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**ANNUAL REPORT**

JANUARY - DECEMBER, 1986

**CHAPARE REGIONAL DEVELOPMENT  
PROJECT**

**EXPERIENCE, INCORPORATED**

CONTRACT NUMBER            511-0543-C-00-4214  
PROJECT NUMBER            511-0543

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I. INTRODUCTION

This AID funded project is designed to improve the agricultural and forestry systems of farmers in the Chapare region of Bolivia. The project also includes agroindustry, credit and marketing components. Community improvement and rural road improvement activities are included in the overall development scheme. It is expected that this project will facilitate a reduction in coca production.

The Experience, Incorporated (EI) contract is for the purpose of providing technical assistance to the Government of Bolivia's Instituto Boliviano de Tecnología Agropecuaria. A special unit of this organization (IBTA/ Chapare) has been set up for the Chapare with a Director General, two experiment station Directors and about thirty technicians in extension and research. Experience, Incorporated, under its contract dated July 5, 1984, provides an overall level of effort of 18 person years of long term advisors over a period of approximately four years to assist IBTA/Chapare in technical and institutional matters.

The major IBTA/Chapare activities can be categorized as follows:

- Agricultural Extension
- Agricultural Research
- Introduction of new genetic material
- Production of seeds and plants
- Training for technicians, paratechnicians and farmers

In late 1986, production of seeds and plants for distribution to Chapare farmers received a higher priority than in 1985. The emphasis is on high value perennial crops.

PROJECT CHRONOLOGY

5 July 1984 Contract 511-0543-C-00-4214 signed by EI and AID.

3 Sept. 1984 Contract activities initiated in Bolivia.

10 Dec. 1984 First disbursement of project funds to IBTA/Chapare.

11 Jan. 1985 EI long term staffing at full strength in Bolivia.

March 1985 IBTA/Chapare staff at full strength.

April 1985 EI household furniture delivered.

Oct. 1985 EI household appliances delivered.

22 Oct. 1985 First vehicle for EI/Bolivia team received from USAID.

March 1986 IBTA/Chapare strategy revised to deal with expected increase in demand for plants and seeds.

May 1986 Cost of production studies for traditional Chapare crops initiated.

Sept. 1986 IBTA/Chapare conducted an internal evaluation of project agricultural development activities.

Sept. 1986 External review of overall Chapare Integrated Regional Development Project conducted by Tropical Research and Development Corporation.

Nov. - Dec. 1986 Two EI advisors completed their two year contracts and departed Bolivia. One other advisor will depart in early January 1987, leaving the Coordinator, two advisors and local staff.

## II. ADMINISTRATIVE AND INSTITUTIONAL

The Chapare Integrated Regional Development Project, of which IBTA/Chapare and EI/Bolivia are an integral part, is undergoing revision as of the end of this reporting period. Results of an external evaluation in September and a "summit meeting" at Lake Titicaca in November point to a change of emphasis from the Chapare to the high valleys. The high valley development program will probably be financed, at least in part, by transferring funds previously allocated to the Chapare. The effects on the agricultural research, extension and production activities of IBTA/Chapare are unknown.

### A. Budget

IBTA/Chapare, as an AID funded project, is about 55 percent through its projected life if its actual starting time (1 January, 1985) and its official termination date (31 August, 1988) are accepted. Forty five percent of budgeted funds have been expended. The original budget anticipated that about 57 percent of project funds would have been expended at this point in time.

Experience, Incorporated, 58 percent through its contract life, has utilized about 65 percent of the funds contracted. However the level of effort in the last two years of project life is much less than the first two years.

### B. Staffing

Two EI consultants, Merritt Taylor and Jose Mondonedo, completed their contracts and departed Bolivia in late 1986. Another, John Fieber, is scheduled to depart in early January 1987.

EI/Bolivia hired Maria Elena Greer as computer operator/translator in September.

EI/Bolivia now has three consultants and five local hire employees.

IBTA/Chapare personnel numbered 87 at the end of December 1986, including a Director General, two experiment station Directors, 32 technicians, an architect, an administrator and 50 support staff. IBTA/Chapare had 88 employees at the end of 1985.

TABLE 1- IBTA/CIETA/Chapare Budget and Expenditures  
1986. U.S. Dollars

SOURCE OF FUNDS	FOREIGN EXCHANGE		LOCAL CURRENCY	
	BUDGETED *	REC'D/EXPENDED	BUDGETED *	REC'D/EXPENDED
GRANT	1,573,000	1,295,281**	---	---
LOAN	156,000	346,809***	1,291,000	759,463***
GOB and Pvt. Sector	---	---	393,000	654,092****
T O T A L	2,229,000	1,642,090	1,684,000	1,413,572

\*Budgeted figures correspond to amounts budgeted in Project Paper by EOY 1985.  
As explained in the Annual Report for 1985, IBTA startup was over one year late.

\*\*Experience, Incorporated Technical Assistance Contract. AT EOY 1986 EI had billed 1,459,806. EI/Bolivia has not been informed if additional Grant funds have been spent by USAID.

\*\*\*As reported in "Informe Financiero Del Proyecto IBTA/Chapare" - Fourth quarter, 1986.

\*\*\*\*Includes \$723,392 for salaries and fuel. The balance is estimated value of vehicles, machinery, supplies, land and buildings contributed by GOB.

### C. Logistics

Most of the material, equipment and implements needed by IBTA/Chapare were received in 1986. Some audiovisual equipment which was ordered early on but lost in customs has not yet been re-ordered because indemnification has not been received by USAID. Machinery and implements are also lacking. The order has not been placed due to a change in specifications. The implements must be specific to tractors provided by GOB.

Construction of an addition to the dining hall at La Jota was completed in 1986. Planned construction of living quarters, office space and laboratories has been delayed more than one year for various reasons. IBTA/Chapare hopes to obtain approval in time to begin construction in March, 1987.

### III. EXTENSION

IBTA/Chapare Extension methodology, working with farmer organizations by invitation and establishing Production Demonstration Units (PDU's), was described in the first annual report. At the end of 1985, 56 PDUs had been established. During 1986, some new PDUs were established, but more were dropped because of location or non-cooperation. At the end of 1986, IBTA/Chapare had 45 PDU's in eight extension zones. Over four hundred farmers were directly involved, but the number indirectly benefited is much higher.

The technologies being demonstrated or developed on the PDU's involve combinations or monoculture of the following crops:

coffee	citrus
beans	cardamon
cowpea	tomato
cacao	watermelon
corn	vegetables
yucca	peanut

The IBTA/Chapare extension service also serves individual farmers. In addition to the establishment of large community nurseries, to be discussed below under Production, IBTA/Chapare has distributed seeds and plants, in varying quantities, of beans, cowpea, cardamon and various other plants.

Advice on cultural practices accompanies the seeds and plants. With the help of EI advisors, 37 publications were issued; this includes 10 research bulletins, nine extension publications, sixteen formal presentations for training and two miscellaneous publications.

#### IV. RESEARCH

IBTA/Chapare research activities are organized into six programs and 13 subprograms. The subprograms are further organized into projects and subprojects numbering 56. At year's end 46 subprojects were under way. See Table 2.

Major overall emphasis in research is on evaluation/selection of varieties, or genetic improvement. Development of appropriate cultural practices or technology is second in importance overall. Other research activities include insect and disease identification and control, multiplication of genetic material for further research and socio-economic studies.

#### V. TRAINING

IBTA/Chapare held nine in-country semi-formal training sessions in 1984: three for farmers, two for paratechnicians and four for technicians. Seven of the courses were conducted at experiment stations, one at community level at El Chasqui and one at Fairumani, near Cochabamba, when access to the Chapare was restricted due to Operation Blast Furnace. Table 3 is a summary of these courses.

Five IBTA/Chapare technicians received seven weeks of specialized training in non-traditional crop production in October/November, 1985. The training was held on various privately owned farms and plantations in Costa Rica. The IBTA/Chapare technicians involved were:

Arturo Quispe  
Luis Guillen  
German Inturias  
Jayier Guevara  
Cesar Diaz

They were accompanied by EI extension advisor Joe David Lopez and IBTA/Chapare technician Gerardo Rodriguez who attended a Seminar in Cocoa.

TABLE 2 Research Programs and Projects - IBT/Chapare 1986

PROGRAM	SUBPROGRAM	PROJECT	No. OF SUBPROJECTS	
			PLANNED	UNDERWAY
I Annual Crops	Legumes	Genetic Improvement	3	3
		Technology	-	2
	Roots and Tubers	Genetic Improvement	3	1
		Technology	1	1
	Cereals	Genetic Improvement	3	1
Vegetables	Technology	5	4	
	Technology	1	1	
II Perennial Crops	Spices	Genetic Improvement	1	2
		Technology	3	1
	Industrial Crops	Multiplication	1	1
		Special Studies	3	2
		Genetic Improvement	4	4
	Fruits	Technology	3	2
		Multiplication	1	-
		Special Studies	2	-
		Special Studies	2	-
III Production Systems		Farming Systems	3	2
		Agroforestry Systems	1	1
		Livestock Systems	3	-
		Socio-economic Studies	1	1
IV Large Animals	Cattle	Genetic Improvement	1	1
		Livestock Management	1	1
V Small Animals	Buffalo	Livestock Management	1	1
		Livestock Management	1	1
VI Forages	Grass	Genetic Improvement	1	1
		Technology	2	2
		Technology	1	1
		Special Studies	1	1

TABLE 3 IBTA/Chapare Training Program - 1986

LEVEL	DATE	NO. PARTICIPANTS	SUBJECT
Farmers	January	10	Establishment and Maintenance of Nurseries
	April	29	Large and Small Livestock Management
	June	13	Livestock Production and Management
Para technicians	March	26	Cultural Practices for Traditional Crops
	October	29	Utilization and Management of Pesticides
Technicians	February	13	Proposal and Report Writing
	February	18	Research and Extension Planning
	March	17	Extension Methods and Cultural Practices for Traditional Crops
	August	15	Utilization and Management of Pesticides

IBTA/Chapare Experiment Station Directors Jorge Aldunate and Franklin Lastra attended a month-long workshop on Tropical Soils Management at Yurimaguas Agricultural Experiment Station in Peru in September, 1986. This regional workshop was sponsored by USAID and North Carolina State University. Enrique Jaldin from SDTB also participated.

IBTA/Chapare Technician Fernando Rodriguez, accompanied by the EI Soils Advisor, attended a one week workshop on rock phosphate in Quito in May, 1986.

Ing. Cesar Mealla returned in February, 1986 from a six month training course in Japan on rice production. This training program was not financed from project funds.

Ing. Armando Ferrufino is currently enrolled in an MS program in animal husbandry/forage production at CATIE in Costa Rica. Part of his studies will be in Cali, Colombia. Ing. Ferrufino is expected to complete his studies in mid 1987.

Ing. Antonio Vallejos is enrolled in a program similar to that of Ing. Ferrufino. He expects to complete his studies in the second half of 1988.

Ing. Daniel Sanchez is programmed for MS studies in agricultural economics at the University of Vicosa in Brazil. He expects to begin in January, 1987.

## VI. INTRODUCTION OF NEW GENETIC MATERIAL

This activity involves import of seeds and plants, observation on experiment stations and other locations in the Chapare and distribution to farmers. For annual crops, this process can be relatively quick, but some perennials require long periods of observation.

Citrus, coffee, cacao and rubber have been under observation in the Chapare for several years. IBTA/Chapare has brought significant quantities of seed coffee from the Alto Beni for distribution within the past two years (see section VII, Production of Seeds and Plants). Little interest has been shown in rubber. Some cacao nurseries have been established, and observation continues on all four crops.

Small quantities of cowpea and sweet potato have been imported and researched for one or two seasons. The most promising varieties are being multiplied, and small quantities have been distributed to cooperating farmers.

Aside from coffee, the major interest so far evidenced by Chapare farmers has been in macadamia. IBTA/Chapare has imported about 15,000 seeds so far, and intends to import a great deal more when funds become available. We have experienced problems in germinating the seeds, primarily because of delays in shipment. Macadamia plants must be grafted on resistant rootstock and cannot be produced directly from seed as can coffee, cardamon and other crops. Budwood will have to be imported.

Although there are many citrus plantations in the Chapare, they are poorly cared for and hardly exploited. IBTA/Chapare noted very little or no interest in establishing new plantations until August 1986 during Operation Blast Furnace, and then only limited interest. IBTA/Chapare inherited many thousands of citrus plants, some already grafted, in September 1984. They are all too mature for transplanting. However, EI brought a significant shipment of citrus seeds from Florida in 1985, some of which have been grafted and will soon be ready for sale/distribution. Chapare farmers are interested primarily in "mandarinas" or tangerines.

Significant quantities of cardamon seed have been imported from Costa Rica. IBTA/Chapare has one hectare of cardamon plants from which shoots can soon be harvested for establishing plantations.

Coconut and black pepper seed have also been imported - a significant number of black pepper plants will be available for sale/distribution in 1987. Coconut seed can be brought in from Brazil to meet most any level of demand.

Table 4. Genetic Material Under Observation in the Chapare:

<u>INTRODUCTION</u>	<u>IMPORTED FROM</u>
Sapodilla	Puerto Rico
Guanabana	Puerto Rico
Papaya	Puerto Rico
Governors Plum	Puerto Rico
Eggfruit	Puerto Rico
Mango	Puerto Rico
Maracuya	Costa Rica, Puerto Rico
Madroño	Puerto Rico
Jobo	Puerto Rico
Cashew	Collected in Bolivia
Chirimoya	Collected in Bolivia
Jackfruit	Puerto Rico
Pitanga	Puerto Rico
Avocado	Puerto Rico
Guava	Puerto Rico, Costa Rica
Cocona	Puerto Rico
Carambold	Collected in Bolivia
Vanilla	Costa Rica, Bolivia
Pigeon Pea	Puerto Rico
Sweet potato	Puerto Rico, USA, Costa Rica
Long Gourd	Phillipines
Chayote	Puerto Rico
Cowpea	USA, Costa Rica
Ginger	Bolivia, Costa Rica, USA
Tanier	Puerto Rico
Malanga	Costa Rica
Coconut	Ecuador
Yam	Costa Rica, Bolivia
Cardamon	Costa Rica
Mangosteen	Costa Rica
Macadamia	Costa Rica
Black Pepper	Costa Rica
Naranjilla	Costa Rica
Leucaena	Puerto Rico
Laurel	Costa Rica
Gliricidia	Costa Rica
Pinus caribae	Costa Rica
Poro	Costa Rica
Ceibo	Costa Rica
Tembe	Costa Rica, Bolivia
Rice	Bolivia, Colombia
Corn	Bolivia, Mexico, Costa Rica
Beans	Bolivia, Costa Rica
Gandul	Bolivia, Costa Rica
Grasses	Colombia
Forage Legumes	Colombia
Coffee	Costa Rica
Cacao	Bolivia
Cas	Costa Rica
Yuca	Bolivia, Colombia

In addition to the material listed in Table 4, numerous vegetables have been planted in various areas of the Chapare to test both adaptability and acceptability.

IBTA/Chapare and EI intend to continue collection of genetic material from Bolivia and abroad. Potential benefit to the Chapare is high and the cost in terms of money and human resources is low.

## VII. PRODUCTION OF SEEDS AND PLANTS

IBTA/Chapare produces plants and seeds for Chapare farmers. As mentioned above, increased emphasis was placed on this activity in 1986. Funding for this purpose has not yet been increased. Nevertheless, significant quantities of seed and plant material were imported through the EI contract and by local purchase from internal sources.

Appendix A shows the number of plants and amounts of seed produced or in production as of June 31, 1986. Since June, IBTA/Chapare has imported about \$4,000 worth of additional plant material (macadamia, cardamon, tropical fruits, black pepper and ornamentals). Suppliers have been contacted regarding an additional \$15,000 to \$20,000 of seeds and plants. Orders will be placed when funds become available. The objective is to provide plants for at least 1000 hectares as soon as possible. It is anticipated that farmers who eradicate coca plantations will seek alternative crops.

Despite a high level of expressed interest on the part of client farmers, IBTA/Chapare has not yet felt a high level of effective demand for plants and seeds. During Operation Blast Furnace, when the price of coca leaf was low, farmers complained that they did not have money to buy plants. When the price of coca leaf is high, interest in purchasing plants does not seem to become translated to effective demand. This poses a potential problem for IBTA/Chapare because plants must be sold when they are ready. Otherwise, they will be too mature for transplanting and financial loss will result. If future programs for compensating farmers for eradicating coca come to pass, perhaps the Chapare farmers who plan to remain in the project area will be willing to invest in alternative crops.

### VIII. ISSUES AND SOLUTIONS

Poor roads to and within the project area remain a major problem. The washed out bridge over Rio Coni prevents passage of vehicles to La Jota and beyond when the river is high.

Labor shortage is still a problem, as IBTA/Chapare is unable to meet the going wage rate in the Chapare.

EI and IBTA/Chapare were prevented from working in the Chapare during Operation Blast Furnace in July - August. Even though a caretaker staff remained at the experiment stations, considerable research was lost, and contact with client communities was interrupted.

The discussions regarding reorientation of USAID development efforts which followed the external evaluation resulted in some confusion for IBTA/Chapare and EI. To many, it appeared that assistance to the Chapare is no longer a high priority activity. This resulted in a negative reaction among client farmers and produced a morale problem among development workers.

APPENDIX A

RESUMEN DE MATERIAL VEGETAL PRODUCIDO POR LA UNIDAD DE PRODUCCION

DEL PROYECTO IBTA/CHAFARE (JUNIO/86)

ESPECIE	MATERIAL VEGETAL	V I V E R O S			TOTAL	OBSERVACIONES
		LA OOTA	VILLA TUNARI	COMUNIDADES		
Citricos (Amacigo)	Plantines	26,500	-----	-----	26,500	Plantones para porta-injertos de: Citrus volcaneriana, carrizo citruselo y cleopatra
Citricos	Porta injertos (pie)	11,000	-----	-----	11,000	Para su posterior injertado
Citricos	Plantas injertadas	7,158	4,160	-----	11,328	Se refiere a plantas injertadas de naranja cv. valencia tercia y diversas cv. de mandarina
Cacaos	Plantones	11,172	11,764	115,561	138,479	Cantidad de plantones de caturra, catuai, catimor para aproximadamente 50 Has producidas la mayor parte en 12 comunidades
Cacaos	Plantones	6,226	2,073	10,000	18,349	Corresponden a 7 híbridos de cacao producidas en mayor proporción en 2 comunidades
Pimenta	Plantones	4,200	456	-----	4,456	Para distribución en dos meses a los agricultores de la zona

ESPECIE	MATERIAL VEGETAL	V I V E R O S			TOTAL	OBSERVACIONES
		LA JOTA	VILLA TUNARY	COMUNIDADES		
Cardenonc	Plantones	2,500	-----	1,200	3,500	Semilla con problemas de baja viabilidad antes de alacajo
Yacaderia	Plantas/pla	1,600	-----	-----	1,600	Plantas con 18 meses en vivero en 6 meses se procedera al injerto
Taque	Plantas	116	4,500	-----	4,516	Plantas listas para la distribucion
Mahacua	Plantas	425	-----	-----	425	Se procedera a incrementar la produccion de acuerdo a demanda
Frutas Tropicales	Plantas	228	-----	-----	228	Comprenden especies como mango, arbol de pan ciruelo tropical, coco etc.
Aproforestales Laurel	Plantas	3,140	-----	-----	3,140	
Ceibo	Plantas	600	-----	-----	600	
Giricidia sp	Plantas	400	-----	-----	400	
Gomelina sp	Plantas	1,500	-----	-----	1,500	

ESPECIE	MATERIAL	V I V E R O S			TOTAL	OBSERVACIONES
	VEGETAL	LA JOTA	VILLA TUNARY	COMUNIDADES		
Pinus caribae	Plantae	120	-----	-----	120	
Especies anuales						
Arroz	Semilla Fiscalizada	7.500 kgr	-----	-----	7.500	Semilla lista para siembra de 400 has en octubre/1986
Mais	Semilla Fiscalizada	1.610 kg.	-----	-----	1.610	Se distribuyo el 70% para la siembra de invierno
Frijol	Semilla Fiscalizada	1.000 kg.	-----	-----	1.000	Se distribuyo el 90% para la siembra de invierno
Caucho	Semilla Basica	10 kg.	-----	-----	10	Semilla para futura multiplicacion
Araceas Tuberculos						
Yuca Tiquisque Malanga Nana Camote	Raiz Cormos Cormos Cormos Rejuco	50 kg.	-----	-----	50	Semilla para su futura Multiplicacion

FUENTE: Unidad de Produccion Vegetal. Proyecto IBTA/Chapare