

**CHAPARE FINANCIAL MARKETS, AN
ASSESSMENT OF AND NEEDS FOR THE
CHAPARE RURAL DEVELOPMENT PROJECT**

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I INTRODUCTION

This report first analyzes the financial markets in the Chapare region in order to determine their current structure and assess their operations and performance. Second, this assessment is then used as a point of departure to determine what changes are appropriate and necessary for these markets to mobilize savings and provide the required credit under the proposed Chapare Rural Development Project.

This report should be considered as a component of the total effort to assess the Chapare, it cannot be taken in isolation, because the specific production patterns that are realized under the project will determine the needs for credit and have an impact on savings mobilization. We believe that we have been able to provide a good framework towards understanding the current status of the region's financial markets as well as the changes in policies and institutional structures that will likely be required in the Chapare as the Rural Development Project unfolds. We hasten to add, however, that in accordance with our assigned tasks of estimating the impact of credit on representative Chapare farms and the total credit requirements, our results are very tentative and preliminary. The reason is that this effort was based on many assumptions that may change as information for additional reports of these series become available and/or as the project unfolds and is further refined. The situation was complicated by the unstable and rapidly changing economic situation. Never-the-less, based upon the available information we consider them satisfactory as a rough approximation of future credit requirements.

The paper is organized as follows: (a) an overview of Chapare financial markets in 1982; (b) an examination of the trends of credit and savings mobilization in the Chapare, 1978-1982; (c) an analysis of the performance of Chapare financial markets; (d) a description of structure of Chapare

financial markets and an analysis of the institutions providing agricultural credit in the region; (e) an examination of the factors that determine and limit farmer and regional demand for credit in the Chapare; (f) an examination of the impact of additional credit on Chapare farms; (g) an estimate of the demand for credit under the Chapare Rural Development Project; (h) a presentation of a proposed financial institutional framework and policy structure for the Chapare Rural Development Project; and (i) a summary of our recommendations.

II, OVERVIEW OF CHAPARE FINANCIAL MARKETS - 1982

In order to determine the structure and size of the financial markets in the Chapare, interviews were held with officers of each of the lending institutions working in the region to learn of their operations and detailed data were obtained on their loan and savings portfolios. This information was used as the basis for the empirical data reported in this section and the following section on historical trends.

Structure of Financial Markets in the Region

There has been little change in the structure of rural financial markets since the mid-1970s. Since that time, there have been four formal market credit institutions with offices in the region: the Bolivian Agricultural Bank (established an office in Chimoré as a special program for colonization in 1962), a commercial bank the Banco de Cochabamba (1975) and two credit unions (1970, 1977). There is also the Grupo Chapare (1977) which makes land clearing loans. In addition, a sub-division of the Bolivian Agricultural Bank, the small farmers Credit Program (PCPA) began to make loans in the region from its Cochabamba office in 1982. Also, several commercial banks that do not have offices in the Chapare have made loans in the region for several years. On the above mentioned institutions only the commercial banks and the credit unions have savings mobilization capabilities.

There is also an informal financial market. There are a number of persons in the region that lend money, most all of whom have another primary occupation and use their savings from that work to make occasional loans. In addition, there are middlemen, or "rescatistas" of one form or another who buy crops from the farmer, having given them an advance on

the sale. Although, strictly speaking, this may be interpreted as credit, most often the advance is only made a week or so before the crop is sold and it is more of a marketing technique to ensure the intermediary of the purchase of the farmer's crop than it is credit. This technique works very well with the basic commercial crops of the region - bananas, citrus and coca - which produce continuous harvests for long periods of the year. Prior to the establishment of the formal market institutions this was virtually the only type of credit in the region.

The region is linked to other financial markets through the process of financial intermediation by the several formal market institutions and because some residents carry out financial transactions with institutions located outside the region, especially banks and credit unions in the city of Cochabamba.

Credit

Data on annual credit flows is not available for most institutions, therefore, for comparative purposes, we are confined to using the stocks of credit, as represented by year-end balances. Whereas these figures serve as a good proxy for the relative amounts of credit and numbers of loans, they may understate or, overstate the flows during the year. This is particularly the case for Bolivian Agricultural Bank, which has many loans on its books, but did not make any loans in 1982.

As shown in Table 1, at the end of 1982, there were 463 outstanding loans for all purposes valued at \$b 36,203,200 (171,068 U. S. dollars, using an exchange rate of \$b 211.68 = \$1.U.S.). These figures correspond to all of the formal market financial institutions that operate in the Chapare either directly from the offices in the region, or, indirectly, from the city of Cochabamba, plus registered moneylender loans in the region. They do not include from other informal financial market sources, nor loans from credit unions, stores or dealers on the city of Cochabamba, or elsewhere.

Table 1

Total Credit, Agricultural Credit and Savings, in Chapare, 1982

Year-End Balances

(1,000 Bolivian Pesos)

INSTITUTION	TOTAL CREDIT				AGRICULTURAL CREDIT				Ag. Credit as percent of total credit		SAVINGS DEPOSITS			
	N°of Loans	% of Total	Loan Volume	% of Total	N°of Loans	% of Total	Loan Volume	% of Total	N°of Loans	Loan Volume	N°of Accounts	% of Total	Amount	% of Total
Bolivian Agricultural Bank	185	40.0	7,955.0	22.0	185	45.1	7,955.0	37.8	100.0	100.0	0	0	0	0
PCPA	20	4.3	4,200.0	11.6	20	4.9	4,200.0	20.0	100.0	100.0	0	0	0	0
Commercial Banks	164	35.4	22,335.8	61.7	120	29.3	7,487.7	35.6	73.2	33.5	1,500	88.7	59,660.6	99.1
Credit Unions <i>g/</i>	50	10.8	412.4	1.1	50	12.2	412.4	2.0	100.0	100.0	191	11.3	570.0	0.9
Money Lenders <i>h/</i>	26	5.6	925.0	2.6	17	4.1	582.8	2.8	65.4	63.0	0	0	0	0
Grupo Chapare	18	3.9	375.0	1.0	18	4.4	375.0	1.8	100.0	100.0	0	0	0	0
TOTAL	463	100.0	36,203.2	100.0	410	100.0	21,012.9	100.0	88.6	58.0	1,691	100.0	60,230.6	100.0

Source: Various credit institutions.

g/ Includes the "La Victoria" and "Nueva Canaan" Cooperatives.*h/* The figures correspond to the creditflows in the year, and not the end-of-year balance.

There is a reasonable amount of informal market credit in the Chapare, but for lack of data we hesitate to estimate its amount for the present purposes. We believe, however, based upon credit surveys in other regions of Bolivia, that its volume probably would not exceed more than one-third of the formal market loans, and probably much less, since most of informal loans are quite small.

A number of Chapare residents are members of credit unions in the city of Cochabamba and have loans from them. For example, the manager of San Antonio estimated that 200 of its 21,000 members were from the Chapare. The San Pedro manager estimated it had 45 members from the Chapare and the Hospicio also reported members with business in the Chapare.

Measured in terms of loan volume, the commercial banks were the most important lender with 61.7 percent. The Bolivian Agriculture Bank (BAB) held 22.0 percent, PCPA had 11.6 percent, and the combination of money-lenders, credit unions and the Grupo Chapare held another 3.7 percent.

Measured on terms of number of loans, BAB was most important with 40.0 percent, and was followed by the commercial banks with 35.4 percent. Combined the PCPA moneylenders, credit unions and the Grupo Chapare accounted for 24.6 percent.

Agricultural Credit

In a region such as the Chapare, it is difficult to define agricultural credit as only that flowing to agricultural production and investments, because most borrowers are farmers. Once a farmer gets a loan, no matter what its stated purpose, the farmer mixes the borrowed funds with other sources of liquidity and, by practicing fungibility, can use the funds for any agricultural or non-agricultural purpose. Therefore, we have chosen to define agricultural credit as that which goes directly to farm

households, realizing that some of its may not used for agricultural purposes. We rely upon information from the various lending institutions to tell us the loan volume and numbers of loans going to farmers.

Based upon this definition, agricultural credit accounted for 88.6 and 58.0 percent of the total number of loans and loan volume, respectively. The fact that the percent of loans is considerably greater than the percent of loan volume shows the tendency for agricultural loans to be of small size compared to loans for other purposes, with the exception of the BAB and PCPA loans, which tend to be larger and longer term.

As shown in Table 1, at the end of 1982, there were 410 outstanding agricultural loans valued at \$b 21,012,900 (US\$99,267), excluding all informal market sources except registered moneylender loans. BAB was the most important lender, accounting for 37.8 and 45.1 percent of the loan volume and numbers of loans, respectively, these figures are considerable misleading in representing the level of activity in 1982, because they measure only year-end balances and not annual flows. In 1981 and 1982, BAB made few loans.

The commercial banks were the second most important lender with 35.6 and 29.3 percent of the loan volume and number of loans, respectively. PCPA was next with 20.0 percent of the loan volume and 4.9 percent of loan numbers. The credit unions, Grupo Chapare and moneylenders combined had 6.6 percent of the loan volume and 20.7 percent of the number of loans. That this group has a much larger portion of the loans than loan volume reflects the smaller loan size of these credit institutions. If the BAB is eliminated in order to get a better picture of new credit activity in 1978, since the figures would change considerably. There would be only agricultural 225 loans with a total value of \$b 13,057,900 (US\$61,686), of this total, the commercial banks would be the predom-

inant lender, holding 53.3 percent of the number of loans and 57.3 percent of the loan volume. They would be followed by PCPA with 8.9 percent of the number of loans and 32.2 percent of the loan volume.

In addition, without BAB, the relative importance of agricultural lending in the region would decline, such that in 1982, agricultural credit would account for only 80.9 percent of the number of loans and 46.2 percent of the loan volume in the region.

Number of Farmers Using Credit

The 390 farm families with outstanding loans represent 3.25 percent of the 12,000 farm families in the region. Based upon the 1977 and 1978 Socio-Economic Surveys, it is reasonable to assume that about an equal number of farm families have loans from other informal sources (Riordan, 1977 and Ladman 1982). If this is the case then about 6.5 percent of the farm families have credit. Indeed, given the links between producers and middlemen in the Chapare, one would expect these sources to be possibly even higher.

Importance of Agricultural Credit in Region

Although agricultural loans were by far the most important component of credit in the Chapare it would appear that agricultural credit was not very important in the region in 1982, based upon the number of families served. Given the large amount of agricultural activity in the region, especially that associated with coca production, it does not appear that the farmers of the region are very dependent upon using financial institutions to finance their present set of activities.

Savings

As shown in Table 1, there were only two classes of credit institutions with offices in the region which received savings deposits, the credit unions and the commercial banks. Of the latter, the Banco de Cochabamba, was the only institution which had an office in the region.

At the end of 1982, there were 1,691 persons with savings accounts, in the volume of \$b 60,230,600 (US\$284,536) at the offices of financial institutions in the region. The Banco de Cochabamba had 88.7 and 99.1 percent of the number or and volume of the accounts respectively.

It is very probable that there are considerably more savings generated in the region that are placed in financial institutions outside the region, especially in the city of Cochabamba. As noted previously, several credit unions in Cochabamba showed large numbers from the Chapare on their rolls. The manager of San Antonio estimated there were 200 members from the Chapare with savings totalling \$b 14,000,000. Undoubtedly, some Chapare residents have bank accounts in Cochabamba. Unfortunately, it is not possible to get an accurate measure of the numbers and volume, but we suspect it to be important.

In addition, some savings may be held as cash in the home or business or converted into easily liquidable assets such as livestock. The number of new trucks in the Chapare is very notable, many are owned by farmers. From a survey of the major truck dealers in Cochabamba, we estimate at least 423 new vehicles valued at \$7,713,000 (current prices) were sold to Chapare residents over the period 1978-1981; note, this does not include 1982, the year of greatest incomes in the Chapare. It is conventional that from the region there is direct investment in housing in the city of Cochabamba. The fact that there is an increasing number of absentee landlords in the region supports this view.

The large amount of savings in the region is undoubtedly due to the huge supplies in liquidity caused by the increasingly favorable prices for coca. Coca growers and others in the region have found their incomes rising rapidly as prices have risen in response to a growing demand for Bolivian

cocaine, and have chosen to place some of their savings from this increase, in savings accounts, particularly at the Banco de Cochabamba, where in 1982 they earned a nominal rate of interest of 30 percent.

As shown in Figure 2, in 1982 the price of coca per carga rose from \$b 7,000 in January to \$b 52,000 in December. Over the same period, the volume of savings at the regional office of the Banco de Cochabamba rose from 10,794.9 to 59,660.6 thousand pesos. The statistical correlation coefficient between the monthly coca price and monthly savings balances in 1982 is a very high 0.96. This relationship is further verified by the 0.99 correlation coefficient showing the relationship between year-end saving balances and year-end coca prices from 1978 to 1982.

The fact that the credit unions did not experience simultaneous increases in savings may be due to several factors. First they do not pay interest on their deposits. Second, the deposits are used basically as compensatory balances to obtain credit. Moreover, since the number of the two credit unions operating in the region have had other sources of liquidity rather than credit union loans, there has been little incentive for members to increase their savings when they could receive interest on their savings at the commercial bank.

Relation Between Savings and Credit

Savings activity was considerable greater than lending activity in the region in 1982. A comparison of year-end balances show savings deposits to be \$b 60,230,600 which was 88 percent larger than \$b 36,203,200 in outstanding loans. If the BAB loans are deleted, since none were made in 1982 the figure rises to 113.2 percent. Using the year-end balances as proxies for flows, this means that, in 1982, the formal financial resources from the region by these institutions of \$b 31,982,400. Were it possible to measure the other flows of savings outside the region into direct

investments, such as houses in Cochabamba, or into other financial institutions outside the region the figure would undoubtedly swell considerably.

The difference between savings and lending activity is also seen by a comparison between the numbers of savings accounts and loans. At the end of 1982 there were 1,691 savings accounts which was 2.65 times larger than the 463 loans. If the BAB loans are deleted, the ratio rises to 5.08.

III - HISTORICAL TRENDS OF CREDIT AND SAVING IN THE CHAPARE, 1978-1982

Total Credit

As shown in Table 2, over the 1978-1982 period, there was an 79.6 percent average annual growth of the volume of year-end balances of credit, measured in current values, in the region. However, as measured by the La Paz consumer cost of living index, the effect of inflation was profound, especially after 1979 (See table 3). As shown in table 4, the average annual real increase was only 18.9 percent.

Most of the increase in lending came from the commercial banks. Starting from a small level of activity in 1978, when they accounted for only 14 percent of the loan volume, they began to accelerate rapidly in 1980 such that by the end of 1982 they accounted for 61.7 percent of the total loan volume. If BAB were deleted the figure would be 79.1 percent. Over the period, the banks experienced a 72.4 percent real average annual increase in year-end balances. In real terms most of this increase in 1980 and 1981. The increase in 1982 was very small. It is noteworthy that the banks and the PCPA were the only institutions that registered a real increase in that year.

Historically, BAB was the most important lender, holding from 50 to 80 percent of the loan volume from 1978 to 1981. However, since the latter year, when their lending activity sharply declined, they not only experienced a decline in their portfolio, but also a major decrease in their relative importance. Indeed, over the 1978 - 1982 period, they had a negative 8.6 real average annual growth in year-end balances.

The credit unions and the Grupo Chapare each accounted for about 10 percent of the loan volume in 1978, but their relative importance declined sharply in the following year, as BAB and commercial banks increased their lending. The real value of their loans continued to decline over the

period as did their relative importance, such that by the end of 1982 they accounted for only 1.1 and 1.0 percent of the outstanding loan volume, respectively. Their average annual real growth rates were negative 69.1 and 66.2 percent respectively. It should be noted that the nominal size of the Grupo Chapare loan volume did not increase since it was a fixed sum rotating credit fund that has been completely disbursed in 1978. The nominal value of credit union loan volume tended to increase, but only slightly, reflecting the inactivity of these credit institutions in the Chapare.

Moneylender activity grew rapidly over the period from 1978 to 1981, only to fall sharply in real terms in 1982, due to the high rate of inflation in that year. Never-the-less, they experienced an average annual real rate of growth of 19.4 percent.

Agricultural Credit

Tables 5 and 6 present data on the nominal and real values of the year-end balances of agricultural credit. Over the 1978-1982 period there was a 61.7 percent increase in the nominal value of agricultural credit, but only 17.0 percent in real terms. Again, the high inflation rates in 1981 and 1982 were important in causing the relatively low real growth rates.

Over the period, there was considerable change in the relative importance of the lenders. Historically, BAB was the most important lender; in 1978 it held 71.1 percent of the total outstanding volume, but by 1982 it had fallen to 37.8 percent. In contrast, the commercial banks held only 3.6 percent of the loan volume in 1978, but by 1982 had grown to 35.6 percent. PCPA became important in 1982. These changes are noted in the real growth rates of year-end balances; the commercial banks had a 90.2 percent rate, whereas that of the BAB was a negative 8.6 percent. The important factors in explaining these trends are the decline in BAB lending after 1981 and the rapid rise in commercial bank lending beginning 1980.

As noted above, if BAB were deleted 1982, the relative importance of the other lenders would increase in that year especially that of the commercial banks.

The trends for the credit unions and Grupo Chapare are the same as observed for total credit since all of their loans are included as going to farmers. The moneylenders agricultural portfolio experienced an average real annual growth rate of 19.4 percent, which, being considerably higher than their growth rate for total credit, reflects an increasing emphasis by them on agricultural loans relative to those for other purposes. With respect to their share of total agricultural credit, the combined moneylenders, credit unions and Grupo Chapare have become increasingly less important. In 1978 they accounted for 13.2 percent of the total, but by 1982 they held only 6.6 percent, which reflects the real decline in lending by the latter two institutions.

Savings

Table 7 presents information on saving collected by financial institutions in the region over 1978-1982 period. Measured in nominal terms, the average annual increase was 121.1 percent, and in real terms it was 46.4 percent. Over the period, the most notable increases began in 1980, stabilized in 1981 and rose sharply in 1982. It was in these periods that there were large increases in coca production and prices due to the strong external demand for cocaine. The excess liquidity obtained from rapidly increasing incomes in the region associated with coca production was the principal source of savings. As noted previously, the statistical correlation coefficient between the year-end savings balance of the Banco de Cochabamba and year-end coca price for the 1978-1982 period was .99, and that for the monthly balances and prices in 1982 was .95. This shows that as the price rose and profits increased that savings tended to rise

proportionately.

Again, as discussed above, there is good evidence that lots of the savings being generated in the region do not go into the regional financial institutions. Some go to financial institutions outside the zone, are hoarded in homes, or are used for direct investments both inside and outside the region.

Of the two institutions that received savings in the region, the Banco de Cochabamba was considerably more active than the credit unions. The Bank experienced a 226.7 percent increase in nominal terms and a 50.0 percent increase in real terms, whereas the corresponding figures for the credit unions were 21.7 and 19.7 percent. The reasons for these different trends were described above and will be examined in detail in the section on the potential for savings mobilization.

Relationship Between Regional Credit and Savings

Table 8 presents savings-credit ratios between sum of year-end balances for the several financial institutions. Between 1978 and 1981 the region was a net importer of financial capital; the savings-credit ratio varied between a high of .724 in 1978 to a low of .320 in 1979. However, with the big savings explosion in 1982, the region became a net exporter of capital in that year and the ratio was 1.882. If it were possible to capture the financial savings that were not deposited in the regional institutions, or that flowed out of the region for deposit in other institutions the ratios would likely be higher, but the overall trend should not change.

The ratio is heavily impacted by the loans coming from BAB and from commercial banks outside the region. Examination of data from the Banco de Cochabamba show that it has always been a net exporter of capital with a sizeable balance of savings over loans. The ratio jumped sharply in 1979, when their loan volume was still low, but then quickly fell in 1980, when

they rapidly increased lending. In 1982 the ratio rose sharply as savings increased very rapidly compared to loans.

The ratios for the credit unions show that their savings have grown faster than their loans over the period. After 1979 they have held more savings than loans.

Table 2

Total Credit - In Nominal Terms - in Chapare, 1978-1982

Year-end Balances

(1,000 Bolivian Pesos)

INSTITUTION	<u>1978</u>		<u>1979</u>		<u>1980</u>		<u>1981</u>		<u>1982</u>		Average Annual Rate of Growth 1978-1982
	\$b	%	\$b	%	\$b	%	\$b	%	\$b	%	
Bolivian Agricultural Bank	2,187.0	62.8	8,760.0	82.2	9,849.3	59.2	11,498.0	50.1	7,955.0	22.0	38.1
PCPA	--	-	--	-	--	-	--	-	4,200.0	11.6	-
Commercial Banks	486.0	14.0	861.0	8.1	5,380.4	32.4	9,701.9	42.2	22,335.8	61.7	160.4
Credit Unions <u>a/</u>	347.5	10.00	314.3	2.9	351.9	2.1	440.4	1.9	412.4	1.1	4.4
Money Lenders <u>b/</u>	87.5	2.5	346.0	3.3	669.3	4.0	963.5	4.2	925.0	2.6	8.0
Grupo Chapare	375.0	10.7	375.0	3.5	375.0	2.3	375.0	1.6	375.0	1.0	0.0
TOTAL	3,483.0	100.0	10,656.3	100.0	16,625.9	100.0	22,978.8	100.0	36,203.2	100.0	79.6

Source: Various credit institutions.

a/ Includes the "Nueva Canaan" and "La Victoria" Cooperatives.

b/ The figures represent the flows during the year, not the end-of-year balances.

Table 3.

La Paz Cost of Living Index - End of Year

(1978=100)

<u>Year</u>	<u>Index</u>	<u>Percent Change</u>
1978	100.00	-
1979	119.72	19.72
1980	176.28	47.24
1981	232.92	32.13
1982	520.67	123.54

Source: Instituto Nacional de Estadística, Departamento de Estadísticas Económicas, División de Estadística de Precios.

Table 4

Total Credit -In Real Terms- in Chapare, 1978-1982

Year-end Balances

(1,000 1978 Bolivian Pesos)

INSTITUTION	1978		1979		1980		1981		1982		Average Annual Rate of Growth 1978-1982
	\$b	%									
Bolivian Agricultural Bank	2,187.0	62.8	7,317.1	82.2	5,587.3	59.2	4,936.5	50.1	1,527.8	22.0	(-8.6)
PCPA	-	-	-	-	-	-	-	-	806.7	11.6	-
Commercial Banks	486.0	14.0	719.2	8.1	3,052.2	32.4	4,165.3	42.2	4,289.8	61.7	72.4
Credit Unions	347.5	10.0	262.5	2.9	199.6	2.1	189.1	1.9	79.2	1.1	(-30.9)
Money Lenders	87.5	2.5	289.0	3.3	379.7	4.0	413.7	4.2	177.7	2.6	19.4
Grupo Chapare	375.0	10.7	313.2	3.5	212.7	2.3	161.0	1.6	72.0	1.0	(-66.2)
TOTAL	3,483.0	100.0	8,901.0	100.0	9,431.5	100.0	9,865.6	100.0	6,953.2	100.0	18.9

Source: Various credit institutions.

a/ Includes the "Nueva Canaan" and "La Victoria" Cooperatives.

b/ The figures represent the flows during the year, not the end-of-year balances.

Table 5
 Total Agricultural Credit -In Nominal Terms- in Chapare
 1978-1982, Year-end Balances
 (f,000 Bolivian Pesos)

INSTITUTION	1978		1979		1980		1981		1982		Average Annual Rate of Growth 1978-1982
	\$b	%	\$b	%	\$b	%	\$b	%	\$b	%	
Bolivian Agricultural Bank	2,187.0	71.1	8,760.0	86.1	9,849.3	69.1	11,498.0	68.8	7,955.0	37.8	38.1
PCPA	--	-	-	-	-	-	-	-	4,200.0	20.0	--
Commercial Banks	110.0	3.6	503.6	5.0	3,256.9	22.8	4,127.7	24.7	7,487.7	35.6	187.2
Credit Unions <u>b/</u>	347.5	11.3	314.3	3.1	351.9	2.5	440.4	2.6	412.4	2.0	4.4
Money Lenders <u>c/</u>	55.1	1.8	218.0	2.1	421.7	3.0	276.0	1.7	582.8	2.8	80.3
Grupo Chapare	375.0	12.2	375.0	3.7	375.0	2.6	375.0	2.2	375.0	1.8	0
TOTAL	3,074.6	100.0	10,170.9	100.0	14,254.8	100.0	16,717.1	100.0	21,012.9	100.0	61.7

Source: Various credit institutions.

a/ Includes the "Nueva Canaan", and "La Victoria" Cooperatives.

b/ The figures represent flows instead of end-of-year balances.

Table 6

Total Agricultural Credit -In Real Terms- in Chapare, 1978-1982

End-of-Year Balances

(1,000 1978 Bolivian Pesos)

INSTITUTION	1978		1979		1980		1981		1982		Average Annual rate of Grants 1978-1982
	\$b	%									
Bolivian Agricultural Bank	2,187.0	71.1	7,217.1	86.1	5,587.3	69.1	4,936.5	68.8	1,527.8	31.8	(-8.6)
PCPA	-	-	-	-	-	-	-	-	806.7	20.0	-
Commercial Banks	110.0	3.6	420.6	5.0	1,847.6	22.8	1,772.6	24.7	1,438.1	35.1	90.2
Credit Unions <u>a/</u>	347.5	11.3	262.5	3.1	199.6	2.5	189.1	2.6	79.2	2.0	(-30.9)
Money Lenders <u>b/</u>	55.1	1.8	182.1	2.1	239.2	3.0	118.5	1.7	111.9	2.8	19.4
Grupo Chapare	375.0	12.2	313.2	3.7	212.7	2.6	161.0	2.2	172.0	1.8	(-66.2)
TOTAL	3,074.6	100.0	8,495.5	100.0	8,086.4	100.0	7,177.7	100.0	4,035.7	100.0	7.0

Source: Various credit institutions.

a/ Includes "La Victoria" and "Nueva Canaan" Cooperatives.b/ The figures represent flows instead of end-of-year balances.

Table 7

Historical Trend of Savings in Chapare in Nominal and Real Terms

Year-End Balances, 1978-1982

(1,000 Bolivian Pesos)											
Institution	1978		1979		1980		1981		1982		Average Annual rate of Growth 1978-1982
	\$b.	%	\$b	%	\$b	%	\$b	%	\$b	%	
NOMINAL TERMS:											
Commercial Banks <u>a/</u>	2,260.9	.89.7	3,108.7	91.1	10,696.8	95.7	10,689.4	94.6	59,660.6	99.1	226.7
Credit Unions <u>b/</u>	260.2	10.3	304.6	8.9	481.1	4.3	614.2	5.4	570.0	0.9	21.7
TOTAL	2,521.1	100.0	3,413.3	100.0	11,177.9	100.0	11,303.6	100.0	60,230.6	100.0	121.1
REAL TERMS:											
Commercial Banks <u>a/</u>	2,260.9	89.7	2,596.6	91.1	6,068.1	95.7	4,589.3	94.6	11,458.4	99.1	50.0
Credit Unions <u>b/</u>	260.2	10.3	254.4	8.9	272.9	4.3	263.7	5.4	109.5	0.9	(-19.5)
TOTAL	2,521.1	100.0	2,851.0	100.0	6,341.0	100.0	4,853.0	100.0	11,567.9	100.0	46.4

Source: Various credit institutions.

a/ The Banco de Cochabamba is the only bank in the region which receives savings accountsb/ Includes the "La Victoria", and "Nueva Canaan Cooperatives.

Table 8

Savings Credit Ratios in the

Chapare 1978 - 1982, Year-End Balances

	Year				
	1978	1979	1980	1981	1982
Total	.724	.320	.672	.492	1.882
Banco de Cochabamba	6.013	19.675	2.201	1.332	4.056
Credit Unions	.749	.969	1.367	1.395	1.382

Source: Tables 2, 7.

IV - FINANCIAL MARKETS IN THE CHAPARE

The above shows that the financial markets of the Chapare have been subject to a dynamism resulting from coca production that has had important impacts on both credit and savings. In the following sections we examine this and isolate the factors influencing current and future performance.

Demand for Credit

The preceding sections show that there are a number of formal and informal financial institutions providing credit in the Chapare, but that relatively few persons were using credit. The facts, that (a) officials of all the institutions interviewed thought that they could easily place additional monies, if they were available, (b) the lending activities of PCCA, Banco de Cochabamba and moneylenders, increased substantially over the past several years, when measured in nominal terms, and (c) the PCPA was able to come into the region in 1982 and initiate a number of new loans, suggests that there is an excess demand for credit.

Much of this demand may be explained by government interest rate policy that caused some credit institutions, such as BAB, to charge highly concessionary interest rates. As shown in Table 9, the BAB rate has historically been 13 to 21 percentage points less than the commercial bank rate. Another important factor has been the high rate of inflation, which has lowered the real rate considerably. In fact, since 1978, the BAB real rate has been negative, falling to -44.53 percent in 1982. Since 1979, the commercial bank rate has also been negative, arriving at -31.7 percent in 1982. The two factors --concessionary rate and inflation-- combine to make borrowing a bargain. It should be of no surprise that there is an excess demand for credit under these conditions.

Savings

Savings in the region has increased considerably. Probably the most important factor in the region has been the tremendous increase in incomes brought about by the rise in coca prices and its production.

Unfortunately, due to government interest rate policy and the increasingly high rates of inflation, the real rate of interest on savings had declined. As show in Table 10, since 1978, the real interest rate on savings accounts has been negative going from -6.66 percent in 1979 to -44.34 percent in 1982. This has undoubtedly had a negative impact on savings. Had the real rate of interest been positive there should have been more saving. Thus in spite of this disincentive, the region continued to mobilize more saving, a sure indicator of excessive excess liquidity.

Why Simultaneous Excess Demand and Excess Liquidity

The high degree of liquidity in the region, brought about principally by the coca production, has caused the region to become a net exporter of capital. This experience is not inconsistent with a local excess demand for credit for several reasons. First, there will be some persons in the region with an excess of liquidity and others with a shortage. The role of the financial institutions is to serve as an intermediary to transfer the excess liquidity from those who have it, to those who are short. In this way lending will appear.

Second, the combination of interest rates in combination with a healthy inflation has had to negative real rates of interest that stimulate borrowing, even by persons who hold excess liquidity, because the expected future value of what is repaid is considerably less than the value of the loan at the time of borrowing. These funds, along with the borrower's other sources

of liquidity, can be readily used for investments in productive resources, investments (such as trucks) construction (such as houses in Cochabamba) or consumer goods. Expected future liquidity, from whatever sources can be used to repay the loan.

Third, many persons in the region 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 for or the supply of cocaine from Bolivia. Given this way of thinking, many producers are anxious to undertake investments, even though they are less profitable than coca, in order to diversify their production in order so that they would be able to maintain some semblance of the level of living to which they have become accustomed.

Fourth, there are farmers in the region that have not grown coca for religious reasons or for lack of suitable land. These farmers are seeking ways to improve their incomes through credit.

Fifth, taking account of all the above, it should not be surprising that some institutions such as Baw and some commercial banks bring in money that is exogenous to the region; there is a demand for it. Furthermore, that other institutions, such as the Banco de Cochabamba are a net exporter of financial resources.

All of the above is a manifestation of how the regional financial markets are linked to the national market, and how government development banks can direct funds to any region should they choose.

Factors Influencing Future Demand

The roles of inflation and the structure of interest rates are exceedingly important in the above. Were the interest rate to be raised and/or inflation lowered, the real cost of credit to the borrowers would rise, and ceteris paribus, they would use less credit.

Another important factor is the liquidity available from coca production. Were this to decrease, due to a decline in coca prices and/or production, ceteris paribus the demand for credit would be expected to increase as the population would need to rely more on borrowed liquidity.

Yet another factor, is the opportunities for additional income earning activities. Were expanded markets discovered for currently produced products and/or for new products, then, ceteris paribus, the demand for credit would be expected to increase. The amount would be determined by the nature of the production, especially its capital intensity.

Factors Influencing the Mobilization of Future Savings

The principal factors influencing future savings mobilization in the region, as presently structured, will be the levels and distribution of income earned in the region the interest rate earned on the savings accounts and alternative investment opportunities.

The level of income in the region is the basic factor determining the capacity to save. The distribution of income is another factor. Fortunately, in the Chapare, the income earned is distributed among its residents in such a manner that most of them have a capacity to save.

If the region's income were to change, there will also be an impact on savings. Ceteris paribus, the larger the growth of income the more savings will be generated. Under current conditions, this depends upon coca. If the value of the production, were to fall, say due to a price decline, savings would tend to rise. In the future income level and growth it will also depend upon new lines of economic activity that are introduced in the zone, and the distribution of income from these activities among its inhabitants.

Another factor affecting mobilization of savings by financial institutions is the accessibility of the institutions to the saver and the procedures that are involved in making deposits and withdrawing funds. If the ins-

stitutions are close by and the procedures are simple there will be lower saver's transactions costs and saving will be enhanced. If the opposite holds, savings will be discouraged.

Under current conditions, with highly negative real rates of interest, it is uneconomical for a saver to place savings in a savings account at negative real rates of interest, unless that is the best use of funds, which means alternate uses would have to have even more negative rates of return. Assuming that better alternatives exist, the fact that considerable savings have recently been mobilized means that many savers are essentially parking their savings in a savings account until better alternatives are discovered. Therefore, with time, as better alternatives are developed, it can be expected that savings will be withdrawn and put to work elsewhere. Consequently, to keep these savings in place the interest rate would have to be raised to a positive level that is competitive with alternate uses of the funds. If not, financial intermediaries, such as the Banco de Cochabamba, might become net importers of financial capital.

In both interest rates and incomes were to change simultaneously, the effect on savings would depend upon the combined effects of both charges.

The Role of Financial Intermediation

It will be important to have in place a set of financial institutions that can efficiently carry out financial intermediation, such that they: (a) mobilize regional savings, (b) attend to the credit needs of the region; and (c) are financially viable, such that they become autonomous and do not depend upon subsidies in order to survive. To perform in this manner, they should offer the saver an attractive and realistic interest rate. The interest rate charged the borrower will necessarily be higher by an amount

that will cover operating costs, risk and generate sufficient surplus, that can be used to reward the owners of the institution and to increase lending capacity in the future.

The Role of Government Financial Policy

Interest Rate

The future performance of financial markets in the Chapare will depend greatly upon the government's national financial policy. Most important will be the interest rate policy. Without positive real interest rates on savings accounts that are competitive with rates of return on other uses of savings, the financial institutions will not be able to mobilize nearly the amount of savings that would be possible with the more realistic rates. If the interest rate on savings is not competitive, the financial institutions will have to continue to look to external financing or subsidies to obtain loanable funds.

Realistic positive real rates of interest are necessary for loans. This is the principal source of income for the financial institutions. Without positive rates the institutions will lose money on their loans and their long-run viability will be jeopardized.

Many would argue that concessionary rates are necessary, as a means to implicitly transfer income to borrowers, under development projects. However, it has been amply demonstrated that such a policy often has perverse results. Not only does it harm the financial viability of the credit institutions, it also leads to the inefficient use of financial capital by the borrower since it is underpriced. Cheap credit is: (a) often diverted to non-productive or speculative purposes; (b) used to an extreme for productive purposes; (c) leads to credit being used as a political instrument; (d) fosters bribery and corruption of credit officials by borrowers anxious to obtain the implicit income transfer; (e) impacts upon income distribution by favoring those who get the loans.

In sum this means that the monetary authorities should develop an interest rate structure that affects the opportunity costs of capital as it is saved or invested. The rates must take account of inflation. To not do so will be disastrous both for financial institutions and the use of credit in the Chapare region as well as the country as a whole.

At the present, Bolivia is undergoing an extremely severe economic crisis. The peso is depreciating rapidly and inflation is rampant. There is strong resistance to raising interest rates because of the political consequences. This will make the above task more difficult.

Refinancing Lines.

The Central Bank serves as a fiduciary agent for special funds set aside for development objectives. The funds are available to officially recognized financial intermediaries --commercial banks and public development banks-- to refinance loan that meet the specified objectives and requirements of a given refinancing line. There are several lines for agriculture, agroindustry and handcrafts. Many of these are financed by foreign assistance, especially USAID.

The concept is good, but has encountered problems in implementation. Most of the problems are associated with the lengthy delays in approval because of the procedures and paperwork requested by the Central Bank. There is evidence that the speed with which a refinanced loan is dispatched is associated with the amount of the under-the-table payment to the Bank employees.

Since this is the established way to channel funds to a development project, such as the Chapare, it is important to carefully analyze the system (such as USAID is presently doing) in order to make revisions where appropriate. Alternatively, if this is unsuccessful, other means could be sought, such as establishing a new entity, such as a trust fund, perhaps in the private sector.

In such a manner the Central Bank could be circumvented.

A related factor is the possible broadening of eligible financial intermediaries. FENACRE would like to have this status in order to have access to the refinancing lines. If this were to come about, it would enable FENACRE to greatly expand its lending operations. Likewise, in the future, other financial institutions might be good candidates for intermediary status.

Outlook for Financial Markets in the Chapare

It is clear from the above that a number of factors will simultaneously determine the future performance of financial markets in the Chapare. Apart from the level of economic activity the most important factor will be the interest rate. Only if there are positive real rates of interest on savings and loans, that truly reflect the opportunity cost of capital, will the markets perform as they should in order to mobilize savings and rationally distribute credit. This will require that the monetary authorities undertake measures to raise the rates to the proper levels, taking account of inflation.

Outline for Remainder of Report

In the following section current credit institutions are analyzed and their strengthness and weaknesses are identified in order to lay the basis for recommendations for the financial institutional structure in the Chapare. This is followed by an analysis of the impact of the credit for the farmer, the potential demand for credit in the region and the possibilities of savings mobilization. Finally, using material from the present and these ensuing section, conclusions are presented about what needs to be done to make the financial markets more viable in terms of mobilizing savings and satisfying the demand for credit through appropriate policies and an institutional structure.

Table 9:

**Real Interest Rate Charged by the Agricultural Bank of
Bolivia and by the Commercial Banks, Bolivia, 1978-1982.**

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
BAB Nominal Interest Rates	12	12	12	14	24
Commercial Banks Nominal Interest Rates	25	26	27.9	32	45
Changes in Prices	10.36	19.72	47.24	32.13	123.54
BAB Real Interest Rates	1.49	-6.45	-23.93	-13.79	-44.53
Commercial Banks Real Interest Rates	13.27	5.25	-13.14	-0.17	-31.7

Source: Banco Central de Bolivia, Boletín Estadístico No. 245, and Boletín Mensual No. 10.

$$\text{Real Interest Rate} = \frac{1+i}{1+p} - 1$$

i = Nominal interest rate

p = Rate of inflation

a/ Changes in prices are taken from the La Paz, General Cost of Living Index.

Table 10.

Real Interest Rates Paid on Savings Deposits Bolivia1978-1982

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
Nominal Interest Rate	11.75	11.75	16.0	23.0	30.0
Change in Prices	10.36	19.72	47.24	32.13	123.54
Real Interest Rate	1.26	-6.66	-21.22	-6.91	44.34

Source: Banco Central de Bolivia, Boletín Estadístico No. 245, and Boletín Mensual No. 10.

V CREDIT AND SAVINGS INSTITUTIONS IN THE CHAPARE

Bolivian Agricultural Bank

BAB established an office in Chimore in 1962 to work with the colonists in that settlement. In 1970, it opened an office in Villa Tunari in order to attend the needs of the government-directed and spontaneous colonist in the whole region. In recent years most of the loans have been with the Central Bank FRA--2 refinancing line. It has a serious delinquency problem. As of August 1982, 7.6 percent of loans and 64.3 percent of the loan volume were past due.

Most loans carry concessionary interest rates --in 1982 they were 24 percent nominal and -44.5 real rates-- and are of medium term, 3-5 years. Some 70 percent of the loans were for citrus, pineapple and bananas with the rest going for rice, cocoa and livestock, at the end of 1982 there were 185 loans outstanding, value at \$b.7,955.000 (US\$37,580) for a mean loan balance of \$b.43,000 (US\$203).

The bad financial situation of BAB at the national level --high delinquency and no loanable funds-- has been the principal reason that the Villa Tunari office has had no loanable funds to make new loans in 1982. Whether or not BAB will be able to continue as a lender in the region will principally depend upon how this financial crisis is resolved.

BAB's credit delivery system is extremely onerous and costly for both lender and borrower, because it is heavily laden with paperwork and documentation. This requires heavy expenditures of time and money on the part of the borrower, and makes considerable work for BAB. Because of these high costs, both BAB and its potential clients gravitate towards larger loans, which justify such large expenditures. For this reason most of BAB's portfolio

is in loans for medium term and costly investments. The ensuing section on credit delivery systems will elaborate more on this.

PCPA

The PCPA, separate program within BAB, first began operating in the Chapare in September of 1982. In a very short span of a few weeks they made 20 loans, value at \$b.4,200.000.

Because they are a BAB program their credit delivery system is very similar to that for other BAB programs. They charge a 28 percent annual interest rate on the outstanding loan balance, make medium term loans for investments and production, and require considerable paperwork and procedures.

The PCPA program in itself is a much healthier than its parent institution. In most of the recent years it has shown a surplus of income over expenditures. It has capable and efficient staff and it has a small central office in Cochabamba, is not benderal by the heavy costs of a top-heavy central administration as is BAB.

At present there is a major problem. BAB is trying to integrate PCPA into the paren institution in order to make available to itself the surpluses earned by PCPA. If this were to come about, it might well spell the death of an effective and efficient PCPA or, best render it very ineffective.

Commercial Banks

The Banco de Cochabamba is the only commercial bank with an office in the Chapare as shown in Table 11, the year-end balances from 1978 to 1982 show that five commercial banks in Cochabamba had made loans in the region. Of these, three had made loans for agriculture, but most agricultural lending from commercial banks has come from the Banco de Cochabamba. For example, in 1982 it held 97 percent of the year-end portfolio for these purposes. In addition, this has been the most active bank for non-agricultural loans.

At the end of 1982, it accounted for 50.2 percent of the outstanding non-agricultural loans.

Agricultural credit has been relatively less important in the commercial banks' portfolio, although it has increased in both nominal and real terms. In 1979 and 1980 it accounted for about three-fifths of the total credit, but, by 1982, it had fallen to one-third.

The Banco de Cochabamba is the only commercial bank which directly mobilizes savings in the region. Their record in this matter was discussed above. It is reported that banks located in Cochabamba receive savings from Chapare residents, but data are unavailable to determine to what extent this occurs.

The remainder of this discussion deals exclusively with the Banco de Cochabamba.

In 1975 the Bank established a provincial office in the Chapare, the reason being that, since it was a Cochabamba bank, it should have an office in each province of that department.

Since its establishment, the Bank rapidly increased the number of demand deposits and savings accounts. At the end of 1982, there were 278 demand deposits and 1500 savings with average balances of 16,547 (100\$78) and \$b39,734 (US\$ 188) respectively. Compared to 1975 this represents increases of and 16.85 percent in the numbers of the two types of accounts, respectively. Particularly noteworthy is the large increase of 949 savings accounts in 1982. This reflects the large amounts of savings mobilized in the region during that year, presumably by the growers of coca.

At the end of 1982 there 125 loans outstanding in the amount of \$b 14,710,800. Of this number 44 were loans made for agricultural purpose which had a value of \$b 7,262,700 for an average size loans of \$b 165,061 (US\$800).

Loans to farmers seldom exceed one year. Most are made for production purposes to cultivate rice, corn, bananas, citrus and coca. In 1982 the nominal interest rate of these loans was 45 percent, but an additional 3 percent is added to cover commissions and taxes. The effective rate of interest is considerably higher, 57 percent, considering that the bank typically requires the borrower to maintain one-third of the amount he borrow in an interest-bearing savings account as a compensating balance. The real rate of interest that the borrower paid in 1982, when figured on the nominal interest alone, was -31.7 percent, and, when figured on the effective rate, was -29.8. These negative rates imply considerable income transfers, and, undoubtedly, were important factors giving rise to the sharp increase in lending by the Bank in 1982.

The Bank has a simple credit delivery system which appears to be efficient for both the Bank and the borrower. It operates very much like a credit union. There is little paperwork. The borrower can borrow up to three times the amount he has on deposit in a savings account. He also must obtain one or more consigners, depending on the size of the loan. In both of these manners the loan is secured. At the end of 1981, 12.7 percent of the loan volume was delinquent, most of which had been delinquent for some time.

The bank manager operates the office on a very personalized basis. In this manner he knows his clients well and is able to gain the confidence of his clients. This style of operation seems to have worked very well.

The Bank has operated in the Chapare using basically its own funds. The Bank however, has had considerable experience with the Central Bank's lines of financing in other areas and would be disposed to employ them in the Chapare. A major problem, however, is that there is considerable paperwork and delay associated with the use of these funds, because of delays associated ^{with} operational procedures and rules of the Central Bank.

For these reasons the Bank has some reluctance to use these funds.

The Bank's impressive record in saving mobilization appears to be mostly related to the availability of the rapidly increasing liquidity in the region due to the coca boom. The Bank has not undertaken any special savings campaign. Moreover, the Bank currently only pays 30 percent interest on these deposits which, when measured in real terms, is -44.34 percent. Thus, more than anything, it appears that the populace of the region is looking for a safe and convenient way to store its excess liquidity, until better alternatives are developed.

Credit Unions

At present there are two operational credit unions in the Chapare. La Victoria, located near Chinochata, and Nueva Canaan, located near Chimoré. Both are affiliated with FENACRE. In addition, there are some pre-credit unions, the most notable being Mariposas, located in El Pinal. La Victoria was established in 1970 by catholic priests. Nueva Canaan was established in 1977. The former is located in a coca region. The latter is also in an area suitable for coca but since the members are opposed to coca on religious grounds, they do not produce the product and specialize in bananas.

Neither credit union has had outstanding success. As shown in Table 12, at the end of 1982 La Victoria had only \$b.132,400 (US\$625) in 19 outstanding loans averaging \$b 6,968 (US\$33). There were 61 members holding deposits of \$b 290,000 (US\$1,370) which had an average balance of \$b 4,754 (US\$22). There was little change in numbers of loans outstanding between 1978 and 1982. The number of savings accounts rose in 1979 and 1980 and then declined sharply. Although there were increases in the nominal amounts lent and saved, the amounts, measured in real terms, declined.

This credit union clearly has serious problems. It lacks vitality and aggressive leadership. The fact that it is located in a coca region may be a factor in its stagnation, the members simply don't need the services of the credit union, given their high degree of liquidity. Given that the credit union does not pay interest on its savings accounts and that members don't need loans, which is the major reason to save, means that members will look to alternative means to save their money.

Nueva Canaan is more active and has exhibited more growth over 1978-1982 period which may, in part, be explained by the fact that its members do not grow coca. At the end of 1982 it had 131 outstanding loans valued at \$b280,000 (US\$1,323).

In both credit unions most loans have been designated with an average value of \$b9,032 (US\$43). It had 130 members with deposits of \$b365,000 (US\$1,724) averaging \$b2,808 (US\$13).

In both cooperatives loans are made almost exclusively to farmers. Most loans are less than one-year in length and carry an 18 percent nominal interest charge. However, since members are required to maintain at least a one-third compensating balance, the effective rate of interest is much higher, 26.9 percent. In 1982, the real rate of interest on the nominal figure was -47.2 percent, and on the effective rate was -40.2 percent. Loans are used for land clearing, rice or banana production, home improvements and personal consumption. The credit delivery system in both credit unions is uniform, simple and follows the standard credit union format. The paperwork is simple and loan disbursement is relatively rapid once a loan application is made.

El Grupo Chapare

The Grupo was formed in 1977 by the United Methodist Committee on Relief. Its basic purpose was to provide land clearing services in order to produce kudzu and then to extend assistance in the marketing of the product. Since its inception the Grupo has had a \$b375,000 rotating fund for land clearing. Loans are for a period of three years.

So far it has been used by eighteen families. Most of the loans are delinquent since considerable problems have been encountered with the kudzu production and marketing programs. In 1982 the real value of this fund was only \$b72,000 (US\$340).

Moneylenders

There appear to be few persons in the Chapare who make a living lending money. Most loans are made by persons who have an excess liquidity derived from a business or farming operation and choose to lend it out. These persons will typically make only one or two loans per year. About 25 percent of these loans are registered with the single small claims judge in Villa Tunari. Based upon these records we estimate that there were about 105 such loans made in the Chapare in 1982. Of this total, about 65 percent of the loan numbers and 63 percent of the loan volume were for agricultural purposes.

These loans average about three to five months in length and carry an interest charge of about 4 to 5 percent per month (48 to 60 percent annual rate). In 1982 the real rate was -33.8 and -28.4 percent per year, respectively. The mean loan size was \$b32,117 (US\$152). Borrowers usually make a pledge of some form of good as collateral (land, machinery, animals). In some cases the borrower must leave collateral such as a radio with the lender, as in a pawnshop. If the borrower defaults, the good becomes the property of the lender.

The credit delivery system is very simple. The only paperwork is the simple registration of the loan with the small claims judge or, if this is not done, a simple IOU or nothing. This is clearly an efficient and rapid credit delivery system compared to formal market institutions.

Other Informal Lenders

Since the region was opened for development, intermediaries have played an important role in financing and marketing agricultural products, such as bananas and citrus. Most are involved in the purchase of products in the Chapare for resale outside the region. Many have their own trucks. Most work with a regular clientele of some ten or twenty families. The importance of this financing role appears to have diminished as formal market institutions have developed and as many farmers have obtained considerable liquidity from the coca boom. At present, intermediaries typically give advances to farmers to ensure the purchase of their products. These advances are usually for only one or two weeks, and, in most cases, are more tied to the marketing function rather than credit. An exception may be in the non-coca growing micro-regions of the Chapare. In these areas, the farmers tend to use the advances as a constant source of operating capital and funds to meet family expenses. In only a few instances is it used to start new plantings. Before the coca boom this system was applied to coca. However, with the boom most growers prefer to be able to sell on the open market.

Undoubtedly, there is also considerable short-term lending among friends and relatives. Information about this is not available for the Chapare, but studies (Riordan, 1977 and Ladman 1982) from other parts of Bolivia show this to be the most important source of informal market lending. In these instances interest rates will range from 0.9 percent up to the level of money lenders.

Summary

Loan Volume. Table 13 summarizes agricultural lending in the Chapare in 1982. The BAB, Banco de Cochabamba and PCPA are the largest lenders, in terms of outstanding loans, but, it should be remembered that BAB made no new loans in 1982, other than those of PCPA. BAB, PCPA and Grupo Chapare are the only institutions that lend for more than one year; most of their credit goes for medium-term investments such as livestock or tree crops. The other lenders' loans typically are made to finance annual production expenses and house hold needs. BAB, PCPA and commercial banks have access to Central Bank refinancing lines.

Credit Delivery. As shown in Table 14, the BAB and PCPA have complex credit delivery systems, which add considerable cost to both borrowing and lending. In contrast, the systems of the other lenders are considerably more simple and less expensive.

Attention must also be directed to streamlining credit delivery system in order to reduce costs for both the lender and the borrower, and enhance the profitability of credit. The type of system will vary, depending upon the type of loan.

Interest Rates. Using the commercial bank rate as a standard, BAB, PCPA, credit Unions and Grupo Chapare all offered their clients concessionary interest rates. The informal market lenders charged higher rates. Because of the high rates of inflation in 1982 all lenders (borrowers) received (paid) negative interest rates on credit.

As currently structured, the whole formal market system suffers from the high rates of inflation and the rigid interest rate structure that lead to highly negative real rates of interest on loans. Moreover, some institutions have highly concessionary rates, which exacerbates the problem. Not only do these two factors lead to the misallocation of credit, but also they are debilitating the financial viability of credit,

institutions.

Savings Mobilization. Only two of the institutions mobilize savings. The other institutions are missing a good opportunity, especially in view of the current economic boom in the Chapare. In order to expand its loan portfolio a financial institutions needs an infusion of new capital and/or earnings. Without new capital growth will be slow. Savings mobilization is an important way to do this, and means that the institution will not need to depend upon external loans or subsidies for growth. It should be realized, however, that in order to be successful savings mobilization will require appropriate incentives in the form of attractive interest rates.

Central Bank Refinancing. Another source of obtaining additional loanable funds is through the Central Bank's refinancing lines. Of the institutions currently operating in the Chapare, only BAB, PCPA and the commercial banks have access to these lines. There is discussion that FENACRE might be classified as a financial intermediary in the near future, and, thus, have access to this refinancing. If this were to occur, FENACRE would be able to channel some of these funds to affiliated credit unions in Chapare.

Technical Assistance. Technical assistance is notably lacking in all of the credit programs, except Grupo Chapare. To be sure there is a limited amount of advising by BAB, PCPA and commercial banks agents (mostly when Central Bank refinancing is involved) credit agents at the time of loan application. This assistance, however, is very limited and often based on inadequate knowledge or study. The BAB and PCPA programs are supported in theory, by IBTA agents, but, in practice, the technical assistance by these agents offered is very limited, and, most often, non-existent. Depending on the nature of the Chapare development program, as well as the type of products produced, viable technical assistance programs should be coordinated with the credit programs.

Financial Viability. The viability of the institutions also need to be considered. At the current time future of BAB and PCPA are in question. BAB is in serious financial difficulty and has little prospect of being able to recover without a complete subvention on the part of the government of Bolivia. The PCPA, although part of BAB, has been administered independently from the larger institution, and has demonstrated financial viability by showing excesses of income over expenses in recent years. There is the iminant danger, however, that the PCPA will be fully integrated into BAB. If were to occur it should't be long until, the PCPA would also lack loanable funds. Therefore, the future of these two institutions is in doubt.

The record of the two active credit unions has been poor. Much of this can be attributed to inadequate mechanisms for mobilizing savings and making loans. At this stage they appear to be weak financial institutions. Perhaps with substantial changes in savings mobilizations policies and strong infusions of technical assistance from FENACRE, they could be made more viable with proper assistance other credit unions could be established. Grupo Chapare has had a singular lack of success as a financial institution; and as a project. Such programs do not provide for financial viability.

Overviews. The advantages and disadvantages of the several formal and informal market financial institutions in the Chapare are listed in Table 15. They serve as a synthesis of the above as well as a basis for developing the institutional component of the project financial program for the Chapare.

Table 11

Total Credit --Nominal Terms-- from Commercial Banks, Chapare,
1978-1982 Year-End Balance

Bank and Type of Credit	(1,000 Bolivian Pesos)				
	Year				
	1978	1979	1980	1981	1982
<u>Banco de Cochabamba</u>	<u>376.0</u>	<u>158</u>	<u>4,860.4</u>	<u>8,021.9</u>	<u>14,710.8</u>
Ag. credit	110.0		3,256.9	3,877.7	7,262.7
Industrial Credit	235.0	158.0			6,919.1
Construction	31.0		1,441.0	4,144.2	529.0
Private			162.5		
<u>Banco Industrial Ganadero del Beni</u>				<u>630.0</u>	<u>625.0</u>
Agriculture				250.0	225.0
Industrial				380.0	400.0
<u>Banco Nacional</u>				<u>200.0</u>	
Industrial (Tourism)				200.0	
<u>Banco de Santa Cruz</u>		<u>200.0</u>	<u>520.0</u>	<u>850.0</u>	<u>7,000.0</u>
Transport credit		200.0	360.0	700.0	7,000.0
Private			160.0	150.0	
<u>Banco Mercantil</u>	<u>110.0</u>	<u>503.6</u>			
Agriculture	110.0	503.6			
TOTAL	<u>486.0</u>	<u>861.0</u>	<u>5,380.4</u>	<u>9,701.9</u>	<u>22,335.8</u>
Total ag credit	110.0	503.6	3,256.9	4,127.7	7,487.7
ag Credit as percent of total credit	22.6	58.5	60.5	42.6	33.5

Source: Various commercial banks.

Table 12.

Total Credit and Saving --In Nominal Terms-- from Credit Unions, Chapare,
1978-1982 Year-End Balances

(1,000 Bolivian Peso)

Year	<u>La Victoria Cooperative</u>		<u>Nueva Canaan Cooperative</u>				<u>Total</u>					
	Credit No.	Savings \$b	No.	Savings \$b	Credit No.	Savings \$b	Credit No.	Savings \$b.				
1978	14	93.1	53	123.6	20	254.4	86	136.6	34	347.5	139	260.2
1979	12	64.3	80	164.0	18	250.0	88	140.6	30	314.3	168.	304.6
1980	13	91.9	82	240.1	19	260.0	80	241.0	32	351.9	162	481.1
1981	18	147.1	70	264.5	24	293.3	95	349.7	42	440.4	165	614.2
1982	19	132.4	61	290.0	31	280.0	130	365.0	50	412.4	191	570.0

Source: La Victoria and Nueva Canaan financial statements.

Table 11

Comparison of Agriculture Lending in Chapare 1982

Institutions	Credit Outstanding Dec. 31, 1982	Number of Loans	Mean Size Outstanding Loan	Nominal Interest Rate	Effective Interest Rate	Real Effective Interest Rate	Complexity of Credit Delivery System	Length of Typical Loan	Purpose of Typical Loan
Bolivian Agricultural Bank	\$b. 7,955,000 \$US. 37,580	185	\$b. 43,000 \$US. 203	24	(Percent) 24	-44.5	Complex	3-5Yrs.	Investment in crop Plantation and live- stock
PCPA	\$b. 4,200,000 \$US. 19,841	20	\$b. 210,000 \$US. 992	24	24	-44.5	Complex	3-5 Yrs.	Investment in crop Plantation and live- stock
Banco de Cochabamba	\$b. 7,262,000 \$US. 34,306	44	\$b. 165,061 \$US. 800	48	57	-29.8	Relatively Simple	With own funds less than one year. With re- discount Funds 3-5 years.	Production and household needs
Credit Unions	\$b. 412,400 \$US. 1,946	50	\$b. 8,248 \$US. 39	18	26.9	-40.2	Relatively Simple	Less than one year	Production and house- hold needs.
Grupo Chapare	\$b. 375,000 \$US. 1,772	18	\$b. 20,833 \$US. 98	18	26.9	-40.2	Relatively Simple	Medium term	Land Clearing, Production and mar- keting of Kudzu
Moneylenders	\$b. 582,000 \$US. 2,753	68	\$b. 32,117 \$US. 152	48-60	48-60	-28.4-33.8	Simple	Less than one year	Production and house- hold needs.
Other Internal market Lenders	N.A.	N.A.	N.A.	0-60	0-60	-28.4-55.3	Simple	Less than one year	Production and house- hold needs.

Table 14

**Borrower Transactions Costs Associated with Various
Bolivian Credit Institutions Serving Small Farmers**

<u>Institution</u>	Time Required	Time Costs	Out of Pocket Costs	Total Costs
	(Hours)	(\$b)	(\$b)	(\$b.)
PCPA	100.9	630.85	1,408.80	2,039.65
Credit Unions	11.2	69.76	376.01	445.77
Integral Cooperatives	31.3	207.86	102.50	310.36
Money Lenders	1.8	11.0	76.0	87.0

Source: Sample surveys of borrowers undertaken by Arizona State University.

- a. Time costs figured at \$b 50 per 8 hour days
- b. Arithmetic average of costs for members of group loans in Betanzos and Punata, 1979. Costs for group leaders are higher.
- c. Arithmetic average for borrowers from three credit Unions in Santa Cruz - La Merced, El Progreso and San Julian - in 1980.
- d. Arithmetic average for members of GABs of integral cooperatives Cochabamba and Tahuantinsuyo, in 1979. Costs for group leaders are higher.
- e. Money lenders of the Valle Alto of Cochabamba in 1980.

Table 15
 ADVANTAGES AND DISADVANTAGES OF CREDIT INSTITUTIONS IN THE
 CHAPARE

BOLIVIAN AGRICULTURAL BANK

ADVANTAGES

- Experience in region with medium-term credit
- Has access to and experience with FRA-2 refinancing lines

DISADVANTAGES

- Institution is in serious financial trouble--shortage of loanable funds, high administrative costs
- Complex credit delivery system
- Highly concessionary loan interest rate
- No savings mobilization mechanism
- Little mechanism for technical assistance, relies upon IBTA
- Delays in Central Bank refinancing

PCPA

- | | |
|--|---|
| <ul style="list-style-type: none"> • Some Experience in region with medium-term credit • Record of being financially viable institution (this may change if absorbed by BAB) | <ul style="list-style-type: none"> • Institution may have future financial difficulties if absorbed by BAB • Complex credit delivery system • Highly concessionary loan interest rate. |
|--|---|

ADVANTAGES

- Has access to and experience with FRA-2 refinancing lines

DISADVANTAGES

- No savings mobilization mechanism
- Little mechanism for technical assistance, plus upon IBTA.
- Delays in Central Bank refinancing.

COMMERCIAL BANKS

- Several have experience in lending in the region.
- One has an office located in region with extensive experience in lending and savings mobilization, including small farmers (Banco de Cochabamba)
- Realistic loan interest rates, but could be higher.
- Reasonable interest rates on savings, but could be higher
- Experience with and access to Central Bank refinancing
- Reasonable credit delivery system
- Only one-bank with extensive experience in region (Banco de Cochabamba)
- No technical assistance mechanism

CREDIT UNIONS

- Two are in place, but are relatively inactive
- Have a savings mobilization mechanism, but tied to lending
- Lack of vitality in both savings mobilization and lending
- Inadequate savings mobilization mechanism, especially voluntary savings.

ADVANTAGES

- ' Relatively simple credit delivery system
- ' Access to FENAGRE, assistance, but, to date, has not been of much assistance. However, this could be improved.

DISADVANTAGES

- ° Concessionary loan interest rate
- ° No technical assistance mechanism,
- ° Location is unsuitable to serve all of region .

GRUPO CHAPARE

- ° Experience in region, but limited to small project
- ° Technical assistance, but limited to this project
- ° Lack of success in its development project.
- ° More of a development project than a financial institution.
- ° Does not have access to funding sources,
- ° Highly concessionary interest rate ,
- ° No mechanism for savings mobilization.

MONEY LENDERS

- ° Simple credit delivery system
- ° Most realistic loan interest rates
- ° Easy source of short-term credit
- ° Don't mobilize savings except from their own sources ,
- ° Do not make medium-sum loans ,

OTHER INFORMAL LENDERS

- ° Source of short-term liquidity at harvest time
- ° Credit is more a means of marketing than for production.
- ° Do not make medium-term loans

VI - FACTORS THAT DETERMINE FARMER AND REGIONAL CREDIT

DEMAND IN THE CHAPARE

Farmer Use of Credit

A farmer looks upon credit as an additional source of liquidity to combine with that he has from savings, wages, or that he can obtain from the sale of products or real goods. His demand for credit will depend upon his state of liquidity, and the cash flow of same, in relation to his needs to make expenditure for production, investments, and consumption goods.

If farmers are to use credit to obtain additional liquidity in the Chapare, they will have to be motivated by its profitability (or in the case of consumption goods, its utility) i.e. that the expected benefits received from the use of credit will exceed the sum of the costs of the goods purchased with credit as well interest costs and any other borrowing costs, such as transactions costs. Moreover, even if credit is profitable, the farmer will only use it if he judges it to be his best alternative for generating profit (utility), taking account of alternative uses of his other sources of liquidity, land, family labor, machinery and other resources at hand.

There are a number of factors that will influence the profitability of credit used for agricultural production. They are classified under the following headings: (a) extent and quality of resource base, (b) available crop and livestock activities, (c) availability and quality of improved inputs (d) markets and marketing conditions, (e) the availability and price of credit, and (f) risk. The following are some considerations of the above in the Chapare.

Resource Base

Most farmers have a land resource base of 10 to 20 hectares, which varies in quality for crop and livestock production depending upon its location. Climate is an important factor influencing growing conditions. Most land is best suited for multiple cropping systems that include tree crops. Given that farmers only farm part of their land at any given time, land is not considered a constraint for most farmers.

Due to the demand for labor in Coca harvesting and cocaine production for which a premium wage is paid, there has been considerable immigration to the region, but ordinary farm labor is in short supply. The nature development of the coca industry will be an important factor in the regional labor market and will therefore, have an impact on the wage rate in the region and profitability of farm enterprises.

Crop and Livestock Enterprises.

The farmer will choose his enterprises from those available to him. Typically these consist of those existing in the area of his farm which are native to the area or have been introduced and found to be economically feasible. Through innovation, existing enterprises can be improved or new enterprises introduced to the zone.

The combination of enterprises that the farmer chooses to employ will be that which offers him the greatest profitability, taking account of risk, markets and available resources.

Improved Technologies and Inputs.

Although there is a IBTA research station in the region its work to date has been limited in terms of the potential crop and livestock activities adaptable to the region. Moreover, the IBTA extension system has been inadequate to make the research results effectively available to most farmers. PRODES, CORDECO, and the pineapple company also have had research-extension programs, but have also experienced limited success.

Improved inputs, such as chemicals are available, but are expensive. Most are imported, and it can be expected that prices will continue to rise rapidly as the peso continues to depreciate on world market. There are also problems of quality. In some cases the products become partially desintegrated due to storage problems, with the consequence of losing their potency.

Consequently, in the Chapare the farmer has not had propitious conditions available to him to allow him to take advantage of the possible benefits of new technology, either through research, extension, or improved inputs.

Markets

There are a number of factors associated with markets that limit the farmers profitability. Most of the Chapare's traditional products, except coca, are produced for sale in domestic markets. The limited size of these markets and the income elasticity for the consumption of these products are factors that limit production possibilities. For some new products, or for those that are presently produced on a small scale, there are prospects for export markets.

Access to markets is another limiting factor. Many farmers live in remote areas that are not served by adequate roads, which limits production on these farms to non-perishable products and lowers their farm gate price. This condition will continue until a road infrastructure is in place.

Government policy for pricing agricultural products is another factor. In order to protect urban consumers, prices on many agricultural products are placed at levels below what would normally clear the market. This lowers the farmer's profitability.

Credit. The availability of credit and its price influence profitability.

At present, there are a number of formal and informal credit institutions in the region. Therefore, the farmer has access to credit. This is not to say, however, that the access could not be improved by better institutional arrangements.

The cost of credit will vary depending upon interest rates and transactions costs. The farmer will consider both in his borrowing decision. Although it is oftentimes argued that concessionary interest rates be charged on agricultural loans in order to transfer income to the borrower, we argue above that the rate should be much higher, preferably at the market rate, in order to make the whole financial system more effective. Higher rates should reduce the amount of funds that the individual farmer would want to borrow, however, at the same time, they would increase the efficiency of credit use and discourage credit diversion to other activities.

Risk. Although risk is involved in all of the above, it is important to set it aside as a separate factor, because of how it can influence farmer behavior. Farmers will tend to be more conservative in their crop and livestock production the more uncertain they are about expected yields (production conditions) and prices (markets). In general, the riskier the enterprise they will be less likely to want to employ expensive resources, and will be more likely to seek some form of enterprise diversification. Likewise, they tend to use less credit the more risky the enterprise for which it is used, given the likelihood or have a large debt to repay, should they have a low income due to poor harvest or marketing conditions.

Summary. It is clear that there are many factors that impact upon the farmers use of credit. Therefore, taking account of all of these factors, the farmer will elect an optimum use of his resources, including liquidity and credit. Were any one of the factors to change, it is probable that his use of credit would vary. For example, as there are innovations of technology and new enterprises in the Chapare or as markets are expanded we would expect that the farmer would choose to use more credit.

The Region

The above-mentioned factors that influence and limit individual farmer

will also impose limits upon the region's capacity to absorb credit. Thus, the region's absorptive capacity imposes upper limits on how much credit the region can use. For example, a new product can be introduced to the region, but, without appropriate technical assistance, it can not be grown well by most producers. Therefore, the capability of the extension program to provide the assistance imposes a limit on the amount that can be introduced. Likewise, there may be limits due to the availability of inputs --such as seeds, plants, chemicals-- or due to markets. Therefore, taking account of all factors, the one that imposes the most stringent constraint, will be the factor that determines the limit of financing required for that product.

Since many enterprises will be competing for the same resources --such as land, fertilizer, labor, extension services, etc-- then all enterprises must be considered simultaneously. Taking account of all the limits, an optimum combination can be obtained. The financing for this optimum combination is what will be required for the region.

Over time, the absorptive capacity will change; for example, as the extension service increases its capability for providing technical assistance, or as marked outlets for some products are expanded. Thus, as the result of the changes in each factor, there will be inherent changes in the need for financing in the region over time.

VII ESTIMATES OF THE ECONOMIC IMPACT OF CREDIT ON THE FARM

The varied ecology and multiple cropping systems of the Chapare make it very difficult to accurately show the impact of credit on the farm through a conventional methodology such as linear programming, especially within the limits of time and information that were available to us. Therefore, in consultation with other team members and USAID officials, we agreed to examine the impact of credit in the marginal context, i.e. what would be the additional impact of credit on a farm were it available for the products strongly recommended for the Chapare project by the agronomic experts. This is not a bad approach because, in the judgement of these experts, this is about how the farmer would treat the availability of additional credit. Since land is not typically a constraint the farmer would probably already keep pretty much his existing crops, most of which are grown in some multiple cropping system, and clear new land to plant the new crops. Therefore, it is not matter of substitution but an addition.

The agronomic experts recommended that, at the outset, seven crops be considered: cacao, coffee, heart palm, pineapple, rice, rubber and tea. All of these crops, except rice require more than one year to come into production. In order to determine the impact of using credit to grow these crops on the farm we calculated the rate of return on investment over a fifteen-year period. In this case we used the 1982 costs of production and prices in combination with the projected yields provided by the agronomist. Future costs and revenues are based on 1982 prices.

We assume no change in the relative prices of inputs and outputs. We expect considerable error, but considered our approach more solid than trying to predict all matter of future price changes in the highly unstable Bolivian economy. The figures are based on normal expected yields, but otherwise do not take account of risk.

Data and Prices. The figures for heart palm and rubber come from the Nogales report. The figure for cacao, coffee, pineapple, and tea were developed from data available in PRODES. A medium-level of technology is assumed in order not to over estimate the ability of the small-farmer to use new techniques and inputs.

The prices used for coffee and tea appear to be below the market equilibrium. In the case of coffee, the government fixes them at farm and retail level. The price used to analyze the internal rate of return for tea was taken from what the Bolivian Development Corporation (CBF) is paying to tea producer in Chimate.

The internal rate of return might be much higher for these two crops if the price paid to farmers would reflect the market equilibrium price prevailing at present. We estimate that those prices would be about 20 percent higher for these two crops if the price paid to farmers would reflect the market equilibrium price prevailing at present. We estimate that those prices would be about 20 percent higher to both the farmer and at the retail level for both products. \$12,000 per quintal would be closer to the equilibrium instead of \$10,000, fixed by the government.

The results are presented in Table 16. Some crops are clearly very attractive investment possibilities: pineapple, heart palm and cacao. The others would appear to be quite marginal, or non-profitable depending upon the rate of interest the farmer must pay on his loan.

The test as to the profitability of using credit to make the investment is

whether or not the internal rate of return is greater than the effective interest rate paid on the loan. If it does not exceed the interest rate the farmer will be losing money. Even if it does exceed the interest rate, the farmer still may not choose to invest, because alternative investments may be more attractive. Therefore, the level of the effective interest rate will be an important factor in determining the profitability.

At the negative real rates that were in effect in 1982, all crops would have been profitable. Had the real rates been reasonably positive, as we would recommend that they be, then it is doubtful that the farmers would want to invest in any of the crops, except the top three. This has serious implications for the ability of the Chapare Rural Development Project to introduce these crops in the region. If they are not profitable the farmer will not want to grow them. The economic feasibility of these and all other potential crops must be carefully studied.

The study by Riordan (1983) also sheds light on the impact of credit on the farmer. His results, based upon a 1978 sample survey of Chapare farmers, shows that farmers who used credit tended to have higher farm incomes than those who did not. This suggests that credit was an important factor in leading to higher farm incomes, something that we would hypothesize, ex ante. The results should not be interpreted, however, as saying that credit was the causal factor. There are many other factors such as the personal characteristics of the farmer, the quantitative and qualitative resource base and access to markets that will impact upon income. Indeed, it is probably more these factors than the credit. Credit is only a tool that allows the farmer, with all of these other desirable characteristics, to reach higher income levels.

In summary, the above results are at best tentative and preliminary. Considerable more attention and time, than was available to us, needs to be directed to this analysis.

Table 16

Rates of Return on Investment for Seven
Recommended Crops for the Chapare Region
Over a Fifteen-year Period

<u>CROP</u>	<u>INTERNAL RATE OF RETURN %</u>
Cacao	74.92
Coffee	34.53
Heart Palm	96.72
Pineapple	138.52
Rice	36.17
Rubber	23.72
Tea	12.76

a/ Annual rate of return, since it is an annual crop.

VIII ESTIMATES OF CREDIT DEMAND IN THE CHAPARE

The Chapare Rural Development Project will require credit to finance three basic types of activities: (a) agricultural and livestock production, (b) agroindustry and (c) fisheries. In this report we cover the first, however, only partially because information remains to be obtained on the livestock operations, i.e., hogs and cattle fattening. The information along with that of the agro-industries will be available at the later date and will need to be incorporated into the estimates of the total credit. The information on credit required for fisheries is available in the report by Bayley.

Credit Required for Agricultural Production

Absorptive Capacity. To estimate the credit required to finance the production of the seven crops recommended by the agronomic experts, we first sought the advice of experts in the region. We went to PRODES and met with their most experienced and knowledgeable technicians. From them we obtained estimates of the absorptive capacity of the region for a five-year period, beginning in 1983 to cultivate the various crops taking account of the available markets, and, improved inputs, and technical assistance. Taking account of these constraints the total number of hectares that could be planted over the period are shown in the second column of Table 17. The number of hectares is much less than the agronomic experts told us were suitable for growing products. This is due to the absorptive capacity of the region. Some crops will encounter more serious constraints than other and will have to be moved along more slowly. The hectares list in the column is the total for the five-year period. The number to be planted each year are shown in Tables 18-24, which deal with each of the seven crops.

Assumption. Critical assumptions had to be made to determine financing needs. First, we assume that all of the investment in capital goods or physical inputs will be financed by credit. Second, since most of these crops have heavy labor components, that 70 percent of the labor costs will be financed by credit. (A figure typical of many agricultural loans). Third, that the costs of capital goods will rise 50 percent per year (very close to the average of the past four years). Fourth, that labor costs will rise 30 percent per year (very close to the average of the past four years). The annual costs for capital and labor are presented for each crop in Tables 18-24.

Data and Prices. The same data that were used to estimate the internal rate of return in chapter VII are employed here.

Financial Requirements. Table 17 presents the annual total costs for the five years. In the cases of crops begun in the fifth year the financial requirements for the fifth, sixth and seventh years are included as part of the fifth year, since this represents the amount of funds that would need to be committed in that year if loans were to be made, although disbursements would not be completed until the sixth or seventh year.

If all crops were to be introduced and financed on the scale recommended by the regional experts, taking account of the regions' absorptive capacity there would be a need for \$1,708,292,000 (US\$8,070,163). The annual needs for the five year period are shown in the bottom row of Table 17.

The actual needs for loanable funds in each of the last four years would be somewhat less due to the recycling of interest and principle on the loans. We did not estimate this effect, since it would depend upon detailed loan repayment plans and interest charges, both in which remain to be developed.

It might be that all of the crops presented would not be scheduled for inclusion in the program based upon the estimates of the internal rates of return presented in the previous chapter. To assist in the interpretation of the data should some crops be eliminated, we have listed the crops in descending order of their internal rate of return, and a cumulative total is presented in the righthand column of Table 17. Therefore, for example, if the decision were made to finance only the two most profitable crops, the total financial package would be \$b482,167,000 (US\$2,277.800).

Caveats. There are two additional important caveats to the above estimates. The estimate of credit demand is based upon a predicted absorptive capacity. Were it possible to accelerate the development of additional absorptive capacity in the region, it is possible that larger amounts of credit could be used. Land would not be a major limiting factor for the levels of production that would be considered.

Second, were there to be an upward revision in the prices for some of the less economical crops, it is possible that they would become more attractive. As noted in the previous chapters the government controlled prices of tea and coffee are artificially low. Therefore, were government policy to change to allow the prices to rise, these crops would be more attractive to the farmers of the region.

It is clear that there a number of factors that will influence the demand for credit by the farmers in the region. These were outlined in Chapter VI. These factors need to be considered on an enterprice by enterprice basis.

Table 17
LOAN CAPITAL NEEDED TO FINANCE SELECTED CROPS, CHAPARE, FIVE-YEAR PROJECT
(1,000 Bolivian Pesos)

CROP	Total No. Of Hectares Financed	First Year	Second Year	Third Year	Fourth Year	Fifth Year	TOTAL	Cumulative Total
Pinapple	75	8,416.0	22,196.5	35,314.5	52,378.5	133,730	252,035.5	252,035.5
Heart Palm	450	---	6,517.0	10,551.3	23,845.3	189,217.9	230,131.5	482,167.0
Cacao	650	2,800.0	16,525.0	50,945.0	33,520.0	32,400.0	136,190.	618,357.0
Rice	3,500	30,000.0	49,200.0	78,820.0	124,320.0	193,950.0	476,290.0	104,647.0
Coffee	250	---	---	21,765.0	27,275.0	52,795.0	101,835.0	1,196,482.0
Rubber	500	13,200.0	26,425.0	23,250.0	32,750.0	275,200.0	370,825.0	1,567,307.0
Tea	300	23,400.0	40,770.0	20,610.0	31,890.0	24,315.0	140,985.0	1,708,292.0
TOTAL	5,725	77,816.0	161,633.5	241,255.8	325,978.8	901,607.9	1,708,292.0	

Table 18

LOAN CAPITAL NEEDED TO FINANCE PINEAPPLE

<u>PROJECT YEAR</u>	<u>Nominal Financing Needs per Hectare (1,000 \$b)</u>	<u>Conversion Factor</u>	<u>Real Financing Needs Per Hectare (1,000 \$b)</u>	<u>No. of Hectares</u>	<u>Total Labor Financing Needs (1,000 \$b)</u>	<u>Total Investment Financing Needs (1,000 \$b)</u>	<u>Total Financing Needs (1,000 \$b)</u>
<u>First Year</u>							
Wages	79.8	-	79.8	10	798.0		798.0
Investment	761.8	-	761.8	10		7,618.0	7,618.0
<u>Second Year</u>							
Wages	37.0	1.3	48.1	10	2,036.5		481.0
Investment	196.8	1.5	295.2	10		20,160.0	2,952.0
Wages	79.8	1.3	103.7	15			1,555.5
Investment	761.8	1.5	1,147.2	15			17,208.0
<u>Third Year</u>							
Wages	37.0	1.3 ²	62.5	15	2,961.0		937.5
Investment	196.8	1.5 ²	442.8	15		32,353.5	6,642.0
Wages	79.8	1.3 ²	134.9	15			2,023.5
Investment	761.8	1.5 ²	1,714.1	15			25,711.5
<u>Fourth Year</u>							
Wages	37.0	1.3 ³	81.3	15	3,849.0		1,219.5
Investment	196.8	1.5 ³	664.2	15		48,529.5	9,963.0
Wages	79.8	1.3 ³	175.3	15			2,629.5
Investment	761.8	1.5 ³	2,571.1	15			38,566.5
<u>Fifth Year</u>							
Wages	37.0	1.3 ⁴	105.7	15	6,143.5		1,585.5
Investment	196.8	1.5 ⁴	996.3	15		92,076.5	14,944.5
Wages	79.8	1.3 ⁴	227.9	20			4,558.0
Investment	761.8	1.5 ⁴	3,856.6	20			77,132.0
<u>Sixth Year</u>							
Wages	37.0	1.3 ⁵	281.0	20	5,620.0		5,620.0
Investment	196.8	1.5 ⁵	1,494.5	20		29,890.0	29,890.0
TOTAL				75	21,408.0	230,627.5	252,035.5

Source: Calculated on the basis of data provided by PRODES

Table 19
Loan Capital Needed to Finance Heart Palm

Project Year	Nominal Financing need per hectare (\$b 1,000)	Converting Factor	Real Financing need per hectare (\$b 4,000)	No. of hectare	Total Labor financing needs (\$b 1,000)	Total Invest- ment finan- cing needs (\$b 1,000)	Total Finan- cing needs (\$b 1,000)
Second							
Wages	36.8	1.3	47.84	50	2,392.0	4,125.0	2,392.0
Investment	55.0	1.5	82.50	50			4,125.0
Third							
Wages	8.4	1.3 ²	14.20	50	6,928.8	3,622.5	709.8
Investment	21.2	1.5 ²	47.70	50			2,385.0
Wages	36.8	1.3 ²	62.19	100			6,219.0
Investment	55.0	1.5 ²	123.75	100			1,237.5
Fourth							
Wages	12.1	1.3 ³	26.58	50	11,259.0	12,586.3	1,329.0
Investment	21.2	1.5 ³	71.50	50			3,575.0
Wages	8.4	1.3 ³	18.45	100			1,845.0
Investment	21.2	1.5 ³	71.55	100			7,155.0
Wages	36.8	1.3 ³	80.85	100			8,085.0
Investment	55.0	1.5 ³	185.63	100			1,856.3
Fifth							
Wages	12.1	1.3 ⁴	34.55	100	26,876.0	57,835.0	3,455.0
Investment	21.2	1.5 ⁴	107.25	100			1,072.5
Wages	8.4	1.3 ⁴	23.99	100			2,399.0
Investment	21.2	1.5 ⁴	107.25	100			1,072.5
Wages	36.8	1.3 ⁴	105.11	200			21,022.0
Investment	55.0	1.5 ⁴	278.45	200			55,690.0
Sixth							
Wages	12.1	1.3 ⁵	44.85	100	10,723.0	33,807.9	4,485.0
Investment	21.2	1.5 ⁵	160.99	100			1,609.9
Wages	8.4	1.3 ⁵	31.19	200			6,238.0
Investment	21.2	1.5 ⁵	160.99	200			32,198.0
Seventh							
Wages	12.1	1.3 ⁶	58.40	200	11,680.0	48,296.0	11,680.0
Investment	21.2	1.5 ⁶	241.48	200			48,296.0
TOTAL				450	69,858.8	160,272.7	230,131.5
Source:	Calculated on the basis of data provided by Nogales report.						

Table 20

LOAN CAPITAL NEEDED TO FINANCE COCOA

<u>PROJECT YEAR</u>	<u>Nominal Financing Needs per he. (1,000 \$b)</u>	<u>Conversion Factor</u>	<u>Real Financing Needs (1,000 \$b)</u>	<u>No. of Hectares</u>	<u>Labor Financing Needs (1,000 \$b)</u>	<u>Investment Financing Needs (1,000 \$b)</u>	<u>Total Financing Needs (1,000 \$b)</u>
<u>First Year</u>							
Wages	40.0	-	40.0	50	2,000.0		2,000.0
Investment	16.0	-	16.0	50		800.0	800.0
<u>Second Year</u>							
Wages	10.0	1.3	13.0	50	11,050.0		650.0
Investment	9.0	1.5	13.5	50		5,475.0	675.0
Wages	40.0	1.3	52.0	200			10,400.0
Investment	16.0	1.5	24.0	200			4,800.0
<u>Third Year</u>							
Wages	12.4	1.3 ²	21.0	50	31,470.0		1,050.0
Investment	9.0	1.5 ²	20.3	50		19,475.0	1,015.0
Wages	10.0	1.3 ²	16.9	200			3,380.0
Investment	9.0	1.5 ²	20.3	200			4,060.0
Wages	40.0	1.3 ²	67.6	400			27,040.0
Investment	16.0	1.5 ²	36.0	400			14,400.0
<u>Fourth Year</u>							
Wages	10.0	1.3 ³	22.0	200	15,280.0		4,400.0
Investment	9.0	1.5 ³	30.4	200		18,240.0	6,080.0
Wages	12.4	1.3 ³	27.2	400			10,880.0
Investment	9.0	1.5 ³	30.4	400			12,160.0
<u>Fifth Year</u>							
Wages	12.4	1.3 ⁴	35.4	400	14,160.0		14,160.0
Investment	9.0	1.5 ⁴	45.6	400		18,240.0	18,240.0
TOTAL				650	73,960	62,230.0	136,190.0

SOURCE: Calculated on the basis of data provided by PRODES and CBF

Table 21

LOAN CAPITAL NEEDED TO FINANCE COFFEE

PROJECT YEAR	Nominal financing needs per hectare (1,000 \$b)	Conversion Factor	Real Financing needs per hectare (1,000 \$b)	No. of Hectares	Financing Needs for Labor (1,000 \$b)	Financing Needs for Investment (1,000 \$b)	Total Financing Needs (1,000 \$b)
<u>Third Year</u>							
Wages	64.0	1.3 ²	108.2	150	16,230.0		16,230.0
Investment	16.4	1.5 ²	36.9	150		5,535.0	5,535.0
<u>Fourth Year</u>							
Wages	20.8	13.3	45.7	150	20,915.0		6,855.0
Investment	2.0	1.5 ³	6.8	150		6,360.0	1,020.0
Wages	64.0	1.3 ³	140.6	100			14,060.0
Investment	16.4	1.5 ³	53.4	100			5,340.0
<u>Fifth Year</u>							
Wages	20.8	1.3 ⁴	59.4	250	14,850.0		14,850.0
Investment	2.0	1.5	10.1	250		2,525.0	2,525.0
<u>Sixth Year</u>							
Wages	20.8	1.3 ⁵	77.2	250	19,300.0		19,300.0
Investment	2.0	1.5 ⁵	15.2	250		3,800.0	3,800.0
<u>Seventh Year</u>							
Wages	20.8	1.3 ⁶	100.4	100	10,040.0		10,040.0
Investment	2.0	1.5 ⁶	22.8	100		2,280.0	2,280.0
TOTAL				250	81,335.0	20,500.0	101,835.0

SOURCE: Calculated on the basis provided of data by PRODES and CBF.

Table 22

LOAN CAPITAL NEEDED TO FINANCE RICE

PROJECT YEAR	Nominal Financing Needs per Hectare (1,000 \$b)	Conversion Factor	Real Finances Need per Hectare (1,000 \$b)	No. of Hectares	Total Labor Financing Needs (1,000 \$b)	Total Investment Needs (1,000 \$b)	Total Financing Needs (1,000 \$b)
<u>First Year</u>							
Wages	40.0	-	40.0	500	20,000.0		20,000.0
Investment	20.0	-	20.0	500		10,000.0	10,000.0
<u>Second Year</u>							
Wages	40.0	1.3	52.0	600	31,200.0		31,200.0
Investment	20.0	1.5	30.0	600		18,000.0	18,000.0
<u>Third Year</u>							
Wages	40.0	1.3 ²	67.6	700	47,320.0		47,320.0
Investment	20.0	1.5 ²	45.0	700		31,500.0	31,500.0
<u>Fourth Year</u>							
Wages	40.0	1.3 ³	87.9	800	70,320.0		70,320.0
Investment	20.0	1.5 ³	67.5	800		54,000.0	54,000.0
<u>Fifth Year</u>							
Wages	40.0	1.3 ⁴	114.2	900	102,780.0		102,780.0
Investment	20.0	1.5 ⁴	101.3	900		91,170.0	91,170.0
TOTAL				3,500	271,620.0	204,670.0	476,290.0

SOURCE: Calculated on the basis of data provided by NOGALES REPORT.

Table 23

LOAN CAPITAL NEED TO FINANCE TEA

PROJECT YEAR	Nominal Financing Needs per Hectare (1,000 \$b)	Conversion Factor	Real Financing Needs Per hectare (1,000 \$b)	No. of Hectares	Labor Financing Needs (1,000 \$b)	Industrial Financing Needs (1,000 \$b)	Total Financing Needs (1,000 \$b)
<u>First Year</u>							
Wages	52.0	-	52.0	150	7,800.0		7,800.0
Investment	104.0	-	104.0	150		15,600.0	15,600.0
<u>Second Year</u>							
Wage	14.0	1.3	18.2	150	12,870.0		2,730.0
Investment	20.0	1.5	30.0	150		27,900.0	4,500.0
Wages	52.0	1.3	67.6	150			10,140.0
Investment	104.0	1.5	156.0	150			23,400.0
<u>Third Year</u>							
Wages	14.0	1.3 ²	23.7	150	7,110.0		3,555.0
Investment	20.0	1.5 ²	45.0	150		13,500.0	6,750.0
Wages	14.0	1.3 ²	23.7	150			3,555.0
Investment	20.0	1.5 ²	45.0	150			6,750.0
<u>Fourth Year</u>							
Wages	21.3	1.3 ³	46.8	150	11,640		7,020.0
Investment	20.0	1.5 ³	67.5	150		20,250.0	10,125.0
Wages	14.0	1.3 ³	30.8	150			4,620.0
Investment	20.0	1.5 ³	67.5	150			10,125.0
<u>Fifth Year</u>							
Wages	21.3	1.3 ⁴	60.8	150	9,120.0		9,120.0
Investment	20.0	1.5 ⁴	101.3	150		15,195.0	15,195.0
TOTAL				300	48,540.0	92,445.0	140,985.0

SOURCE: Calculated on the basis of data provided by PRODE: (CBF

Table 24

LOAN CAPITAL NEEDED TO FINANCE RUBBER

PROJECT YEAR	Nominal Financing Need per Hectare (1,000 \$b)	Conversion: Hectare	Real Financing Needs per Hectare (1,000 \$b)	No. of Hectares	Labor Financing Needs (1,000 \$b)	Investment Financing Needs (1,000 \$b)	Total Financing Needs (1,000 \$b)
<u>First Year</u>							
Wages	32.8	-	32.8	250	8,200.0		8,200.0
Investment	20.0	-	20.0	250		5,000.0	5,000.0
<u>Second Year</u>							
Wages	12.3	1.3	16.0	250	14,650.0		4,000.0
Investment	11.4	1.5	17.1	250		11,775.0	4,275.0
Wages	32.8	1.3	42.6	250			10,650.0
Investment	20.0	1.5	30.0	250			7,500.0
<u>Third Year</u>							
Wages	12.3	1.3 ²	20.8	500	10,400.0		10,400.0
Investment	11.4	1.5 ²	25.7	500		12,850.0	12,850.0
<u>Fourth Year</u>							
Wages	12.3	1.3 ³	27.0	500	13,500.0		13,500.0
Investment	11.4	1.5 ³	38.5	500		19,250.0	19,250.0
<u>Fifth Year</u>							
Wages	12.3	1.3 ⁴	35.1	500	17,550.0		17,550.0
Investment	11.4	1.5 ⁴	57.7	500		28,850.0	28,850.0
<u>Sixth Year</u>							
Wages	12.3	1.3 ⁵	45.7	500	22,850.0		22,850.0
Investment	11.4	1.5 ⁵	86.6	500		43,300.0	43,300.0
<u>Seventh Year</u>							
Wages	12.3	1.3 ⁶	59.4	500	29,700.0		29,700.0
Investment	11.4	1.5 ⁶	129.9	500		64,950.0	64,950.0
<u>Eight Year</u>							
Wages	12.3	1.3 ⁷	77.2	250	19,300.0		19,300.0
Investment	11.4	1.5 ⁷	194.8	250		48,700.0	48,700.0
TOTAL				500	136,150.0	234,675.0	370,825.0

SOURCE: Calculated on the basis of data provided by NOGALES REPORT.

IX - PROPOSAL FOR RURAL FINANCIAL MARKETS IN THE CHAPARE

Having identified part of the demand for credit to meet the agricultural production needs in the Chapare Rural Development Project, we now address the issues of what should be the overall structure and operations of the financial markets in the Chapare to meet these needs. To do this, a number of questions must be addressed: (a) what will be the sources of loanable funds, regional savings or capital external to the region? (b) if external capital is necessary, how will it be transmitted to the region? (c) what financial institutional structure will be required to both mobilize savings and to provide credit? (d) what type of credit delivery systems should be used within the several credit institutions? and (e) what role will government credit policy play in the whole matter? Each of these will be considered in the following sections.

Sources of Loanable Funds

Savings. As has been demonstrated, the region, at the present time, has the capacity of mobilize considerable savings. Any development strategy for the Chapare should include a strong savings mobilization component in order to reduce the need for transferring financial resources into the region as well as to make the individual financial institutions within the region more viable.

There are, however, a number of factors which can make savings mobilization problematic. First, the capacity of the region to save is fundamentally determined by the level of the regional economic activity and the distribution of income generated from that activity. At present, the principal source of income is from coca production. Its production is widespread and in the hands of many producers; therefore, many persons have the capacity to save. As was shown above, many of these have begun to save in financial institutions because the number of savings accounts in the Banco de Cochabamba increased sharply in the last several years. However, given the nature of this product, future production is somewhat

uncertain. Certainly, if incomes from coca production were to decline sharply, savings would also be expected to decline. In the longer run, the savings capacity will depend not only upon what happens to coca, but also upon the level of other income generating activities in the region, as well as the distribution of that income.

Second, the ability of financial institutions to mobilize savings will depend upon the incentives they offer to savers. Most important is the real interest rate they pay on savings deposits. Clearly, the interest rates paid by these institutions depend upon the government's interest rate policies. At present, due to the high rates of inflation, the incentive is not there; real interest rates are highly negative.

Third, mobilization of savings will depend upon having in place financial institutions that have this capability. As noted previously, few of the institutions presently in the region are mobilizing savings. This capability should be developed in the other institutions.

Other related factors are the accessibility of the institution to the saver and the ease with which savings deposits and withdrawals are made. If the transactions costs of savings are high, and/or if there are serious delays in withdrawing funds on deposit, there will be less incentive to save.

If the second and third factors are not present, we can expect that much of the savings generated in the region from present or future production will continue to go outside the financial system. Persons will directly invest their savings in physical investment goods such as houses or trucks. If new profitable enterprises are available, some savings could be invested in these activities. Other savings will be hoarded in homes. Some monies that might have been saved will be directed to consumer goods for lack of proper incentives to save and/or accessibility of savings institutions.

External Financing. The Chapare Rural Development Project will depend not only

upon internal savings, but also upon external (external to the region) financing for its sources of loanable funds. The amount of external financing that will be necessary is extremely hard to predict with accuracy for several reasons.

First, as shown above, the amount of future savings mobilized depends upon several factors, all of which are problematical. Second, of the monies mobilized as savings, not all can be expected to remain in the region. Given that the regional market is linked to the national market, it is logical that regional savings mobilized by a commercial bank might, in part, flow out of the region, while, simultaneously, that the same institution uses external funds to finance a project. Moreover, other monies may flow into the region as credit through other institutions. Thus, in the aggregate, there may be a net regional inflow or outflow of funds. However, the crucial point is whether or not the funds generated as savings in the region will be available to partially finance the Development Project. This will depend upon the types of financial institutions utilized, their sources of funds and their uses of funds.

In order to both encourage savings mobilization and the use of those savings in the region, efforts should be made to link regional savings to the availability of external funding. A means would be to require that a local credit institution put up a portion of the monies lent from their internal funds, the rest coming from external financing. The portion selected would first depend upon the projected availability of regional savings relative to the region's financial needs, taking account of annual variations. Second, it would depend upon the savings mobilization capacity of each individual institution. It would not necessarily be the same for each one. Third, the effect of the selected portion as an incentive for the institution to borrow must be considered. For example, the larger the proportion of borrowed funds, the more the financial institution will be exposed to risk, in case of borrower default. The nature of the enterprise financed will also influence riskiness. It may be that some enterprises

should have different portions than others. Moreover, it can be expected that credit institutions could be expected to use some of their reflows (repayments of interest and principal) from current loans to meet their portion requirements.

As a rough estimate, it might be assumed that 30 percent of all projects should be financed by regional savings in the credit institutions. If this is the case, then, external financing would be expected to cover only 70 percent of the annual amounts listed in Table 17.

Transmission Mechanism for Funds External to the Region

The financial markets have been transmitting funds to the Chapare for a number of years. As noted in Chapters II and III, government institutions, such as BAB and PCPA, have financed considerable production using funds obtained for their programs at the national level. Commercial banks, with exception of the Banco de Cochabamba, have made numerous loans with funds external to the region. In contrast, the Banco de Cochabamba has been a net exporter of financial resources.

With special funding set aside for the Chapare Rural Development Project, attention needs to be given as to how to use the present transfer mechanisms as well as to improve upon them. There are several considerations. First, the present mechanisms employed by financial intermediaries can be expected to continue because they have been developed within the context of Bolivian financial markets. Second, the Central Bank has a refinancing mechanism already in place to direct development funds to certain objectives through financial intermediaries such as the private and public banks. However, as noted previously, the mechanism has not worked as efficiently nor as timely as desired. Given the current Central Bank refinancing system, strong consideration needs to be given as to whether or not it is adequate to handle the Chapare Project. If it is, then existing refinancing lines, such as FRA-2 or Agro-industry, could be used to channel money to the Chapare along with any new refinancing lines that

might be created. Perhaps the new monies being made available to Bolivia could be used as a lever to create changes in the Central Bank's procedures to make refinancing more efficient and timely.

There is a third possibility, that of using a new mechanism, such as a private sector Chapare Trust Fund that would refinance loans to Chapare credit institutions. The Trust Fund offers considerable possibilities as an alternative. This concept has been tried in other countries, such as Costa Rica, and should be explored in greater detail. Perhaps the structure and mechanism would be as follows. First, for funds emanating from foreign aid sources, have the government of Bolivia guarantee the repayment of the loan and interest. Second, there would be the need to create an institution which would hold funds designated for Chapare development projects, and disburse them to the various credit institutions operating in the Chapare. The Trust Fund would operate very much like the current Central Bank refinancing system, except that means should be sought to streamline the operations in order to make the funds more agile and accessible. The Trust Fund would coordinate its efforts closely with the Chapare Rural Development Project and would try to stimulate and encourage lending in the direction of activities commensurate with the project's goals. A list of approved credit institutions would be developed that would work with the Trust Fund. At this time it would appear that the list would include BAB, PCPA, commercial banks, credit unions as well as others that might be created. In this aspect the Trust Fund would reach out to a wider spectrum of credit institutions than does the current Central Bank refinancing system.

Financial Institutions - Structure and Strategy

Financial institutions will play an important role in the Chapare Rural Development Project as they finance investment and production as well as mobilize savings. We consider it important that several institutions be involved in the Project. The competition between institutions will be healthy for the industry

and be beneficial to borrowers. Moreover, some institutions are better suited than others for financing different needs for credit.

There are several formal market institutions that are currently active in the Chapare. At the outset, they can be used to undertake the initial financial intermediation required by the Project. In the cases of those that do not have saving mobilization capabilities, they should be encouraged to develop them. In the meantime, new institutions may be developed as the need warrants.

Given the other factors that delimit the absorptive capacity of the region, financial institutions should not be a limiting factor for regional development during the early phases of the Project unless the PCPA and BAB both become inactive, due to the current financial difficulties of the parent institution. In particular, the CPA would be expected to play an important role in financing new enterprises in the region. Should the PCPA become inactive, the capacity of the present institutional structure to deliver credit would be more limiting.

Informal market lenders are active in the region. There is no reason to establish a project objective to eliminate them. The moneylender and friends and relatives that make loans play an important role in making small amounts of liquidity available for short periods of time. The intermediary or "rescatista" is also performing an important role, particularly in marketing crops such as citrus and bananas. At present, this appears to be an efficient marketing system, although the farmer complains that he isn't receiving enough payment for the crop. The presence of large numbers of these buyers, however, should ensure competition, which implies that the farmer is receiving a just price. Until more efficient marketing systems are established, the present one will prevail.

Strategy. We propose a two-stage strategy for developing financial institutions in the Chapare. The first stage would be to use the stronger existing institutions

to deliver credit and mobilize savings, and, simultaneously to lay the ground work for developing any new institutions. The second stage would be when both the existing and the new institutions are in operation. The first stage should last about two years after which the financial system would move into the second stage. Continued growth would be expected in the second stage until a mature and efficient financial system was in place.

This strategy calls for supply-leading finance in the early phases of development of the Chapare Rural Development Project, i.e. institutions will be used, modified, or created to channel funds to selected enterprises. However, caution must be exercised not to make an overcommitment that, when put in practice, will lead to inefficiencies or downright failure. It is better to proceed slowly, cautiously and flexibly to allow for adjustments in both institutions and enterprises that will become apparent as the growth of the Chapare changes in response to its dynamic elements. This is another justification for using several different credit institutions rather than making a commitment to just a single institution.

Institutional Structure - Stage I. In this stage, major emphasis should be placed on PCPA and commercial banks with secondary emphasis upon credit unions. Simultaneously, new institutions such as more credit unions and integral cooperatives might be developed. Opportunities for special projects such as that of the Grupo Chapare might appear, but should not be considered as major thrusts of the financing program.

The PCPA and commercial banks have experience in the Chapare and have an institutional structure in place to deal with financing. Both have experience with refinancing lines, which will be the major means to inject new loanable funds into the region. In the case of PCPA, funds would mostly come from special refinancing lines, until this institution can establish a savings mobilization program. The commercial banks, especially the Banco de Cochabamba, would be expected to self-finance a portion of their loan volume from regional savings.

Both institutions would need to expand their operations in the Chapare. This would require that they each open one or more new offices in the region and increase the personnel assigned to the area. Additional vehicles would be required. Bank agents would need to be trained in the very peculiar aspects of Chapare agriculture in order that they intelligently make loans. Training programs could be done in collaboration with IBTA and/or PRODES.

Simultaneous with the expansion of lending operation, attention should be directed to savings mobilization. In the case of PCPA, the institution would need to refine and begin to implement a savings mobilization plan that was prepared in rough form about a year ago. In the case of the commercial banks, they should be encouraged to mobilize savings in the region. The Banco de Cochabamba is in an advantageous position to do this, due to the presence of their office in Villa Tunari. High level officials of this bank are interested in expanding their operations in the region by opening an office in Puerto Villarroel and by experimenting with mobile banks to gather savings and make small loans in remote areas. This initiative should be pursued.

The work with the credit unions will probably move more slowly given their relative inactivity in recent years. FENACRE should be called upon to work closely with the two existing credit unions, as well as the several pre-credit unions in the region, in order to make them more functional in lending and savings mobilization. The credit unions will need to develop active voluntary savings mobilization programs by offering appropriate incentives in the form of interest rates and prizes. This will be a major change, since, heretofore, almost all savings has been of the "forced" type associated with monthly deposits. In another major change, the credit unions should have access to refinancing lines through FENACRE. In this way they will be able to considerably expand their lending. FENACRE will need to provide considerable technical assistance to the credit unions for financial management. These changes will

take time to implement, probably at least a year before they are in operation in the existing credit unions.

The time lag to implement these changes is compounded by the fact that these activities also represent new activities for FENACRE. FENACRE has not yet worked with a voluntary savings mobilization program. It has no experience in serving as a financial intermediary that passes excess savings from some credit unions, such as might be the case in the Chapare, to other credit unions, that are short of loanable funds. It has little experience in handling refinancing lines. At present, it is seeking official status as a financial intermediary in order to become eligible to receive refinancing through the Central Bank. Also, at present, it is seeking assistance for USAID to launch a savings mobilization program. The point is, it will take time and considerable technical assistance and organizational effort to bring FENACRE to the point where it can efficiently carry out these responsibilities in addition to its present tasks. Caution must be exercised not to expect too much of FENACRE in this first stage.

Institutional Structure - Stage II. In this stage continued growth and maturation can be expected of the several credit institutions. PCPA should have an active savings mobilization program in place. Commercial banks should be making more loans. Previously existing and new credit unions should be maturing and have developed the capabilities to vigorously mobilize voluntary saving and actively participate in lending for enterprises emphasized by the Chapare Rural Development Project. By this time, FENACRE should be in a much better position to assist credit unions in savings mobilization and the use of refinancing lines.

ONCICOOP has given consideration to establishing one or several integral cooperatives in the Chapare, but has been somewhat lukewarm as to its interests, preferring to concentrate its efforts elsewhere in the republic. It would appear that an integral cooperative could be established in the region in

a manner very similar to the credit union. It is not, however, a critical component of the financial institutional structure. Experience in establishing the earlier cooperatives suggests that, if the decision is made to enter the Chapare, it should be done on a scale that is manageable, both in terms of the ONICOOP staff as well as by the cooperative itself.

The Nash report proposed the formation of a Central Cooperative of Regional Services that would, among many other things, serve as a vehicle to on-lend funds provided by FENACRE and to serve as a place of deposit of savings by credit unions. Whereas there is much justification for a coordinated effort in developing farmer organizations for purposes of supplying inputs and marketing of products, the advisability of the proposed credit function is not clear. It would only seem to provide another administrative layer between FENACRE and its member credit unions that would lead to larger costs, bureaucratic entanglements and delays. On matters of credit it would seem more appropriate that this layer be eliminated.

Credit Delivery Systems

Transactions Costs. Given that the Chapare Rural Development Project will rely upon different financial institutions to carry out its credit and savings mobilization programs, it is to be expected that there will be differences in credit delivery systems, due to customs and regulations within each institutions. As was shown previously, there were very substantial differences in the borrowing costs associated with loans from the various institutions. However, as has been shown in the recent credit literature (Ladman, 1989) if loan interest rates were liberalized and concessionary rates eliminated, some institutions with credit delivery systems that embody high transactions costs might lower borrower transactions costs. The reason being that, under concessionary rates, lenders resort to using transactions costs as a means of rationing credit in face of

an excess demand for same.

At any rate, means should regularly be sought to lower borrower and saver transactions costs associated with paperwork, documentation and the time spent in undertaking these procedures, including travel to and from the institution. The higher these costs the farmers become discouraged from borrowing or saving. This can be accomplished by locating offices near by the farmers in the region, using mobile banks, and by greatly simplifying paperwork and documentation.

Delays. All efforts should be made to avoid delays in loan approval and disbursements which emanate from cumbersome and for multiple reviews of loan applications or the unavailability of funds. Such delays can result in less than optimum use of resources, for example, if planting is delayed.

A common source of delay has been encountered with the Central Bank refinancing lines. The reasons for these need to be identified and eliminated. The proposed Trust Fund would be an alternative means to refinance loans and could be designed to minimize delays.

Repayment. Many Bolivian credit programs suffer delinquency problems. These can be significantly reduced by realistically developing repayment schedules in accordance with the capacity to repay based upon farm-level feasibility studies and cash-flow analysis. Also, after doing this, repayment can be enhanced by taking a firm stand on repayment and quick follow up if a loan becomes delinquent. Unfortunately, in Bolivia there is an attitude among many persons that government-sponsored loans do not have to be repaid. If, repayment standards are clearly established from the beginning in the Chapare Project and upheld, this problem should be minimized.

Group loans. Group lending has been tried in many countries, including Bolivia, and has more often than not, proven unsatisfactory. Research undertaken by Arizona State University shows the group lending experiences of the PCPA and the Integral Cooperatives in Bolivia were unfavorable. The PCPA results showed

that there were few advantages and more disadvantages to the farmer and that the PCPA cost per member were as high or higher than loans made to individuals. Indeed, delinquency was also higher, such that since 1978 PCPA has backed squarely away from making group loans. These experiences suggest that group loans would not be appropriate for the Chapare Rural Development Project. Lending institutions and farmers alike will prefer individual loans.

Technical assistance. Generally credit programs should not be called upon to directly provide technical assistance, except at the time of the loan application, when feasibility studies and capacity to repay the loan are examined. If technical assistance is incorporated into the credit program, the costs of credit delivery rise significantly and the capabilities of institutions to finance a large number of farmers are diminished. Moreover, many credit agents simply aren't trained to provide the required assistance.

Therefore, we propose that the onus of technical assistance be placed upon IBTA to disseminate information and technology about the new enterprises being introduced into the region. However, lessons should be learned from prior experience in Bolivia. The PCPA program was designed such that IBTA would provide the technical assistance for its credit program. In fact, borrower surveys show that relatively few of the borrowers ever received assistance from an IBTA agent. In the Chapare Project, care must be taken to try to avoid the same consequences.

Farmer Organizations. At present, there are no farmer organizations in the Chapare that should be viewed as a unit to mobilize savings or distribute credit, except the credit unions and pre-credit unions. In the future, this might change. Nash has recommended the formation of a Central Cooperative that might become involved in credit and savings mobilization. Another possibility would be that some of the industries that are to be introduced in the Chapare will be vertically integrated with an association of growers making out contractual arrangements

with processors. In this case it would be useful to explore how the association of growers can be used to reinforce the use of credit, perhaps by facilitating contract between the lender and the borrower and/or by providing technical assistance to borrowers.

Government Policy

It is clear from the above that government policy will have an important impact in several ways upon the success of rural financial markets in the Chapare Rural Development Project. First, policy will come to bear upon the whole range of matters that impact upon the profitability of production for which credit might be used. Examples include marketing and pricing policies, the development of infrastructure and the provision of auxiliary services such as extension and research. Without an environment that is conducive to production credit will not be sufficient to obtain the objectives of the Project.

Second, another dimension affecting the demand for credit is policy regarding coca. If policies to eliminate or greatly curtail its production are implemented, the demand for credit in order to produce substitute crops, should rise. Such action would also impact upon the capacity to mobilize saving, since most of present saving appears to come from coca related sources.

Third, are financial policies. It was demonstrated above that the present interest rate structure is inadequate, all rates are highly negative after taking account of current inflation. The structure should be flexible in order to respond to changes in inflation rates. This may be difficult to accomplish in Bolivia, where any decision is very sensitive politically. However, if it is not done it may well spell the ruin of financial markets and institutions. The goal should be to have positive real rates of interest on savings and loans that are commensurate with the opportunity costs associated with alternate uses of funds. This means that concessionary loan rates should be eliminated.

The Project should push for realistic interest rates. Strong arguments

can be made for higher rates to mobilize savings. If savings rates rise then loan rates must go up correspondingly in order for the financial institutions to have the necessary spread. It may not be possible, politically, to get the loan rates as high as they should be but effective rates of levels that are at least commensurate with those of the commercial bank effective rate are reasonable goals. After all, as shown in Chapter V, many borrowers currently pay effective interest rates on loans from credit unions, moneylenders and commercial banks that are considerably above those required by PCPA. It will be important to eliminate the concessionary rate of PCPA. If their low rate were to be raised, then it would be easier to raise the loan rates for other institutions.

Fourth, there is the need to develop a more efficient mechanism for refinancing loans in order to bring fresh capital into the region. As mentioned previously, the alternatives are to improve the current Central Bank mechanism or to establish a new facility, such as a private sector Chapare Trust Fund. In addition, FENACRE should be given official financial intermediary status in order to allow it to utilize the refinancing lines.

X SUMMARY AND RECOMMENDATIONS

Summary

At the end of 1982 there was outstanding credit in the Chapare in the amount of 171 thousand dollars in the formal market financial institutions and with registered moneylenders. Of this amount almost 100 thousand dollars was in agricultural loans. The most important lending institutions (listed in order of importance) were the commercial banks, BAB, PCPA, credit unions, moneylenders and Grupo Chapare. However, it should be noted that BAB did not make any loans in 1982. In addition there were numerous other informal lenders, especially middlemen, who make an advance several weeks before a harvest to ensure their purchase of the products when they are ready. An estimated 6.5 percent of the farm families had credit, with half of them with loans from formal market sources.

At the end of 1982, there were 284.5 thousand dollars in savings accounts in the Chapare, almost all of which was held in the Banco de Cochabamba. This amount was 88 percent larger than the loan volume; the region was a net exporter of financial capital.

The structure of the Chapare financial markets has not changed much since the mid-1970s. One commercial bank--the Banco de Cochabamba--has an office in the region. BAB and two credit unions also have offices. PCPA and other commercial banks carry out lending from their Cochabamba offices.

Between 1978 and 1982, there was almost an 80 percent average annual increase in credit in the region when measured in nominal terms. However, when taking account of inflation, the real average annual growth rate was about 19 percent. For agricultural credit, the corresponding figures were about 62 and 7 percent respectively. Over the four-year period, BAB had been the principal lender. However, since 1980, the commercial banks loan volume grew very rapidly, such that by 1982 they were the most important lender.

Between 1978 and 1982 savings held by regional financial institutions grew at an average annual rate of about 121 percent, measured in nominal terms. In real terms, the rate was about 46 percent. Big increases in savings were observed as beginning in 1980, with a major jump in 1982. These increases are highly associated with increases in income from coca production. There is considerable saving that is not being mobilized. Much is being directly invested in real goods, such as houses in Cochabamba or trucks, more is placed in financial institutions outside the region.

Clearly, coca production has been a very dynamic factor in the performance of financial markets in the Chapare. The huge increases in regional and personal income in the past several years is due to coca and has directly resulted in large increases in saving. Interestingly, this saving has taken place when real interest rates were negative and falling, by 1982 they were -44.34 percent. These negative rates should discourage saving. It appears that savers are temporarily placing their monies in savings accounts for safekeeping and until they have accumulated enough to undertake a larger investment.

Simultaneously, in spite of the increase in liquidity in the region, there is an excess demand for credit. One factor in explaining this is the negative real interest rates charged on loans. Institutions that offer highly concessionary rates, such as PCPA, have no trouble placing loans.

Future savings in the region will depend upon several factors. The level of income, the distribution of income and the level of the interest rate on savings deposits will be important determinants. Since income is currently pegged to coca production, future savings will be heavily influenced by future production of this crop as well as other economic activities that may be expanded or introduced in the region. The higher and more realistic the interest rate, the more savings should be mobilized.

Future demand for credit will be influenced by new income earning opportunities in the region. Coca production apparently requires little credit, but as new enterprises are introduced there will be an increase in the demand to finance them, especially since most of them that are suitable for the Chapare will require medium-term investments in plants, landclearing, etc.

A number of factors will influence this demand. The availability of good markets and factors influencing growing conditions and profitability will be especially important. At any time the region will have an absorptive capacity that is determined by the capability of the region to grow and market these products, taking account of the natural resource base, technical assistance, availability of purchased inputs, markets and marketing policies.

A rough estimate of the demand for agricultural credit under a five-year plan was made, taking account of (a) crops recommended by the agronomic experts, (b) the absorptive capacity of the region as defined by PRODES and (c) expected increases in wages and prices of capital goods. The amount of financial capital required for crops was estimated to be 8 million dollars. If about 30 percent of this were to be financed by regional savings the need for new credit would be about 5.6 million dollars. Note, however that this figure needs to be more carefully reviewed and refined. Careful attention needs to be directed to the profitability of the crops. Our calculations, based upon farm production costs and revenues suggest that some crops, such as coffee and tea, may not be attractive to growers, the need for credit will diminish accordingly. In addition to this credit, the Chapare Rural Development Project will require more funds to finance livestock, fisheries and agro industries. When the figures are available they will need to be added to the crop figures to determine the total credit needs.

Based upon the above assessment of financial markets and the demand for credit the following recommendations are made.

Recommendations

The following is a synthesis of the recommendations presented in the previous chapter. The reader is advised to read that chapter for more detailed analysis.

1. Develop a strategy for Chapare development in order to determine credit needs.

Before a fine tuned estimate of demand for credit can be made for the Chapare Rural Development Project, more careful attention must be directed to determining the profitability of the several crops and to delineating the absorptive capacity of the region over the life of the project. Once this is determined, then a regional development strategy should be prepared, and, on the basis of this strategy, a careful estimate of financing needs determined. Periodic adjustments in this strategy will have to be made as conditions change.

The effect of savings and reflows from loans should be calculated to determine the needs for fresh capital external to the region. The projected patterns for coca production will play an important role in the determination of savings. At present, income from coca is the most important factor influencing savings.

2. Increase the absorptive capacity of the region.

In order to enhance the productivity and use of credit, bottlenecks in the region -- such as markets, extension, research and supplies of inputs -- need to be eliminated or, at least, gradually reduced.

3. Establish realistic interest rate levels and structure.

Interest rates and the structure of same are keys to the successful performance of financial markets. Attractive real rates need to be established to provide the incentive to mobilize savings. Loan rates

must also be correspondingly high. If loan rates are too low or concessionary, the financial viability of financial institutions is harmed and credit diversion, corruption and delinquency are encouraged.

4. Develop appropriate mechanisms to transmit fresh capital to the Project.

Fresh capital will be needed for the Project. A refinancing system should be employed to inject these funds to the region, either using an improved system of the Central Bank or developing an alternative, such as a private sector Chapare Trust Fund.

FENACRE should be accorded official intermediary status in order that it can have access to refinancing lines.

5. Develop savings mobilization capacities in financial institutions.

A major component of the Project should be to develop the institutional capabilities to mobilize voluntary savings. Specifically this means to start new programs in the PCPA and credit unions and to reinforce that of the commercial banks.

Technical assistance and evaluative research will be necessary to establish and monitor the progress of these programs.

6. Improve credit and savings delivery systems.

Transactions costs are important factors in the success of credit or savings programs. They can be reduced by streamlining procedures and locating offices near the clientele. New offices will need to be opened and, perhaps, mobile banks employed to lower these costs.

Technical assistance will be needed to accomplish this objective.

7. Do not tie credit program to technical assistance.

A credit program, especially when new enterprises are introduced, will benefit by good technical assistance. However, the credit function and the technical assistance function should be separated.

8. Do not use group lending.

The Bolivian experience has amply demonstrated that group loans are not as satisfactory as individual loans.

9. Rely upon existing credit institutions, rather than create new institutions in the first stage of the Projects.

Given the absorptive capacity of the region, the existing institutions can be used to deliver credit and mobilize savings, at least in the early phase of the project. Strong reliance should be placed upon PCPA and the commercial banks at the outset to deliver credit. They will need to expand their operations by opening new offices and adding more personnel. PCPA will need to begin savings mobilization. Simultaneously, FENACRE should be employed to develop the credit unions and pre-credit unions in the region. The objective should be to have all of these institutions running smoothly within a two-year period.

All institutions will require some technical assistance, and, perhaps, funding to cover part of their outlays, such as for vehicles.

10. Explore possibilities of developing new credit institutions utilizing farmer organizations.

Credit unions are the most viable form of farmer organization to be used for credit at this time. It is possible that integral cooperatives could be established at a later date. The recommendation for the Central Cooperative offers considerable potential, however, we have reservations about its duplicating FENACRE's efforts, as far as credit is concerned. There is also the possibility that producers organizations may be formed, especially for the new vertically integrated agro-industries. These organizations might be used to facilitate credit programs by providing technical assistance.

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APPENDIX 1

LIST OF PERSONS INTERVIEWEDBANCO DE COCHABAMBA

Sr. Javier Cortez

Lic. Miguel Hoyos

Ing. Jaime Monroy

Sr. Guido Quiroga

Sr. Enrique Soliz

Sr. Oswaldo Tejada

PROYECTO DESARROLLO CHAPARE YUNGAS (PRODES)

Ing. Oswaldo Antezana

Dr. José Antonio Ayala

Sr. Hector Cáceres - Cooperated in conducting interviews.

Dr. Winston Estremadoiro

Ing. Carlos Hoffman

Ing. Waldo Tellería

BANCO AGRICOLA DE BOLIVIA

Ing. Enrique Selma

PROGRAMA DE CREDITO PARA PEQUEÑOS AGRICULTORES (PCPA)

Ing. Mario Candia

Ing. Walter Durán

Ing. Feliciano Fernández

OTHERS

Lic. Alberto Abaroa - Gerente Toyo

Sr. Pablo Albis, - Borrower from informal market

Sr. Benjamín Alcócer - Moneylender in Villatunari

Sr. Félix Apaza - Truck Driver

Sr. Juan Claros - borrower from informal market

Sr. Rolando Farfán - Gerente COBANA

Sr. José Gainsborg - Gerente Operaciones Banco Real

Sr. Antonio Jordán - Ventas Galindo y Cia.

Sr. Félix Llave - Moneylender Chimoré

Sr. Federico Morales - Truck Driver

Dr. Jaime Ovando - Gerente Ovando y Cia.

Sr. Mario Paz - Gerente Banco Santa Cruz de la Sierra

**Sr. Johnny Rivera - University of San Simón student, who cooperated in
conducting interviews in Chapare.**

Lic. Filiberto Ugalde - Gerente Banco Industrial y Ganadero del Beni

Sra. María Zurita - Moneylender in Villa Tunari

FENACRE

Sr. Marco Antonio Téllez

ONICICOOP

Ing. Tryrone Hienrich

Lic. Juan Rodríguez

Sr. Steve Wiles