to only coordination. The implementation activities assigned to PRODES in the PID have been transferred to other organizations (e.g. IBTA, CORDECO, FENACRE, and ICIs). It is the Mission's judgement that these modifications, coupled with the institutional support to be provided by the project, will establish an administrative base capable of implementing all of the project's activities.

3. The Macro Economic Situation

The issue is whether the economic outlook for Bolivia is now clear enough to permit the GOB and private investors to assume significant loans.

On November 6, 1982, the Siles Government took an initial s[illegible] of economic measures which represented a significant step forward i[illegible] solving Bolivia's economic problems and in setting the stage for an eventual agreement with the IMF. Previous military governments had made partial efforts to address Bolivia's serious economic problems, but were unwilling or politically unable to adopt the measures necessary to deal with the country's economic problems. When the Siles Government took power in October 1982, the economy was in serious crisis, and the country's different interest groups had conflicting ideas on essential requirements for correcting the situation. However, in less than a month, the Siles Government acted decisively in taking a set of initial, far-reaching measures which, while implying an immediate deterioration in the purchasing power of the Government's main constituent groups (urban, factory workers, miners and campesinos), at the same time offered hope for economic recovery over the medium term. The economic package was based in large part on guidelines formulated by the IMF, and resulted in over 30 decrees which ranged from complete de-dolarization of domestic loans and savings accounts and establishment of a fixed exchange rate to major price hikes on a whole range of basic commodities (e.g. the price of flour was raised nearly 500 percent, and petroleum products more than tripled).

Faced with a debt repayment schedule which could not be met and a potential debt service ratio over 80 percent, the GOB initiated efforts to renegotiate outstanding balances due to Argentina, Brazil and a consortium of international banks. Over $342 million was renegotiated with Argentina and Brazil, and Argentina agreed to renegotiate an additional $250 million. The GOB also succeeded in obtaining an extension to October 1983 of a moratorium on payments to the consortium of private banks, at which time it hopes to renegotiate $400 million of the total outstanding debt. In addition, in order to prevent continued imposition of sanctions under Section 620 (q) of the FAA, the GOB paid over $13.6 million in arrearages due to the USG, thus providing evidence of its desire to normalize relations with the U.S.

In early May 1983, a joint IMF/World Bank team completed a one-month visit to La Paz. Its purpose was to lay the groundwork for negotiation of an Extended Fund Facility (EFF) by discussing possible options the GOB could adopt to reduce the forecasted 1983 budget deficit, increase interest rates, and adjust the exchange rate. Discussions focused on the fiscal deficit as this was the chief area not addressed by the GOB in November 1982. At the time of the team's arrival, the deficit was estimated at 172 billion pesos, or 16 percent of GDP. Initial agreement was reached with the GOB where at least 70 billion pesos could be eliminated from the investment budget. As the Central Bank could finance 50 billion pesos of the projected deficit from anticipated 1983 external resource inflows, the remaining shortfall of 50 billion pesos will have to be covered from reduced subsidies, increased taxes or further budget cuts to meet IMF requirements. The GOB has also given preliminary agreement to a system for indexing commercial loans to various productive sectors, which when implemented, will result in positive real rates of interest. The IMF has scheduled a return visit for the end of May or early June. In the interim, the GOB is expected to make final decisions with regard to the budget and other issues discussed which will enable the IMF team and the Government to negotiate the elements of an EFF agreement which would be put into effect in September or October. That agreement is expected to lead to a rescheduling of debt with the banking consortium.

There are other signs of movement toward greater economic stability. Inflation, although still high, has fallen from an average of 20 percent per month just prior to the assumption of power by the Siles Government to 10 percent per month. The black market exchange rate, which had risen as high as $b. 565 to the dollar a few months ago, has settled into the 350 to 360 range. GOB actions to cut the fiscal deficit and adjust interest rates to real levels appear likely. By October, the GOB should be in a position to renegotiate its debt with the private banking consortium. Donor support for the Siles Government was reaffirmed at a donor conference on Bolivia held in late April. The World Bank plans to proceed with a $75 million structural adjustment loan, assuming discussions with the IMF proceed on schedule, and the IDB has approved two credit loans totalling $67 million for the mining and agriculture sectors.

USAID/Bolivia has been intimately involved with the management of the companies (Dillman S.A., IMPA, Equipo Chapare and Agropecuaria Copacabana) who will be involved in the large scale agroindustrial activities of this project. All of the enterprises are well established in Bolivia and their directorships are cognizant of the mercurial nature of the country's economy. They see the profited economic forecast as sufficiently positive so as to incur indebtedness under this project. Moreover, they have expressed to the Mission their committment to participate in this endeavor. Finally, it is the Mission's judgement that the future economic picture is sufficiently bright so as to warrant assumption of a $10 million loan debt by the GOB.

4. Introduction of Non-Subsistence Crops

The PID guidance cable made reference to difficult experience, world-wide, regarding attempts to introduce non-traditional crops among subsistence or near subsistence farmers.

This question was given close attention during the intensive review.

Crops and production systems recommended will be the same as those crops or farming systems presently found in the Chapare. Selection of crops is based on land use capability, market and processing potential, and the farmers ability to increase his yields through improved management and appropriate technology. The commodities selected for the four large scale agroindustrial subprojects (citrus, swine, kudzu and wood) are currently grown in sufficient quantities and will provide a supply for agro-processing as the feasibility studies have indicated. Rice also will provide more than adequate yields on alluvial soils and can be readily marketed due to the regional and national shortages. Pineapple is adapted to the acid soils of the Chapare and has satisfactory yields and quality. Tea is grown on a small scale and has a very promising market. Coffee, cacao, and pejibaye (palm heart) are virtually non-existant in the region but will be easily adapted to the area. Farmers will be provided technical assistance as well as credit in order to establish and market these crops. Rubber is already grown in the area, but is nearly abandoned due to lack of marketing channels. Technical assistance and credit will be provided to rehabilitate and establish new rubber plantings.

The focus of the project is to improve the efficiency and quality of crops currently grown in the area and provide marketing and processing outlets so as to improve farmer incomes. Likewise the farming systems that are to be enhanced are those already in use in the Chapare. Basically, these systems consist of tree crop agroforestry systems that provide continuous ground cover to reduce soil erosion and conserve soil nutrients.

5. Relationship between Farmers and Private Entrepreneurs

A potential problem area concerns the relationship between farmers and private entrepreneurs with regard to the large-scale agro-industry projects. Each group comes from far removed segments of society. In addition, there is evidence of feared exploitation.

The problem is one of structuring the relationship in such a way as to protect the farmers from exploitation at the hands of the industrialists, who are clearly in a superior position in terms of economic and political influence and power. At the same time, the industries must be guaranteed timely delivery of produce in the required quantities and qualities. The strategy used in the project to achieve this end will be to organize farmers into producers organizations to

service each agro-industry. The organizations (cooperatives, associations) will negotiate contracts with the industries concerning the terms for provision of the commodities. The contracts will be legally binding and enforceable by Bolivian civil authorities. Through FENACRE, the project will provide technical assistance to the farmers in organizing groups and negotiating with the companies.

ANNEX G

Certification Pursuant to Section 611(e) of The Foreign Assistance Act of 1961, As Amended

I, Henry H. Bassford, 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 judgement Bolivia has both the financial capability and human resources capability to effectively maintain and utilize the capital assistance project: Chapare Regional Development.

Henry H. Bassford
Director, USAID/Bolivia

APPLICATION LETTER

ANNEX H

Gobierno de la República
MINISTERIO DE PLANEAMIENTO
Y COORDINACION
BOLIVIA

RECEIVED
USAID
- 1 JUN 1983
LA PAZ

S.G. 1394

La Paz, 1 - JUN. 1983

FILE PD&I		
DIV	ACTION	INFO
DIR		✓
DD		✓
EXO		
DP		
PD&I		✓
CONT		✓
RD	✓	
HR		
HRIA		
PS		
RIG/A		
REPLY DUE	6/9	
ACTION BY		

Señor
Henry H. Bassfor
Director de USAID/B
Presente

Ref.: Solicitud de Préstamo "Desarrollo Integrado del Chapare".

Señor Director:

En relación al Proyecto de Desarrollo Integrado del Chapare ratifico a usted nuestro acuerdo en principio con este Proyecto y por la presente solicitamos un préstamo de $us. 10 millones acompañado de una donación de $us. 4.4 millones.

Deseo manifestarle que el Gobierno de Bolivia considera, en términos técnico-administrativos, el proyecto debe estar ubicado dentro del Ministerio de Planeamiento y Coordinación, justamente dado el carácter integrado y multisectorial. También consideramos que la política que guíe la ejecución del mismo debe estar formulada por una comisión inter-ministerial (conformada por los sub-secretarios de los Ministerios del Interior, Defensa, Planeamiento y Coordinación, Finanzas, Agricultura, Educación, Industria, Salud y Transportes) presidida por el sub-secretario de Planeamiento.

Por último, creemos que el proyecto debe ser administrado y todos los componentes coordinados por una entidad que tenga un alcance multisectorial. A este respecto proponemos que se cree la Secretaría para la Planificación del Desarrollo de los Trópicos Bolivianos para lograr esa finalidad. Dicha Secretaría estaría bajo la tuición del Ministerio de Planeamiento y Coordinación.

Aprovecho la oportunidad para agradecer por su intermedio al Gobierno y pueblo de los Estados Unidos de Norte América por el eficiente apoyo que su misión está prestando al país.

Con este motivo, reitero a usted las seguridades de mi consideración más distinguida.

Lic. Arturo Núñez del Prado
MINISTRO DE PLANEAMIENTO Y COORDINACION
DE LA REPUBLICA DE BOLIVIA

DRAFT PROJECT AUTHORIZATION AND REQUEST FOR ALLOTMENT OF FUNDS

Name of Country: BOLIVIA
Name of Project: "Chapare Regional Development Project"
Project Number: 511-0534

Pursuant to Part I, Chapter 1, Section 103 of the Foreign Assistance Act of 1961, as amended, I hereby authorize a loan in an amount not to exceed Ten Million United States Dollars ($10,000) (the "Loan") and a grant in an amount not to exceed Four Million Four Hundred Thousand Unites States Dollars ($4,400,000) (the "Grant") to the Republic of Bolivia ("Government of Bolivia") to assist in the financing of the foreign exchange and local currency costs of the goods and services required for a development program in the Chapare Region (the "Project"). The Project consists of an integrated package of financing and technical assistance for small farmer-related production, agroindustry development/marketing and institutional development support activities to be carried out by Bolivian public and private institutions, under the guidance of the Ministry of Planning and Coordination.

The entire amount of the loan and one million United States Dollars of Grant financing herein authorized for the Project will be obligated when the Project Agreement is executed.

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

2. 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.

3. 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 935.

4. Conditions Precedent to Initial Disbursement of the Loan

Except as A.I.D. may otherwise agree in writing, prior to disbursement or the issuance of documents pursuant to which disbursements will be made under the loan, the Government of Bolivia will furnish to A.I.D. in form and substance satisfactory to A.I.D.:

(i) a coca control and reduction program which is mutually acceptable to the Government of Bolivia and the Government of the United States and is signed by both governments;

(ii) a supreme decree from the Government of Bolivia which establishes the Secretariat for the Development of the Bolivian Tropics (SDBT) as the coordinating agency for this project. SDBT will be housed in the Ministry of Planning and Coordination (MPC);

(iii) a supreme decree from the Government of Bolivia which establishes an Inter-Ministerial Commission for Development of the Bolivian Tropics, chaired by the Sub-Secretary of MPC, and including the sub-secretaries of the ministries of Agriculture, Transportation, Defense, Interior, Health and Education, to provide policy guidance to SDBT.

5. Conditions Precedent to Disbursement to SDBT

(1) There will be an agreement in writing between USAID/Bolivia and the Inter-Ministerial Commission for Development of the Bolivian Tropics on a staffing plan for SDBT. The agreement will stipulate that USAID/Bolivia will reserve the right to approve nominees for the professional positions within SDBT.

6. Conditions Precedent to Disbursement to the Bolivian Institute for Agricultural Research (IBTA)

(i) There will be an agreement in writing between USAID/Bolivia and the Inter-Ministerial Commission for Development of the Bolivian Tropics on a staffing pattern for IBTA/Chapare. The agreement will stipulate that USAID/Bolivia will reserve the right to approve nominees for all professional positions within IBTA/Chapare;

(ii) IBTA/Chapare will prepare and present a procurement plan;

(iii) IBTA/Chapare will prepare and present a training plan;

(iv) IBTA/Chapare will present certification of onwership of all

land on which project funded construction will take place.

7. Special Covenants

The Government of Bolivia covenants the following:

(i) that the reflow of A.I.D. monies from the large-scale agroindustries developed under the project will be deposited in the USAID/ Bolivia supported Agrobusiness and Artisanry account in the Central Bank of Bolivia to be used for financing similar activities in the future;

(ii) that the reflows from the portion of the loans financed with A.I.D. funds for small-medium scale agroindustry projects will be placed by CORDECO in a revolving fund in a local Intermediate Credit Institution for future funding of similar activities;

(iii) that there will be no expansion of infrastructure activities, including the road to Isoboro National Park, in protection areas (i.e. areas of particularly fragile ecology) until feasibility studies are carried out which conclusively indicate that such activities will not have a negative impact on the environment;

(iv) that no directed colonization will take place in protection areas;

(v) that the Government of Bolivia will continue to finance initiatives started under this project after the termination of A.I.D. funding.

_____

Asistant Administrator for Latin America

_____

Date.

5 C(1) - COUNTRY CHECKLIST

Listed below are statutory criteria applicable generally to FAA funds, and criteria applicable to individual fund sources: Development Assistance and Economic Support Fund.

A. GENERAL CRITERIA FOR COUNTRY ELIGIBILITY

1. FAA Sec. 481. Has it been determined that the government of the recipient country has failed to take adequate steps to prevent narcotic drugs and other controlled substances (as defined by the Comprehensive Drug Abuse Prevention and Control Act of 1970) produced or processed, in whole or in part, in such country, or transported through such country, from being sold illegally within the jurisdiction of such country to U.S. Government personnel or their dependents, or from entering the U.S. unlawfully?

   Bolivia has been strengthening the effectiveness of its narcotics control program. This project is an integral part of that effort.

2. FAA Sec. 620(c). If assistance is to a 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) the debt is not denied or contested by such government?

   No.

3. 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.

4.	FAA Sec. 532(c), 620(a), 620(f), 620D; FY 1982 Appropriation Act Secs. 512 and 513. Is recipient country a Communist country? Will assistance be provided to Angola, Cambodia, Cuba, Laos, Vietnam, Syria, Libya, Iraq, or South Yemen? Will assistance be provided to Afghanistan or Mozambique without a waiver?	No.
5.	ISDCA of 1981 Secs. 724, 727 and 730. For specific restrictions on assistance to Nicaragua, see Sec. 724 of the ISDCA of 1981. For specific restrictions on assistance to El Salvador, see Secs. 727 and 730 of the ISDCA of 1981.	N/A.
6.	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.
7.	FAA Sec. 620(l). Has the country failed to enter into an agreement with OPIC?	Yes. Bolivia is a member of the Andean Pact.
8.	FAA Sec. 620(o); Fishermen's Protective Act of 1967, as amended, Sec. 5. (a) Has the country seized, or imposed any penalty or sanction against, any U.S. fishing activities in international waters?	No.
	(b) If so, has any deduction required by the Fishermen's Protective Act been made,	
9.	FAA Sec. 620(q); FY 1982 Appropriation Act. Sec. 517. (a) Has the government of the recipient country been in default for more than six months on interest or principal of any AID loan to the country?	No.

(b) Has the country been in default for more than one year on interest or principal on any U.S. loan under a program for which the appropriation bill appropriates funds?	No.
10. FAA Sec. 620(s). If contemplated assistance is development loan or from Economic Support Fund, has the Administrator taken into account the amount of foreign exchange or other resources which the country has spent on military equipment? (Reference may be made to the annual "Taking into Consideration" memo: "Yes, taken into account by the Administrator at time of approval of Agency OYB." This approval by the Administrator of the Operational Year Budget can be the basis for an affirmative answer during the fiscal year unless significant changes in circumstances occur.)	Yes.
11. 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.
12. 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? (Reference may be made to the Taking into Consideration memo.)	No arrearages.
13. FAA Sec. 620A; FY 1982 Appropriation Act Sec. 520. Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or group which has committed an act of international terrorism? Has the country aided or abetted, by granting sanctuary from prosecution to, any individual or	

group which has committed a war crime?

14. FAA Sec. 666. Does the country object, on the basis of race, religion, national origin or sex, to the presence of any officer or employee of the U.S. who is present in such country to carry out economic development programs under the FAA ? — No.

15. FAA Sec. 669, 670. Has the country, after August 3, 1977, delivered or received nuclear enrichment or reprocessing equipment, materials, or technology, without specified arrangements or safeguards? Has it transferred a nuclear explosive device to a non-nuclear weapon state, or if such a state, either received or detonated a nuclear explosive device, after August 3, 1977? (FAA Sec.620E permits a special waiver of Sec. 669 for Pakistan.) — No. No.

16. ISDCA of 1981 Sec. 720. Was the country represented at the Meeting of Ministers of Foreign Affairs and Heads of Delegations of the Non-Aligned Countries to the 36th General Session of the General Assembly of the U.N. of Sept. 25 and 28, 1981, and failed to disassociate itself from the communique issued? If so, has the President taken it into account ? (Reference may be made to the Taking into Consideration memo.) — Bolivia was represented at the Meeting of Ministers by the Torrelio government. It did not formally disassociate itself from the communique issued.

17. ISDCA of 1981 Sec. 721. See special requirements for assistance to Haiti. — N/A.

V. FUNDING SOURCE CRITERIA FOR COUNTRY ELIGIBILITY

1. Development Assistance Country Criteria.

a. FAA Sec. 116. Has the

Department of State determined that this government has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, can it be demonstrated that contemplated assistance will directly benefit the needy?	No.
2. Economic Support Fund Country Criteria	
a. FAA Sec. 502B. Has it been determined that the country has engaged in a consistent pattern of gross violations of internationally recognized human rights? If so, has the country made such significant improvements in its human rights record that furnishing such assistance is in the national interest?	No.
b. ISDCA of 1981, Sec. 725(b). If ESF is to be furnished to Argentina, has the President certified that (1) the Govt. of Argentina has made significant progress in human rights; and (2) that the provision of such assistance is in the national interests of the U.S.?	N/A
c. ISDCA of 1981, Sec. 726(b). If ESF assistance is to be furnished to Chile, has the President certified that (1) the Govt. of Chile has made significant progress in human rights; (2) it is in the national interest of the U.S.; and (3) the Govt. of Chile is not aiding international terrorism and has taken steps to bring to justice those indicted in connection with the murder of Orlando Letelier?	N/A

STANDARD ITEM CHECKLIST

A. Procurement

1. FAA Sec. 602. Are there arrangements to permit U.S. small businesses to participate equitably in the furnishing of commodities and services financed?	Yes.
2. FAA Sec. 604(a). Will all procurement 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 co-perating country discriminates against marine insurance companies authorized to do business in the U.S., will commodities be insured in the United States against marine risk with such a company?	Bolivia does not so discriminate.
4. FAA Sec. 604(e); ISDCA of 1980 Sec.705(a). 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? (Exception where commodity financed could not reasonably be procured in U.S.)	N/A
5. FAA Sec.604(g). Will construction or engineering services be procured from firms of countries otherwise eligible under Code 941, but which have attained a competitive capability in international markets in one of these areas?	No.
6. FAA Sec.603. Is the shipping excluded from compliance with requirement in section 901(b) of the Merchant Marine Act of 1936, as amended, that at least 50 percentum 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.	No.

7. FAA Sec.621. If technical assistance is financed, will such assistance be furnished by private enterprise on a contract basis to the fullest extent practicable ? 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. If air transportation of persons or property is financed on grant basis, will U.S. carriers be used to the extent such service is available ?	Yes.
9. FY 1982 Appropriation Act Sec.504. If the U.S. Government is a party to a contract for procurement, does the contract contain a provision authorizing termination of such contract for the convenience of the United States ?	Yes.

B. Construction

1. FAA Sec.601(d). If capital (e.g. construction) project, will U.S. engineering and professional services be used?	No. Local procurement will be used.
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.
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 (except for productive enterprises in Egypt that were described in the CP)?	N/A

C. Other Restrictions

1. FAA Sec.122(b). 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? Yes.

3. FAA Sec. 620(h). Do arrangements exist to insure that United States foreign aid is not used in a manner which, contrary to the best interests of the United States, promotes or assists the foreign aid projects or activities of Communist-block countries? Yes.

4. Will arrangements preclude use of financing:

   a. FAA Sec.104(f); FY 1982 Appropriation Act. Sec. 525: (1) To pay for performance of abortions as a method of family planning or to motivate or coerce persons to practice abortions; (2) to pay for involuntary sterilization as method of family planning, or coerce or provide financial incentive to any person to undergo sterilization; (3) to pay for any biomedical research which relates, in whole or part, to methods or the performance of abortiosn or involuntary sterilizations as a means of family planning; (4) to lobby for abortion? Yes.

   b. FAA Sec.620(g). To compensate owners for expropriated nationalized property? Yes.

   c. FAA Sec.660. To provide training or advice or provide any financial support for police, prisons, or other law enforcement forces, except for narcotics programs? Yes.

   d. FAA Sec.662. For CIA activities? Yes.

   e. FAA Sec.636(i). For purchases, sale, long-term lease, exchange or guaranty of the sale of motor vehicles manufactured outside U.S., unless a waiver is obtained? Yes.

f.	FY 1982 Appropriation Act, Sec.503. To pay pensions, annuities, retirement pay, or adjusted service compensation for military personnel?	Yes.
g.	FY 1982 Appropriation Act, Sec.505 To pay U.S. assessments, arrearages or dues?	Yes.
h.	FY 1982 Appropriation Act, Sec.506. To carry out provisions of FAA section 209(d) (Transfer of FAA funds to multilateral organizations for lending)?	Yes.
i.	FY 1982 Appropriation Act, Sec.510. To finance the export of nuclear equipment, fuel, or technology or to train foreign nationals in nuclear fields?	Yes.
j.	FY 1982 Appropriation Act, Sec.511. Will assistance be provided for the purpose of aiding the efforts of the government of such country to repress the legitimate rights of the population of such country contraty to the Universal Declaration of Human Rights.	No.
k.	FY 1982 Appropriation Act, Sec.515. To be used for publicity or propaganda purposes within U.S. not authorized by Congress?	Yes

PROJECT CHECKLIST

A. General Criteria for Project

1. FY 1982 Appropriation Act, Sec.523; FAA Sec.634A; Sec.653(b). (a) Describe how authorizing and appropriations committees of Senate and House have been or will be notified concerning the project;	Committees will be notified using normal congressional notification procedures.
(b) Is assistance within (Operational Year Budget) country or international organization allocation reported to Congress (or not more than $1 million over that amount)?	No.
2. FAA Sec.611(a)(1). Prior to obligation in excess of $100,000, will there be (a) engineering, financial or other plans necessary to carry out the assistance and (b) a reasonably firm estimate of the cost to the U.S. of the assistance?	Yes. Yes.
3. FAA Sec.611(a)(2). If further legislative action is required within recipient country, what is basis for reasonable expectations that such action will be completed in time to permit orderly accomplishment of purpose of the assistance?	GOB has agreed to issue required Supreme Decree as Scheduled.
4. FAA Sec.611(b); FY 1981 Appropriation Act, Sec.501. If for water or water-related land resource construction, has project met the standards and criteria as set forth in the Principles and Standards for Planning Water and Related Land Resources, dated October 25, 1973? (See AID Handbook 3 for new guidelines.)	N/A
5. FAA Sec.611(e). If project is capital assistance (e.g. construction), and all U.S. assistance for it will exceed $1 million, has Mission Director certified and Regional Assistant Administrator taken into consideration the country's capability effectively to maintain and utilize the project?	Yes.

6. FAA Sec.209. Is project susceptible to 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.	No.
7. FAA Sec.601(a). 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; and (c) encourage development and use of cooperatives, and 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.	Project will encourage efforts in all of the noted areas.
8. FAA Sec.601(b). Information and conclusions 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).	Private U.S. suppliers may sell goods to project.
9. FAA Sec.612(b). 636(h); FY 1982 Appropriation Act, Sec.507. 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 in lieu of dollars:	Bolivia will provide 60% of total project costs, which is substantially above the 25% minimum. There are no U.S. owned local currencies.
10. FAA Sec.612(d). Does the U.S. own excess foreign currency of the country and, if so, what arrangements have been made for its release?	No.
11. FAA Sec.601(e). Will the project utilize competitive selection procedures for the awarding of contracts, except where applicable procurement rules allow otherwise?	Yes.

12. FY 1982 Appropriation Act, Sec.521. If assistance is for the production of any commodity for export, is the commodity likely to be in surplus on world markets at the time the resulting productive capacity becomes operative, and is such assistance likely to cause substantial injury to U.S. producers of the same, similar or competing commodity? — No.

13. FAA 118(c) and (d). Does the project comply with the environmental procedures set forth in AID Regulation 16? Does the project or program take into consideration the problem of the destruction of tropical forests? — Yes. See I.E.E.

14. FAA 121(d). If a Sahel project, has a determination been made that the host government has an adequate system for accounting for and controlling receipt and expenditures of project funds (dollars or local currency generated therefrom)? — N/A

B. Funding Criteria for Project

1. Development Assistance Project Criteria

a. FAA Sec.102(b), 111, 113, 281(a). Extent to which activity will (a) effectively involve the poor in development, by extending access to economy at local level, increasing labor-intensive production and the use of appropriate technology, spreading investment out from cities to small towns and rural areas, and insuring wide participation of the poor in the benefits of development on a sustained basis, using the appropriate U.S. institutions; (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; (c) support the self-help efforts of developing

countries; (d) promote the participation of women in the national economies of developing countries and the improvement of women's status; and (e) utilize and encourage regional cooperation by developing countries?	Project will have a direct impact in all these items with the exception of "e"
b. FAA Sec.103, 103A, 104, 105, 106. Does the project fit the criteria for the type of funds (functional account) being used?	Yes.
c. FAA Sec.107. Is emphasis on use of appropriate technology (relatively smaller, cost-saving, labor-using technologies that are generally most appropriate for the small farms, small businesses, and small incomes of the poor)?	Yes.
d. FAA Sec.110(a). Will the recipient country provide at least 25% of the costs of the program,project, or activity with respect to which the assistance is to be furnished (or is the latter cost-sharing requirement being waived for a "relatively lest developed" country)?	Yes.
e. 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, or is the recipient country "relatively least developed"? (M.O. 1232.1 defined a capital project as "the construction", expansion, equipping or alteration of a physical facility or facilities financed by AID dollar assistance of not less than $100,000, including related advisory managerial and training services, and not undertaken as part of a project of a predominantly technical assistance character.	No.

f. FAA.Sec.122(b). 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?	Yes.
g. 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 civil education and training in skills required for effective participation in governmental processes essential to self-government.	Project will meet Bolivia's need to reduce illicit coca production and to expand agricultural and industrial productivity. Bolivia's research and education institutions will be used.

2. Development Assistance Project Criteria (Loans Only)

a. FAA Sec.122(b). Information and conclusions on capacity of the country to repay the loan, at a reasonable rate of interest.	Bolivia has demonstrable problems in repayment of new short term debt credits, such as the proposed project pose no difficulty.
b. FAA Sec.620(d). If assistance is for any productive enterprise which will compete with U.S. enterprises, 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?	N/A
c. ISDCA of 1981, Sec.724(c) and (d). If for Nicaragua, does the loan agreement require that the funds be used to the maximum extent possible for the private sector? Does the project provide for monitoring under FAA Sec. 624(g)?	N/A

3. Economic Support Fund Project Criteria

a. FAA Sec.531(a). Will this assistance promote economic or political stability? To the extent possible, does it reflect the policy directions of FAA Section 102?	N/A

b.	FAA Sec.531(c). Will assistance under this chapter be used for military, or paramilitary activities.	N/A
c.	FAA Sec.534. Will ESP funds be used to finance the construction of the operation or maintenance of, or the supplying of fuel for, a nuclear facility? If so, has the President certified that such use of funds is indispensable to non-proliferation objectives?	N/A
d.	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?	N/A

ANNEX K

INITIAL ENVIRONMENTAL EXAMINATION*

Project location: Bolivia

Project Title and No.: Chapare Regional Development - 511-0534

Funding: $ 10.0 million loan
$ 4.4 million grant

Life of Project: 5 years, 1983 - 1988

IEE Prepared by: John A. Fasullo

Date: May 30, 1983 (updated from PID)

Mission Threshold Recommendation: Negative Determination

5/31/83
Date

Henry H. Bassford
Director, USAID/Bolivia

* An IEE was conducted prior to submission of the PID in May, 1982. This IEE represents an update of the May 1981 Examination and reflects relevant information contained in the Environmental Analysis (attached) and pertinent technical/economic/social repots which were not available at the time original IEE was prepared.

ENVIRONMENT STATEMENT

Project Description

This project provides financial and technical assistance to the Government of Bolivia to enable it to successfully address agricultural production constraints in the Chapare region. To date, the level of production of agricultural goods in the region has not met with expectations due, in large part, to marketing constraints. Other significant problems include very high rainfall and generally low soil capacity for agricultural, inappropirate technology using traditional practices of cultivation and land management, problems of transportation and lack of available credit. The project purposes to strengthen research, training, demonstration and extension activities in the Chapare area. Assistance will be given to upgrading marketing mechanisms, agroindustrial development, and aid improvement in production systems. Farmer credits will also be provided. Implementing agencies include IBTA, CORDECO, FENACRE and other ICIs. SDBT will be responsible for overall project coordination.

Environmental Impact

The principal project activities of research, extension, training, agroindustrial promotion and institutional development have no foreseeable negative impacts in the project area. As per AID Reg. 216.2.(C)(2), these activities, according to the Environmental Analysis prepared by the Regional Environmental Offices, Dennis Mc Caffrey *, viewed as having no negative effect on the natural or physical environment and, therefore, are excluded from further evaluation.

Collectively, the elements of the project should have a positive impact on the project area by ensuring that future agricultural activities are oriented toward sustainable land uses and cultivation patterns. Current experience suggests that financial and technical assistance is needed to assure that future development of the Chapare region is economically and environmentally sustainable.

Mission Threshold Recommendation

A review of alternative project strategies was completed during project development by a consulting team of eight natural resource management experts collaborating with USAID/Bolivia and PRODES. This review included 1) an evaluation of ecological, economic and social constraints to enhanced regional agricultural production; and, 2) an evaluation of possible ecological impacts of AID technical and financial assistance to increased agricultural development. The proposed project design concurs with the substance of the recommendations of the review team and, presents no significant foreseeable threat to the environment.

---

* A copy of this analysis is attached.

USAID/Bolivia therefore recommends a threshold finding that the project possess no significant threat to the natural resource base and a negative threshold determination be given.

I. INITIAL ENVIRONMENTAL EXAMINATION CHECKLIST

(IMPACT IDENTIFICATION AND EVALUATION FORM)

		IMPACTS
A.	**LAND USE**	
	1. Changing the character of land through	
	a. Increasing the population	N
	b. Extracting natural resources	N
	c. Land clearing	M
	d. Changing soil character	L
	2. Altering Natural Defenses	L
	3. Foreclosing Important Uses	M
	4. Jeopardizing Man or His Works	L
	5. Other Factors	-
B.	**WATER QUALITY**	
	1. Physical State of Water	N
	2. Chemical and Biological States	U
	3. Ecological Balance	U
	4. Other Factors	-
C.	**ATMOSPHERIC**	
	1. Air Additives	U
	2. Air Pollution	U
	3. Noise Pollution	-
	4. Other Factors	-
D.	**NATURAL RESOURCES**	
	1. Diversion, Altered Use of Water	L
	2. Irreversible, Inefficient Commitments	
	3. Other Factors	-
E.	**CULTURAL**	
	1. Altering Physical Symbols	N
	2. Dilution of Cultural Traditions	L
	3. Other Factors	-
F.	**SOCIO-ECONOMIC**	

	IMPACTS
1. Changes in Economic/Employment Patterns	M
2. Changes in Population	L
3. Changes in Cultural Patterns	L
4. Other Factors	-
G. HEALTH	
1. Changing a Natural Environment	N
2. Eliminating an Ecosystem Element	H
3. Other Factors	-
H. GENERAL	
1. International Impacts	M
2. Controversial Impacts	M
3. Larger Program Impacts	M
4. Other Factors	-

SYMBOLS USED ARE:
N - No Environmental Impact
L - Little Environmental Impact
M - Moderate Environmental Impact
H - High Environmental Impact
U - Unknown Environmental Impact

MHNNYY TSA570ESC044
PP RUTSIZ
DE RUFNC #0460/01 2508749
ZNR UUUUU ZZH
P 160207Z SEP 80
FM STATE WASHDC
TO AMEMBASSY LA PAZ PRIORITY 3570
BT
UNCLAS SECTION 01 OF 03 STATE 260460

AIDAC

E.O. 12356: N/A
TAGS:
SUBJECT: DATC REVIEW OF BOLIVIA CHAPARE INTEGRATED RURAL DEVELOPMENT (IRD)

Rec'd 9/16

File: ID&I

ACTION: AID

Action: AID
Info: D, DP, ID&I, CONT, EXO - C, RF, BF

INFO: AID, PCH, PE, CH

Reply due 9/21

Action tkn

REF: A. STATE 216308; B. STATE 160020 DTG 6/17/80

1. SUBJECT PID WAS REVIEWED BY THE DATC ON MAY 14, 1980, AND THE MISSION IS AUTHORIZED TO PROCEED WITH DEVELOPMENT OF A PROGRAM SUBJECT TO THE FOLLOWING GUIDANCE.

2. IAC IS COMMITTED TO SUPPORTING DEVELOPMENT EFFORTS IN THE CHAPARE. IT IS EVIDENT, HOWEVER, THAT AID'S ABILITY TO INITIATE AND CONTINUE PROGRAMS IN THIS REGION IS LINKED WITH AND DEPENDENT ON THE GOB CARRYING OUT A COMPREHENSIVE AND EFFECTIVE NARCOTICS ERADICATION AND CONTROL PROGRAM. THIS MEANS THAT THERE MUST BE A LINK BETWEEN AID-FINANCED PROJECT ELEMENTS AND GOB ERADICATION PROGRAMS WITH CLEAR BENCHMARKS FOR ASSESSING GOB PERFORMANCE. OUR ASSUMPTION HERE IS THAT ENFORCEMENT EFFORTS WILL BE INITIATED FIRST IN AREAS RECEIVING DIRECT AID ASSISTANCE FOLLOWED BY EXTENSION TO OTHER AREAS IN THE CHAPARE. FROM AID'S STANDPOINT, THE KEY OBJECTIVE IS TO AVOID A SITUATION WHERE AID ASSISTANCE FACILITATES COCA PRODUCTION THROUGH PROVISION OF CREDIT FOR INPUTS OR INFRASTRUCTURE SUCH AS DRAINAGE AND IRRIGATION. BASICALLY, THE PP SHOULD DETAIL THE COUNTRY TEAM'S STRATEGY FOR LINKING ERADICATION AND DEVELOPMENT ACTIVITIES.

3. OVERALL, THE PID PROVIDES AN EXCELLENT DESCRIPTION OF THE ESSENTIAL ELEMENTS OF A BROADSCALE DEVELOPMENT EFFORT IN THE CHAPARE. WHEN VIEWED AS AN INTEGRAL PROGRAM, HOWEVER, WE ARE CONCERNED THAT THE PROGRAM DOES NOT REFLECT:

—A. BOMGSTANDING INSTITUTIONAL WEAKNESSES WHICH HAVE PLAGUED THE IMPLEMENTATION OF AID PROGRAMS IN BOLIVIA FOR MANY YEARS;

—B. POOR EXPERIENCE WORLDWIDE AND IN BOLIVIA WITH PROGRAMS WHICH CALL FOR COOPERATIVE WORKING

RELATIONSHIPS AMONG HOST INSTITUTIONS;

—C. POOR EXPERIENCE WORLDWIDE WITH COOPERATIVE OWNERSHIP AND OPERATION OF PROCESSING AND MARKETING ENTITIES;

—D. EXPERIENCE WORLDWIDE WITH ATTEMPTS TO INTRODUCE NON-TRADITIONAL CROPS IN SUBSISTENCE, OR NEAR-SUBSISTENCE, FARMING REGIONS WHICH INDICATE THAT THE PROCESS IS MUCH MORE DIFFICULT AND TIME CONSUMING THAN ASSUMED IN THE PID;

—E. EXPERIENCE WORLDWIDE WITH AGRICULTURAL MARKETING PROGRAMS WHICH INDICATE THAT EXPERT MARKETING KNOWLEDGE, A HIGH ORDER OF ENTREPRENEURSHIP AND WILLINGNESS TO ACCEPT RISK ARE ESSENTIAL TO SUCCESS; AND,

—F. THE FACT OF BOLIVIA'S POOR TRANSPORTATION INFRASTRUCTURE AND RELATIVE ISOLATION FROM WORLD MARKETS.

ESSENTIALLY, THE PID PROPOSES A SERIES OF DISCRETE ACTIVITIES, ANY ONE OF WHICH WOULD ORDINARILY BE CONSIDERED A MAJOR PROJECT IN AND OF ITSELF. ESTABLISHMENT OF COOPERATIVES (BOTH FOR SUPPLY OF INPUTS AND MARKETING SERVICES), UPGRADING A VARIETY OF CREDIT INSTITUTIONS (PUBLIC AND PRIVATE), CREATION OF AN AGRICULTURAL RESEARCH INSTITUTION, STRENGTHENINGAND EXPANDING AGRICULTURAL EXTENSION SERVICES AS A VEHICLE FOR TECHNOLOGY TRANSFER, PROVISION OF FINANCING FOR PRIVATELY-OWNED AGRIBUSINESS FACILITIES, INTRODUCTION OF NON-TRADITIONAL CROPS, DEVELOPMENT OF AN INVESTMENT PROMOTION CAPABILITY, AND CONSTRUCTION OF RURAL INFRASTRUCTURE (ROADS, POWER, COMMUNICATIONS, RURAL SANITATION WORKS, TOWN MARKETS, HEALTH POSTS, ETC.) ARE ALL FINE PROPOSALS. MOREOVER, THE ULTIMATE SUCCESS OF THE AIDCRE INTERVENTIONS IS PREDICATED ON THE ASSUMPTIONS THAT DOMESTIC AND EXPORT MARKETS EXIST FOR NONTRADITIONAL AGRICULTURAL PRODUCTS CAPABLE OF BEING PRODUCED IN THE CHAPARE, AND THAT THESE PRODUCTS CAN BE SUPPLIED AT THE PRICE AND QUALITY DEMANDED BY THESE MARKETS. THIS IS A TALL ORDER UNDER ANY SET OF CIRCUMSTANCES, QUITE APART FROM THE FACT THAT WE ARE DEALING WITH A COUNTRY IN ECONOMIC DISARRAY WITH VERY LIMITED IMPLEMENTATION CAPACITY EVEN IN THE BEST OF TIMES.

Best Available Document

4. THE ANSWER, THEN, IS A PHASED APPROACH WHICH RECOGNIZES THE INHERENT DIFFICULTIES OF THE TASK, THE FACT THAT PROJECT IMPLEMENTATION WILL TAKE MUCH LONGER THAN THE FIVE YEARS PROJECTED IN THE PID, AND THE REAL PROSPECT THAT GOB PERFORMANCE UNDER ITS ERADICATION PLAN WILL NOT BE AS DESIRED. WE SEE THREE PHASES:

—A. PHASE ONE—CONCENTRATION ON INFRASTRUCTURE: THIS PHASE WOULD BEGIN WITH AMENDMENT OF EXISTING PROJECTS TO INCLUDE THE CHAPARE AS AN ELIGIBLE REGION. INFRASTRUCTURE INVESTMENT IS RELATIVELY QUICK; IT PRODUCES HIGHLY TANGIBLE RESULTS; IT IS GREATLY DESIRED BY THE INHABITANTS OF THE REGION; IMPLEMENTATION IS FAIRLY CUT AND DRIED; AND NEGOTIATIONS WITH THE GOB CAN BE INITIATED DURING THE CURRENT FISCAL YEAR. FURTHERMORE, IF GOB IMPLEMENTATION UNDER THE ERADICATION PLAN IS DEFICIENT, THIS TYPE OF ACTIVITY IS RELATIVELY EASY TO CLOSE DOWN.

—B. PHASE TWO—CONCENTRATION ON PRODUCTION ELEMENTS: ACTIVITIES UNDER THIS PHASE WOULD BE CONCERNED WITH ADDRESSING AGRICULTURAL PRODUCTION CONSTRAINTS. ADAPTIVE TRIALS ON CROPS ALREADY IDENTIFIED AS BEING SUITABLE TO THE CHAPARE WOULD BE UNDERTAKEN AND MIGHT INCLUDE SETTING UP A LIMITED NUMBER OF DEMONSTRATION FARMS; CREATION OF A CREDIT AND INPUT SUPPLY COOPERATIVE WOULD BE INITIATED WITH LOCAL LEADERSHIP PLAYING A KEY ROLE; SUPPORT FOR MARKETING OF TRADITIONAL CROPS ALREADY BEING PRODUCED IN THE REGION COULD BE INCLUDED AS A MEDIUM-TERM APPROACH FOR INCREASING FARMER INCOMES FROM SUCH CROPS. TECHNOLOGY TRANSFER MECHANISMS WOULD BE CREATED AND PRELIMINARY STEPS TO ADDRESS MARKETING NEEDS FOR NON-TRADITIONAL CROPS WOULD BE INITIATED BY UNDERTAKING DETAILED MARKETING FEASIBILITY STUDIES. EXPLORATION OF PRIVATE SECTOR INVESTOR INTEREST BOTH DOMESTIC AND FOREIGN, AND DEFINING THE PARAMETERS OF AID ASSISTANCE FOR MARKETING ACTIVITIES SUCH AS CREDIT, ELIGIBILITY CRITERIA, ROLE OF COOPERATIVES—IF ANY, AND AN IMPLEMENTATION PLAN. FURTHERMORE, IF BY THE TIME OF PP SUBMISSION FOR PHASE TWO THE MISSION CAN NEGOTIATE FIRM FINANCING ARRANGEMENTS WITH PRIVATE INVESTOR(S) FOR IMMEDIATE (I.E. WITHIN SIX MONTHS OF SIGNING LOAN AGREEMENT WITH THE GOB) INVESTMENT IN PROCESSING FACILITIES, THESE ACTIVITIES MAY BE INCLUDED IN PROJECT FOR AUTHORIZATION. WE ARE THINKING HERE OF THE DEL VALLE FRUIT PROCESSING PROPOSAL DESCRIBED IN THE PIP. HOWEVER, THE PROPOSAL MUST DEMONSTRATE SUBSTANTIAL EQUITY CONTRIBUTION ON THE PART OF THE PRIVATE SECTOR INVESTOR.

—C. PHASE THREE—CONCENTRATION ON MARKETING ACTIVITIES THIS PHASE WOULD FLOW FROM THE FEASIBILITY WORK UNDERTAKEN UNDER PHASE TWO, AS WELL AS FROM THE EXPERIENCE GAINED IN WORKING WITH TRADITIONAL CROPS AND WITH FARMER GROUPS. BASICALLY, THIS PHASE WOULD BE CONCERNED WITH PROVIDING PARTIAL FUNDING FOR PRIVATE SECTOR AGRIBUSINESS INVESTMENT, PROVISION OF ANY SPECIALIZED TECHNICAL ASSISTANCE WHICH MIGHT BE REQUIRED, AND IF NECESSARY, ADDITIONAL SUPPORT FOR PRODUCTION ACTIVITIES.

5. THE ABOVE IS NECESSARILY A ROUGH SKETCH OF THE PROGRAM FOR PHASES TWO AND THREE. THE IMPORTANT POINT HERE IS THAT THE OVERALL PROGRAM MUST BE GEARED TO GOB IMPLEMENTATION CAPABILITIES AND THE NEED TO GAIN EXPERIENCE BEFORE COMMITTING MAJOR RESOURCES TO THE MARKETING EFFORTS. ACCORDINGLY, PHASES TWO AND THREE WILL BE SEPARATE EXERCISES WITH SEPARATE PPS REQUIRED AND WITH PHASE THREE COMING ALONG AS THE INSTITUTIONAL DEVELOPMENT ASPECTS OF PHASE TWO FALL INTO PLACE.

6. THE MISSION SHOULD REVIEW THE STRUCTURE PROPOSED FOR PROJECT COORDINATION WITH THE OBJECTIVE OF SIMPLIFYING GOB INSTITUTIONAL ARRANGEMENTS. IN SO DOING, THE MISSION SHOULD CONSIDER THE POSSIBILITY OF PROVIDING GENERAL MANAGEMENT TECHNICAL ASSISTANCE TO STRENGTHEN TITLE IMPLEMENTATION. WHILE THIS MAY RUN COUNTER TO NORMAL INSTITUTION BUILDING TENETS, THE NEED TO ENSURE RAPID, EFFECTIVE GOB PERFORMANCE IS OVERRIDING. WE FORESEE HEAVY USAID INVOLVEMENT IN PROJECT IMPLEMENTATION AND A "MANAGEMENT GROUP" WOULD PROVIDE INVALUABLE ASSISTANCE IN THIS RESPECT.

7. WE UNDERSTAND THE CONCURRENT NEED TO DEAL WITH THE GOB ON THE ERADICATION ASPECTS OF THE PROJECT AND THE COMPLETE PROGRAM. WE ARE OPEN TO SUGGESTIONS AS TO HOW THIS CAN BE ACCOMPLISHED WITHIN THE ABOVE PARAMETERS. WE DO NOT WANT TO UNDERMINE OVERALL NARCOTICS OBJECTIVES, BUT AT THE SAME TIME THIS IMPERATIVE MUST NOT RESULT IN ADOPTION OF A PROJECT WHICH, BASED ON EXPERIENCE, HAS A HIGH PROBABILITY FOR NOT MEETING ITS OBJECTIVES.

8. FOR THE PHASE TWO PP, WE WILL NEED THE FOLLOWING ANALYSES:

—A. INFORMATION REQUESTED IN PARAGRAPH 2 ABOVE.

—B. DEVELOPMENT POTENTIAL OF THE CHAPARE: THE PP DESCRIBES SIGNIFICANT ECOLOGICAL PROBLEMS FOR AGRICULTURISTS IN THE PROJECT AREA, INCLUDING VERY HIGH RAINFALL AND ACID INFERTILITY AND ALUMINUM TOXICITY OF SOILS, WHICH SUGGEST THAT THE AREA MAY NOT BE ABLE TO SUPPORT THE ACCELERATED AGRICULTURAL PRODUCTION/

BP

Best Available Document

PROMOTING SCHEME WHICH IS CENTRAL TO PROJECT SUCCESS, WE ARE CONCERNED THAT THE MISSION'S INTENSIVE REVIEW NOT IGNORE THE CONSIDERATION OF THE ECOLOGICAL AND TECHNOLOGICAL FEASIBILITY OF GROWING THE TYPES AND VOLUMES OF CROPS PROPOSED IN THE PID. IN ORDER FOR THE PROJECT TO SUCCEED, THE CHAPARE AREA MUST BE SHOWN CAPABLE OF ADEQUATELY PRODUCING ON A SUSTAINED BASIS. THE MISSION SHOULD, THEREFORE, PREPARE A DETAILED, SCIENTIFIC LAND CAPABILITY ANALYSIS IN ORDER TO DEMONSTRATE THAT PRODUCTION/MARKETING GOALS DISCUSSED IN THE PID ARE REASONABLY ACHIEVABLE AND SUSTAINABLE.

—C. PROJECT DESIGN:

——1. ENVIRONMENTAL ANALYSIS/TECHNICAL ANALYSIS: THE PID PROPOSES SIGNIFICANT CHANGES IN LAND USE, PROBABLE INTENSIVE USE OF PESTICIDES, AND THE CONSTRUCTION OF RURAL ROADS. AN ENVIRONMENTAL ASSESSMENT (EA) WILL BE REQUIRED FOR THE PP. WE SUGGEST THAT THE EA BE INITIATED IMMEDIATELY AS THE FIRST INTENSIVE REVIEW STUDY; AND THAT LAND CAPABILITY AS WELL AS SOCIAL, ECONOMIC, AND INSTITUTIONAL FEASIBILITY ANALYSES BE INCORPORATED IN THE EA SCOPE OF WORK. THE FINDINGS OF THE EA SHOULD LEAD TO A FEASIBLE PROJECT DESIGN EARLY IN THE INTENSIVE REVIEW PERIOD WHICH IS ENVIRONMENTALLY, ECONOMICALLY, TECHNICALLY AND SOCIALLY SOUND, THEREBY SAVING UNNECESSARY EXPENDITURE OF PDLC FUNDS ON HIGH COST ALTERNATIVE PROJECT ACTIVITIES. AID/W IS PREPARED TO ASSIST THE MISSION BY IDENTIFYING PERSONNEL TO DRAFT THE EA SCOPE OF WORK AND TO IMPLEMENT IT. WE ARE ALSO PREPARED TO SUBSTANTIALLY INCREASE YOUR ARDN PDLC BUDGET TO FINANCE THE EA AND OTHER ALLIED INTENSIVE REVIEW STUDIES REQUIRED FOR THE PP. PLEASE ADVISE YOUR PDGS NEEDS AS SOON AS THE SCOPE OF WORK FOR THE EA/TECHNICAL ANALYSIS IS DRAFTED.

——2. ECONOMIC ANALYSIS: NORMAL A.I.D. FEASIBILITY REQUIREMENTS OF FAA 611A AND B APPLY TO THIS PROJECT. THE DESIGN OF THIS PROJECT ASSUMES THAT THE GOP WILL EXERT EFFECTIVE CONTROL OVER THE PRODUCTION OF COCA IN THE CHAPARE. THE ACREAGE PLANTED ON AN INDIVIDUAL FARM WILL BE LIMITED TO SUCCESSIVELY LOWER LEVELS OVER THE COURSE OF THE PROJECT THROUGH ACTIVITIES WHICH ARE NOT A PART OF THIS PROJECT BUT ARE COINCIDENTAL WITH IT. THE INCOME OF COCA PRODUCERS AND PROCESSORS WILL FALL SUBSTANTIALLY AS COCA PRODUCTION IS PEASED DOWN. HOWEVER, THIS INCOME LOSS SHOULD NOT BE COUNTED AS A COST OF THIS DEVELOPMENT PROJECT. THUS THE BEFORE-PROJECT SITUATION FOR PURPOSES OF BENEFIT-COST ANALYSIS IS CHARACTERIZED BY THE LOWER COCA LEVELS AND ALREADY LOWERED INCOME. GIVEN THIS STARTING POINT, THE CENTRAL PROBLEM FOR THE ECONOMIC ANALYSIS FOR THIS PROJECT IS TO DETERMINE WHETHER THE COSTS ARE LESS THAN THE BENEFITS. THE PROJECT SHOULD HAVE A B/C RATIO GREATER THAN 1.0 USING A 10% DISCOUNT FACTOR TO MAKE IT ELIGIBLE FOR AID DIMINISHING. ANALYSIS OF THE DEVELOPMENT ACTIVITIES' RECURRENT COST TO THE GOP AND ITS ATTRACTIVENESS AND AFFORDABILITY TO THE TARGET GROUP IS AN EXPLICIT AND IMPORTANT PART OF THE ANALYTICAL EFFORT. WE STRONGLY FEEL A REALISTIC SOCIOECONOMIC BASELINE SURVEY ON FARM PRODUCTION SYSTEMS IN THE CHAPARE, INCLUDING REALISTIC CROP YIELDS WITH MARKET AND WEATHER RISKS FACTORED IN, SHOULD BE UNDERTAKEN ASAP IN PREPARATION FOR THESE ANALYSES, AND FOR USE IN THE SOCIAL ANALYSIS, IF SUCH DATA DOESN'T CURRENTLY EXIST. WE UNDERSTAND DATA FROM THE FARM POLICY STUDY MAY MEET THESE NEEDS.

——3. SOCIAL ANALYSIS: AN IMPORTANT QUESTION TO BE ANSWERED IN THE SOCIAL ANALYSIS REGARDS THE IDENTITY OF FARMERS CURRENTLY ACTIVE IN THE CHAPARE. WHAT PERCENTAGE ARE ONLY MIGRANTS INVOLVED IN COCA PRODUCTION, AND HOW MANY ACTUALLY LIVE AND WORK IN THE CHAPARE? THE ANALYSIS SHOULD ALSO EXAMINE FARMERS' ATTITUDES, WILLINGNESS TO CHANGE PRODUCTION PATTERNS, AND CROP PREFERENCES. OTHER DATA RELATING TO LAND TENURE IN THE PROJECT AREA AND DATA ON COCA PRODUCTION AND HOW IT IS INTER-CROPPED SHOULD BE PRESENTED IN THE PP.

——4. INSTITUTIONAL ANALYSIS: THE PID PROPOSES A COMPLEX SET OF INSTITUTIONAL ARRANGEMENTS, AS WELL AS THE ESTABLISHMENT OF NEW INSTITUTIONS. AN IN-DEPTH INSTITUTIONAL ANALYSIS SHOULD BE CONDUCTED TO ESTABLISH THE ABSORPTIVE CAPACITY OF PRODES AND IRTA/CHAPARE AND THE FEASIBILITY OF THE PROPOSED INSTITUTIONAL COORDINATION ACTIVITIES, AS WELL AS THE OVERALL GOB CAPACITY TO IMPLEMENT THIS PROJECT GIVEN EXISTING HUMAN RESOURCE CONSTRAINTS IN BOLIVIA.

——5. CREDIT: THE MISSION PROPOSES AN EFFECTIVE DEMAND STUDY FOR THE PRODUCTION AND MARKETING CREDIT COMPONENTS OF THE PROJECT. WE URGE THIS ANALYSIS BE CONDUCTED THOROUGHLY SINCE MOST FARMERS PREFER TO FINANCE INPUT NEEDS THROUGH SAVINGS AND COCA PROVIDES SAVINGS. ALTERNATIVELY, OTHER CROPS MAY NOT BE SUFFICIENTLY PROFITABLE FOR CREDIT TO PROVIDE LEVERAGE. PENDING RESULTS FROM THE DEMAND STUDY, WE SEE CREDIT AS A POTENTIAL AREA FOR REDUCING PROJECT COSTS.

——6. IMPLEMENTATION PLANNING: A REALISTIC SCHEDULE FOR PEASING PROJECT INPUTS AND OUTPUTS WHICH ALSO INDICATES THE INTER-RELATIONSHIP OF THE NUMEROUS PROJECT ACTIVITIES SHOULD BE PRESENTED IN THE PP. PROPOSED PEASE TWO PROJECT ACTIVITIES APPEAR TO EXTEND FAR BEYOND THE PROJECTED FIVE YEAR DISBURSEMENT PERIOD, ESPECIALLY GIVEN OUR PAST EXPERIENCE IN IMPLEMENTING PROJECTS IN BOLIVIA.

3

Best Available Document

--D. RELATIONSHIP TO AN ACTION PROGRAM (IAP): THE PP SHOULD DESCRIBE THE PROGRESS TO DATE IN IMPLEMENTING THE IAP, ASSUMING IT IS INITIATED SOMETIME DURING INTENSIVE REVIEW. ALTHOUGH THE PID INDICATES THAT ACTIVITIES WHICH WILL BE FINANCED WITH REPROGRAMMED CATEGORY III FUNDS WILL BE IN CONFORMANCE WITH EXISTING PROJECT AGREEMENTS, GC/LAC REVIEW, AS PART OF THE OVERALL AID/W APPROVAL PROCESS, MUST TAKE PLACE BEFORE ANY REPROGRAMMING WILL BE APPROVED. FURTHER TO INITIATION OF THE IAP, AN AA/LAC POLICY DECISION MUST BE MADE CONCERNING THE REACTIVATION OF CATEGORY III DISBURSEMENTS WHILE THE GOB REMAINS IN VIOLATION OF SECTION 620(Q) OF THE FAA AND THE ZBOOFF/ALEXANDER SANCTIONS. FOREVER, AN IEE AMENDMENT SHOULD BE PREPARED AS PART OF THE PP AMENDMENT FOR THE RURAL ACCESS ROADS PROJECT, AND THE MISSION SHOULD REVIEW OTHER CATEGORY III PROJECTS PROPOSED FOR REPROGRAMMING TO SEE IF THEIR IEES WILL REQUIRE AMENDMENTS.

--E. PD-71 - RESTRICTED CROPS: POLICY DETERMINATION 71 PLACED RESTRICTIONS ON AID FINANCING FOR SUCH CROPS AS OIL PALM AND CITRUS. AID HANDBOOK ONE DESCRIBES FINANCING RESTRICTIONS FOR TOBACCO AND OTHER NON-FOOD CROPS. IF IT IS DETERMINED DURING INTENSIVE REVIEW THAT FINANCING FOR ANY RESTRICTED CROP IS DESIRABLE UNDER THE PROJECT, THE PROJECT PAPER MUST INCLUDE THE NECESSARY JUSTIFICATION AND ANALYTICAL BASIS FOR A WAIVER. THE PROJECT AGREEMENT SHOULD LIST THE FULL RANGE OF CROPS WHICH MAY NOT BE FINANCED BY AID IN CONNECTION WITH THE PROJECT.

8. EVALUATION: AS YOU KNOW AN EVALUATION PLAN WILL BE REQUIRED FOR THE PP. WE SUGGEST PERIODIC EVALUATIONS BE CONDUCTED FOR BOTH THE DEVELOPMENT PROJECT AND DURING IMPLEMENTATION OF THE COCA CONTROL PLAN AS ANOTHER MEANS TO LINK DEVELOPMENT ACTIVITIES TO PROGRESS IN COCA REDUCTION ACTIVITIES.

9. FINALLY, AS WAS POINTED OUT DURING DISCUSSIONS IN AID/W SUBSEQUENT TO DAEC REVIEW OF THE PID, THE MISSION FACES A DILEMMA WITH RESPECT TO SELECTING NON-TRADITIONAL CROPS FOR INTRODUCTION INTO THE CHAPARE UNDER PHASE II. AGRONOMIC STUDIES TO DATE HAVE IDENTIFIED A FAIRLY WIDE RANGE OF CROPS WHICH CAN BE GROWN IN THE AREA GIVEN EXISTING SOIL AND CLIMATIC CONDITIONS. WHICH CROPS TO EMPHASIZE, HOWEVER, IS PRIMARILY A FUNCTION OF MARKETING POTENTIAL, BOTH DOMESTICALLY AND INTERNATIONALLY. UNLESS A FAIRLY GOOD FIX ON MARKET POTENTIAL IS OBTAINED EARLY-ON SELECTION OF NEW CROPS WILL BE A HIT OR MISS AFFAIR, WITH CONSEQUENT RISK THAT FARMERS WILL NOT WANT TO PARTICIPATE IN THE PROGRAM. THE PROBLEM IS FURTHER COMPLICATED BY THE FACT THAT THE ISSUE IS NOT ONE OF WHETHER THERE IS A MARKET FOR PINEAPPLES, TEA OR PEPPER BUT WHETHER THE RELATIVELY ISOLATED CHAPARE REGION CAN MEET THE QUALITY, PRICE, VOLUME AND TIMING DEMANDS OF THE MARKET GIVEN EXISTING COMPETITION WHICH PRESUMABLY ALREADY HAS THE NECESSARY KNOWLEDGE, ACCESS AND PRODUCT. THIS ISSUE MUST BE ADDRESSED IN THE SECOND PHASE PP. THIS IS A PARTICULARLY CRUCIAL STEP IF THE VIABILITY OF INTRODUCING NON-TRADITIONAL CROPS INTO THE CHAPARE IS IN ANY WAY DEPENDENT ON SUCCESSFULLY ENTERING EXPORT MARKETS. MEETING INTERNATIONAL COMPETITION IS AN EXTREMELY DIFFICULT PROCESS. WE SUGGEST THAT THE BEST WAY TO PROCEED IS TO ASK A COMPANY OR COMPANIES ALREADY ENGAGED IN MARKETING AGRICULTURAL COMMODITIES TO EVALUATE MARKET POTENTIAL. FOR EXAMPLE, IN HONDURAS, UNITED BRANDS ASSISTED THE USAID IN EVALUATING THE POTENTIAL FOR INTRODUCING MELONS AND PINEAPPLES AS NON-TRADITIONAL SMALL FARMER CROPS, WORKING FROM THEIR KNOWLEDGE OF THE U.S. MARKET. BECAUSE MARKETING IS KEY TO THE SUCCESS OF THE CHAPARE PROGRAM, A SPECIAL EFFORT MUST BE MADE BY THE MISSION TO ADDRESS THIS CONSTRAINT AS PART OF THE PP PREPARATION PROCESS. WHAT IS NEEDED IS A STUDY OF MARKETING PROSPECTS FOR COMMODITIES PRODUCED IN THE CHAPARE. AID/W IS PREPARED TO ASSIST THE MISSION IN IDENTIFYING POSSIBLE CONTRACTORS FOR THIS EFFORT.

10. AS MISSION IS AWARE THE FOOD AID WORKING GROUP HAS NOT YET CONCURRED WITH THE PROPOSAL THAT TITLE III FUNDS BE UTILIZED FOR THE CHAPARE PROGRAM. THEREFORE, MISSION SHOULD TAKE INTO ACCOUNT THE FACT THAT TITLE III COUNTERPART MAY NOT BE AVAILABLE AS IT PREPARES PHASE TWO AND THREE PPS. SHULTZ
BT
#0460

4

Best Available Document

BIBLIOGRAPHY

Ampuero Ramos, Luis A. 1982. "Agricultural Marketing - Chapare Integrated Development Project, USAID/Bolivia

Asesoramiento Empresarial S.A. (AESA) 1983. "Feasibility Study in the Establishment of Cattle Fattening Center in El Chapare Involving the Participation of the Small Farmers of The Region", Study for USAID/Bolivia.

Asesoramiento Empresarial S.A. (AESA). 1983. "Estudio de Factibilidad: Producción, Engorde y Procesamiento de Cerdos"(Agropecuaria Copacabana/ Dillman), La Paz, Bolivia..

Bayley, Peter B. 1983. "Fish Resources in The Chapare Region", USAID/Bolivia.

Centro de Asesoramiento Empresarial Multidisciplinario (CAEM). 1983. "Estudio de Factibilidad: Procesadora de Jugos de Frutas", La Paz, Bolivia.

Centro de Asesoramiento Empresarial Multidisciplinario (CAEM) 1983. "Estudio de Factibilidad: Deshidratadora de Forrajes (Kudzu)", La Paz, Bolivia.

Centro de Asesoramiento Empresarial Multidisciplinario (CAEM). 1983. "Estudio de Factibilidad: "Fábrica de Harina de Banana (Venado)", La Paz, Bolivia.

Calvo C., Jorge et.al. 1983. "Hog Fattening and Buffalo Modules for the Chapare: Design and Implementation", USAID/Bolivia.

Coopers and Librand. 1983. "Estudio de Factibilidad de Mercado de Ganado Porcino y Vacuno", Study for USAID/Bolivia.

Earth Satelite Corporation. 1981. "Bolivian COCA: Technical Evaluations of Recent Aerial Survey Projects in the Chapare Region", Report to INM, Washington, D.C.

FAO. 1981. "Propuesta de Estrategia y Acciones para el Desarrollo del Chapare", VOl. I-II, FAO Study for PRODES. Cochabamba.

Hanraham, Michael S. 1982. "Marketing Aspects to Support Development of The Chapare IRDP-PID", USAID/Bolivia.

Hanraham, Michael S. and Robert M. Hoffman. 1979. "Market Potential for Bolivian Citrus and Tropical Fruits", U.S. Department of State Contract (3104-80-2525).

Haws, Austin B. 1983. "Interdisplinary Integrated Pest Management and Environmental Assessment of the Use of Pesticides in The Chapare Region of Bolivia", USAID/Bolivia.

Hinojosa, Raúl. 1983. "Livestock and Pasture Program for The Chapare", USAID/Bolivia.

Instituco Interamericano de Ciencias Agrícolas-OEA. 1979. "Estudio de Mercado y Mercado Agropecuario del Area de Influencia del Proyecto de Desarrollo Rural Chimoré-Chapare", Convenio PRODES-IICA, La Paz, Bolivia.

JRB Associates, Inc. 1980. "Bolivia: State of the Environment and Natural Resources, A Field Study" , An AID Contract Study.

Ladman, Jerry L. and José Isaac Torrico. 1983. "Chapare Financial Market, An Assessment of and Needs for The Chapare Rural Development Project", USAID/Bolivia.

MACA-PRODES-IICA. 1982. "Proyecto de Desarrollo Agrícola Integrado Chimoré-Chapare", Cochabamba. Vol. 1-IV.

MASI. 1979. "Coca Marketing and Control in Bolvia", A Report Prepared for INM, Washington, D.C.

McCaffrey, Dennis. 1982. "Forest Production and Natural Resources Protection in The Chapare", USAID/Bolivia.

McCaffrey, Dennis. 1983. "Environmental Analysis for Chapare Integrated Rural Development Project", USAID/Bolivia.

Morris, Gregory L. 1983. "Climate and Fluvial Morphology in The Chapare Region, Bolivia", USAID/Bolivia.

Multinational Agribusiness Systems (MASI). 1979. "Regional Development of the Tropical Chapare of Bolivia", Vol. I and II, Work Order No. 3, IQC No. AID/SOD/PDC-C-0186.

Nash, Jeffrey R. 1983. "Development Program in Farm Organizations in The Chapare Region of Bolivia", USAID/Bolivia.

Nogales, Héctor E. 1983. "Chapare Project Production Analysis", USAID/Bolivia.

Pool, Douglas J. 1982. "Analysis of the Environmental and Technical Suitability of Agricultural Development in The Chapare", USAID/Bolivia.

Proyecto de Desarrollo Chapare-Yungas (PRODES). 1978. "Estudio de Necesidades: Chapare", Tomo I PRODES, La Paz.

Riordan, James T. 1983. "Economic Analysis", Preliminary Report on The Chapare Project, USAID/Bolivia.

Sanderfer, David B. 1982. "Research and Extension Development in The Chapare Region of Bolivia", USAID/Bolivia.

Tosi, Joseph A. 1983. "Ecology and Land Capability Analysis of The Chapare Project Area", USAID/Bolivia.

Tosi, Joseph A. and Jorge Mora Urpi. 1983. "Report on The Feasibility of Producing Pejibaye in The Chapare Region of Bolivia", USAID/ Bolivia.

University of Florida Project Reports. 1977-1979. "Working Papers", UFLA Mission to Bolivia, La Paz, Bolivia.

Vega, Gustavo A. 1983. "Feasibility Study: The Processing and Marketing of Particle Board-A Major Use of Raw Material Drawn from Secondary Growth Forest in The Chapare", USAID/Bolivia.

Wiles, Stephen D. 1983. "Informe Final", (Submitted to USAID/Bolivia).

Walters, P.R. 1982 . "Fisheries Development in the Amazon Region of Bolivia", Tropical Products Institute, London, England.