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The Integrated Rural Development Project of the Paraguaçu River Basin in Bahia (PIDERP)--The Credit Component

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### Preface

i

The data and interviews for this report were obtained during two visits to Brazil in August and October of 1977. During this period, three weeks were spent in Bahia and two weeks in Brasília. Several issues are discussed here at greater length than would be the case for an appraisal report because of the Northeast Credit Project. It was felt that the credit component of the Bahia project would present a good opportunity to become familiar with various issues that would eventually be raised on a larger scale when the Northeast project is appraised.

## Abbreviations and Acronyms

BB	-	Banco do Brasil
BNB	-	Banco do Nordeste
BNCC	-	Banco Nacional de Crédito Cooperativo (National Bank for Cooperative Credit)
CAMAB	-	Companhia de Maquinária Agrícola do Estado da Bahia (State Agricultural Machinery Supply Company of Bahia)
CASEB	-	Companhia de Armazéms e Silos do Estado da Bahia (State Warehousing Company of Bahia)
CODEBAMBA	-	Companhia para o Desenvolvimento do Banco Mundial na Bahia
DICOR	-	Direção de Coordenação da Política de Crédito Rural (Division of Coordination of Rural Credit Policy, Bank of Brazil)
EMATERBA	-	Empresa de Assistência Técnica e Extensão Rural do Estado da Bahia (State Technical Assistance and Rural Extension Agency of Bahia)
IBGE	-	Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics)
INCRA	-	Instituto Nacional de Colonização e Reforma Agrária (National Institute of Colonization and Agrarian Reform)
PIDERP	-	Projeto Integrado de Desenvolvimento da Bacia do Rio Paraguaçu (Integrated Rural Development Project for the Paraguaçu River Basin)
PN	-	See POLONORDESTE
POLONORDESTE	-	Programa de Desenvolvimento de Áreas Integradas do Nordeste (Development Program for Integrated Areas in the Northeast)
PROAGRO	-	Programa de Garantia da Atividade Agropecuária (Guaranty Program for the Crop-Livestock Sector)
PROTERRA	-	Programa de Redistribuição de Terras e Incentivos à Agroindústria do Norte e Nordeste (Program of Land Distribution and Incentives to North and Northeast Agroindustry)
PT	-	See PROTERRA

## Table of Contents

Preface	i ii v
I - Rural Credit in the Paraguaçu Basin	1 3 10 14 19 21
<pre>II - Discrimination against small farmers</pre>	29 29 30 31 33 34 35
III - Moves toward small farmers  Reducing costs    Reducing costs  Loan-size ceilings and protection from large farmers    Signs of sympathy  Signs of sympathy    The branch manager  Signs	37 40 41 44 45
<pre>IV - PN/PIDERP credit so far</pre>	50 53 55 58 62
V - Production costs and credit	63 66 70 73 75 77 79 81
VI - Land Credit	83 84 90

# Table of Contents (continued)

VII - Mobi	ile Credit Units	96 .01
VIII - Mini	imum Prices	.05 .11 .13 .14 .18
IX - Cred	lit Insurance - PROAGRO	21 30
X - Tech	nnical Assistance and Credit	37 38 40 42 47
XI - The	Peasant Farm	.51
	the extension agency	54 57 64 68 78 81
XII - Coor	peratives and Credit	.84 .86 .92 .97
Tables		201

iv

# List of Tables

v

Table	1	Paraguaçu Basin: Growth of Rural Credit, 1973-1976 201
Table	2	Paraguaçu Basin: Annual Percentage Growth of Rural Credit, 1973-1976
Table	3	Paraguaçu Basin: Comparison of Number of Loans to Number of Farms1973, 1976
Table	4	Paraguaçu Basin: Comparison of the Number of Loans to the Number of Farms, by Bank Branch, 1976 204
Table	5	Paraguaçu Basin: Comparison of Number of Projected PN/PIDERP Borrowers to Number of Farms
Table	6	Paraguaçu Basin: Growth of BB and BNB Crop-livestock loans (1973-1976) Compared to Projected Number of Borrowers
Table	7	Bahia, Northeast, Brazil: Size Distribution of BB Loans for Crops and Livestock1973
Table	8	Bahia, Northeast, Brazil: Size Distribution of BB Loans for Crops and Livestock1976
Table	9	Paraguaçu, Bahia, Northeast, Brazil: Size Distribution of BB Loans up to 100 Minimum Salaries for Crops and Livestock Combined1973
Table	10	Paraguaçu, Bahia, Northeast, Brazil: Size Distribution of BB Loans up to 100 Minimum Salaries for Crops and Livestock Combined1976
Table	11	Paraguaçu, Bahia, Northeast, Brazil: Changes in the Size Distribution of BB Crop-livestock Loans Less than 25 Minimum Salaries1973, 1976
Table	12	Paraguaçu Basin: Number of Loans per Person in the BB System, 1976

Table 13	Paraguaçu Basin: Size Distribution of Small and Large Loans by BB Bank Branch1973, 1976
Table 14	Paraguaçu Basin: Comparison of the 14 Branch Banks, 1973-1976
Table 15	Feira de Santana Branch of the BB: Rural Credit, 1973-1976
Table 16	Bahia: Comparison of Production and Credit by Crop, 1973
Table 17	Paraguaçu Basin and Bahia: Short Term BB Credit by Crop, 1973 and 1976
Table 18	Minimum Prices as a Percent of Market Price (1973-1976) and Percentages of Costs Financed for Principal Small-farmer Crops in Paraguaçu, 1973-1976 226
Table 19	Paraguaçu Basin: Rural Credit of the 14 Bank Branches, 1973-1976Master Table
Table 20	Paraguaçu Basin: Sources of Rural Credit Funds for the 14 Bank Branches, 1973-1976
Table 21	Paraguaçu Basin: Comparison of Shares of Credit to Shares of Cattle Herd by Bank-branch Jurisdiction 233
Table 22	Paraguaçu Bahia: Comparison of Rural Credit by Type of Activity1973, 1976
Table 23	Paraguaçu and Bahia: Comparison of Credit Shares and Other Indicators
Table 24	Paraguaçu and Bahia: Comparison of Various Indicators
Table 25	Average Yields of Selected Crops and Crop Combinations Produced by Small Farmers in the Paraguaçu Basin 239
Table 26	Test of Significance of Differences in Yield for Selected Crops and Crop Combinations

#### I - Rural Credit in the Paraguaçu Basin

1.01 The project area is served by 12 branches of the Bank of Brazil (BB) and two of the Bank of the Northeast (BNB).<sup>1</sup> The Bank of Brazil plans to open three more branches in the area, in the municipal capitals of Iramaia, Mucugê and Santo Estevão.<sup>2</sup> Credit in the project area is different from the rest of Bahia and from the Northeast in that (1) almost all of it (91%) goes to livestock as opposed to crops, and (2) it is considerably more concentrated in the higher loan-size classes (see paras. 1.20-1.29 below).

<sup>2</sup>Four additional BB branches are located outside the project area but serve some municipios of the area; there are two such branches of the BNB. These branches are excluded from the analysis of credit because it was not possible to allocate their credit between the project and the non-project municipios, the latter usually accounting for the major part of the credit. The excluded BB bank branches are São Felix, Amargosa, Brumado and Irecê. The project-area municipios they cover are Antônio Cardoso, Milagres, Abaíra, and Cafarnaúm, representing less than two percent of the value of agricultural production in the project area. The excluded BNB branches are Vitória da Conquista and Jequié, which cover the project municipios of Barra da Estiva, Iramaia, Maracás, Milagres, Planaltino, Santa Terezinha, Abaíra, and Piatã.

<sup>&</sup>lt;sup>1</sup>In addition, the Banco do Estado da Bahia (BANEB) has six branches in the project area and six outside the project area that have jurisdiction over some project-area municipios. As of the moment, BANEB will not participate in the project, in that it is not an authorized financial agent for POLONORDESTE funds. The value of BANEB rural credit in the project area is less than one percent of that of BB and BNB credit.

1.02 In 1976, the BB/BNB system made 10,805 rural loans in the project area, amounting to Cr\$l billion (Table 1).<sup>1</sup> The livestock credit was concentrated in medium- and long-term investment loans (88%), while crop credit was concentrated in short-term loans (75%). Most of the livestock investment credit went for the purchase of animals and the formation of new pasture. The short-term crop credit was for the following crops, in order of importance: sugar cane, beans, manioc and corn (Table 17).

1.03 In the last four years, there has been a significant increase in the project area's share of total rural credit in the state of Bahia (Table 22).<sup>2</sup> In 1973, rural credit in the project area represented 12% of the state total. This value was slightly lessthan-proportionate to the share of the project area in the state's proudction--14% of the value of crop production and 11% of the size of the cattle herd.<sup>3</sup> By 1976, the project area had almost doubled

<sup>&</sup>lt;sup>1</sup>I use crop-livestock and rural credit interchangably. Unless otherwise noted, credit figures do not include credit for marketing, processing, or storage credit granted under the government purchase/ storage program.

<sup>&</sup>lt;sup>2</sup>All data on rural credit refer to the above-noted 12 branches of the BB and two branches of the BNB.

<sup>&</sup>lt;sup>3</sup>Data on the value of livestock production are not available at the municipio or state level. Other indicators of the project area's share in the state of Bahia are: 16% of the number of farms, and 17% of the land in farms (Table 23).

its share to 25% of the state's rural credit--thus obtaining a morethan-proportionate share of credit in relation to its share of production.

<u>Crop credit</u>. Rural credit in the state of Bahia is dominated by cacao, which accounts for almost half of loan value (Table 17). Beans and castor bean are in a considerably smaller second place in the state, with about 13% of the total. These are followed by corn, sugar cane and manioc--their shares and their order of importance varying considerably from year to year. In 1973, the value of short-term crop credit in the state represented 5% of the value of crop production.<sup>1</sup> Between 1973 and 1976, credit increased for all crops except tobacco and castor bean, which experienced large declines in real value of credit.<sup>2</sup>

1.05 The data for 1973 suggest that crops receiving more than their share of credit in the state, in relation to their share of production, were castor bean, cacao, corn, and tobacco--in decreasing

<sup>&</sup>lt;sup>1</sup>Because the 1973 harvest was an excellent one, this percentage probably represents a lower bound.

<sup>&</sup>lt;sup>2</sup>Castor bean was subject to intense government promotion in 1973, when its price went up after the petroleum crisis--and then to government discouragement, when its price fell in reaction to the easing of the petroleum crisis and the overplanting stimulated by it. The fall in the real value and the share of castor-bean credit most likely reflects this reversal in government policy toward the crop. I do not know why tobacco credit decreased.

order of the disproportion (Table 16). Crops receiving less than their share were beans, sugar cane, tomato, and manioc.<sup>1</sup> Of the crops produced in the project area and important to small farmers, manioc seemed to be worst off. At a state level, its share of credit in relation to its share of production was only 0.14. The value of manioc credit as a share of its production value was 0.7%, in comparison to an average of 5.1% for the share of all crop credit in the value of crop production in the state.

1.06 Credit in the Paraguaçu roughly parallels the distribution in the state, with two important exceptions. Cacao, of course, is not produced in the area and therefore shows virtually no credit (Table 17). Somewhat surprising, however, is the fact that sugar cane is one of the most important recipients of rural credit in the project area. In 1976, sugar cane accounted for the largest single amount of short-term credit for any crop--28% of the total. This high share represented only six loans, or 0.2% of the number of short-term crop loans in the area in 1976. The loans were all made by the Feira de Santana branch of the BB,

<sup>&</sup>lt;sup>1</sup>It is difficult to believe that sugar-cane production receives less than its share of short-term credit, given our knowledge of how the credit system has operated in the Northeast.

accounting for 62% of its short-term crop credit in that year. (This phenomenon is discussed further in paras. 1.10-1.11 below.) After sugar cane, the important crops in Paraguaçu credit are beans, corn, manioc and castor bean--in decreasing order of importance.

1.07 The share of Paraguaçu in short-term crop credit in the state is about 6%; if one excludes cacao from the calculation, the share rises to 11% (Table 17). Tobacco and sugar cane were well above that average in both 1973 and 1976. Tomato and manioc were well above the average in 1976 only. Corn has the lowest share of Bahian credit of the small-farmer crops in the project area, with 9% of Bahian corn credit in 1976. Manioc, beans and castor bean are at the average, though manioc did well in 1976, when it took 21% of the state's credit for that crop.

1.08 It is difficult to draw any conclusions from the credit data because of their inconsistencies,<sup>1</sup> and because of their variation from year to year. The variation is caused mainly by the fluctuations in production that are characteristic of agriculture and, secondarily,

<sup>&</sup>lt;sup>1</sup>As notes h and f to Table 17 explain, the 1976 credit data by crop sums to a total for both the Paraguaçu and Bahia that is considerably less than the total by bank branch (27% and 11% less, respectively). Since the two sets of totals are more or less consistent for the 1973 data, this questions the validity of crop-credit comparisons as between the two years. According to the larger short-term crop-credit total by branch, for example, the share of sugar in the 1976 total would be 20% instead of 28%.

by changes in government decisions to stimulate or discourage production of certain crops (e.g., sisal and castor bean). The data problem is also inherent in the choice of the two years for which credit data by crop were available: 1973 was an excellent crop year and 1976 was bad.<sup>1</sup>

1.09 In order to achieve an accurate picture of credit trends by crop, it would be necessary to have data for a series of consecutive years. Assuming that the comparison between 1976 and 1973 is valid, however, one can say that the crops that most significantly increased their shares of credit in the project area and the state were sugar cane, manioc, corn and tomato. Crops that distinctly lost ground in both the project area and the state were castor bean and tobacco; in 1976, the share of both in crop credit fell to 20%-30% of their 1973 levels. Since both these crops are to be financed by the project, it may be necessary to determine whether this decrease represents a trend, and what the current thinking of the authorities is on these two crops.<sup>2</sup> Castor bean in particular is an important crop to watch, since it is the only crop produced in the project area which is cultivated by small farmers, is drought resistant, and has an export market.

1.10 It is puzzling that sugar cane should play such a prominent role in the short-term crop credit of the project area, which is not

<sup>2</sup>Note 2 of par. 1.04 above explains the castor-bean decrease.

<sup>&</sup>lt;sup>1</sup>I do not know when the weather problems of 1976 would start to show up in 1976 credit.

a producer of sugar cane. The predominance of sugar in credit data is a familiar phenomenon in the Northeast, though it is somewhat surprising to find it in an area with no bank branches in the coastal sugar-producing zone. As noted above, sugar was the largest single recipient of such credit in the project area in 1976; sugar more than doubled its share of credit in the Paraguaçu and in the state between 1973 and 1976--to 28% and 7% respectively. The project area took 28% of Bahia's credit for sugar in 1976, in comparison to an average of 7% for all credit (or 12% for all non-cacao credit).

1.11 The six sugar loans, of course, were virtually concentrated in the Feira de Santana branch of the BB, the branch that is closest to the sugar zone; the six loans accounted for 62% of this branch's short-term crop credit in that year. The concentration of crop credit in sugar, along with other aspects of the Feira branch discussed below (paras. 4.10-4.11), suggest that that branch may be one of the least suited for small-farmer credit in the project area.

1.12 The data problems with respect to crop credit are multiplied many times when one moves to crop production data. There are two sources of production data by crop for the state of Bahia--the IBGE, as published in the <u>Anuário Estatístico do Brasil</u> by state, and the state of Bahia, as published in the <u>Anuário Estatístico da Bahia</u> by municipio. The IBGE value-of-production data are available in published form only for 1973, and not disaggregated below the state

level. The Bahian state data, though available for the two years 1973 and 1974, are virtually impossible to use. When one calculates the implicit per-ton price of these data from the value and quantity figures per crop for each municipio, one finds variations in prices of up to 300 times from one municipio to the next. Though it is well known that crop markets are highly segmented in the Northeast, with considerable price variations, this kind of variation is way beyond what one would expect. It can only be assumed, without further investigation, that this variation is a result of some kind of arithmetical or copying errors.

1.13 The same kind of implicit-price problem was found in the municipio-by-municipio data used by PIDERP for the project area--i.e., variations between municipios in the implicit price of a crop of up to 300 times.<sup>1</sup> Since it is not possible to determine whether these inaccuracies are in the tonnage or the value data, one cannot even use the tonnage data as a way of calculating the share of each crop in the project area in state production of that crop.

<sup>&</sup>lt;sup>1</sup>The Bahian state data, as published in the <u>Anuário</u> <u>Estatístico</u> <u>da</u> <u>Bahia</u>, reveal other reasons to be highly cautious. The figures on slaughter of cattle by municipio in 1973, for example, turn out to be almost exactly the same as the figures on herd size as supplied by PIDERP. In some cases, in fact, the slaughter figures are higher than the herd-size figures. It might seem equally probable that the PIDERP data is really slaughter rather than herd-size--as that the state data is really herd-size rather than slaughter. But the published IBGE data on herd size for the state of Bahia is pretty close to the Bahian <u>Anuário</u> data on slaughter. The inaccuracy, in short, seems to be in the Bahian state data.

1.14 Even the crop production data for Bahia presented in Table 16 should be interpreted with caution. Though it was taken from the IBGE <u>Anuário</u>, it is the aggregate of the municipio-level data of the type described above. (It also represents only one year.) The table shows some strange results: (1) that sugar cane has a less-than-proportionate share of credit in relation to production, and a less-than-average share of its value financed with credit; and (2) that corn has a greater share of credit in relation to production than tobacco--almost on a par with cacao. One would expect just the opposite for both these cases. Not only are the production data suspect, moreover, but one does not know if the problem lies there or in the credit data.

1.15 All this means that it was not possible to compare the share of the Paraguaçu in credit to its share in crop production, or to the share of each crop in credit relative to its importance in production. Unfortunately, therefore, the above discussion is not able to make any statements about the share of credit in the project area in relation to the area's share of crop production in the state. Until better production and credit data can be obtained--as well as longer series--it will not be possible to make judgments about credit and production by crop.

Crops vs. livestock. The project area's increased share of total Bahia rural credit turns out to be attributable completely to increased livestock credit (Table 22). The share of crop credit in the state total actually fell slightly during the 1973-1976 period, from 6% to 5.5%. Livestock credit's share, in contrast, rose from 18% of the state's total in 1973 to 38% in 1976--the latter percentage being more than twice the contribution of livestock production to the state.<sup>1</sup> Thus whereas livestock credit represented 76% of total rural credit in the project area in 1973, that percentage had increased to 91% by 1976.<sup>2</sup> Similarly, whereas the number and value of livestock loans grew at positive real rates throughout the 1973-1976 period, agriculture experienced two successive years of decline in the number of loans (1974, 1975). (See Table 1.) Both the nominal and real value of crop loans declined in one of those years (1974); real value increased in 1975, but was still below its 1973 level.

1.17 Crop credit recuperated in 1976, with both the number of loans and their real value more than doubling over 1975 levels.

<sup>&</sup>lt;sup>1</sup>I.e., using cattle herd size as a proxy for the value of livestock production (11% of the state).

<sup>&</sup>lt;sup>2</sup>The fact that the livestock share was 90%-94% in 1974 and 1975, as well as in 1976, suggests that 1973 and its 76% share for livestock may have been an unusual year. For lack of a longer series of credit data for the project area, this is not possible to verify.

Livestock increased apace in that year as well, leaving agriculture's share of the credit intact at 9%. The greater increase in crop loan value between 1973 and 1976 as opposed to the number of loans, plus the increased role of livestock, probably explains at least part of the increasing concentration of loans in the project area. Whereas the smallest loan category (less than 25 MS)<sup>1</sup> accounted for 66% of rural loans and 12% of their value in 1973, the category declined to 37% of the loans and 3% of their value in 1976 (Table 11).<sup>2</sup>

1.18 To a certain extent, the preponderance of livestock credit in the project area reflects the importance of PROTERRA (PT) as a source of BB/BNB lending. PT credit was mainly used for investment

<sup>2</sup>Size distribution data for the project area was available only for crop-livestock credit combined. Though the size distribution data for 1973 and 1976 show a consistent decrease in the value and amount of small loans, it is difficult to say to what extent this change is real and to what extent it is a result of the monetary value used to define the size ranges (see par. 1.28 below).

<sup>&</sup>lt;sup>1</sup>25 MS was Cr\$17,240 in 1976, using a minimum salary of Cr\$689.59, which is the weighted average of the 1975/76 and 1976/77 salaries. MS refers to the highest minimum salary in the country--namely, that for the cities of Rio de Janeiro, São Paulo, Brasília, Belo Horizonte and Niterói. It is used by the Bank of Brazil only in calculating the loan-size distribution intervals. The MS is not to be confused with the MVR (<u>maior valor de referencia</u>), which is used to denominate loan-size ceilings for the purpose of applying differential interest rates and designating availability for certain special lines of credit. The MVR value is single for the whole country; the index was created in May of 1975, and is always less than the MS, though not by a constant proportion. In May of 1977, the MVR was raised to Cr\$877.70 and the highest MS to Cr\$1,106.40.

in livestock projects. Between 1973 and 1975, PROTERRA accounted for between 71% and 86% of the value of all rural loans in the project area (Table 20)--significantly higher than its role in the Northeast in general.<sup>1</sup> The banks' own resources accounted for between 14% and 28% of loan value during that period.

1.19 Interestingly, the livestock percentage held its own when PT funds dropped drastically in 1976 from 83% to 52% of the total. Despite this drop, which was meant to be part of a general policy of monetary constraint affecting investment, total rural credit increases in 1976 were the greatest in absolute real terms of the whole 1973-1976 period (though not in relative terms; see Table 2). The difference was made up by the largest absolute and relative increase of the period in the banks' own resources; and also, to a lesser extent, by an "emergency credit" in 1976 resulting from drought conditions and authorized by the Central Bank (Table 20). The high livestock share of total credit, then, seemed to be able to maintain its own even without the support of PROTERRA. This was even more remarkable given the fact that the government's policy of monetary restraint in 1976 came down hard on investment credit only, exempting short-term crop credit. Given these circumstances, one would have expected to see livestock lose more

lIn 1973, PT accounted for 56% of BB credit in the Northeast.

ground and crops gain more in 1976.

1.20 Though the emphasis on livestock credit has been already noted with respect to the Northeast in general, it is more marked in Bahia than in the Northeast, and more marked in the Paraguaçu than in Bahia. In the Northeast, livestock credit accounts for about 34% of the value of rural credit and hivestock production for about 34% of the value of crop-livestock production.<sup>2</sup> In Bahia, the livestock credit share is 60%, and in the Paraguaçu, it is 91%. Since Bahia is known as a livestockproducing state, one would expect a higher share of livestock credit than for the Northeast in general. Yet the share of Bahian livestock credit in total BB livestock credit in Brazil is roughly <u>twice</u> the share of Bahia in Brazilian livestock production. Whereas Bahia accounts for 16% of total BB livestock credit, that is, it accounts for about 7% of beef production and 3% of milk production.

<sup>3</sup>The latter two figures are based on the weights used by the Fundação Getulio Vargas in calculating regional and national indices of production and prices. The weights are calculated from the 1970 census and published in the June 1977 issue of <u>Conjuntura Econômica</u>, pp. 144-145. An alternative measure, from the <u>Anuário Estatístico</u> of 1976, shows similar percentages. According to that source, the Bahian cattle herd amounted to 7% of the total number of cattle in Brazil in 1974, and 8% of the value of that herd. The same source shows Bahian milk production at 4.6% of the total amount of Brazilian milk production in 1974 and 4% of its value.

Livestock did actually lose three percentage points to crop credit from 1975 to 1976--from 94% to 91% of the total (Table 1).

<sup>&</sup>lt;sup>2</sup> Since there are no data available on the value of livestock production, I have taken these percentage estimates from various sources. The SUDENE/IBRD Survey shows 35% for the zone of which the project area is a part (the semi-arid sertão); an IPEA study cites 25% for the Northeast. (Cavalcanti and Cavalcante, <u>Desenvolvimento Regional no Brasil</u>, 1976.)

1.21 The converse of Bahia's livestock credit and production shares is its crop shares. Bahia's share of total crop credit in Brazil is about half its contribution to total crop production in Brazil. In 1976, Bahian crop production was calculated at 6% of the value of total Brazilian crop production, yet it took less than half that share of Brazilian crop credit in 1973 and 1976--2% and 3% respectively. The project area shows the same type of disproportionate shares in relation to the state of Bahia: crops account for about 10%-20% of the state's production and about 6% of its crop credit. The emphasis of the proposed Paraguaçu project on crops and crop credit, then, is a step away from the neglect of agriculture that is characteristic of the existing system.

Size distribution of BB loans.<sup>1</sup> The Bank of Brazil has often pointed out that it has done well with small-farmer lending in the Northeast. The data on BB lending show that this claim is clearly discernible with respect to loans for crops in the smallest loan-size category-up to 25 MS (Cr\$17,240)--the size range within which most of the proposed project's subloans would fall. In 1976, this smallest size range accounted for 70% of the BB loans in the Northeast compared to 59% in Brazil--with values in this category accounting for 10% in

Loan-size distribution data were not available for the two BNB branches.

the Northeast and 6% in Brazil (Table 8 ). In 1973, the shares were 81% of the crop loans and 16% of their value for the Northeast, and 64% and 10% respectively for Brazil (Table 7).

1.23 Interestingly, the concentration in the larger loan categories is not correspondingly less for Northeast crop credit than in the case of Brazil in general. Loans above 500 MS (Cr\$344,795) represented a greater share of Northeast crop-credit value in 1973 (50%) than for Brazil (44%), and a slightly lesser share in 1976--51% vs. 54%. These largest categories in the Northeast, though accounting for more loan value in the Northeast in at least one year, accounted for a fewer number of loans than in Brazil: in 1973, 0.7% of the crop loans in the Northeast were over 500 MS, and 1.7% in Brazil. In 1976, the difference was relatively the same: 1.7% of the loans in the Northeast and 3.3% in Brazil. Thus the average value of the large loans in the Northeast was considerably larger than that for Brazil. Crop credit in the Northeast, in sum, exhibits a bimodal distribution in relation to Brazil -- more in the smallest category and more in the largest category.

1.24 In comparison to the crop-credit size distribution, livestock credit in the Northeast turns out to show no clear distinction from that of Brazil in general. The share of the number of Northeast livestock loans in the smallest size range was less than that of

Brazil in both 1973 and 1976. The share of loan value in this smallest category was slightly greater than Brazil in 1973, and was considerably less than Brazil in 1976. The large livestock loan values were somewhat less concentrated in the Northeast than in Brazil.

1.25 The clearest distinction in the loan-size distribution data on Bahia is that comparing the livestock credit of Bahia to that of the Northeast and Brazil (Tables 7 and 8). In terms of concentration in large loans, Bahia does worse than both the Northeast and Brazil. It has less livestock loans in the smallest loan category than both Brazil and the Northeast. In crop credit, Bahia is in between the Northeast and Brazil: it is less concentrated than Brazil in the larger categories of crop credit and has somewhat more loans than Brazil in the smallest category. At the same time, it is more concentrated in the largest categories than the Northeast and has less loans in the smallest categories.

1.26 The project area seems to show poorer performance in the smallest loan-size category than Bahia, the Northeast or Brazil (Table 11). In 1976, the Paraguaçu showed 37% of the number of rural loans in the category less than 25 MS, while Bahia showed 49%, Brazil 57%, and the Northeast 64%. (The respective values for share of the number of loans were 3%, 5%, 6% and 8%.) As the Paraguaçu data is available only for crops and livestock combined, it is not possible to determine whether

this outcome is mainly the result of the very large share of livestock in total credit. The 1973 size distribution, when the livestock share seems to have been abnormally low (76% vs. the usual 91%) shows the project area doing better than Bahia and Brazil in the smallest loan-size category.

1.27 The size-distribution data show a consistent worsening of the concentration of credit as between 1973 and 1976--for the Paraguaçu, Bahia, the Northeast, and Brazil. The worsening shows up in crops as well as livestock so it cannot be attributed to the larger role for livestock in 1976. The greatest increase in the concentration of credit occurs in the project area, where loans less than 25 MS accounted for 12% of total value in 1973 and fell to 3% in 1976 (Table 11).d Ogfrespondingly, this smallest category accounted for 66% of total loans inal973g falling to 37% in 1976.

1.28 The decrease in the share of small loans in all categories and the increase in the share of large loans as between 1973 and 1976 must be interpreted with caution. The loan-size ranges are defined in terms of the highest minimum salary prevailing during the year. The increase in this salary from 1973 to 1976, however, was not so great as the increase in prices received by farmers in the state of Bahia--132% we 178%.

132% vs. 178%. Thus the 1976 real value for 25 MS is bound to be lower than the value of this cutoff point in 1973. This would result in a lower value for this category of loans in the later year, even if its real value had remained constant. It is difficult to tell what part of the increased concentration in loan value is caused by this problem.

1.29 The increase in the Paraguaçu concentration of loans is so much greater than that for Bahia, the Northeast and Brazil, that one would assume that it expressed more of a real increase than the others. This is also suggested by the fact that from 1973 to 1976, the percentage increase in the real value of rural loans in the project area was almost three times greater than the percentage increase in the number of loans (Table 1 ). For Bahia, the Northeast and Brazil, this difference was not so great; the percentage increase in the real value of rural loans was double the percentage increase in the number of loans. Thus it seems that there was some worsening all around in the rural loan distribution during the last three years, and that the worsening was greater in the project area than in general.

The price index is #24 of the <u>Conjuntura Econômica</u>, prices paid to crop-livestock farmers in Bahia. The minimum salary is Cr\$297.60 for 1973 and Cr\$689.59 for 1976. These two figures are the average of the two salaries prevailing during the year, weighted by the number of months each prevails. (The minimum salary is raised on May 1 of each year.) Though the Bank of Brazil reports that it uses this average to calculate the ranges of its loan-size distributions, its size-distribution data seem to be based on slightly different figures--Cr\$270 for 1973 and Cr\$682 for 1976.

Many loans and little credit. What is remarkable about the sizedistribution data on rural credit is that such a small amount of resources is being directed to small farmers at the same time that a large amount of the banking system's operations are being devoted to servicing them. In 1976, for example, small loans (below 25 MS) accounted for only 6% of the value of BB credit in all Brazil, 8% in the Northeast, 5% in Bahia and 3% in the project area (Table 11). Yet these insignificant shares represented 57% of the loans in Brazil, 64% in the Northeast, 49% in Bahia, and 37% in the project area. If one assumes that small loans take just as much bank work as large loans, as is often said, then the banking system is spending a major share of its time on a class of borrower who is receiving a very small share of its resources. Thus the Bank of Brazil is correct in saying that it devotes a lot of attention to small farmer credit; but it is also true that the small farmer does not get much Bank of Brazil credit. Testimony to the latter statement is the fact that rural 1.31 rural credit reaches, at most, 13% mof the farms in the sprojectding to area (Table 3).<sup>1</sup> Similarly, the SUDENE/IBRD farm survey/IBRD farm foundy that not share of sall farms areceiving congdit was 13%, for or the zone of which the project area is a part. The share of farms

At most, because it is assumed that heach loan represents at represents a single borrower, whereas it is frequent for borrowers to obtain more than one loan during any year.

receiving crop credit, moreover, is less than half that of those receiving livestock credit--4% vs. 9%. And the share of farms receiving livestock credit increased much more between 1973 and 1976 than the share receiving crop credit; the livestock share more than tripled from 2.6% in 1973 to 9% in 1976 while the crop-credit share increased only 2.7% to 3.7%.1 The contrast between the reach of crop credit vs. livestock 1.32 credit becomes quite striking if one takes into account the fact that most livestock credit is said to go to the larger farms. One of the justifications for the livestock component in the proposed project is that the medium livestock farmers with 50 to 300 hectares have little access to institutional credit. Yet the number of livestock loans in 1976 represents 51% of the number of farms in the project area with more than 50 hectares (Table 3). In fact, three out of the 12 bank-branch jurisdictions show the number of livestock loans to be greater than the number of farms over 50 hectares; four more of these jurisdictions show livestock loans to be between 40% or over of the number of farms over 50 hectares (Table 4).<sup>2</sup> This result suggests that the 50-300 hectare

<sup>&</sup>lt;sup>1</sup>As noted elsewhere, these inter-year comparisons must be interpreted with caution because 1973 showed what may be an abnormally high percentage of crop credit in total credit--24% vs. 6%-9%.

<sup>&</sup>lt;sup>2</sup>It should be pointed out that livestock borrowers often take up to three loans during any one year. This means that the actual percentage of borrower-farms to total farms is probably somewhat less than those cited. That there are cases where more than 100% of the farms over 50 hectares received livestock credit also suggests that farms below 50 hectares are receiving livestock credit too, let alone those between 50 and 300 hectares. This would be contrary to the depiction of the medium livestock rancher as without access to credit. My interviews of PN/PIDERP credit beneficiaries turned up cases of farmers with less than 50 hectares who had previously received livestock credit.

livestock farms have more access to livestock credit than is said to be the case. It means that livestock credit reaches a significantly higher percentage of the farms producing livestock than does crop credit of farms producing crops.

Making room for small farmers. The Bank of Brazil is devoting almost half its loans to small farmers (loans less than 25 MS) and, at the same time, is reaching very few of them and committing very little of its loan capital to them. This suggests that considerable changes would have to be made in its operations if credit is to reach a significant portion of this class of farmers and if they are to claim a significant share of the system's subsidized credit. The projected credit needs of the Paraguaçu project are a good example of the magnitudes of change required. The project is said to be a modest first start, whose credit component cannot be expected to have a large impact on the area, at least directly. Yet the projected number of credit beneficiaries in the project area represents a growth of 157% in the number of loans over the next five years--or 94% over the next three years (Table 6). This compares to an actual three-year growth of the system during the 1973-1976 period of 150%. In short, if the existing credit system in the project area were to continue growing at the same rate, the project beneficiaries would take up 63% of the normal growth of the system.

1.34 For some bank branches, the problem will be particularly

acute. The PN beneficiaries projected for the areas covered by the BB branches in Seabra and Lençois together would require a growth in the number of loans over the five-year period that is six times the number of loans of those branches in 1976 (Table 6). This implies a rate of growth for the 1977-1980 period that is three-and-a-half times the rate experienced in the 1973-1976 period. Seabra and Lençois are the smallest of the BB branches in the project area, which accounts in part for the fact that the number of projected PN beneficiaries is several times their absolute growth in the last three years. (Seabra just opened in early 1976.) At the same time, the percent growth of Lençois in the last three years is remarkably low (19%), given the low absolute base from which it started.

1.35 The Lençois branch shares with the BB branch in Feira de Santana the strange combination of a low growth of loans, a low share of loan value less than 25 MS, and a low number of loans per person (Tables 13 and 14). This suggests that factors outside the size of the work force may be determining the extent to which banks facilitate small-farmer credit. The small size and growth of Seabra and Lençois may also express the fact that they cover one of the most distant and isolated areas of the project region. This menas that considerable effort will have to be directed at these particular branches if the program is to be able to meet its targets in the areas they cover.

1.36 The Feira de Santana bank branches could present problems similar to that of Seabra and Lençois. The projected number of PN

beneficiaries for the next three years in Feira represents more than three times the rate of growth in the number of loans of both branches during the 1973-1976 period (Table 6). The Feira area alone accounts for 17% of the total projected PN/PIDERP beneficiaries. The growth of PN/PIDERP beneficiaries for three more branches is more than 100% of the growth rate experienced by those branches in the last three years (Ruy Barbosa, Serrinha and Maracás).<sup>1</sup>

1.37 What will happen if the credit system in the project area grows normally over the next five years and at the same time has to incorporate the new PN/PIDERP beneficiaries? If this were to happen, the growth rate for regular, non-PN/PIDERP borrowers would have to be cut by 63%--from 150% to 56%--in order to accommodate the new borrowers. The Paraguaçu example, then, illustrates how important the changes will have to be in the design of the institutional system in order to deliver a significant share of its rural credit to a significant share of the target population.

1.38 The Paraguaçu example also suggests that there are dangers in superimposing a rural development project on an institutional system

<sup>&</sup>lt;sup>1</sup>This situation may be somewhat alleviated by the projected opening of three new BB branches in the project area. Iramaia will take some of the burden off Maracás, Mucugê off Lençois, and Santo Estevão off Feira de Santana.

without assurance that considerable change in loan administration is underway, and that these changes will be carefully monitored. Existing clients and new ones of the same class will not be willing to accept less service in order to accommodate the new clients. Being more powerful, they are usually successful at insisting that they be waited on first. Thus the system may be forced to accommodate both the normal rate of growth and the new beneficiaries. Without a large increase in personnel, this can be done only by increasing the cost of lending to the borrower -- namely, through increased delays in the processing of loan applications. The new beneficiaries will be more subjected to these costs than existing and more better-off clients, resulting in a higher real interest rate to the smaller farmers. This would undermine the BB's own current efforts to diminish costs to borrowers and to itself by waiving various documentation requirements on small loans.

1.39 At present, the Bank of Brazil has no special plan to deal with the increased client load that will result from the project or from PN projects in general. Indeed, the project area is much less than proportionately represented in the BB's plans to open new branches

The BB/Feira de Santana branch may prove particularly problematical in this respect, located as it is in the richest and most developed section of the project area and thus subject to loan demands from sophisticated farmers. (See paras. 4.10-4.13.)

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in Bahia. Whereas the area now has 14% of the state's BB branches (12 out of 83), it will receive only 3% of the new branches (3 out of 104). 1.40 The recent BB instructions exempting all PN loans below 50 MVR (Cr\$43,885) from land and other documentation requirements will obviously lessen the cost of processing these loan applications.<sup>1</sup> The Bank's program of mobile units for the Northeast should also help to accommodate the increase in loan applications from small farmers; because the BB has not yet pushed this program, it is not clear whether it will amount to a significant innovation. It is not known to what extent these modifications of small-farmer credit will reduce costs. This is especially true for the mobile units, where the manager of the bank, the chief of rural credit and at least two other employees have to absent themselves for a whole day. It may be that the major cost reduction resulting from these changes will be to the bank client, rather than to the bank. This is an important step in the right direction, but it will not help the bank to accommodate a significant number of small-farmer clients without imposing additional delay costs on them. At present, the Bank of Brazil has no plans for studying the cost impact of these changes.

<sup>&</sup>lt;sup>1</sup>For property owners and renters, no land document need be presented; note is simply taken of the type of document or contract that the owner has. For sharecroppers, a letter of permission from the mayor-domo of the property is sufficient. In the case of short-term credit to <u>de facto</u> owners (posserios), no documentation is necessary as long as it is informally ascertained that the applicant has been working a certain parcel of land.

1.41 Along with the BB's new instruction on small loans, there is a sympathetic attitude in Brasilia and in the regional office of the rural credit policy division in Salvador (DICOR) toward facilitating small-farmer credit and POLONORDESTE programs.<sup>1</sup> The DICOR office in Salvador, which covers Bahia and Sergipe, has turned out to be an important pressure point for complaints about credit bottlenecks in the PN/PIDERP program. EMATERBA, for example, has complained to the office about delays of the bank branches in processing of PN applications. The office, in turn, has been responsive in trying to bring uninterested or recalcitrant bank managers around, and in communicating complaints and pressures for change to Brasília. DICOR claims that they are in great part responsible for the recent instruction requesting the simplification of documentation on loans below 50 MVR.<sup>2</sup> They had received considerable pressure from EMATERBA on this point, partly because other BB instructions already allowed such simplification but were not being paid attention to; these provisions, they say, were buried in previous instructions dealing with other things, and were not stated as forthrightly as they might be.

<sup>&</sup>lt;sup>1</sup>DICOR is Direção de Coordenação da Política de Crédito Rural. It is a division of the BB in Brasília, with various small regional offices, such as that in Salvador.

<sup>&</sup>lt;sup>2</sup>Carta Circular Grupal No. 2578 of 9/21/77, Banco do Brasil, Direção Geral.

1.42 The DICOR office in Salvador has also become somewhat of a lightning rod for communications about personnel shortages in particular branches during the planting season--relaying news and urgency about temporary personnel needs to Brasília. Branches can request temporary increases in personnel (for 90 days), which can be renewed. Itaberaba received four extra persons for 90 days during a recent peak period. Irecê, which is outside the project area but serves one municipio in it, received an emergency infusion of four workers (principally typists) for the recent planting season, mainly to work on PN subloans; the local EMATERBA office also hired four temporary local employees to process PN applications.

1.43 These allowances for flexibility during peak times in the BB system are very important to the project. The existence of an office in the same city as the PIDERP and EMATERBA offices, with the power to get action on problems related to small farmers, is crucial--as is the backing from a sympathetic Northeast division in Brasília. But despite the possibility for flexibility, there is relatively little use of it. This is mainly because the branch managers have considerable autonomy in the matter, and many of them are not concerned about small-farmer credit problems or the fortunes of POLONORDESTE projects. Hence the flexibility is taken advantage of mostly in response to crises, and is sometimes more a result of political considerations not completely

related to small farmer credit issues.<sup>⊥</sup>

1.44 Finally, there is no systematic attempt by the Bank of Brazil to deal with the problem of demand peaks and their attendant delays. The complementarity between planting seasons--even within a region like the Paraguaçu--provides considerable opportunity to adjust the personnel levels of the individual branches in accordance with the peak demands. The BB says that the concept of a rotating team of credit processors is a feasible one, but has never really been talked of.

1.45 In sum, then, the Bank of Brazil seems to present more opportunities than many such institutions for dealing with smallfarmer credit: an interested regional office, branch-level authority to extend hours, hire additional local personnel during peak periods, and to request temporary personnel from Brasília; and a definite interest in facilitating small-farmer credit in Brasília. The opportunities, however, could be used more comprehensively and systematically than they are being now. A first step in taking advantage of these opportunities could be a monitoring of the cost-reducing impacts of the new small-loan measures.

<sup>&</sup>lt;sup>1</sup>The Irecê branch, for example, is now getting special attention not only in terms of increased personnel for processing loan applications, but in the supply of government facilities to buy crops at the minimum price. This is because the Irecê region is a major bean-producing region in the Northeast. Beans have become high-priced for urban consumers and often in shortage recently because of the weather conditions of the last few years. The government is therefore trying to induce the farmers of the Irecê region to plant as much land in beans as possible--by offering liberal credit and guaranteed-purchase facilities. These facilities are not being made available, however, to bean producers outside the Irecê region.

#### II - Discrimination against small farmers

As has been noted for other places in the Northeast, the institutional credit system in the project area is structured in a way that discriminates against small farmers. Most obvious is the fact that only 3% of the value of rural loans goes to small farmers-i.e., is less than 25 MS or Cr\$17,240 (Table 11). To the extent that rural credit is overwhelmingly investment credit in the project area (about 82% in 1973-1976), the small farmer is excluded from access. He is not acceptable as a long-term credit risk, he does not have the property necessary to guarantee investment credit, and his scale of operations is too small for the types and amounts of investment financed by credit.

<u>Short-term vs. long-term credit</u>. Investment credit carries a more concessional interest rate than the short-term crop credit used by most small farmers. The livestock farmer has been able to get PROTERRA (PT) credit at 7%, while the small farmer in search of short-term credit has been paying 10% and, since January 1977, 13%. For

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A discussion of the loan size distribution and of the MS criterion (minimum salary) for setting the loan-size intervals can be found in paras. 1.20-1.29.

These rates apply to loans up to 50 MVR (Cr\$43,885). The 7% PT credit has been temporarily suspended for the last several months as part of the general monetary policy of restraint on all investment credit.
POLONORDESTE credit, this differential interest-rate structure favoring investment and livestock farmers was ended in January 1977, when the two rates were equalized at 7%. Before that, the interest rate for PN investment credit was 7% while that for short-term credit was 13%. The equalization of PN interest rates still leaves the higher 13% rate for short-term small loans outside POLONORDESTE, which are the majority of short-term crop loans to date.

2.03 The subsidy to the longer-term borrower is even greater than the difference in the interest rates, for inflation causes the real value of the subsidy to increase each year after the loan was contracted. A long-term loan with the same interest rate as a short-term one, like the new PN rates, would carry a higher subsidy to the extent that inflation reduces the real value of amortization and interest payments in future years. The shorter the amortization period, the lower the subsidy. It is this type of discrimination that exists among the PN/PIDERP beneficiaries. Of the 323 PN/PIDERP subloans made in the project area from late 1976 to August 1977, 272 are short-term loans for crop farmers and 52 are long-term loans for livestock farmers. Though the interest rate is the same for both, the subsidy is greater for the livestock beneficiaries.

<u>Emergency credits</u>. Another aspect of the discriminatory features of the credit system in the Northeast is the way in which special emergency

credits at lower interest rates are made available by the Central Bank after droughts such as that of 1976. To a considerable extent, according to the Bank of Brazil, these credits are directed to the larger livestock owners, in an attempt to prevent them from selling off their herds and/or slaughtering their reproducing stock. This availability of livestock credit, combined with the decrease in the price of beef animals that typically occurs during a drought, makes it attractive for larger farmers to buy off stock from smaller farmers. Some of the PN/PIDERP credit beneficiaries I interviewed reported this selling off of their few head of cattle to larger farmers at low prices, in order to cope with the drought.

2.05 The way in which emergency credits are made available during a drought, then, tends to exacerbate the tendency toward asset concentration that occurs anyway during periods of natural disaster. If the emergency credits were directed toward the preservation of animals held by very small farmers, then the asset-concentrating tendency of the drought might at least be neutralized.

Labor costs. Another form of discrimination against the small family farm in the regular credit system is the fact that investment credit finances labor costs but short-term credit does not. One PN/PIDERP beneficiary reported a previous BB regular investment loan, for example, of which Cr\$7,000 was allowed for the hand cleaning of a water tank, and Cr\$5,500

was allowed for the preparation of crop residues for animal feed and the clearing of tree stumps from an area to be placed under pasture. The borrower had four years to repay the loan. Except for the stumpclearing, these costs are short-term recurrent ones, yet they were financed with investment credit. The example shows that the larger or livestock farmer can obtain long-term credit for labor costs and for recurrent expenditures.

2.07 Outside of the PN program, the small farmer has no access to investment credit nor does he have the hired-labor costs that are covered by such credit. Even with short-term credit, the small crop farmer's land-clearing costs are not covered. This particular uncovered cost is an important one, for land-clearing is a recurrent activity for small farmers under the system of shifting cultivation and short-term tenancies that prevails in the project area. PN/PIDERP credit so far has also not covered the cost of land-clearing (derruba)--though it should under the proposed project. There are three sources, in sum, of this particular form of discrimination against the small farmer: (1) hired labor is covered by credit as opposed to own labor; this is disadvantageous to small farmers, most of whose labor is not hired; (2) certain investment costs associated with land clearing are not financed to the small farmer, whereas for livestock they are financed with long-term credit, and its allowance for labor costs; (3) to the extent that labor costs are financed by credit, the borrower of investment credit has a longer period to pay.

PN/PIDERP credit and imputed labor costs. A deliberate attempt has been made to deal with the own-labor issue in PN/PIDERP loans, in that these non-monetary costs are admissable for financing with shortterm credit. Under PN credit in general, moreover, it is possible to finance a greater share of total short-term crop costs than under regular credit (see paras. 5.01-5.02 below). Though these higher percentages will help PN and other beneficiaries of credit programs to cover more of their costs, most of the rural credit system's borrowers are outside these programs. The proposed project, for example, intends to reach no more than 23% of the farmers cultivating less than 50 hectares (Table 5).

2.09 Even with this special provision for PN credit, the actual share of total costs financed with crop credit may still be quite low (see paras. 5.06-5.07 below). Thus though the financing of an imputed wage for own labor is permissible under PN credit, it is likely that the current allowable percentages, and the way they are calculated, are so low as to exclude a good portion of these costs. Since the monetary non-labor costs must be covered--inputs have to be paid for--and are a low percentage of total costs, then the only place to take out the excess between actual costs and financeable costs will be non-remunerated own labor.

2.10 By way of illustration, the cost calculation made by EMATERBA for a PN/PIDERP borrower at the Itaberaba BB branch shows labor costs to be 73% of the total, seeds another 17%, and pesticides 11%--for ten

hectares of interplanted corn and beans. The cost of production is calculated at Cr\$2301.40 per hectare or Cr\$23,014 in total. Using the minimum price to estimate receipts, this gives 60% of such receipts, or Cr\$437,800. The minimum price for beans and corn has averaged about 45% and 70% respectively of their lowest annual market prices in the last four years (Table 18). Thus the 60% of estimated receipts is in truth about 30% of real expected receipts. It is difficult to believe that such a calculation could include all the imputed wages to own and family labor (see par. 5.09 below). Investigation of existing PN/PIDERP cases is advisable, therefore, in order to determine whether the discrimination of the credit system against own labor, as opposed to hired labor, has actually been eliminated within the PN program.

<u>Subsidization of technological change</u>. Much of the subsidy in the Northeast rural credit system has been introduced as a way of trying to force increases in agricultural productivity. One would expect that such a policy would be neutral with respect to small farmers vs. large ones. Ironically, however, the change-inducing subsidies end up discriminating against small farmers to the extent that (1) mainly better-off farmers have access to the productivity-increasing services and inputs; (2) when there is no intent to change, only the large farmer has the economic and political power to "fake" the technical

assistance requirements; and (3) the programs offering technical assistance to small farmers, like POLONORDESTE, are exclusive--only a small portion of the target population gets credit. The crop credit of the Paraguaçu project, for example, will reach no more than 23% of the farms under 50 hectares in the project area over a fiveyear period. This leaves the bulk of the small farmers outside the subsidies of the special system and still subject to the traditional descrimination of the regular credit system.

<u>Deposits</u>. As a final example of inadvertent discrimination against small farmers in the credit system, many bank branches in the project area require that farmers open an account when they receive credit, if they do not already have one. The account must be opened with a minimal deposit set in monetary terms unrelated to loan size; it can be withdrawn as soon as the loan starts to disburse, or shortly thereafter. This deposit is distinct from the compensating balance, which is often required of large borrowers and cannot be withdrawn when the loan is disbursed.

2.13 The temporary-deposit requirements seem to be up to the individual branch manager, and vary considerably from branch to branch.

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The banking authorities are concerned about this problem and, more generally, about the incentive of PT credit to borrow for purposes not related to productivity improvements. They are trying to re-think the program, during its current lull, in a way that will minimize these problems. One approach under consideration is to limit the PT credit to certain activities and certain geographical areas.

One branch in the project area reported that it requires a minimum withdrawable deposit of Cr\$700, regardless of the size of the loan. Another branch reported that it was requiring all small borrowers, including PN/PIDERP beneficiaries, to open an account with a deposit of Cr\$100-Cr\$250. Another branch, in contrast, reported that it had advised PN/PIDERP beneficiaries that they should <u>not</u> open an account. Though the temporary deposits can be withdrawn by the farmer when the loan starts to disburse, these amounts represent significant amounts of cash for small farmers, especially at a time of their year when they are short of cash.

2.14 The custom of requiring the opening of an account dates from a BB instruction of the 1950s. This was shortly after the creation of the Central Bank, when the Bank of Brazil changed its conception to one of a more financially-oriented entity. The Bank hopes to be able to issue a new instruction soon, asking managers to exempt small loans from the requirement of opening an account.

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Compared to the Cr\$700 and Cr\$100-Cr\$250 deposits noted above, the monthly wage of a permanent worker in Bahia averaged Cr\$520 in 1976. (<u>Conjuntura Econômica</u>, June 1977, p. 106.)

## III - Moves toward small farmers

3.01 The Bank of Brazil, the major supplier of rural credit in the Northeast, has made several moves to facilitate the supply of credit to small farmers. It has simplified considerably the loan application and processing procedure for loans less than 50 MVR (Cr\$43,885). An important part of this simplification is the removal of some of the difficulties of borrowing for non-owner farmers. 3.02 For farmer-tenants, the BB will now accept a letter of permission from the administrator of a property, not just its owner. More important, for PN and mobile-unit loans less than 50 and 25 MVR respectively, the bank will waive written permission of the owner and accept personal verification in the community that a farmer has permission to work a certain parcel of land. Likewise, informal verification will suffice for those who have a tradition of working on public land, or who own land of uncertain title. The BB has also started a mobile credit program, described in paras. 7.01-7.15 below, in which branch banks are instructed to dislocate their operations to outlying communities several times a year, preferably on the market days of these communities. The visits are meant to promote the new simplified credit for small farmers, both PN and non-PN, and to collect and process loan applications.

3.03 It is not clear to what extent the simplified procedures

apply to non-POLONORDESTE areas or, more relevant, to what extent the BB will vigorously promote the procedures outside these areas and insist that managers adopt them. The most recent instruction concerning simplified procedures for loans less than 50 MVR, for example, applies only to POLONORDESTE programs (Carta-Circular Grupal No. 2.578 of 21.9.77).

3.04 The waiving of land documentation requirements for small crop loans is a change of major importance for the project area. Most land titles are uncertain in the area, and many owners have no more than purchase receipts, which are not acceptable for the securing of loans. More problematic is the fact that notarized land documentation has been required for credit even when the land was not used to secure the loan. Thus the crop lien often used to secure short-term credit requires a notarized land document (<u>escritura registrada</u>) as part of the loan documentation (ficha cadastral).

3.05 Though many owners would be able to regularize their land title with the appropriate procedures, they choose not to do so because of the cost, the delay, and perhaps the fear of having part of their land taken away. These factors have been cited as a reason that some potential sellers of land have not accepted buyers financed with PT or PN land credit--i.e., because of the necessity of a legal title to make such financed sales and the cost and delay involved in obtaining one.

3.06 Even if one previously had legal land title, or permission to work another's land, the costs involved in presenting the series of notarized documents required for a loan were of considerable significance to the small farmer. For the many small farmers who could not sign their name, moreover, it was necessary to pay approximately Cr\$50 to a notary to accompany him to the bank. Many times, the farmer would take a notary from his own community, and would have to pay the additional transportation, food and lodging costs of the notary. If the bank was not able to attend to him that same day, even further expenses would have to be paid for the notary. Though the new requirements do not dispense with the need for a notary for those who cannot sign their name, the waiving of other documentation requirements will reduce considerably this type of cost to the farmer.

3.07 Some local EMATER technicians reported that they were teaching PN/PIDERP beneficiaries to sign their name so that they could avoid the costs of a notary for this particular need. When the technician would make a visit to the community, some of these farmers would show him the newly learned signatures with great pride. What the technicians did is an example of how simple and inexpensive some of the changes can be that are necessary to facilitate small-farmer credit. It also illustrates the importance of a very local-level institutional contact between the farmer and the system--in terms of

making problems understood and arousing some sympathy for them. One cannot imagine the bank-branch personnel taking time out on their own to teach farmers how to sign their names.

<u>Reducing costs</u>. The Bank of Brazil is not, as yet, conducting studies on the impact of the new simplified-credit measures on its operating costs. The Ibiapaba project paper reports that branches in that project area showed a reduction of 50% in their loan-processing time resulting from the simplified procedures on small loans. If reductions of this magnitude are actually occurring region-wide, then they are important to document and in more detail. Since the BB will be able to achieve a significant increase in its servicing of small farmers only through significant reductions in cost, it is important that the cost impacts of these measures be systematically watched. At the least, it should be possible to immediately assess the number of loan applications processed per day by a branch, before and after the introduction of the simplified regulations.

3.09 Some of the simplified measures may reduce costs to the farmers but not to the banks. Though such cost reductions are of major importance and should continue to be sought, they will not increase the capacity of the banking system to serve small farmers. The mobile credit units may be such a case, at least as they are now structured. The branch manager, the chief of rural credit, and at

least two more employees must be absent one whole day from the bank. 3.10 The PN projects are seen by the BB branches as cost-reducing, but only because they take the application-processing work out of the hands of the bank and give it to the local extension offices. This may be the most efficient and feasible way of getting the banks to adopt an otherwise burdensome program, and to introduce them "painlessly" to more and better small-farmer lending than they have ever done before. But the PN extension "workup" of the applicant is even more costly to the institutional system than normal bank credit. Even though the cost to the farmer of the PN approach may be less than that of normal credit, the cost to the system will determine the extent to which such a program can be expanded to reach a significant number of small farmers or eventually be absorbed by the banks.

Loan-size ceilings and protection from large farmers. There are other ways in which the Bank of Brazil has shown its interest in better serving small farmers. On its own, it imposed a 100-MVR limit on individual PN borrowing (Cr\$87,770), even though the Central Bank regulations did not require such a ceiling and the BB branch managers 1 were very much against it. It felt that the absence of such a limit

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This limit has recently been raised to 200 MVR (Cr\$175,540), as part of a new Central Bank regulation imposing such a ceiling on all PN credit. The new limit has the greatest impact on the Bank of the Northeast, which had not previously imposed a ceiling on individual PN borrowing any lower than the 15,000 MVR allowed by the Central Bank.

would result in the credit being taken principally by large borrowers. 3.12 There was also a certain self-protective strategy involved in the BB's imposition of a lower ceiling than allowed by the Central Bank on PN credit. The bank has a hard time resisting the pressures of large borrowers, even when it wants to. This is especially relevant for the case of the new subsidized PN credit, in view of the severe recent cutback on PT credit, which had been a major source of subsidy to large farmers in the Northeast. Also, the BB has not yet been reimbursed by the Central Bank for its PN credits and, based on its PT experience, does not have much hope of being reimbursed regularly in the future. It thus sees the credit as a losing proposition, since it must charge a lower interest rate than on its normal small loans for rural credit--7% vs. 13%.1 It is clear, then, that it is in the bank's self interest to rigorously observe the small-farmer spirit of the PN regulations and impose its own ceiling on borrowing.

3.13 The vulnerability of the BB to its large borrowers has gone together in the past with non-reimbursement by the Central Bank under the PROTERRA program. The bank claims that it ended up not being

<sup>&</sup>lt;sup>1</sup>In theory, the Central Bank is supposed to refinance the BB's PN lending, and pay a 5% interest subsidy, for a total interest return of 12%. This meant that the BB could earn a few percentage points more on refinanced PN credit, if actually reimbursed, than on small regular loans (10% on loans less than 50 MVR; in January 1977, that rate was increased to 13%).

reimbursed for much of its PT lending, which it therefore was "forced" to do out of its own resources. Like POLONORDESTE, that is, the PT loans carried a lower interest rate than normal BB credit, compensated for by the fact that the Central Bank would supply the loan capital on a reimbursable basis. Thus the BB ends up earning less on these special credits if forced, through unanticipated non-reimbursement, to use its own loan capital for the credit.

3.14 One of the principal reasons that the Central Bank did not reimburse the BB was that the latter exceeded the credit limitations placed on its normal credit by the Central Bank. This indicated, among other things, a considerable difficulty by the BB in saying no to its large borrowers. The PT credits were outside the Central Bank's limitation on BB credit expansion, so that the BB was still ahead with the non-reimbursed PT credit. Though the BB was earning less on its PT credit than its normal credit--because of non-reimbursement--it was at the same time able to lend its own resources beyond what it could have because of the Central Bank ceiling on normal credit. In this situation, <u>any</u> return on its own above-ceiling resources was desirable, because the alternative was not being allowed to lend the resources at all.

3.15 The experience with PROTERRA and POLONORDESTE credit suggest that ceilings on individual borrowing serve a dual purpose for the BB-facilitating credit to small farmers and at the same time protecting the BB from its own softness to large borrowers. Small-farmer interests will be better served, then, if serving them also advances the BB's own,

perhaps unrelated interests. This also means that the BB needs some outside support, in the form of restrictive regulations, in its attempts to achieve some distance between itself and its largeborrower constituents. Finally, the experience shows that the interest of the BB in promoting its small-farmer programs can be encouraged by arrangements that make these programs financially attractive to the BB as an autonomous financial institution. The ability to exceed credit limits with PT lending is an example.

Signs of sympathy. Other signs of support for small farmer credit have been shown by the BB in the past months. The Northeast Division in Brasília directed that the current credit squeeze was to be applied in a way that gave priority to those who were not clients of the bank or who had not had credit recently. (I do not know to what extent this directive is actually being applied by managers.) The Division is preparing an instruction to its branches ordering that they do not require smallfarmer borrowers to open accounts with minimum temporary deposits.

3.17 Both Northeast Division of the BB and its Division of Rural Credit Policy (DICOR) have shown sympathy to the suggestion of lending to informal groups of farmers instead of just cooperatives. They have also not expressed opposition to the idea of re-designing personnel allocation patterns in a way that would better fit the pattern of farmer demand, with its abrupt peaks and resulting delays in credit processing. They have not, however, initiated studies or

action on these two issues. The BB is also studying the system of grading its branch managers, which inadvertently penalizes those who promote small-farmer lending (see par. 6.11).

3.18 Finally, the BB is concerned about the adverse impact of subsidized agricultural credit on agricultural production and productivity in the Northeast. Mainly, it is aware that to a certain extent this form of subsidy has encouraged inappropriately capitalintensive modes of production and investments of questionable value, and has attracted borrowers with operations large enough to be able to invest their own capital at higher rates of return in other activities. The results of this thinking, of course, do not necessarily lead to small-farmer credit. But they can help to limit considerably the draining-off of most credit resources to large borrowers, a phenomenon that so far has made it almost impossible for small farmer credit programs to obtain a significant share of credit resources.

The branch manager. Much of the problem of small-farmer credit lies at the branch bank level and in the disinterest of many branch managers in serving small farmers. Most managers, for example, expressed exasperation with the 100-MVR ceiling (Cr\$87,770) imposed by the BB on PN loans, saying that the ceiling excluded most potential takers of such credit. One of these objecting managers defined a "small farmer" as one holding 200 hectares; another expressed satisfaction that the

land-size holding limit on PN/PIDERP beneficiaries had been raised from 300 to 500 hectares saying that he would now be able to "move" PN credit.1 The 100-MVR crop-credit limit objected to by the managers 3.20 would allow credit, in the case of interplanted corn and beans, for up to 38 hectares of land. (Credit for this activity is calculated at an average of Cr\$2,300 per hectare.) Given the shares of land under crops by size of farm in the semi-arid zone of the Northeast, 38 hectares of cultivated crops corresponds on the average to a farm of 317 hectares.<sup>2</sup> This size, of course, is well above the 0-50 hectare range defined as small for the Paraguaçu. With the new 200-MVR limit on PN credit, up to about 76 hectares of interplanted corn and beans could be financed. This would allow farms of up to 760 hectares to participate. (Farms of 500 hectares and over in the sertão plant 10% of their land in crops.) If BB managers considered the 100-MVR limit a constraint on their lending, with its allowance of a farm of up to 317 hectares, then certainly they were not thinking of the program as a small-farmer one.

<sup>&</sup>lt;sup>1</sup>This increase in the landholding size is said by PIDERP to represent only an accommodation to the fact that existing data on land-size distribution do not have an interval that ends at 300 hectares. PIDERP says the change from 300 to 500 hectares does not represent an increase in the ceiling landholding of the target group.

<sup>&</sup>lt;sup>2</sup>Farms of 200-500 hectares in the semi-arid <u>sertão</u> have an average of 12% of their land in crops; 100-200 hectares have 15% in crops, 50 to 100 have 20%, 10-50 have 25%, and 0-10 have 51% (SUDENE/IBRD Survey, Table III.6).

3.21 Because the BB branch manager has considerable autonomy, and because his performance rating will not be improved by smallfarmer lending, the new regulations on small-farmer credit may have considerably less impact than they might. There was a surprising amount of variation between branch banks with respect to their policy on small loans, despite the uniform guidelines set out in the instructions. One branch, for example, reported that it would not allow loans to posseiros--farmers without registered land titles-though it would accept a letter from INTERBA stating that the titling process was underway. Yet the simplified credit regulations allow the waiving of land-title requirements for purposes of guarantee or documentation for loans below 50 MVR. Since most "owners" in the project area do not have clear title, this restriction would be quite a limiting one for small farmers. Thus all of the 53 PN/PIDERP beneficiaries of this particular branch are owners with title. 3.22 The BB branches also varied in the cutoff points they used

for waiving certain types of guarantees, even though the BB instructions specify 50 MVR as the cutoff point. One branch required only a personal guarantee on normal credit below 50 MVR, and a lien on the harvest for loans over 50 MVR. Another branch required the crop lien for loans

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These liens require a notarized document of ownership (<u>escritura</u> <u>registrada</u>) as part of the loan documentation (<u>ficha cadastral</u>) even though this does not constitute part of the guarantee. Many small farmers interpret this requirement as meaning that their land will be taken if they cannot pay the loan, citing this as a reason for their fear of taking out short-term crop credit.

of 25 MVR or over, instead of 50, requiring only a personal guarantee on loans below 25 MVR. Yet another branch required only a personal guarantee on loans below a limit set in monetary terms at Cr\$15,000 (approximately 17 MVR), but still required a notarized land document as part of the loan documentation. (The PN/PIDERP program had not yet started in this branch, though the simplified credit regulations apply to small loans made under normal credit procedures as well.)

3.23 In the case of unknown borrowers, several BB branches required a co-signer on small loans covered only by a personal guarantee. This requirement also constitutes a serious obstacle for small-farmer borrowers, many of whom would be new to bank borrowing. As reported above, moreover, there was also variation with respect to the practice of requiring clients to open an account and make a minimum deposit, withdrawable upon disbursement of the loan. One bank required a Cr\$700 temporary deposit, another required Cr\$100-Cr\$250 in such deposits; yet another manager advised its small-farmer clients <u>not</u> to open an account.

3.24 Though some of the variation between bank branches may be attributable to confusion over the new regulations on simplified credit, it certainly illustrates the autonomy of the branch manager, and the extent to which his actions can have an impact on small-farmer credit. Clearly, the autonomy in itself is not an undesirable feature; in the hands of managers truly interested in facilitating credit to

small farmers, it could be a very useful instrument. But many managers are not interested. The existing BB regulations, moreover, are often permissive rather than compulsory with respect to small farmer credit; the language of the instructions is formulated in terms like "the branches can", "it will be allowed", "it is acceptable if."

3.25 Because of the permissiveness of the BB regulations and the autonomy of the branch manager, the role of the regional office of DICOR in Salvador as a gadfly for PN credit problems is an important one (paras. 1.41, 4.20). Further evaluation of this office's role and impact would be useful. It may be that it would help if the BB could institutionalize more comprehensively that role. It might appoint a team of roving monitors who would be identified with the small farmer program at a regional or federal level. Their sole job would be to watch over small farmer credit policies and problems at the branch banks.

## PN/PIDERP credit so IVa= PN/PIDERP credit so far

4.01 The PN/PIDERP program initiated credit operations in November of 1976. Various delays had prevented the program from getting started until late in the crop cycle. In August 1977, the program was starting to disburse its second round of subloans. Of the 14 bank branches visited, six in four cities were working with PN/PIDERP borrowers--the BB branches in Ipira, Ruy Barbosa and Castro Alves; and the BB and BNB branches in Feira de Santana and Itaberaba. Together, these branches had granted 323 PN loans since commencement of the program--271 for crops and 53 for livestock. In some branches, this PN credit was not an insignificant share of the total; it accounted for 15% of crop loan value in Castro Alves, and 5% of crop loan value and 36% of the loans in the BNB branch in Itaberaba. By October of 1977, there were an additional 700 proposals for PN/PIDERP subloans being processed by the banks. The pace of applications has picked up so much that EMATERBA has sent extra technicians to its local offices solely for the purposes of drawing up farm plans.

4.02 Most of the PN/PIDERP borrowers were reported to be owners of their land, though a large part of the target population is said

to be non-owners. Most beneficiaries were reported to be very small, owning less than ten hectares of land. The local EMATER offices reported crop-credit beneficiaries as having less than ten hectares in Itaberaba, Ipirá, and Santo Estevão. My visits to borrowers in Ipirá and Itaberaba suggest that the average size of borrowers may be somewhat larger than that reported. Out of the 13 borrowers I visited in these two areas, eight owned between 15 and 30 hectares of land (including one with 54 hectares). Castro Alves diverged significantly from the other branches, reporting their corn and bean beneficiaries as owning between 30 and 90 hectares; tobacco and manioc cultivators owned up to 30 hectares. (The area financed in these cases was never more than 22 hectares.)

4.03 Most EMATER and bank branches reported that almost all of their PN/PIDERP crop-credit borrowers were receiving credit for the 2 first time. Again, Castro Alves was the exception, where the

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My visits to borrowers of the Ipirá and Itaberaba branches showed three out of 13 borrowers who were temporary tenants (<u>anuentes</u>) rather than owners. These tenants usually have no obligation but to leave the land after they have cleared and collected at least one harvest; sometimes they must leave the land in pasture. Some of these temporary tenants were sons of the landowner, who in one of the cases owned 435 hectares.

My visits to borrowers in Ipira and Itaberaba suggested there may be more existing bank clients among the PN/PIDERP beneficiaries. Four out of 13, or 31% of the crop-credit beneficiaries visited, were existing bank clients.

majority of borrowers were already BB clients. A higher percentage of old borrowers was found among the livestock beneficiaries as opposed to the borrowers for crops. The BNB branch in Itaberaba reported four ex-bank clients out of 27 PN/PIDERP livestock beneficiaries; the BB in Ipira reported eight out of 14 livestock beneficiaries as already having received PROTERRA livestock credit. 4.04 Almost all the PN/PIDERP crop-credit beneficiaries I visited could better be characterized as small rural merchants than as small farmers. Almost all had other small businesses besides farming--a supply store in the village, a truck or other vehicle for passenger or freight transport, the purchasing and selling of agricultural products (which the latter trucks were used to transport), the ownership of more than one house in the village. Many of the Castro Alves crop-credit beneficiaries were reported to have 10-15 head of cattle. Several of the beneficiaries I visited had adequate houses in the village, with store-bought furniture and cement floors. Though these borrowers were not wealthy, they were at least among the upper level of the rural poor.

4.05 This initial sampling of PN/PIDERP borrowers demonstrates the difficulty that such programs have in reaching their target groups. The very process of selecting borrowers through the extension office is fraught with the dangers of settling for the better-off members of

small rural communities. Ironically, the Bank of Brazil's mobile credit units, involving a much more perfunctory selection process than PN/PIDERP's, report a higher rate of new clients and non-owner clients. Perhaps the better-off borrowers of the PN/PIDERP program represent the beginning of a natural sequence for such programs from better-off to lesser-off farmers--the extension agents starting first with the "easiest" cases. Evidence from other such programs, however, cautions against assuming that this sequence will occur without careful monitoring.

The divergent case of Castro Alves. The case of Castro Alves is of some concern. As noted above, all borrowers are owners, landholding sizes are considerably larger than for Itaberaba and Ipirá, and the majority of the borrowers are existing BB clients; finally, many of the borrowers have, aside from the small types of businesses mentioned above, 10 to 15 head of cattle. Actually, one would expect to find smaller not larger land-size parcels in Castro Alves. That branch, along with those of Feira de Santana, cover areas with better soils and higher land values than most of the rest of the project area. Thus one would expect to find farmers with financially viable operations on smaller parcels of land in this area than elsewhere. 4.07 Paradoxically, Castro Alves does the best among all the branches in the project area in its normal credit for small loans.

Loans below 25 MVR account for 71% of the loans and 17% of their value (Table 13). And it does considerably better than the next best branch, Ipirá, for which the corresponding shares are 57% and 14%. Given the location of Castro Alves and its record on small loans, then, it is a surprise to find that its PN/PIDERP beneficiaries are larger and better off than those of the other bank branches. 4.08 A clue to the Castro Alves case may lie in the policies of the BB branch there--mainly, not to lend to owners unless they have registered title or a letter from INTERBA. In contrast to most of the other PN/PIDERP programs in other areas, moreover, a large part of the borrowers in Castro Alves are referred by the bank to the local EMATER when they come in for normal crop credit. The bank had been sending its corn and beans applicants to EMATER and financing the castor-bean applicants itself. This was because PN/PIDERP was not financing castor bean until recently, and was financing corn and beans. That the Castro Alves beneficiaries are existing BB clients suggests that borrowers are being encouraged to substitute normal bank credit with PN/PIDERP credit. From this example, moreover, it looks as if bank managers may see PN/PIDERP as a way to get rid of their normal small-farmer load. If this were to happen, there would be little or no net increase in the small-farmer population served with credit.

4.09 It is difficult to prevent the kind of substitution effect described above from happening. Borrowers will want to take advantage of the lower interest rate on PN/PIDERP credit (7%) vs. that of their normal credit (13%). Branch banks will have less work if they can shunt their regular clients to the local EMATER, which will take much of the work of processing the application out of their hands. Finally, PN/PIDERP beneficiaries are required to take credit insurance, which is paid, in case of a claim, directly to the bank (see paras. 9.01-9.25). Thus small farmers with insured PN/PIDERP credit are less of a risk to the branch bank than those with uninsured regular credit.

Better developed regions and their banks. Another possible explanation of the Castro Alves situation relates to a phenomenon referred to in my 1974 Northeast credit paper. The bank branches furthest away from the more developed regions of the coast seem to show better coverage of poor farmers, and sympathy to programs for them, than branches closer to the coast. This may reflect the more homogeneous poverty of the more isolated, less fertile interior regions. In the interior, there will be few commercial farmers outside the target group interested in or capable of competing for crop credit and any subsidized versions of it. For the coastal and near-coastal branches, in contrast, it may be more politically difficult for a branch manager

to facilitate crop credit for poor farmers, because of the counterpressures that he will receive from an existing group of established commerical farmers. This particular phenomenon suggests that it may be easier to make progress in some places precisely because they are more backward than others. Conversely, it would be harder to make progress in other places precisely because they are better developed.

4.11 The phenomenon suggested above would explain not only the outcome in Castro Alves, but that of the BB branch in Feira de Santana. The Feira branch, located in the most developed part of the project region, is one of the branches least dedicated to small farmers: of the twelve BB branches, it has the lowest share of laon value in small loans (0.7%), the highest share of loan value in large loans (81%) and the highest disproportion in the project area between the share of livestock credit and the share of livestock production (3.3:1).<sup>1</sup> Finally, Feira was the only branch to show an absolute decline in the number of short-term crop loans in 1974, 1975, and 1976--while livestock loans were increasing in each one of those years (Table 19). All this may not augur well for the projected growth of small-farmer clients in the Feira jurisdiction.<sup>2</sup>

<sup>1</sup>See Tables 13 and 21. The area with the next highest disproportion of livestock credit to livestock herd is Serrinha (2.45:1).

<sup>2</sup>Feira also has one of the lowest ratios of loans per employee, suggesting that the lack of growth is not a function of personnel constraints (Table 14).

4.12 The problem of the more developed parts of the project area would apply to the local EMATERBA offices. Extension personnel in the near-coastal regions would encounter more commercial small farmers, or farmers at the upper edge of the target group. The agents would be more "tempted" to include such cases because they are easier and more enjoyable. They would also be likely to be l pressured to do so by the farmers themselves.

4.13 In monitoring the proposed project, it will be important to watch the way the programs of the near-coastal regions develop. If it is true that political and institutional factors make it easier for the interior branch managers to serve small farmers, then it may make sense to concentrate more of the program's efforts there. At the least, the share in the project of the branches in the more developed eastern part of the project areaumight be reduced. As the program is currently designed, the Castro Alves and Feiffa de Santana branches alone account for 24% of the projected beneficiaries (Table 6).

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Of the three towns with bank branches participating in the PN/PIDERP program, the one with the lowest incidence of existing bank clients was Itaberaba. None of the crop borrowers had had credit before and only one of the 30 livestock borrowers had had credit. This town is the furthest of the three towns from the coast, and also covers an area which, among the three, has the poorest soils.

The EMATERS and the banks. Much of the success of the credit component of the proposed project will depend on the ability of the local EMATER offices to work with local bank branch managers to gain their sympathy and cooperation. The EMATER relation with the local branch manager is an important instance of the role of EMATER as a local "pressure group," pushing for the interests of the small farmer (paras. 10.10-10.18). When the project is monitored, then, it will be important to keep abreast of the experience of the local extension agents with the bank branches.

4.15 In most large and geographically dispersed organizations like EMATERBA, field-level problems and suggestions often do not get communicated to the levels where something can be done about them. This is partly because of the reticence of field-level personnel to speak out and their feeling of powerlessness. Yet it is this experience of the local agent that will tell how the extension-bank relations are going. This experience needs to be chronicled regularly during project monitoring. This should be done not only with the idea of bringing recalcitrant branches into line and flagging unexpected problems; it will also point to types of arrangements and solutions to problems that have worked well.
4.16 Relations between the EMATERS and the banks vary. Banks often say the EMATERs are the bottleneck to a rapid processing of

credit applications, and EMATERS say the same about the banks. Some EMATERS report that they have gone a long way in achieving a good working relationship with the local bank--the branch manager often having started out as uncooperative. Some banks insist on using their own and not the EMATERS' criteria of subproject evaluation. When calculating the financial plan for individual livestock investment projects, for example, EMATERS will consider up to 100% of projected net income as available for servicing the loan. The BNB in Itaberaba, however, uses a more conservative calculation, allowing up to only 70% of projected net income to be applied to debt-servicing costs. (The BB branch in Itaberaba accepts the 100% criterion of the EMATER.) The BNB also insists on more conservative projections of improvements in livestock productivity indices such as calving rates, mortality rates, etc.

4.17 Because of the different criteria used by the BNB and the EMATER, the latter office ends up doing two farm plans--its own and one that will be acceptable to the bank. If the plan for the bank shows an inability to service the debt (up to 70% of net income)-and its own plan shows the contrary (up to 100% of net income)--it either reduces the size of the loan or adjusts the figures in a way that makes the result come out right. Whether or not the BNB's or the EMATER's position is the more prudent one with respect to the

livestock subprojects, it is important that these kinds of differences l be watched and dealt with. The solution resorted to in this particular case--preparing two financial plans--could add significant cost and delay to the processing of loan applications. It should also be determined whether this problem results from true differences in institutional regulations and financial practices, or whether it represents a lack of cooperation by the branch banks with the program.

4.18 It is important to note that in contrast to the more conservative position of the Itaberaba BNB on livestock indices and rates of return, this particular branch was considered by farmers and EMATER agents to be highly responsive and accessible--much more so than the local BB branch. Small farmers reported that they encountered much less delay and "putting off" behavior at the BNB than at the BB. Indeed, they preferred the BNB even though that bank was allowed to finance only 70% of their expected receipts, in the case of corn, as opposed to the 80% of the BB. Since these percentages represent a much lower share of actual receipts, the extra 10% given up

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Without knowing much about the issue in this particular case, I would tend to agree with the BNB--given the ever-present risk of drought in the project area, and the fact that productivity increases for livestock subloans have been consistently overestimated in IBRD livestock projects. The BNB, being "o banco do boi", probably has considerably more experience than the EMATERs in the way financial projections for livestock projects actually turn out.

by preferring the BNB is an important loss. It demonstrates in one more way that delay is costly to small farmers, and that they will pay to lessen it.

4.19 The preference for the BNB in Itaberaba is remarkable, given the BNB's general reputation among crop farmers in Bahia as "the cattle bank" (o banco do boi). They normally look at the BB as their place to go for credit, not the BNB. It is tempting to attribute this anomalous reputation of the BNB in Itaberaba to the fact that it has the largest number of employees of all the branches in the project area in relation to its number of loans (Table 12). The branch processed two loans per employee in 1976, in comparison to an average for the project area of 23 loans per employee. The data, however, do not really support this explanation. The next lowest ratio of loans to personnel is that of the BNB branch in Feira--10 per person. Like Itaberaba, it opened within the last two years. Thus the high relative number of personnel probably reflects the unusually low number of loans characteristic of a startup period. The other two favorable loan-per-employee ratios--Lençois at 11 and Feira de Santana/BB at 13--are from bank branches that have not performed well in terms of small-farmer credit (par. 1.35). It would ). It would be useful to obtain further information on this particular question, so as to determine whether the BNB/Itaberaba case has anything to say about optimum staffing levels--or whether it reflects only the

random policies of individual managers, or the "honeymoon" period during which a new branch seeks to attract business.

The Division of Rural Credit Policy (DICOR)--Salvador Office. Just as it will be important to watch the development of EMATER-branch bank relations, so it will be important to watch the actions of DICOR in Salvador. Is it sufficiently staffed and empowered to play the gadfly role that it has up to now--or will a more concerted effort be needed? The advantage of the DICOR operation as it is currently run is that it is a small office with a few people. They have access to both the Bank of Brazil in Brasília and the agriculture hierarchy of the state of Bahia. Their smallness means that they are without the bureaucratic slowness, ambivalence or impersonalism of a larger operation. It is the personalistic nature of the DICOR presence--the accessibility of the small staff, their sympathy to the project and its goals, and their location in the same city with the project office--that makes their existence important to the project.

## V - Production costs and credit

5.01 The minimum price program of the federal government has a direct impact on short-term crop credit in that the official minimum prices are used to determine the amounts of individual crop loans. When a farmer applies to a bank for crop credit, the bank makes a calculation of his needs by estimating his expected receipts. The bank must estimate those receipts by multiplying the number of hectares planted with the credit by an estimate of the average yield per hectare; this product is then multiplied by the prevailing minimum price for the crop, which is set at the beginning of each crop year. The maximum credit allowed to a farmer, in relation to this calculation of his expected receipts, is a fixed percentage of those receipts. These allowable percentages are set for each crop by the monetary authorities. An illustration of the calculation of an individual credit request is presented below (paras. 5.04-5.05).

5.02 The allowable percentages vary for some of the crops, and as between the Bank of Brazil and the Bank of the Northeast (Table 18). For regular credit, the allowable percentage is 60% for cotton, rice, beans and corn, and 50% for manioc and castor bean. Since 1975, credit in the North and Northeast that is accompanied by technical assistance qualifies for a separate set of higher percentages--80% for cotton and corn, 70% for rice and beans, 50% for manioc and 60% for castor

bean.<sup>1</sup>

5.03 Sometimes the above system of calculation is waived. In the case of special short-term attempts to promote certain crops, the Bank of Brazil will simply declare a monetary amount to be granted per hectare. This is being done in the current attempt to promote increased bean production in the Irecê region, resulting from bean shortages and high prices caused by bad weather. The BB directed the branches to finance up to Cr\$2,500 per hectare for beans, without necessarily making a cost calculation. This amount was quite liberal, given that bean credit was usually being granted at Cr\$1,500 (except when interplanted with corn, in which case the amount was Cr\$2,500).

5.04 The credit proposal for a PN/PIDERP beneficiary of the EMATER office in Itaberaba is taken as an example of the way the credit calculation is made for an individual borrower. A producer

<sup>&</sup>lt;sup>1</sup>The castor-bean percent seems to have been allowed to reach 80% in some cases. I received conflicting reports as to what these percentages actually were. For PN programs, some managers reported the percentage as 80% for all crops, in contrast to the listing I have of 70% for beans and rice. Other managers reported the percents cited in the text. The BNB was allowing 70% for corn in comparison to the 80% allowed by the BB. An extension agent accompanying me on my visits to seven of the banks regularly asked about the castor-bean percentage both for PN and regular credit. He was interested in obtaining financing for the cultivation of castor bean on some land he had acquired. He received several different answers and by the end of the trip was himself unsure. I do not know what explains these inconsistencies, and when the BB and and BNB decide to set their own percents, lower than the ceilings set by the monetary authorities.

who applied for a loan to plant ten hectares of interplanted beans and corn was assumed to have an average yield of 12 sacks (60-kg) per hectare of corn and ten sacks per hectare of beans--in total, 120 sacks of corn and 100 sacks of beans. At the minimum price of Cr\$288 per sack for beans and Cr\$79.20 for corn, this gives Cr\$38,304 as total expected receipts--Cr\$28,800 for beans and Cr\$9,504 for corn. The bank is allowed to finance 70% of these receipts for beans, or Cr\$20,160, and 80% for corn, or Cr\$7,603--for a total of Cr\$27,763. The actual financing was Cr\$23,400, which represented the farmer's total costs as calculated by the EMATER. This credit amounted to 61% of the expected receipts.

5.05 In the case outlined above, as well as with some other special lines of credit, the bank calculates a cost budget in addition to expected receipts. In these cases, the branch will often use a standard budget which it applies to each case. If the budgeted cost is less than the result of applying the percentages to the expected receipts, then the credit is correspondingly less. This was the case in the example above, where Cr\$23,400 was the cost and Cr\$27,763 the expected receipts. If the cost budget turns out to be more, then the plan must be modified so as to keep the costs within the ceiling. Some EMATERBA technicians said that the banks' standard budgets often result in much lower calculations of costs for PN/PIDERP beneficiaries than their own calculations.
<u>Will subproject costs be financed</u>? Though the percentage ceilings would seem high enough to accommodate all costs in most cases, it turns out that the percentage of <u>actual</u> expected receipts that can be financed is much lower than the stipulated percents. This is because the minimum prices, which are used to calculate expected receipts, are considerably lower than market prices. Over the 1973-1976 period, for example, the minimum price paid to farmers for beans in Bahia averaged 45% of the lowest monthly market price of the agricultural year (Table 18). For castor bean, the minimum price averaged 56% of the lowest market price; corn was 70% and manioc was 44%.<sup>1</sup>

5.07 If expected receipts are calculated according to the real rather than minimum prices, then one obtains percentages of expected real receipts that are much lower than the allowable percentages. In the case of regular credit, the percent of expected real receipts financed would be about 27% for beans--i.e., minimum price as 45% of real price times the 60% allowable percentage equals 27% of expected real receipts (Table 18). For corn, the corresponding actual percent

The manioc figure is for root rather than flour; the minimum price for the latter was 61% of market price. Credit calculations are based on minimum prices and yield figures for root rather than flour. The price for flour is usually announced some months after the price for root; so it is not known by planting time, when credit applications are being processed.

would be 42%, for castor bean 28%, and for manioc 22%. For the credit subject to the higher percentages, including PN, the actual percentages financed would be 32% for beans, 56% for corn, 34% for castor bean, and 22% for manioc. The prevailing method of calculating credit for PN/PIDERP beneficiaries, in sum, results in a real allowable percentage of between 22% and 56% of expected real receipts.

5.08 In some cases, the minimum prices for the coming crop year are not set and declared by the time credit applications are being processed for the planting season, as happened for the 1977/1978 year. In face of this delay, some branches reported that they were not processing credit applications until the minimum prices were announced. Others said that in lieu of the new prices, they were making their credit calculations at the old prices. (The 1976 minimum prices for corn, beans and manioc ranged from 65%-80% of the new 1977 prices.)

5.09 Though the allowable percentages may provide enough credit to cover the cash costs of farmers in the Northeast, they are likely to fall well below the kinds of costs envisaged in the proposed project. Neither PIDERP nor EMATERBA have made studies of actual costs on small farms, or of whether credit has covered realized costs. It is therefore not possible to predict accurately how the credit calculated by the allowable percentages will compare to actual subproject costs. According to the farm models of the proposed project, costs are projected at between 60% to 100% of expected receipts.

This means that the allowable percentages--at a real level of 27%-56% of receipts--may fall well below costs. Thus subproject costs would not be covered by the credit.

5.10 It was out of concern for the above-stated problem, in part, that the monetary authorities took the decision in 1975 to allow higher percentages for programs "with technical assistance" in the North and Northeast. But given the large differences between minimum and real prices, the increase in the allowable percentages by ten to 20 percentage points may not be enough to cover the increased use of purchased inputs and the imputed wage to own and family labor.

An important element of the increase in cash costs resulting from a change to modern inputs will be the purchase of improved seeds, which is an integral part of the PN/PIDERP technical package. Farmers usually use their own seed, carried over from the previous harvest. Though own seed is clearly an element of any calculation of real cost, it has not been included in the calculations made for normal credit. Thus the inclusion of this item, when it starts to be purchased, can cause a considerable increase in cash costs.

5.12 Given the above problem, it is puzzling that many EMATER technicians reported that PN/PIDERP farm budgets did not usually exceed the allowable percentages, and that these ceilings were therefore not a problem. This would mean that bean farmers, for example, have

a net return of at least 73%--given that the allowable real percentage is 27%. One technician suggested that this seemingly high net return for poor farmers is in truth a very low return: it does not amount to much in absolute terms, and it occurs only once a year, having to suffice for the family's income for the whole year.

5.13 The lack of complaints about the allowable percentages would be understandable in cost calculations that did not include an imputed wage for own and family labor--as is probably the case for the standard budgets of the banks. But the calculations made by the EMATERS for PN/PIDERP beneficiaries do include an imputed wage of Cr\$35 a day for own labor.<sup>1</sup> The sample calculation cited above, for example, showed 73% of the costs of the proposed short-term crop credit as arising from labor.

5.14 It may be that the amount of labor required is generally underestimated. Also, EMATERBA headquarters points out that the cost calculations do not include interest payments on the credit, or the costs to the farmer of applying for and receiving the credit. There is also no contingency amount for cost increases included in the cost budget. The banks will not make adjustments in the cost calculations even when several weeks and price increases intervene between the

Actually, the EMATER cost calculation does not distinguish between hired and own labor; it simply specifies the number of man-days it takes to do the various necessary tasks. The cost calculations of the Bank model do distinguish between hired and family labor.

calculation and the disbursement of the credit.

5.15 Whether or not the cost calculations as currently done by the EMATERs are adequate, it is important to arrive at a clearer understanding of this question as soon as possible. If it is true that the cost calculations are inadequate, then the difference will come out of the non-monetary costs--i.e., the imputed wage for family labor. Since these amounts are necessary for the family to eat, not allowing for them could undermine the objectives of the project. Since the credit part of the project has already started, it should be possible to sample several cases and compare the projected costs with those actually made. The latter costs should also be compared to the amounts allowed for credit using the minimum price calculation of expected receipts and the allowable percentages.

How the allowable percentages are exceeded. The seemingly cut-and-dried method of calculating short-term crop credit needs is subject to some flexibility and discretion. The branch manager's choice of the average yield per hectare to be used in the calculation of expected receipts, for example, can obviously have a significant result on how liberally or conservatively one finances a farmer's costs. Some bank branches reported that they estimate their own yields for the region, and others said they use yield figures from Brasilia. Most did not seem to seek out the local EMATER for such estimates. If the branch

manager can choose his own yield figures, then he clearly has considerable discretion as to whether he wants to finance crop costs on the low or high side.

5.17 Both BB and EMATERBA technicians noted that the BB branches finance more than the allowable percentages in some cases. They "guessed", for example, that the credit for castor bean was exceeding its allowable percentage of 60%. It was not clear when and how widely such breaches occur, and who has the authority to make the decisions. Indeed, it seemed as if the decisions were on-the-spot ones, which did not reach the level of formally deciding that it was desirable to go beyond the allowable percentage.

5.18 In addition to this flexibility with respect to the credit calculation at the branch level, rural credit legislation and regulations offer other opportunities to get out from under the percentage ceiling. The FATOR line of concessional credit for modern inputs allows 100% financing of short-term credit needs related to the use of these inputs. This opportunity is used almost exclusively outside the Northeast. During the 1973-1976 period, FATOR accounted for only 1%-3% of total rural credit in the project area (Table 20). Many large commercial farmers, it is said, are also able to get around the allowable percentage ceilings and the minimum-price calculation as long as they show that their yields are higher than the average. If

they do so, they are able to obtain 100% financing of their short-term crop costs. As with FATOR, this opportunity is taken advantage of by farmers in the south.

5.19 The announcement of special higher percentages for the North and Northeast in 1975 shows that the monetary authorities were aware of the discriminatory way in which the allowable-percentage system and its exceptions were operating. For some time into the future, however, most of the rural credit for small farmers in the Northeast will remain outside the special credit lines qualifying for these higher percentages. Even those who qualify for the higher percentages will still not have access to the 100% financing, free of the minimum-price calculation, that is available to the better-off larger farmers outside the Northeast.

5.20 The allowable percentage system, in sum, has demonstrated some amount of room for flexibility and exceptions. With respect to the opportunity to obtain 100% financing, it is clear that this exception has worked solely to the benefit of the large modern farmer outside the Northeast. In this sense, the allowable percentage system comes down more heavily on small farmers than large ones. With respect to the opportunities for flexibility at the branch level, it is not clear whether these variations depend solely on the attitudes

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My information on this particular exception, and the extent to which it is used, is incomplete.

of the branch manager, varying randomly from one to the next; or whether there are cases where the variations are mainly the result of short-term policies to promote or discourage production of certain crops in certain regions.

5.21 It may well be that decisions are not explicitly taken to exceed the percentages, but rather that there is an unspoken willingness to look the other way when they are exceeded. This needs to be remembered if it turns out that the costs for PN/PIDERP beneficiaries do exceed the allowable percentages. It may be easier and more politically feasible to obtain a working agreement that branch managers will "look the other way" if the percentages are exceeded in the PN/PIDERP cases--than to arrange for a formal exception written into the credit regulations or the project agreement.

The allowable percentages and national economic policy. The allowable percentages and the use of minimum prices to calculate expected receipts seem to be an arbitrary, unrealistic, and discriminatory method of calculating agricultural credit requirements for the individual farmer. At the same time, however, they are part of a larger complex of macroeconomic policies in which their very simplicity and arbitrariness are their strength.

5.23 The tying of crop credit to the percentages and the minimum price in a way that does not cover costs, serves three purposes: (1) it

allows the government to predict with some precision the role of crop credit in the monetary budget, and thus is a valued instrument in the government's planning of its anti-inflationary policies; (2) it is a cut-and-dried way of distributing short-term crop credit more thinly among more users than might be the case if farmers were able to obtain 100% financing at will; and (3) both the percentages and the minimum-price levels are used by the government to implement decisions to discourage or encourage the production of certain crops. The Bank of Brazil is also sympathetic to the allowable 5.24 percentage system because it carries some protection for the Bank against large crop losses in one region or another. For crops which are purchased and/or stored by the BB under the minimum price program, moreover, this way of calculating credit protects the BB against delinquencies and default. The BB simply deducts the crop credit due it from the minimum-price payment it makes to the selling farmer. (The BB pays farmers either 80% or 100% of the value of the purchased crop, as calculated by the minimum price; see paras. 8.05-8.06.) If the crop credit were greater than the amount of the storage credit or the purchase payment--both calculated at the minimum price--then the farmers might be delinquent on that part of the crop credit not

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Oh Bank, please forgive my sin in using a capital B for any bank but you!

covered by these payments.

5.25 A system of calculating crop credit that makes it less than or equal to the storage credit or minimum-price payment, then, increases the probability for the BB that its credit for certain crops will be repaid immediately, without necessity for collection efforts. In that the Bank of Brazil is the major lender of crop credit in the country and is the exclusive lender and purchaser under the minimum price program, it is to the interest of the bank not to have the crop credit exceed the storage credit or minimum-price purchase payment.

The story of castor bean. The case of castor bean, an important smallfarmer crop in the project area, is an example of the government's use of the allowable percentages to implement decisions on certain crops. The allowable percentage for castor bean has been consistently lower than that for other crops, for both regular credit and the special North-Northeast percentages (50% and 60%).<sup>1</sup> The story of this lower percentage starts with the petroleum crisis in 1973, which sent up the price of castor bean over its pre-crisis level, stimulating considerable planting.<sup>2</sup>

<sup>&</sup>lt;sup>1</sup>The castor-bean percentage for POLONORDESTE programs, as noted above, seems to have "slipped" up to 80%, now on a par with cotton and corn.

<sup>&</sup>lt;sup>2</sup>The CIF price of Brazilian castor oil in European ports oscillated between US\$0.30 and US\$0.38 per ky. from mid-1970 to the end of 1971. It rose in 1972 from US\$0.40 to US\$0.88, and in mid-1973 to a high of US\$1.23. In 1975 and 1976, the price oscillated between US\$0.50 and US\$0.85. Price data from Comissão de Finançamento da Produção, <u>Anuário</u> <u>Estatístico</u>, <u>1977</u>, p. 271.

The government, in addition, carried out a widespread promotion campaign for the planting of castor bean, in order to take advantage of this windfall opportunity to earn much-needed foreign exchange receipts. The promotion was particularly intense in Bahia, the largest producer of castor bean in Brazil. "Plant," the government posters exhorted in a rhymed sentence, "for the government guarantees you the purchase" (<u>plante que o govêrno garante</u>).

5.27 By the time the newly planted castor bean started to be harvested--the plant has a two-year cycle--the petroleum crisis had eased enough that the international price of castor bean was falling back down. With the large increases in production, the price plummeted even more to below the minimum price in 1975-1976.<sup>1</sup> The government was not able to buy the production at the minimum price, and the market price had fallen so low that it did not cover the price of the sacking. Many farmers, upon encountering these prices at the market place, dumped their castor beans on the ground and took the sacks back home. As a result of this experience, the government lowered the allowable credit percentages to discourage further planting. Also as a result, Bahian farmers are particularly skeptical about the government's promises to buy production at minimum prices.

<sup>&</sup>lt;sup>1</sup>Actually, the minimum price was almost doubled for the 1975-1976 crop year, having remained virtually the same for the previous three years. The minimum price was again raised by about 50% in 1976/1977. From mid-1975 to the present, the minimum price has been higher than the market price.

5.28 Despite the tragic features and mismanagement of this particular incident, it illustrates the potential policy value of the combination of minimum prices and allowable credit percentages. At the same time that the credit percentage was being lowered, the minimum price was being raised to above the level of the market price. Thus the government was able to discourage production of the crop while at the same time softening the effect of the fall in price on farmer income. (Only for those, of course, who were able to sell to the government.) The minimum price system, then, can be used to protect the farmer's income from falling prices at any particular moment while at the same time discouraging him from further planting through the credit percentage system. In this way, the allowable percentages can sometimes be crucial to the execution of the government's minimum price policies.

Manioc, castor bean and drought resistance. The low allowable percentage for manioc--50% in both regular and special Northeast credit--was also set with an eye to discouraging additional production. Most manioc in the Northeast is produced on small farms. Partly because the root is perishable, the processing of the manioc into flour is done on the producer's own farm--usually by the other members of the household. The flour produced this way is of a higher humidity content than that produced for commercial sale in the coastal cities--16% vs. 12%. The home-roasted higher-humidity product spoils more quickly than the drier product; it is also whiter in color. The home-made product, however, is considered more palatable and fresh-tasting than the

yellower commercial product--at least by consumers in the interior of the Northeast.

5.30 The higher-humidity manioc flour, of course, weighs more than a longer-roasted flour made from the same amount of root. Thus any attempt to convince producers to roast their flour more in order to get down the humidity might be resisted on the grounds that the same amount of root would yield less return. Because the high-humidity Northeast product cannot be stored for long and/or transported long distances, all of it must be placed on the market within a short period of time of the harvest, and it must be sold within a more limited market. This means that good harvest years cause bad gluts and low prices.

5.31 The price and marketing problems of manioc are exacerbated by the fact that the government's minimum price and storage program virtually does not operate in the Northeast, though minimum prices for manioc root and flour are published. This is partly a result of the humidity problem of home production, the absence of any past or current program to support manioc flour that <u>might be</u> produced at the storageable humidity, and the lack of an arrangement for testing for toxicity.

5.32 The low allowable percentage for manioc, then, is a result of the government's reluctance to facilitate production of a non-storable

This matter is explained in paras. 8.19-8.23.

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crop with wide swings in prices. Further discussion of this complex issue, and its relation to the project area, is postponed until later (paras. 8.19-8.25, 11.37-11.57). Suffice it to say here that the credit and marketing policies regarding manioc and castor bean are extremely important to the project area. These crops are the only two of importance that are produced by small farmers in the project area and at the same time are much better adapted than corn and beans to its dry spells and poor soils.

5.33 The fact that the proposed project, as well as the allowable percentages and minimum price program, give preference to corn and beans over castor bean and manioc may mean that the area is being encouraged to specialize in crops for which other parts of the state and the country are more suited. Just as disturbing, this system may discourage the only two crops in which the area has a relative comparative advantage. The lack of support of manioc and castor bean, as noted above, relates to price and marketing problems. This suggests that the proposed project might do better to focus on the marketing problems of these two crops, than to encourage with production credit the further production of beans and corn.

<u>Political dimensions of the prices and percentages</u>. Like the minimum prices, the allowable percentages affect all farmers throughout the country, with the exceptions noted above, and can be changed from one

year to the next. Thus decisions about them are subject to intense political pressure from farmers. The commercial farming sector in the center-south of the country, for example, has been exerting considerable pressure in recent months to raise the allowable percentages or do away with them and the minimum price calculation completely.

5.35 Another example of the political ramifications and difficulties surrounding the minimum-price decisions is the case of this year's minimum price for castor bean. When the price fell, after the easing of the petroleum crisis, it was proposed in government circles that the annual minimum-price increase for this product be less in the south of the country than in Bahia. Because of the importance of the crop in the agricultural economy of Bahia, and its significance among small farmers, it was felt that the price should be increased more for Bahia. In the center-south, it was felt, castor bean was a less significant part of agricultural production and producers were better off.<sup>1</sup> This region, it was felt, could bear more of the burden of the disincentive to increased production. Upon learning of this proposal, the politically powerful southern producers made such an outcry that the government ended up setting a single price for all producers.

<sup>1</sup>The most important producers of castor bean in 1976 were Bahia (43%), São Paulo (18%), and Paraná (13%). Percentages relate to tons produced in 1976. From IBGE, <u>Anuário Estatístico do Brasil</u>, 1976, p. 170.

5.36 The percentages, like the minimum prices, are tied to the agricultural politics of the whole country. Any attempt to change them to benefit Northeast farmers, or a subsample of them, would have to do battle with interest groups outside the Northeast. A proposed change might end up being acceptable only if it were generalized to the whole country. If the latter were to occur, the benefits to the larger groups might far outweigh those to the smaller groups, thus increasing the inherent discrimination of the subsidy system in favor of large farmers. This does not mean that changes applying only to the Northeast cannot be made, as is witnessed by the special set of percentages for the North and Northeast. But it means that any desired change in these parameters may have to be sought on various grounds, many unrelated to the interests of this particular project or even of all PN projects. Given these circumstances, it may be simpler to seek forms of change that do not directly or explicitly tamper with the percentages and the minimum prices.

<u>Conclusion</u>. The problematic nature of the allowable percentages is not unrecognized in Brasília. Indeed, some groups in the Ministry of Agriculture and the Production Finance Commission (CFP) have tried to get this system of calculating credit to be changed, if not completely scrapped. They have not been able to overcome the resistance of the Ministry of Finance, they say, which wants to preserve this simple instrument of control over the role of crop credit in the monetary budget.

5.38 It may be that this system of allowable percentages and minimum prices is the most efficient alternative available so far for achieving the complex set of policy goals outlined above, and for dealing with the constant pressures exerted by agricultural interest groups. If it is true, however, that the system is under scrutiny and criticism and that there is a possibility for change, then information on actual costs of PN beneficiaries compared to the credit they receive might play an important role in informing the decision to change.

## VI - Land Credit

6.01 In the pronouncements heralding both the PROTERRA and POLONORDESTE programs, land credit was featured as very important. The credit, an alternative to agrarian reform, was to allow small and landless farmers to purchase land at favorable terms. Purchases were allowed up to a landholding size of six INCRA modules, including any already-owned land. Repayment could be made in up to 12 years, with two years grace and an interest rate of 12%. The credit could cover up to 80% of the cost of the land.

6.02 The six-module limitation is liberal for a small-farmer program, and the PN group has been attempting to have the ceiling lowered to three modules. In the project area, for example, six modules would allow the purchase of 540 hectares for livestock, 210 hectares for crops, and 30 hectares for fruit and vegetable farming.<sup>1</sup> A large majority of the farms in the project area are well below those sizes--83% are less than 50 hectares, 91% are less than 100 hectares, and 98% are less than 500 hectares.

6.03 In early 1977, land credit was put under the aegis of the POLONORDESTE program and its terms were liberalized. Banks could now finance 100% instead of only 80% of the cost of the land,

<sup>&</sup>lt;sup>L</sup>The modules in the project area are 90 hectares for livestock, 35 hectares for annual crops, 30 hectares for permanent crops, and 5 hectares for fruit-and-vegetable. Some municipios have lower modules for crops--25 hectares for permanent crops and 30 hectares for annual crops.

the amortization period was changed from 12 to 20 years, and the grace period was extended from two to six years. These changes were meant to open up access to smaller farmers. In addition, the Bank of Brazil imposed a 100-MVR limit (Cr\$87,770) on the size of any individual's outstanding debt with POLONORDESTE credit, including that for land. (The BB is now considering raising that ceiling to 200 MVR--Cr\$175,540.) Despite these highly favorable terms for the borrower--no down payment, negative real rates of interest, 100% financing and 20 years to pay--there was no upsurge in demand for the credit after the change in its terms.

6.04 Though the land-credit features of the PROTERRA and POLONORDESTE programs were both announced with considerable fanfare, land credit has been insignificant so far under both programs. Between 1973 and 1975, when PROTERRA credit was at its height, new loans for land credit amounted to less than 1% of the value of new PROTERRA loans by the Bank of Brazil in the Paraguaçu Basin (Table 20). In 1976, when PROTERRA was declining, land credit in the project area represented 1.2% of PROTERRA credit. In August 1977, seven of the twelve BB branches in the project area reported only two cases of land credit under the new POLONORDESTE terms.

The apprehension about land credit. The stillbirth of the land credit program, impressive in contrast to the importance it was given in public pronouncement, is easily explained. The Bank of Brazil

headquarters and branch managers were always skeptical about the program, and the government never pushed the Bank. (Banks outside the Bank of Brazil were even less interested.) The BB's lack of enthusiasm about the program--especially after its terms were liberalized--has related to the bank's concern over possible delinquency and default problems, and the prospect of tying up its own loan capital for such long periods of time.

6.06 The BB says that, since 1975, it has not been reimbursed by the Central Bank for its PROTERRA loans, not to mention the more recent POLONORDESTE loans. (The Central Bank claims that part of this non-reimbursement is a result of the BB's lending beyond the limit imposed on it by the Central Bank.) Thus the BB sees itself as making POLONORDESTE loans out of its own resources, with little anticipation of being reimbursed. Hence the reluctance to tie up the bank's "own" POLONORDESTE capital in 20-year credits.

6.07 There has been no promotion or clarification of the landcredit feature of POLONORDESTE program by the Central Bank or by BB/Brasília to its branch managers. Some branch managers in the project area were not familiar with the new terms of the credit; some extension agents, when queried by beneficiaries of PN production-credit about possible land credit, did not know what its terms were and whether or not it even existed. The lack of promotion of the land credit program at the Brasília level can be

attributed in part to the time it takes to work out the beginnings of any new program. There also seems to be an interest in waiting to see how the production-credit aspects of the PN program develop before embarking on the land-credit feature.

6.08 A good part of the problem with land credit exists at the branch-bank level. Branch managers are unenthusiastic about land credit. Their conception of the intended beneficiary of the program is different than that of its rhetoric. Many managers said that small farmers did not have the "conditions" to afford the size of land purchase financeable with land credit, and to service the debt. They seemed to view the land credit as a mechanism for financing the purchases of regular clients, rather than as providing access to this type of credit for those who did not have it before. They complained that the requirement that the owner reside on the property eliminated many "good" candidates. They also objected vigorously to the 100-MVR limitation, saying that it too excludes many potential buyers. Some managers said that with a 300-MVR limit (Cr\$263,310), they could "move" much more land credit.<sup>1</sup>

6.09 The price of uncleared land in the project area varies between Cr\$2,000 and Cr\$4,000 per hectare. A 100-MVR limit thus

<sup>&</sup>lt;sup>1</sup>One suggestion from the Central Bank for overcoming BB resistance is that PN adopt a system of scheduling interest and amortization payments that is being used for long-term credit in the Sertanejo project. Under this system, the typical time stream of repayments is reversed--with the heaviest payments coming at the end of the repayment period rather than the beginning. Such a system, it was suggested, would be more in harmony with the growth of the farmer's ability to repay.

represents a land-size-purchase ceiling of roughly 22 to 44 hectares. This is about the size of one INCRA module for annual crops--the minimum land-size holding required for land-credit financing-i.e., 35 hectares.<sup>1</sup> The 300-MVR limit desired by some managers would imply, at prevailing land prices, an effective ceiling of roughly 66 to 131 hectares--roughly two to three crop modules. As mentioned above, BB/Brasília is considering the possibility of raising the ceiling on all PN loans to 200-MVR for any individual (Cr\$175,540). This would imply a land-purchase limit of roughly 44 to 89 hectares in the project area, comfortably above the 35-hectare one-module minimum for annual crops.

6.10 Another impediment to land credit mentioned frequently by branch managers was the requirement of a registered land title (<u>escritura registrada</u>). Many of the landowners in the region do not have registered title to their land; they consider the procedure of acquiring one before selling their land as taking too much time and money.

6.11 The dislike of the BB branch managers for land credit, and their desire to give it to regular clients, is no doubt influenced by the way in which their performance is rated. Managers are rated according to three performance indicators: (1) the value of new

<sup>&</sup>lt;sup>1</sup>The one-module floor and six-module ceiling applies not to the amount of land purchased, it should be remembered, but to the amount of land purchased <u>plus</u> the already-owned land.

deposits, (2) net profits--i.e., returns from interest payments net of expenses and (3), weighing less importantly, the volume of croplivestock lending. The 20-year term of the land loans is almost twice as great as the longest term on the most concessional investment credit of PROTERRA. This means that the land loans would result in less deposits than would the same amount of capital lent out at shorter terms and rolled over several times during a 20-year period. That is, banks usually require a deposit before a loan is approved. Thus capital lent out for 20 years would generate only one new deposit during that period, whereas when lent out several times for shorter terms, it would generate correspondingly more new deposits.

6.12 The nominal costs of servicing a loan for a long period increase with inflation, while the nominal return in interest payments on crop-livestock loans remains the same. The longer the term of the loan, then, the greater will be the decline in the real net return of the loan--the indicator by which managers are judged. A significant amount of land credit lending for any particular bank branch, then, would almost necessitate a decline in the rated performance of the manager.

6.13 It will be difficult to overcome the disinterest of the BB managers in land credit, particularly for the target population, and the negative role played by the standards on which managers are rated. One way out of the situation might be to provide an important intermediary role for EMATERBA in land credit. This has actually

occurred already in the case of production credit, EMATERBA agents having taken much of the contact with the client out of the hands of the bank. This, along with PROAGRO credit insurance, has made it easier for managers to deal with otherwise little desired clients--at a distance and at minimal risk.

6.14 It may be necessary for EMATERBA to play the same role of intermediating and promoting land credit as it has with production credit. The bank managers, of course, may be less willing to take such a passive stance on credits with amortization periods as long as that for land credit. INTERBA may also be a more sympathetic, and thus better, intermediary than the branch bank in promoting the land credit program. Unlike the bank, it has nothing to lose from facilitating such credits and, indeed, would be fulfilling a part of its role.

6.15 Another possible approach to neutralizing the disincentive to branch managers to lend to small farmers for land might be--taking the cue from the facilitating role of credit insurance for production credit--an inclusion of the PN/PIDERP land credits under the PROAGRO insurance program. This would protect the manager against the losses he expects on land credit. The land credit mechanism, of course, already includes a 2% guaranty fund for just such losses. It may be that the crucial factor in overcoming manager resistance is not the type of insurance mechanism, but the fact that the loss will enter his performance rating whether it is insured or not.

6.16 Another impediment to the ability of the land-credit program to serve its intended beneficiary arises from the Bank of Brazil's regulations on how land can be used as a guarantee for credit. The significant change in the land-credit regulations, noted above, from a 20% down-payment to no down payment has to a certain extent been contravened by the BB's general regulations that land can be accepted as a guarantee against only 80% of the value of any long-term loan. To guarantee the remaining 20% of a loan, the borrower must provide another real guarantee, or the co-signature of a third party. For many small farmers, who cannot provide such guarantees, 6.17 the requirement of an additional guarantee for the loan amounts to the old system of the 20% down payment. The Northeast department of the BB in Brasília is aware of this problem, and has requested a ruling that would allow the land to be used as a guarantee for the full value of the credit.<sup>1</sup> This change would be applied only to land-credit purchases up to the size of two INCRA modules (70-180 hectares). At present, BB rules neither prohibit 100% financing nor require it.

The size of the INCRA module. Another problem with respect to the land credit program, also raised by PIDERP, is the minimum landholding size required to qualify for land credit--i.e., the size of the INCRA module. PIDERP is trying to convince the authorities to allow financing

<sup>1</sup>The BB has also pointed out that, with inflation, the value of the land as guarantee would rise to 120% in a few years anyway.

for purchases of less than one module when it can be proven that this smaller-sized farm enterprise can be self-sustaining.<sup>1</sup> The INCRA module is meant to represent the minimal land size necessary in a given region, and for a given activity, to generate four annual minimum wages during the course of a year (Cr\$42,128). Though the INCRA minimum sizes have been criticized by many as being too high, the SUDENE/IBRD Farm Survey arrived at minimum self-sufficiency sizes that were quite similar, and sometimes higher, than the INCRA module.

6.19 Though the criterion for the INCRA module is that of a self-sustaining agricultural production unit, it excludes a majority of the farms of the Northeast. As the SUDENE/IBRD Survey shows, 75% of all Northeast farms do not meet the 12-MVR annual income level. The share of smaller farms not meeting this level would, of course, be even greater; the Survey shows that in the zone including the project area, average net income per farm surpasses the 12-MVR level only on farms over 50 hectares (Table IV.10). Many farm families supplement their income with off-farm earnings because of the seasonal nature of demand for labor on the farm and the inadequacy of the income provided by the farm.

<sup>1</sup>A 1972 law allows INCRA to waive the module minimum when it so determines, in which cases it can substitute a module as low as that for the municipio of the state capital (usually a few hectares).

6.20 Preliminary results from a study by the EMATERBA office in one of the project localities suggest that minimum sizes for self-sufficiency may be considerably lower than those of INCRA: in order to generate 12 MVRs in a year, seven hectares were required for manioc cultivation and eight hectares for corn and beans.<sup>1</sup> Extension agents in the Itaberaba office estimated even smaller minimum sizes--about three hectares.

6.21 Because the minima suggested by the EMATERBA studies are so much lower than those of the INCRA and SUDENE/IBRD studies, it is important that this question be analyzed further. As part of such further investigation it would be useful for PIDERP or EMATERBA to survey the land-purchase desires of existing credit beneficiaries. These producers may turn out to be interested in and capable of buying land that would result in total holdings lower than the INCRA module. This would represent further evidence of the difficulty that the module will pose for execution of the program with its intended beneficiaries.

6.22 Because the INCRA minimum excludes a large proportion of the landholdings existing in the project area today, the results of

<sup>&</sup>lt;sup>1</sup>Production credit in this EMATERBA study was costed at the subsidized 7% interest cost. Crop production was evaluated at minimum prices, which were roughly 50% of prices prevailing in the region at the time. If real prices were used, the minimum hectareage yielding 12 MVRs would be even less than the figures presented here.

a PIDERP investigation of this question could be extremely important for the potential impact of the project and its land-credit component. The PIDERP production-credit beneficiaries with whom EMATERBA is now working--mostly in the one-to-ten hectare range--will in many cases be too small to buy enough to meet the INCRA minimum. With no change in the present INCRA minima, then, the land-credit feature of the PIDERP program may simply not reach those it was intended to reach, and thus would not have its intended impact on small-farmer production.

6.23 The high minimum-landholding difficulty will be especially counterproductive with respect to PIDERP beneficiaries who are tenants. The uncertainty of many of the tenant relationships, and the landowner's interest in moving the tenants frequently in order to create pasture, makes primitive production techniques the only economically sensible ones. In many cases, then, the stability of the farm operation will be an important prerequisite to the desirability of adopting the production techniques to be introduced by the program.

6.24 Another drawback of the land-size minimum for land credit is that PIDERP may end up working with two distinct sets of beneficiaries--the larger ones, the only to qualify for land credit, and the smaller ones, who qualify for only production credit--instead of integrating the two features of the program in one beneficiary. Because of the cumbersomeness of such an outcome, there is the danger that the program would end up tying together production and landpurchase assistance in the only way possible--by working only with

the larger beneficiaries. There already exist other pressures in the structure of the program that would tend to push it in the same direction. One is the interest of bank managers in providing land credit to larger clients, as mentioned above. Another is the interest of the BB in raising the limit on POLONORDESTE credit from 100 MVR to 200 MVR, facilitating land purchase credits of up to 44 to 89 hectares. 6.25 The self-sustaining criterion for the INCRA module is based

6.25 The self-sustaining criterion for the INCRA module is based on the desire of the framers of the legislation to avoid "minifundization" of the Northeast. Though this desire is understandable, the criterion still ends up excluding the bulk of the target farmers from a program intended for them. Just as important, with respect to the efficiency concerns of the framers of the law, the criterion forces the exclusion of an important share of existing crop production from changes in tenure status that will be necessary, in many cases, to make the adoption of efficient methods of production more attractive.

6.26 The one-module minimum of the land-credit program, in sum, contributes to the very problem it was meant to avoid. By not allowing a change in the land tenure status of small parcels through purchase, it prevents minifundios from trying to achieve self-sufficiency through intensification of production on existing parcels. At the same time, it provides no way out of the minifundization that already exists. And, to complete the vicious circle, the PN integrated development programs do not necessarily provide attractive employment other than land for the existing minifundistas.

6.27 The land credit program should be made broadly available to the target group of the project area. Whether or not farmers adopt productivity-increasing inputs and techniques will be highly dependent on the nature of their expectations regarding the future of the land they occupy. Since much of the production of the project area comes from producers for whom the future of their parcel is uncertain--and since many small owners would want to increase their landholdings with any increased income resulting from the adoption of better techniques--the land-credit feature can be crucial to the success of the program. Leaving the promotion of such an important part of the program in the hands of the BB branch managers is to ensure that many potential beneficiaries will feel that the program is beyond their reach.

6.28 The land-credit program has been pronounced by its creators as an important piece of the Northeast rural development strategy. That they at the same time have not created an institutional environment in which it can function should not be looked at as a closed matter. The pronounced importance of the program should be taken as a lever for proposing and insisting upon certain measures and modifications that will allow the program to achieve its importance.

## VII - Mobile Credit Units

In March of 1977, the Bank of Brazil issued Instruction 7.01 #2549 to its North and Northeast branches (excepting the state capitals and other major coastal cities) requesting the initiation of a program of mobile credit units. The program is intended to eventually cover all of Brazil, and can be offered without technical assistance only in the Northeast. The mobile unit is to make four visits a year to localities within the bank-branch jurisdiction, preferably on the market day of the community to be visited. (Market days in Bahia are often on weekends.) The unit is to be composed of the branch manager, the chief of rural credit, and two credit investigators. The team is to rent vehicles from bank employees or third parties. Credits are to be no greater than 25 MVRs (Cr\$21,943). 7.02 Credit-processing procedures of the mobile units are to be the simplest: (1) all investigations of the applicant are to be carried out on the spot, as is the filling in of the application form and the "ficha cadastral"; (2) a special simplified application form is to be used; (3) the type of land ownership or rental contract need only be noted in the loan application, no legal documents being required (sharecroppers, however, are required by the instruction to present a letter of permission from the owner or manager of the property);

<sup>&</sup>lt;sup>1</sup>This requirement has turned out in practice to be quite flexibly carried out, as discussed below.

and (4) the borrower must reside on his property. This last provision was based on the Bank's pre-1964 experience with mobile credit units, when many of the beneficiaries turned out to have occupations unrelated to agriculture.<sup>1</sup>

The mobile-credit instruction of the BB tells its branches, 7.03 on the one hand, to give priority to communities being served by POLONORDESTE. On the other hand, the insturction states that the new program "will not draw on a special line of credit." The principal objective of the program, it says, is to facilitate direct access to credit to the small farmer and to reach the largest possible number of such producers. This is somewhat of a contradiction, in that the POLONORDESTE program is a special line of credit at 7% interest -- in comparison to the BB's normal credit for agriculture, which goes at 13% for loans less than 50 MVR (Cr\$43,885). POLONORDESTE, moreover, seeks to concentrate services on certain types of beneficiaries in certain regions, quite different from the BB's goal in the mobile-credit instruction of reaching the largest possible number of small farmers. The BB seems unaware of the contradiction, the program being in an early phase of implementation. The few BB managers in the project area who have started the mobile units are operating them with normal credit

<sup>&</sup>lt;sup>1</sup>For many years there was considerable reluctance at the BB and elsewhere with respect to the idea of a mobile credit program. It was associated in the minds of many with "demagogic" and "populist" ends under the Quadros and Goulart governments. At that time, the mobile units also took the money to the countryside. This was said to have caused additional problems of assault and robbery. The BB is said to be now prohibited by law from carrying money for credit outside the bank.

at 13%, and seem to see that program as independent of POLONORDESTE credit. This question will be discussed further below.

7.04 Of the nine BB branches visited in the project area, only three had started their mobile credit operations: Seabra had made three visits to outlying communities, generating ten proposals in total; Lençois, ten visits and sixty proposals; and Ruy Barbosa, one visit with seventy proposals. The visited communities were between one and six hours distant from the bank branch, and the team spent a whole day in each locale.

7.05 Almost all the mobile-credit applicants had never received BB credit before; their land parcels varied from 10 to 30 hectares. Written letters of permission were not required from sharecroppers and other tenants since the obtention of such letters could involve considerable travel time and delay. The team simply asked around in the town if the applicant had permission to work the land. References were checked on the spot and the necessary forms were filled out as much as possible at the moment; one team filled out all the forms by hand. For Seabra, delay for the mobile-credit applicants was two to three days between application and authorization (one day for old clients). For Lençois, the delay was twenty days. The bank would send word to the communities when the loan contracts were ready to be signed. The communication set a date for the signing of the loan contract and the disbursement of the first installment,

in an attempt to attend to everyone from a community in one day (and also to facilitate pooled transportation to the bank).

7.06 Of the six branches without mobile credit programs, two said the program was not necessary in their region because it was small and the weekly market was held in the town in which the bank was located (Feira and Ipirá); one cited a lack of personnel, which he had requested from headquarters, and was planning four visits a month (Mundo Novo); the remaining three, along with the two with weekly markets, expressed little interest in the program. Since the mobile-credit instruction leaves the initiative up to the individual branch manager, it is not surprising that six of the nine branches were not participating. Some managers who did not participate nevertheless took advantage in their normal lending operations of the dispensation allowed by the mobile-credit instruction of land documentation for loans less than 25 MVR.

7.07 This small and initial experience with the mobile unit program suggests that it has considerable potential for lowering the costs of credit both to the bank and the small farmer. The simplification of the documentation requirements and the waiving of registered documents represent a significant decrease in cost to the small farmer and in processing time to the bank. The processing of the application on the spot also represents an important reduction in the traveling back and forth and waiting time of the applicant.

7.08 Interestingly, this small initial experience with mobile credit suggests that the day-long visits to communities by bank branches have the potential for generating more proposals than are presented and processed at the branch in one day. Lençois showed an average of six proposals per mobile-credit visit, in comparison to two to three crop-credit proposals in an average day.<sup>1</sup> Ruy Barbosa generated 70 proposals from one visit, in comparison to four or five proposals on a normal day. (Seabra showed an average of three proposals per mobile-credit visit, in comparison to four or five bank.) The evidence, though premature and fragmentary, suggests that this approach bears watching and that the program may be capable of servicing small farmers at less cost than normal bank operating procedures.

7.09 Almost all of the clients of the mobile-credit program, as reported by the branches, had never had credit before. This contrasts with the PN/PIDERP beneficiaries of crop credit, a large minority of which had already been BB clients. Thus the mobile-credit program, providing simple crop credit with no technical-assistance intermediation, may turn out to be a more effective mechanism than PN/PIDERP for

<sup>&</sup>lt;sup>1</sup>I have estimated the average number of proposals received per day for Seabra and Lençois from the data I had for four other branches. The average per day for these other branches, as estimated by the manager or rural credit chief, turned out to bear a close relationship to the branch's number of crop-credit contracts for the year of 1976. The relationship of average daily proposals to annual number of contracts ranged from .0369 to .0469. I used that relationship to estimate the ranges of proposals per day for Seabra and Lençois.

providing access to credit to those who never before had it. Since no more than four percent of the total number of farms in the project area had simple BB crop credit in 1976, any program that broadens this access can have a significant impact (Table 4).

POLONORDESTE vs. mobile credit. Because of the concurrent development of the POLONORDESTE credit programs in the project area, there is a danger that the mobile-unit alternative approach to small farmer credit will not continue to develop along its current lines. As mentioned above, there is uncertainty at the BB and in the mobile-credit instruction over whether the program should give priority to POLONORDESTE communities and their special 7% line of credit, or whether it should operate with its normal 13% credit--as it seems to be doing now.

7.11 BB managers may tend to favor the POLONORDESTE course for the mobile program. They like POLONORDESTE to the extent that it relieves them of a considerable amount of the work of application processing for small farmers, which is done by the local EMATERBA office. If the mobile-credit program were to be coordinated with EMATERBA's work in POLONORDESTE communities, then the branch managers might have much less work with mobile credit. One branch, in whose jurisdication POLONORDESTE was sheeduled to operate, even advised certain communities during its mobile-credit visits to "wait for POLONORDESTE." The bank explained to the farmers that they could
get a better interest rate with POLONORDESTE as opposed to normal-BB credit--i.e., 7% vs. 13%.

7.12 The interest-rate differential between normal BB credit and PN credit may also be problematical for the mobile-credit program. It will be difficult to justify such a wide interest spread on two concurrent programs both of which are meant to benefit small farmers. The interest differential seems to penalize those farmers who fall outside PN/PIDERP selected communities. It is not clear, however, whether farmers would always reject the mobile-unit credit on these grounds. Indeed, there have been some cases in PN communities where farmers preferred the 13%-BB credit over the 7%-PN credit. They did not want to put up with the "nuisance", they said, and the extra delays of processing their credit application through EMATERBA. This is not an uncommon occurrence in programs like POLONORDESTE; it suggests that the subsidy in the cost of the credit is not only necessary to finance the technical assistance, but is also necessary to get the farmer to pay the extra "nuisance cost" of using this credit. In this sense, the interest-rate differential may not turn out to be a problem in the demand for mobile credit, though it certainly represents discrimination against those credit-takers who impose less costs on the delivery system.

7.13 The BB's own preferences at the headquarters level are likely to run toward using the simple credit in the mobile units rather than

PN credit. The BB sees PN credit as coming out of its own resources, even though PN is set up to reimburse the participating bank with the capital and a 5% subsidy on the interest rate. Because the BB has not yet been reimbursed for its PN lending, nor for its PROTERRA lending since 1975, it sees PN as a program coming out of its own resources and on which it will take an interest loss in comparison to its normal credit lines. Thus it would like to see the PN interest at 13% rather than 7%. It may be, then, that the BB would be more energetic at promoting a small-farmer credit program that did not involve the expected loss that POLONORDESTE does. At its normal interest rate, the BB would be likely to commit more energy and power to making the mobile credit a truly successful experiment.

7.14 One of the strengths of the mobile credit program as it is currently evolving is that it is a BB project. This is in contrast to the POLONORDESTE credit programs, which are part of a larger package of which the BB is only one institutional actor, and not the leading one. POLONORDESTE is looked at by the BB as a program conceived outside the Bank in whose design it played no important role. The Bank, in turn, sees itself as the leading institution in the field of agricultural credit in the Northeast, with more experience and know-how than the institutions that designed POLONORDESTE or that play more crucial roles in its implementation. Regardless of the validity of the Bank's perception of the matter, it must be admitted that it is an

extremely powerful institution and that it is by far the most widely functioning government-owned institution of all the public sector services operating in the Northeast agricultural sector. Its 116 agencies in the Northeast are to be more than doubled to 300 within two or three years. A small farmer credit program conceived by the BB as its own, then, may well be more successful by the sheer force of the bank's own enthusiasm and power.

It would be unfortunate if an "outside" program like 7.15 POLONORDESTE were to be superimposed upon, or were to crowd out, one of the BB's first major attempts at innovation in small-farmer credit. The innovation promises to provide highly useful comparative information on the costs of such new approaches, the differing results of credit with and without technical assistance, and the extent to which the two approaches can reach the target population. As cited above, there is already some evidence that the mobile-credit program may do better at reaching those without access than the POLONORDESTE There is also evidence that the mobile-unit program may be program. able to provide credit at lower costs to both itself and the farmer than POLONORDESTE. Mainly, what would be lost from submergence of the mobile-credit program in POLONORDESTE would be the massive weight of the Bank of Brazil behind the attempt to provide small farmers in the Northeast with access to credit.

## VIII - Minimum Prices

8.01 The minimum price program for agriculture is an integral aspect of the credit picture in the Northeast in that the program is implemented by the branch banks of the Bank of Brazil. The minimum prices set by the government for certain crops are also used in the calculations of credit granted to farmers by the branch banks. Minimum prices are set each year by the Production Finance Commission (CFP) of the Ministry of Agriculture, which declares that it stands ready to buy up any agricultural production that cannot be sold by the farmer above the minimum price. The CFP does not have its own buying posts, but manages the program through the Bank of Brazil.

8.02 Each bank branch has the responsibility of buying and providing storage for output bought under the program. If the bank branch does not have its own storage facilities, as is usually the case in the Northeast, it may rent storage space. The bank branch is supposed to be assisted by the CFP and the state storage company, CASEB, in making buying and storage arrangements. If the produce purchased requires special storage conditions, the CFP has the responsibility to arrange for the transfer of any output stored temporarily by the BB branch to more adequate facilities.1

<sup>&</sup>lt;sup>1</sup>The BB in Brasília reported that in certain cases like sisal it can pay the producer to transport his product to storage facilities in Feira de Santana or Salvador, if sufficient storage is not available in the producing area.

8.03 Normally, the storage entity involved would be CIBRAZEM, the federal storage company; but CIBRAZEM ceded authority to CASEB in these matters when the latter was created in 1957. CASEB has been criticized by both BB and CFP as "doing nothing," and as having responded to political pressure to build local storage facilities in places where they are not needed, or where they have operated mainly to the benefit of one influential person.

8.04 The farmer who sells his output to the BB at the minimum price has two options. He may elect to sell his production outright at the minimum price and receive cash payment. (This program is denominated AGF, Acquisition by the Federal Government.) If the farmer wishes instead to wait for a better price, the BB will store his product for six months, paying him in advance at the minimum price and thus extending a six-month loan. At the end of the six months, he can sell the stored output to the bank at the minimum price or sell it on the market. (The storage-and-later-sale option is called EGF, Loan by the Federal Government.)

8.05 Under the EGF loan-and-storage option, the farmer has two further alternatives---COV and SOV. COV means "with a sale option"  $(\underline{\text{com opc}_{ao} \text{ de venda}})$  and SOV means "without a sale option" ( $\underline{\text{sem opc}_{ao}}$  $\underline{\text{de venda}}$ ). Under COV, the government contracts with the farmer to buy his stored produce if, after the end of the storage period, the farmer decides that he does not wish to sell it on the market. When

the producer hands over his produce for COV storage, he receives as a loan 100% of the value of the product, priced at the minimum price. The government subtracts from this loan the anticipated interest (18% per annum) as well as about 15% more for miscellaneous other charges.<sup>1</sup> The deducted amount, then, represents about 24% of the value of the stored product (assuming the product is stored for only six months, thus paying 9% interest). If at the end of the storage period the farmer decides to leave his produce with the government rather than sell it on the market, he receives a rebate on the interest and taxes. If he sells the produce on the market, the government retains the interest and taxes that it deducted from the loan at the beginning of the period. All products stored by the government under the COV option must be graded and classified by the farmer.

8.06 The SOV option is less demanding of the farmer, but is also less advantageous. Instead of receiving 100% of the value of the product stored, the farmer receives only 80%--with interest and taxes deducted as under COV. At the end of the storage period, the farmer under SOV does not receive the taxes and interest back, even if he sells to the government. The government, moreover, does not contractually obligate itself to buy the produce from the farmer after the storage period. (The BB states that, in practice, it always does so if the farmer desires.) When the storage loan falls due at the end of the storage period under SOV, it is automatically treated as delinquent; this is not the case under COV.

<sup>&</sup>lt;sup>1</sup>For the ICM tax, 11%; for FUNRURAL, 2.5%; and about 1.5% for storage charges.

8.07 The main advantage of SOV is that the farmer can deliver the product ungraded to the government; corn can be delivered in the ear and beans delivered with straw. Upon receiving ungraded SOV produce for storage, the BB must call a classifier from the state grading agency, CLAVEBA (Convênio de Classificação de Produtos de Origem Vegetal para Consumo Interno da Bahia). CLAVEBA has 32 technicians trained in grading agricultural products, and levies a grading charge of 0.16% of the value of the product. CLAVEBA does not deal with export products, which must be purchased by the government under the COV option--i.e., already graded by the farmer. Thus most of the EGF contracts in Bahia are COV because they represent mostly sisal and cotton, both of which are export products.

8.08 The minimum price program in theory allows the farmer to store the produce on his own farm under the SOV option. In such cases, the BB must send an inspector to verify the amount of the product being stored and the adequacy of the storage facilities. It is not clear to what extent this option has actually been exercised in Bahia or allowed by the BB branches.

8.09 Over the last ten years, the minimum price program has operated almost exclusively for export products in the state of Bahia--in order of importance, sisal, cotton, and a few cases of castor bean and carnauba wax. Sisal has taken the lion's share of that credit. In 1973, EGF credits accounted for only 0.5% of total

crop-livestock credit of the Bank of Brazil in Bahia--representing 20 cotton contracts and one castor-bean contract. In 1976, EGF accounted for 11% of credit, representing 2,916 sisal contracts, ten castor-bean, and one carnauba wax.

8.10 In the project area, there were no EGF contracts in 1973; and in 1976 they accounted for 24% of total BB crop-livestock credit--showing the concentration of sisal production in subarea V. For the Serrinha and Riachão de Jacuípe branches of the Bank of Brazil, EGF-sisal credits in 1976 represented 74% and 36% respectively, of total croplivestock credit.<sup>1</sup> In effect, then, sisal has been the only product in the project area that could count on assistance from the minimum price program. The fact that much of the sisal production in Serrinha is marketed through the coop there, and that the president of the coop is a state deputy who has vigorously pressured government entities to help the coop, is probably important to the prominence of that crop in the minimum-price program. The CFP, moreover, prefers dealing with coops as opposed to individuals.

8.11 At the moment, the BB is now engaging in purchases of cotton, beans and corn in some parts of the state, outside the project area; it is also planning to purchase castor bean in the coming harvest. The bean and corn purchases are concentrated mainly in the Irecê

<sup>&</sup>lt;sup>1</sup>See also footnotes c and d of Table 19. The only other branches in the project area operating with EGF credit in 1976 were Mundo Novo with four contracts, and Itaberaba with one contract.

bean-producing region, northwest of the project area. The Irecê region produces beans for the entire Northeast, and that staple has been in very scarce supply for some time. The resulting scarcities and high prices of this major staple in the Brazilian diet have been of particular concern to government officials, particularly with respect to urban food supply. Thus the purchase program is part of an effort to promote and coddle bean production in a major bean-producing area, rather than the start of a program to guarantee and purchase such staple crops statewide. It does illustrate, however, how the minimumprice program can be rapidly mobilized to serve small-farmer crops, when there is a felt political need to do so.

8.12 The cotton-buying program of the CFP is concentrated in the area of Brumado and Guanambi, south and west of the project area. (Cotton is not produced in the project area.) This particular effort is another example of how the minimum-price program can be used, when the political will exists, as an important policy instrument in favor of small farmers. For the first time in Bahia, the CFP has authorized the Bank of Brazil to buy raw cotton (algodão capulho) in the Guanambi-Brumado area. Normally, the BB buys only ginned cotton under the minimum price program. This action was provoked by a crisis situation in the region, where the ginning mills could not even offer to pay the minimum price to producers for their raw cotton. The mills are required to buy raw cotton at no less than the minimum price; because they have

refused to do so, they now have excess capacity. The CFP, therefore, is renting the mills and using them to gin the cotton it is purchasing. It has set up buying posts at certain transport intersections, and is also buying directly from the farm--another unusual action for this program. Most of the purchases are direct purchases (AGF) rather than storage/loan arrangements (EGF), though the EGF option is available. Based on a similar assist by the EB to cotton producers and ginners in Ceará some years ago, one can assume that the rented gins are in debt to the Bank of Brazil. The CFP-BB operation, then, not only represents an assist to the cotton farmers, but also a rescue operation for the ginners.

Minimum prices and branch banks. Despite the highly limited coverage of the minimum-price program, the CFP has carried out a considerable propaganda program in the agricultural sector, telling farmers that the government guarantees the minimum price for their product and has the right to demand it. Most BB managers, though required by the program to guarantee minimum-price purchase in their area, are not prepared to act on that guarantee. They say that the minimum price has always been so low that there has never been a need for them to buy, and that they do not have the storage facilities. Some did not seem to be aware that the rental of facilities was an alternative, and some said that they could not cope with the humidity requirements for storage of manioc and beans. In the case of manioc flour, it was

also said that the maximum moisture level permitted for the purchased product would disqualify the production offered to them by local producers. (This question is treated separately in paras. 8,19-8.20). Some BB managers talked as if they felt the minimum price 8.14 program was a headache that they wished would go away. One manager said that he had no storage facilities and therefore was not guaranteeing the minimum price. (He had not thought of renting facilities.) Others said they were guaranteeing the price, but would not really be able to back it up because of the lack of storage. One manager was guaranteeing the price because he "had to", but was extremely apprehensive about a likely excess of production of a particular crop in the coming harvest season. He did not have storage facilities, and was worried that he would not be able to make good on his promise. He had advised "Salvador" of the problem (BB, CASEB Secretariat of Agriculture), and was hoping that they would come up with a solution. "When I go to the countryside," he said, "the farmers ask me, 'Doutor, do you guarantee that you'll buy our crop? There's going to be a big harvest.' I tell them yes," he said, "because I have to. I have no idea if I can fulfill my promise."

8.15 BB officers in Brasília explain that managers are often overworked and consider the minimum price program as one of the more dispensable items. Thus they often neglect their responsibilities or simply do not promote it. Many farmers and EMATERBA technicians

characterize the minimum-price guarantee as a "joke", though some extension agents are trying to persuade the farmers to demand their rights under the program. Most small farmers I talked with had not heard of the program or did not believe in it.

Minimum prices and small-farmer crops. The minimum price program, it has been seen, has not reached small farmers in the project area for two reasons: its bias in favor of export crops, in contrast to the beans, corn and manioc that small farmers produce; and its sporadic and limited availability. Domestic crops have not fared as well as export crops under the minimum price program not only because of the priority given to the earning of foreign exchange The price of domestic crops, unlike the export crops, is revenues. a significant element in the consumer price index. Keeping minimum prices low for staples in the domestic diet fits in with the government's anti-inflationary policies and its concern over the urban cost-of-living index. The desire to protect the export sector and the domestic consumer sector, then, has resulted in an inadvertent bias in the minimum price program against crops produced by the small farmer in the Northeast.1

<sup>&</sup>lt;sup>1</sup>Sisal has received almost all of the minimum price support in Bahia, and is associated with livestock production and larger landholdings. The price has been low for some time as a result of competition from synthetic fibers and the government is trying to discourage new plantings by not allowing any production credit for the crop. For various reasons, then, it may be just as well that sisal is not on the list of crops eligible for PN/PIDERP credit. (The issue of exports crops vs. domestic staple crops and PN/PIDERP financing is discussed in another section.)

Manioc. One of the most important staples produced by small farmers-manioc flour--has not fallen under the minimum price program at all. Though the government sets a minimum price for both manioc root and flour, that price is not backed up by a willingness or capacity to buy manioc. The minimum price of root is used only as a basis for the calculation of estimated receipts used to determine credit needs.1 Most manioc in the Northeast is produced on small farms. 8.18 These households process the manioc root into flour before selling it. The root can be stored in the ground for some time after is is ready for harvest and is perishable once harvested. The crop thus provides its own storage but at the same time requires immediate processing once harvested. The processing of manioc root into flour on the farm is an important economic activity in the small-farm household sector, and one of the few subsistence crops in which the value-added of processing is done at the farm level. This is why the minimum price program for manioc, or lack thereof, deserves special attention.

8.19 The government claims that it cannot handle a minimum-price program for manioc flour because of two problems--humidity and toxicity. Manioc flour produced on small farms is of a higher humidity content than that produced for commercial sale in the coastal cities--16% vs. 12%.

<sup>&</sup>lt;sup>1</sup>Though most producers sell flour and not root, the relationship between the yield of flour per given weight of root is assumed to be 33% for such calculations. The price of manioc flour does not appear on the published list of minimum prices, mainly because it is set about eight months after the prices for manioc root and other crops are set and published.

The home-roasted higher-humidity product, which is whiter in color, spoils more quickly than the drier product. The latter can be stored for six to 12 months. At the same time, the home-made product is considered more palatable and fresh-tasting than the yellower commerical product--at least by consumers in the interior of the Northeast. Because the high-humidity product cannot be stored for long or transported long distances, all of it must be placed on the market within a short period of time of the harvest and it must be sold within a geographically constricted market. This makes for times of bad glut and low prices. The latter phenomenon, it should be pointed out, is somewhat mitigated by the storability of the root in the ground, allowing it to be harvested and sold at a continuous pace.

8.20 The high humidity of the home-produced manioc flour is given as one of the reasons that a government-purchase program is not feasible. The purchased product would deteriorate quickly, it is said. Any attempt to convince producers to roast their flour more in order to get down the humidity, it is said, might be resisted on the grounds that the same amount of root would yield less return. (I.e., the same amount of root would yield less low-humidity flour than high-humidity flour.) At this point, it is difficult to say what farmer response would be to an exhortation to produce lower-humidity flour. Up to the moment, there has been no program to support manioc flour that might be produced at the storageable humidity. There are no storage facilities for manioc flour, partly because no one has determined what humidity level to require.

8.21 With respect to toxicity, it is difficult to tell whether toxicity is a real problem with manioc or a red herring. The bitter manioc root contains prussic acid, a toxin that is eliminated by one of several simple processes of dehydration used since the Indians domesticated this plant centuries ago. At the moment, the government says that it cannot buy manioc flour without proof of non-toxicity. In Bahia, there is only one lab--that of CEPED/EMBRAPA in Cruz das Almas--that tests manioc for toxicity and will supply certification of non-toxicity. The lab is not set up for large-scale certification of manioc.

8.22 Though it is generally agreed that present practices of processing manioc eliminate virtually all risks of toxicity, some feel that the government cannot afford the risk, no matter how small, of being responsible for selling a batch of toxic manioc to the public. According to this position, the government should not buy manioc flour without a certification of non-toxicity. Since such certification is out of the reach of small farmers, and since the existing testing facilities could not cope with a program of any scale, this means that the toxicity-testing proponents are in effect requiring a testing program as a prerequisite for the inclusion of manioc in the minimumprice program.

8.23 Others argue that the toxicity test is completely dispensable, and that there has never been a case of toxicity in manioc flour sold

to the public. They point to the fact that the government has already purchased and sold manioc flour without toxicity tests in some cases. In Bahia, the CFP has bought 12%-humidity manioc in the Jequiê region without a lab analysis for toxins. (The flour was sold to the government in this case under the SOV option.) At the moment, a study is being conducted by a CFP/MAG team in the state of Paraíba to try to determine if the toxicity analysis can be dispensed with. The issue seems to be one on which strong feelings exist and sides have definitely been taken.

8.24 At the same time that this controversy has been taking place, the president of the Serrinha sisal coop has been promoting his own manioc solution. The president, a deputy in the state legislature, has been trying to set up an arrangement whereby the coop will buy flour from its members, have it analyzed by the lab in Cruz das Almas, and sell it to the government under the minimum price program. The coop seems to be optimistic about this possibility, since it has already acquired a warehouse and sacking for the proposed operation. Since the CFP prefers to deal with coops as opposed to individuals, the proposal has thus far been well received at the state level. It would be interesting to find out how the humidity question is being dealt with in this particular project. It might provide lessons for a more general approach, or evidence that humidity is more an excuse than an obstacle.

8.25 Whatever the outcome of these initiatives with respect to manioc flour, it will be important to watch and support them. The outcomes will be particularly important for the project area, not only for the reasons cited before, but because of the relative suitability of the region for manioc production.

<u>Conclusion</u>. It seems an appropriate moment to make the minimum price program a more integral part of the Paraguaçu project. The structure for it exists, the price-setting system exists, the government seems interested in promoting knowledge of the program and of its commitment to buy at the minimum prices. The productivity-increasing techniques and crop-mix changes that are basic to the project may not be realized if small farmers cannot count on selling their production at minimum prices.

8.27 It may be argued that market prices, according to past experience, will rarely fall to the level of the minimum price, thus obviating the need for government purchase. But real price levels that are observed in a region or reported in the data often do not reflect the prices that are received by the smaller farmers or by those who live in areas less well connected to the transport and market network. These are the farmers who also would not be able to afford to carry their produce to the nearest BB branch for sale at the minimum price--and thus would be selling at the farm gate at prices less than those reported in the data.

8.28 PIDERP could make a considerable contribution to the marketing question by finding out through field investigation the actual prices being received by the small-farmer target population. At the present, the prices used by PIDERP and other government agencies are closer to the wholesale prices in Salvador than to farmgate prices in the project area. For these farmers, the disparities between the minimum and real price may turn out to be less than was thought. This kind of evidence would be crucial for making a strong case to the authorities for undertaking whatever is necessary to make the program work. PIDERP might also investigate with the state authorities the possibility of experimenting with a system of mobile storage units. There has been some experience at the state level with inflatable units. The units could be operated out of the local BB branch and, unlike rented storage facilities, could reach the farmer who may need the minimum price system the most--i.e., the farmer who cannot afford to transport his produce to a marketing center.

8.29 In relation to the above question, PIDERP might investigate the extent to which the BB is actually willing to pay minimum prices to those who store their product on the farm. Is the BB branch willing and able to resort to this system, given that the minimum-price regulations allow it? Would this kind of system benefit only the larger farmers, or are storage capabilities prevalent and adequate on small farms? If the latter is the case, then perhaps a more flexible approach

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to storage standards needs to be designed. This would go a long way toward solving the problems of cost and administration that are traditionally associated with government programs of storage. The opportunity of the minimum price situation, in sum, is that the enabling legislation and the administrative machinery already exist.

## IX - Credit Insurance - PROAGRO

9.01 An important new feature of agricultural credit in the Northeast is the availability of credit insurance. The nationwide PROAGRO credit guaranty program of the Central Bank was started in April of 1975, and has been most important for commercial agriculture in the center-south region of the country.<sup>1</sup> In the project area, in contrast, the insurance is being used not by larger or commercial farmers but by the small-farmer beneficiaries of PN/PIDERP. The reason for this reverse of the usual situation will be explained below.

9.02 Soon after PROAGRO started in 1975, it was hit by the "coffee frost" of that year. By February of 1976, it was already making claim payments. By the end of September 1977, PROAGRO had granted claim payments of Cr\$892 million in 42,000 cases--most of them to the southern states as a result of the 1975 frost. By October 1977, PROAGRO had processed 66,000 claims, of which only 1,800 or 3%

<sup>&</sup>lt;sup>1</sup>PROAGRO emphasizes the fact that it calls itself a "guarantee" and not an "insurance" program. There are state companies in the center-south that are starting to offer insurance for certain agricultural crops and certain events. These companies charge 8%-10%, and are now operating in the states of São Paulo, Minas Gerais, and Rio Grande do Sul. The São Paulo company is COSESP (Companhia de Seguros do Estado de São Paulo).

had been refused. The state of Bahia, like most states outside the center-south, has played an insignificant role in PROAGRO. Up to now, claims from Bahia represent less than a half percent of the total--about 350. Most of these claims, according to PROAGRO, are from outside the project area--Caetetê, Euclides da Cunha, and Cícero Dantas.<sup>1</sup> Most were for plantings of beans and corn, lost in the drought of 1976-1977.

9.03 PROAGRO credit insurance is optional to borrowers of agricultural credit in Brazil. The borrower pays 1% of the value of the loan as an insurance premium. He qualifies for the insurance only if 15% of the financed cost is spent on "modern inputs"--machine services, chemical fertilizer, improved seeds, pesticides, soil correctives; the modern-input percentage is only 7.5% for livestock borrowers. A production plan based on these modern inputs must be prepared by the borrower with the local extension office. For loans less than 500 MVR (Cr\$438,850), the Central Bank pays for the cost of this technical assistance; beyond that amount, the borrower pays. Insurance is available for both investment and short-term credit, though not for both to the same borrower. PROAGRO has so far tried

<sup>&</sup>lt;sup>1</sup>This conflicts with the reports from the project area of several insurance claims made by PN/PIDERP beneficiaries, discussed later in this section. Since PROAGRO does not yet have data on its operation, there was no way to reconcile these two reports. (The data in this part of the text were obtained from an interview with the chief of the PROAGRO office.)

to have borrowers steer clear of insuring investment credit, because of the difficulty of determining how to allocate what share of the loss to the credit.

9.04 In cases of 100% crop failure, PROAGRO pays 80% of the outstanding value of the credit, or 48% of the receipts estimated in the credit calculation, whichever is less. If procedures are followed for regular credit, the two percentages should yield the same amount; that is, according to Central Bank regulations, short-term crop credit can be granted for no more than 60% of expected receipts--and 80% (the share of the credit covered by PROAGRO) times 60% gives 48%.1 In the case of POLONORDESTE and other special lines of credit, the PROAGRO percentage is higher because the allowable credit percentage is higher; for most crops, 80% rather than 60% of estimated receipts are allowed financing under PN and other special credit lines. Thus the amount of expected receipts covered by PROAGRO is 64% (rather than 48%), or 80% of the value of the credit. In cases of partial loss, PROAGRO payments are correspondingly less. Realized income is deducted from the amount due and from the estimated receipts, and the 80% or 48% criteria are applied correspondingly. (The relationship of these

<sup>&</sup>lt;sup>1</sup>The PROAGRO regulations specify that the lower of the two amounts be chosen--48% of the estimated receipts or 80% of the credit outstanding-to cover those cases where borrowers were able to waive the 60% ceiling on costs financed with credit. In such cases, 80% of the value of the credit would be higher than 48% of the estimated receipts.

percentages to <u>actual</u> receipts and costs--as opposed to those estimated-is discussed further below.)

9.05 The Central Bank will rediscount the 20% of the outstanding value of the credit that is not covered by PROAGRO. In that case, the branch bank refinances this uncovered amount to the borrower the following crop year. Whether or not the branch bank takes advantage of this option depends on the total outstanding balance owed by the borrower, and the inclination of the individual manager. Some managers do not want to take the risk of refinancing an amount owed by someone who has already suffered considerable loss. In the case of the 1975 frost, the Central Bank declared that banks must automatically postpone repayment by the borrower of the 20% of insured credits not covered by PROAGRO.

9.06 The tasks of preparing the insured borrowers' farm plans, seeing that they comply and that they qualify for the insurance, and verifying the claims of loss, fall completely on the extension service. Though it is the farmer's credit and not his production that is insured, though the insurance contract is made through the bank, and though the claim payment is made to the bank and not to the farmer, the bank plays no role in verifying claims. The banks, PROAGRO says, are not equipped with the personnel necessary to carry out insurance inspections. PROAGRO pays the extension service 2% of the outstanding insured balance for every report that it makes on the insured borrower. In most cases

where claims are ultimately made, the extension services completes a total of two reports--one when the insurance is taken out, and another to verify the loss. PROAGRO reports that the 1% premium it charges on the insurance does not even cover a quarter of its payments to the extension service, let alone its claim payments. The rest of PROAGRO's costs are financed by the Treasury.

9.07 Of the eleven bank branches visited in the project area (9 BB, 2 BNB), only four had loans carrying PROAGRO insurance. All of the 200 insured borrowers were beneficiaries of PN/PIDERP programs. Interestingly, none of the banks' borrowers of other lines of credit had opted for the credit insurance, despite its highly subsidized price. The only case of a PN/PIDERP program without PROAGRO was Itaberaba (BNB and BB). Insurance had been planned by EMATERBA for the PN/PIDERP beneficiaries, but selected seeds were not delivered as promised by CAMAB. This disqualified the beneficiaries for insurance because of the 15% requirement; selected seeds were the only possible modern input. (These small farmers could have used the insurance: 80% of them had total crop failure in 1977 as a result of the drought.) Because of the two successive years of low rainfall in the project area and the resulting crop losses in 1976 and 1977, the borrowers who were first insured under PN/PIDERP credit contracts have already qualified

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for compensation and are submitting claim forms to PROAGRO.

9.08 For various reasons, PROAGRO insurance protection for small farmers is far from the stipulated 80% in case of total crop failure. The insurance covers the credit and not the crop, and PN/PIDERP credit beneficiaries can receive up to 70%-80% of their estimated receipts financed by credit, depending on the crop. These income estimates are calculated on the basis of the minimum price for the financed product. (This calculation and its implications are discussed in another section.) In August of 1977, the minimum price for corn and beans--the only crops financed so far under PN/PIDERP-varied between 40% and 80% of market prices in the regions covered by selected bank branches in the project area.<sup>2</sup>

<sup>1</sup>Several EMATERBA technicians complained that the insurance paperwork was excessively complex and the process of claim and reimbursement too prolonged. PROAGRO reports that it has just simplified the documentation procedures for insurance claims.

Many of the insured farmers interviewed in the project area in August had no idea whether or not they would be paid for their losses and when. In October, as noted above, PROAGRO reported that it had already reimbursed most of the Bahian claims--though the areas it named were outside the project area.

<sup>2</sup>This degree of disparity between minimum and market prices is not uncommon. During the 1973-1976 period, the minimum price of corn in Bahia averaged 70% of the <u>lowest</u> monthly market price of the crop year; for beans, the disparity was greater, the minimum price being 45% of the lowest market price; for manioc, the minimum price was 44% of the market (Table 18). This disparity is calculated conservatively, in that it uses the lowest price of the year for comparison. 9.09 Following the banks' method of calculating "cost" for credit purposes, but substituting market price for minimum price, it would appear that 22% to 56% of a farmer's actual expected receipts are covered by credit.<sup>1</sup> Applying the 80% coverage given by PROAGRO in case of total crop failure, one arrives at a percentage of actual expected receipts covered by insurance of 18% to 45%.<sup>2</sup> This applies, of course, only to cases of total crop failure and only to the financed crop. As pointed out in another section, small farmers mix a variety of crops, only some of which are allowed financing under PN/PIDERP regulations.

9.10 Despite the partial nature of the PROAGRO protection, it should be recognized that the insurance of small borrowers represents a major first step in the pattern of public protection of farmers against drought in the Northeast: not only did small farmers end up with some protection through this particular form of subsidized

<sup>&</sup>lt;sup>1</sup>See Table 18. The lowest boundary of 22% refers to manioc, whose allowable financing percentage is 50% of expected receipts, even under POLONORDESTE, and for which the minimum price has averaged 44% of the market price (50% times 44% = 22%). The upper boundary of 56% refers to the case of corn, whose allowable financing percentage is 80% under POLONORDESTE (60% under regular credit), and for which the minimum price has averaged 70% of the market price (80% times 70% = 56%).

<sup>&</sup>lt;sup>2</sup>These percentages should be regarded as merely illustrative because estimated gross returns are used as a proxy for costs, following bank calculation methods. The actual percentages of costs financed and covered are probably somewhat larger--particularly if one takes into account only money costs.

service--many of whom had never before had credit--but large farmers did not (at least in the project area). This is a striking reversal of the typical pattern of distribution of credit-related drought subsidies.

9.11 The mechanism by which small farmers and not large farmers are ending up with credit insurance is an interesting one, because it results partially from the reluctance of the banks to lend to small farmers! All the banks with PN/PIDERP beneficiaries insured by PROAGRO had insisted, more or less, that the credit carry insurance. (The banks cannot legally require that a borrower take the insurance.) Some banks said they "strongly encouraged" PN/PIDERP borrowers to take insurance; others actually said they required it, or were said by EMATERBA technicians to have required it. There can be little other explanation for the fact that insurance participation was almost 100% among the PN/PIDERP borrowers--an almost insignificant share of the project area's credit contracts -- and that there was not one case of such insurance among the remaining borrowers. The banks promoted the insurance, in short, as a costless way of covering themselves against loss from a new class of borrowers about which they had considerable apprehension.

<sup>&</sup>lt;sup>1</sup>The cooperative of Ipirá, through which much of the PN/PIDERP credit was channeled, also required that members take PROAGRO insurance. As in the case of the banks, this was out of the fear of loss from a new group of small-farmer members.

9.12 It should be noted that the EMATERBA extension agents also played an important role in "selling" the credit insurance. Since the agent is the major contact of the PN/PIDERP beneficiary in the credit process, he has considerable power of persuasion over the beneficiary. Beneficiaries reported, for example, that agents warned them that they would not get paid on their insurance claims if they did not use the planting techniques recommended. (This warning applied mainly to strictures against interplanting the financed crops with manioc, castor bean, or pasture; at that time, the program financed only corn and beans, though financing is now planned for the other two crops.) Clearly, the fact that the extension service is paid well for the small increment to its work required by the insurance program constitutes an important incentive to convince farmers it is already assisting to take the insurance.

9.13 The reasons given by bank managers for the fact that their non-PIDERP clients did not take insurance were always the same: (1) modern inputs were not available or not used by their clients, and thus they could not meet the 15% modern-input requirement; and (2) clients did not want to pay the additional 1% for the insurance. Other less frequent reasons cited were a lack of confidence in the government's ability to pay claims in case of a widespread crop failure, the unavailability of EMATERBA technicians or firms certified by them to provide the required technical assistance, and the fact that 1%

was a much greater absolute amount for a large loan than for a small one. Some bank managers reported that large farmers had recently shown more interest in crop insurance now, after the two successive years of drought.

Regulating modern inputs

Requiring modern inputs. The insurance requirement that 15% of the credit go for modern inputs has powerful effects, both negative and positive.<sup>1</sup> As a result of the requirement, improved seeds and pesticides were used for the first time in Ipirá for beans; chemical fertilizer and "tratos fitosanitários" were used for the first time in Castro Alves. At the same time, the 48 beneficiaries of Itaberaba mentioned above were without insurance because of last-minute inability to fulfill the 15% requirement, and almost all completely lost their crop. Though selected seed and insurance had been part of the EMATERBA plan for these beneficiaries, the state input-supply agency (CAMAB) that had promised the seed, which comes from outside the state, never delivered it.

<sup>&</sup>lt;sup>1</sup> Actually, the modern-input requirement is not specified in the PROAGRO regulations themselves. The regulations say only that PROAGRO will cover "integral" and not "singular" short-term credit operations. Integral credit operations are those using 15% "modern inputs" for crops and 7.5% for livestock. "Singular" credit operations are activities, the budgeting for which includes less than these percentages of modern inputs or none at all. The items qualified as modern inputs are spelled out in the Central Bank regulation describing "singular" and "integral credit," and not in the PROAGRO regulation. Banco Central, <u>Manual de Credito Rural</u> No. 1, C. Circ. No. 109, 20 February 1974, 9.1.2-3, 17.2.2; and Olivier Lafourcade, <u>Week-days</u> <u>In Brasília: The Final Year</u>, p. 15.

9.15 The 15% modern-input requirement can obviously be important in stimulating the use of modern inputs. Its compelled use of such inputs seems to have been more important in causing their adoption than the work of extension agents in promoting and explaining their use. Perhaps even more important with respect to small-farmer beneficiaries of PN/PIDERP, the 15% requirement has stimulated the public-sector agents responsible for the credit-and-technical-assistance package to struggle to get these inputs supplied--in order that the beneficiaries qualify for insurance. EMATERBA agents worked hard in pressuring CAMAB to deliver selected seeds and other inputs to their beneficiaries--and indeed ended up identifying themselves with the beneficiary against their colleague public-sector institution. CAMAB; some of them said, paid attention only to the larger farmers, and on various occasions did not deliver the promised inputs.

9.16 The modern-input requirement also creates certain problems. There is the danger that compliance will sometimes be merely pro-forma. In Paraíba, it was reported that PN small-farmer beneficiaries bought their 15% inputs to qualify for the insurance and then resold them for higher prices. More important, there is the danger that certain inputs will be required of the farmers just to fill the 15% minimum--whether or not their use makes sense. The Ipirá managers reported, for example, that they were "saved" by the fact that selected seed more than doubled in price (from Cr\$10 to Cr\$22) from their original

calculations. At Cr\$10, they said, they would not have met the 15% minimum. Some of the small-farmer credit beneficiaries had actually objected to the price, since local seed was half the price and the new seed had never been used in the region. But they had no choice. Part of the credit had to be taken in the selected seed, which had been purchased by the coop.

9.18 As is often the case with programs that subsidize modern technology, there is also the danger that the 15% requirement will promote undue use of mechanization in relation to more labor-intensive forms of production. EMATERBA considers mechanization services as one of the good candidates for the 15% requirement. Up to now, however, there has been little success in promoting mechanization, since EMATERBA was relying on CAMAB to provide the tractors, and CAMAB did not deliver.

Some EMATERBA technicians felt that the CAMAB agricultural equipment was more suited in size and type to the heavier tasks required on large livestock farms. This simply reinforced a bias, the EMATERBA technicians said, that CAMAB already had toward larger farmers. Even if PN/PIDERP is more successful in getting mechanization services, or stimulating their growth in the private sector, it is not clear whether this change in production technique is economically desirable. The 15% modern-input requirement of PROAGRO, in sum, poses 9.19 two problems. It discriminates against those localities in which modern inputs are not available, in effect allowing insurance only to those who happen to be located in better-developed regions and/or who are already using the inputs. It also may distort factor use toward inputs that do not make economic sense, or whose availability is too uncertain. The fact that such highly subsidized insurance was bought by no farmer in the project area outside the PN/PIDERP program may testify to the unprofitability of using the inputs necessary to meet the 15% requirement.

9.20 Recognizing the difficulties created by the 15% requirement, the Bank of Brazil branch in Salvador has proposed certain changes in the PROAGRO regulations. It has been proposed, for example, that a switch from hand preparation and hoeing of land to animal traction be accepted as qualifying for the 15% modern inputs. Similarly, seed has been proposed to qualify as a modern input simply if it is attested

to as good by an EMATERBA technician. At present, only improved seeds qualify ("sementes melhoradas"). The seed issue is an important one since it is often said that purchased seed alone can represent 15% of costs. (Organic fertilizer as well as chemical fertilizer is included in the list of acceptable inputs in the Central Bank regulations;<sup>1</sup> some formal clarification of this question might be helpful, however, since there seems to be confusion about it among extension agents and bank managers.)

9.21 These proposals and the general concern about the 15% requirement were seconded by a Northeast-wide meeting of credit and extension representatives working on POLONORDESTE programs. It was agreed at the meeting, held in December 1976, that most Northeast crops could not meet the input requirement of PROAGRO. The Central Bank does not seem sympathetic to the idea of making the PROAGRO regulations less constricting for the Northeast or, at the least, for POLONORDESTE beneficiaries. If anything, Central Bank officials say, the modern-input percentage requirements for the Northeast should be <u>increased</u> to 35%-40%--because of the stubborn resistance of that part of the country's agriculture to modernization.

9.22 An approach to the input requirement that was more closely adapted to the project area might preserve its positive stimulus to the adoption of productivity-increasing techniques while at the same time diminishing the more counterproductive effects of this requirement.

<sup>&</sup>lt;sup>1</sup>Banco Central, <u>Manual de Crédito Rural</u> No. 1, C. Circ. No. 109, 20 February 1974, Section 9.1.3.b.

Such an approach would require a more careful evaluation of whether the relevant inputs can be expected to be consistently available in different parts of the project area, and of the economic wisdom of using them. If the latter type of profitability analysis does not include expectations about risk, then the choice of the input will be made on incomplete grounds.

It would be useful if PIDERP could sponsor such studies, 9.23 taking advantage of the considerable experience already accumulated in the field by EMATERBA technicians. The goal of such studies would be a set of micro-region-specific recommendations of particular inputs, along with economic justification of their use. These kinds of studies should not be a once-for-all effort, but an ongoing output of the project itself. In this way, the experience generated by the project, and the observations of its field-level technicians, are sure to be fed immediately back into project implementation. (The insurance problem, of course, is not the only reason to undertake this kind of analysis.) 9.24 At the moment, the insurance feature is the only aspect of the PN/PIDERP program that has the power to compel producers to use certain inputs and practices. In theory, access to the credit was supposed to be based on the willingness to adopt new techniques and inputs, so the insurance "compulsion" should not be necessary. But the initial experience shows, as discussed in another section, that many PN/PIDERP beneficiaries continue to do things the same way as

before their participation in PIDERP. The insurance plays an important role, then, in forcing the adoption of modern inputs in a way that extension agents apparently cannot, even with their control over access to credit.

9.25 The question arises as to whether the insurance is the appropriate vehicle to force the use of certain technologies. To use insurance for this purpose is also to give up the potential of this instrument to provide drought protection on a Northeast-wide scale for the first time to small farmers--limited, of course, to those who take credit.<sup>1</sup> Since the POLONORDESTE program is by definition an exclusive one--in terms of concentrating on certain geographical areas and certain types of farmers within those areas--it might be better to concentrate the technological compulsion on that program rather than on the insurance. Forced use of modern inputs through the insurance requirements could diminish considerably the substantial impact that the insurance program might be able to have in stabilizing small farmer incomes in the Northeast.

<sup>&</sup>lt;sup>1</sup>The number of crop loans made by the BB and BNB in the project area was 4% of the total number of farms in 1976. The PN/PIDERP program hopes to supply with crop credit 23% of the farms less than 50 hectares.

## X - Technical Assistance and Credit

10.01 The PN/PIDERP credit program is meant to be distinguished from normal credit by the technical assistance accompanying the loan. In contrast to many such credit/technicalassistance programs in Brazil, the extension office plays a major role in promoting the credit, finding the applicant, and processing the application. EMATERBA concentrates on a few communities within the jurisdiction of each local office, trying to choose those with higher concentrations of small farmers. The chosen communities become the recipients of a range of services--not just credit.

10.02 A significant demand for credit from non-selectedcommunity farmers may arise as soon as word of the PN/PIDERP program spreads--and especially of its interest rate, almost half that of regular BB small-farmer credit. It is not clear now to what extent small farmers outside the selected communities will be eligible for PN/PIDERP credit. Some extension offices said they served only farmers in the selected communities; others said they accepted applications from farmers outside the communities, who had heard of the program or were sent by the bank.
10.03 It may be important to spell out now an explicit strategy with respect to non-community farmers. To allow farmers outside the selected communities to participate in the program could go against the "integrated" approach inherent in the selection of communities; it may also swamp the extension services in credit processing, as opposed to extension work.<sup>1</sup> Though the acceptance of all eligible farmers for PN/PIDERP credit may violate the "integrated" concept of the program, it is at the same time difficult to justify the exclusion of these farmers from the benefits of credit--given that they reside in a POLONORDESTE area.

The interest rate differential. The interest rate differential between PN and normal BB small-farmer credit will cause problems in trying to keep the program on the target farmers and communities. The large difference in interest charges between the PN and the BB small-farmer credit will attract many farmers who might be perfectly satisfied with BB credit-especially in its new simplified and mobile form. The fact that the BB is interested in expanding its own small-farmer credit program

<sup>&</sup>lt;sup>1</sup>Already, EMATERBA headquarters in Salvador has told its PN/PIDERP field agents that they must remember they are working on extension, not credit--i.e., that they must devote their attention to extension services to target farmers whether or not they are recipients of credit.

should be seen as an opportunity to deflect some of the non-community small-farmer demand toward normal BB credit. This would protect the PN/PIDERP program from being swamped with credit demands, but it can be accomplished only by narrowing or eliminating the interest differential between the two programs.

10.05 The interest-rate differential will also make it more difficult to attract small-farmer beneficiaries who are interested in adopting new techniques. Many farmers will opt for the PN/PIDERP credit, that is, because it is cheaper rather than because it carries the possibility of free technical assistance. If the interest differential between the two programs did not exist, then the beneficiaries would turn out to be more of a self-selected group-i.e., having shown a preference for a technical assistance package despite its nuisance cost. The PN/PIDERP beneficiaries, of course, are meant to be total newcomers to credit, without previous access to BB small-farmer credit. For this type of farmer, the interestrate differential is irrelevant since he sees himself as having no access to BB credit. But since a large minority of PN/PIDERP beneficiaries are ex-BB clients, the interest-rate differential would be a real consideration in their decisions.

10.06 Unless the program is willing to make existing bank clients ineligible, the interest rate differential will have a

substantial attraction to farmers. If the program finds it not possible to disqualify existing bank clients, it might at least want to place a ceiling on the share that such clients may have in the program of any particular community or subregion. The ideal solution to the problem, of course, would be to eliminate the interest differential. In one sense, this would be better than disqualifying existing BB clients; if the latter turned out to be the adopters in a community, one might not want to exclude them from the program. Whatever the approach taken, it should be recognized that the interest-rate differential will to some extent make the task of promoting adoption of new techniques an even more arduous one.

<u>Graduation</u>. Another aspect of the eligibility question is that related to "graduation." It is assumed that the credit beneficiaries accepted by EMATERBA and the BB will continue to obtain PN/PIDERP credit indefinitely. There is no policy determining that, after a certain period of time, the beneficiary should be able to "graduate" to the normal credit system, making way for new beneficiaries. In that the technical change process is envisioned as one that can take several years, this approach makes sense. One does not want to send the beneficiary on to the normal credit system after a few years of production credit and no change in productivity.

Not planning for "graduation" involves some problems. 10.08 Allowing "old" beneficiaries to stay on will limit the impact that the program can have, by keeping it from incorporating new beneficiaries as fast as it might. The interest-rate differential, again, will add to the problem: beneficiaries who are able to move on to normal BB credit--and who have adopted the new technology and need no further assistance or urging--will not move on because of the greater interest cost. They will want to stay in the program because of its price benefits rather than free technical assistance. Being the successful ones, they will be likely to have enough power to be able to resist being kicked "up and out." If the interest differential were less, they would be more likely to eventually switch on their own from PN to BB credit--because of the "nuisance cost", as discussed in another section, of the EMATERBA intermediation.

10.09 Enabling small farmers to gain access to normal credit should be looked upon as one of the program's objectives. Not to encourage graduation, then, seems to undercut one of the important potential achievements of the program. Though the project may be in too early a phase for graduation to be a pressing issue, it also may be easier now to set down rules for graduation, before vested interests in not graduating are built up. A graduation strategy

would also make it easier to argue the case for narrowing the interest differential between PN and BB small-farmer credit.

Extension as intermediation. The concern of EMATERBA and PIDERP over staying with their credit beneficiaries long enough to achieve some permanent changes in production techniques is an important one. The desired changes, however, may be more importantly influenced by EMATERBA's role in bringing new inputs and services into the community, than in its role as a teacher and cajoler of individual farmers. Experience to date shows that whether PN/PIDERP beneficiaries adopted new techniques was more dependent on the former role than the latter, as discussed below. If the productivity changes sought by the program are strongly influenced by the new availability of inputs to a community, then the progress of the program will not be as strongly threatened by "premature graduation" as might be feared. The changes in production techniques recommended by 10.11 EMATERBA agents are admirably modest -- given the fact that such programs often are unrealistic in promoting extreme changes, many of which do not fit the beneficiary environment. Recommended changes have mostly to do with spacing of seed holes, number of seeds per hole and, where modern inputs are available or are being introduced, the techniques for planting of selected seeds, preparation

of land by tractor, and for the application of pesticides. Almost all the beneficiaries interviewed, however, reported that they were now doing things exactly as they were before joining the program. As one farmer said, "when the land doesn't produce, it's because of the weather, not the technique."

10.12 EMATERBA technicians agree that beneficiaries are doing things in pretty much the same way as before contact with the program. The farmers, they say in explanation, were often doing things "right" to start out with; or, they were very "traditional" and it would take a long time to convince them to change; and, as farmers of many years, they had little respect for recommendations made by young graduates of agricultural schools with little or no farming experience. For these reasons, the technicians seemed to have the most impact when they were bringing a new input into, the area-selected seeds, fertilizers, pesticides, tractor services. No one had experience or tradition with these inputs, so there was almost no choice but to rely upon the technicians for information and advice. In cases where the new inputs programmed for the beneficiaries did not arrive, the technicians had no hook on which to hang their advice.

10.13 The "dependence" of EMATERBA agents on the availability of new inputs to do their work well has endowed these agents with

an important role as intermediary and advocate for their small-farmer beneficiaries. The local EMATERBA offices, that is, are the cutting edge of the PIDERP program. They are the most represented agency of the various public-sector agencies located in the project area and with responsibility for the project. (Though the Bank of Brazil may be more strongly represented, the major responsibility for the credit part of the project zests with the extension offices.) It is the extension agents who do the initial work of promoting the program and organizing farmers in the community. The EMATERBA offices found that, given their primary role as the community's main contact with the program, they ended up being asked for assistance from the communities on a variety of matters. Being sympathetic to the farmers, as well as concerned about maintaining the integrity of their program, the agents often worked hard to mobilize the promised support of the other agencies, or did their best to fill in for them.

10.14 Two other agencies that were to play an important role in the program--the Health Secretariat and the input-supply agency, CAMAB--did not come through as planned. This left EMATERBA in the position of trying to make up for their omission, which were important components of their own program. "When something goes wrong in health," an EMATERBA chief explained in commenting on the

deficiency of the Health Secretariat's participation, "everything comes down on top of us."

10.15 Though the discussions of a program like PIDERP often center on the reluctance of small farmers to adopt new techniques and inputs, and on ways of convincing and organizing them to do so, the major problem often turns out to be the obtaining of a reliable supply of inputs to these communities. Otherwise, their adoption entails the additional risk of uncertainty over whether they will be available and non-adoption becomes a reasonable response by small farmers. EMATERBA agents have found that the principal struggle in the promotion of new techniques is often not with the small farmer, but with the input-supply agency, CAMAB. The agents spoke of long struggles to get CAMAB to supply selected seed that it had promised, and services of tractor and pesticide-application equipment. In some cases their struggle was successful, though the inputs came later than they should have. In others, they were not successful. Since the problem is not an uncommon one in such projects, it is not necessarily a cause for alarm at this early stage. But precisely because it is a frequent problem, it should receive as much attention in project planning as the teaching of the small farmers to adopt new techniques.

10.16 The structure of the EMATERBA/PIDERP agent's work environment is, in one way, well suited to turning the extension

agents into advocates of their small-farmer beneficiaries. Because the agents are the principal contacts and advocates of members of the community, they gain respect and power in the communities. This respect, in turn, is crucial for their role as agents of new techniques; but it is also contingent upon their being able to make good on their promises. The failure of inputs to show up is much more "costly" to them and their future work than it is to the poorly performing agency, in this case CAMAB, which does not need community support to do its job well.

10.17 Similarly, EMATERBA agents are not able to allow their beneficiaries to have insurance unless they are able to show at least 15% of their expenses on "modern inputs." If they cannot arrange for the inputs, then they will again be unable to "deliver" on their promises--this time for credit insurance. Foregoing the insurance also carries the risk of severe setbacks to their beneficiary population, as in the case of last year's drought. Though insurance and selected seeds were part of the plan for one group of PN/PIDERP beneficiaries, they had to go without insurance at the last minute because the seeds were not delivered; 80% had total crop failure as a result of the drought. Finally, availability of the new inputs directly influences the extension agents' ability to perform, as mentioned above, in that the inputs are frequently the only medium through which new techniques will be accepted. 10.18 In various ways, then, the availability of inputs has turned out to be important not only to the small farmer, but to the ability of the extension agent to perform his work. This has resulted in an identification of the extension agent with the interests of the small farmer, a rare achievement in traditional extension services. It has also built into the project an ongoing source of pressure to keep the more laggard agencies in line, a pressure that may be more important in determining the performance of these latter agencies than any formal role spelled out for them in the project document.

Identifying with the small farmer. The preference of extension agents for their large-farmer clients, understandable from the agent's point of view, has been the undoing of many attempts to provide extension to small farmers. The structure of the EMATERBA/PIDERP task system may help to avoid that problem in this project. Unlike many such programs, EMATERBA/PIDERP extension agents work with no farmers outside the beneficiaries of that program. This eliminates the possibility of ambivalence by the extension agent between the large-farmer and small-farmer clients. The exclusive work of EMATERBA/PIDERP agents with small farmers also allows them to identify strongly with the cause of the small farmer, an identification that is almost impossible to build up when one

also has large-farmer clients. As the project gains more experience, and demands on EMATERBA from all directions become greater, it will be important to make sure that the "unavailability" of the EMATERBA/ PIDERP agent for large-farmer tasks is preserved.

Because the identification of EMATERBA agents with the 10.20 small farmers is an unusual achievement for such a program, it should be more explicitly facilitated and rewarded. The EMATERBA field people who are the principal contact with the beneficiary farmers--the agents of middle-level education--are the ones whose willingnesss to extend themselves for the small farmers is most crucial to the success of the program. Because the nature of their work requires considerable motivation and tolerance for frustration, it is important to give them a sense of importance in the decisionmaking process. Because of their intensive field experience, in turn, they have valuable information to contribute on how the program should be modified as it goes along. These agents might be made to feel more rewarded if regular attempts were made by PIDERP and EMATERBA (and possibly the Bank) to seek out their opinions on their field experience, as an ongoing input into the formulation of the program.

10.21 The problem of the poorly rewarded field agent is well documented for this particular type of program, though the project

seems to have no particular objectives with respect to the problem. There is now a considerable literature on ways to deal with it. A related issue is the way in which the EMATERBA/PIDERP agents are selected and oriented. Some agents noted that they and their colleagues were selected willy-nilly for PN/PIDERP, with no attention paid to their experience or interest in working with small-farm agriculture. They received no orientation in this direction, they said, once they were selected.

10.22 Given the importance of the commitment of the extension agent to the success of the program, it might be worthwhile to poll the preferences of agents, before transferring them to the program. An orientation with respect to the differences between small-farm and other agriculture, and the causes of poverty, might also be important in helping the agent to gain effectiveness and identification with the program. Several EMATERBA technicians commented that the agency's main area of experience until now had been livestock and the larger farm enterprise. They had no feel for the small-farm enterprise, they said, or the mixture of crops and livestock that characterizes it.

10.23 That EMATERBA agents would turn out to play a more important role as intermediaries and advocates for small farmers than as agents of technical change is not an unusual finding for this type of project. Studies of integrated rural development projects in Latin America come up with the same result. The programs were not as successful at

introducing new technologies as they were in helping small farmers gain access to services, inputs and benefits from which they had previously been excluded. Obviously, new access to existing techniques could also have a significant impact on productivity in the smallfarm sector. This is why it is important for the rural development project to empower the field agent to deliver services and inputs to the beneficiaries--by making it professionally rewarding, as well as helping him to do so.

The role of the local extnesion office as intermediary and 10.24 advocate is somewhat similar to the role meant for coops. The extension office becomes the "local group" that looks after the small farmer's interests and pressures outsiders to act in his benefit. Clearly, this is a second-best alternative to a coop, and smacks of paternalism. But the coop approach being used in the project area, as described in another section, involves at least the same amount of paternalism. That is, it puts together small farmers with large farmers in one group, counting on the latter to act in the interests of the former. This is not only paternalistic. It also makes the small farmer dependent, unlike the extension approach, on a "patron" whose best interests will often not coincide with those of the small farmer. Thus though the extension agent as advocate and intermediary for the small farmer may represent some form of paternalism, it is certainly a more benevolent form than that implicit in the cooperative form being proposed for the project area.

## XI - The Peasant Farm

11.01 An important feature of the proposed project is that it does not treat the farm as a self-contained enterprise. It does not take all the farm's income-producing activities into account nor does it design a farm plan based on the total activity of that enterprise. The program started out, for example, financing only corn and beans. For small farmers in the project area, the important excluded crops were manioc, castor beans and pasture grass. Credit could be used to finance only the two crops, and farmers were not allowed to interplant the financed crops with any other crops--as they were accustomed to doing.

11.02 A few examples are necessary to illustrate some of the possible effects of this approach. One FN/PIDERP farmer had interplanted castor bean with his beans, a common practice among small farmers in the project area. The extension agent told him he could not qualify for credit if he planted the beans with the castor bean. The castor bean, farmers say, gives shade to the beans; if the beans fail because of inadequate rainfall, moreover, the castor bean has a greater chance of pulling through--being drought-resistant and of a longer maturation cycle (two years). In order to qualify for PN/PIDERP credit for beans, the farmer of this example pulled up the castor bean he had planted. He received the credit, planted the beans by themselves, but rainfall turned out to be inadequate. His

loss was total. "Before, at least, I would have had the castor bean," he said, "Now, I'm lost."

11.03 Another PN/PIDERP beneficiary wanted credit for manioc and castor bean, which he had already planted. Manioc, like castor bean, has a two-year cycle and is more resistant to the drought than are corn and beans. Since credit was available for only corn and beans, however, he planted corn for the first time in order to qualify for credit. Rainfall was inadequate, and the corn crop was lost. Another farmer received credit for beans, and wanted to interplant them with manioc, as was his custom. EMATERBA and the bank would not allow it, so he planted the beans by themselves elsewhere on his land. The bean yield, he said, had been better with the manioc interplanting than without.

11.04 As another example of the problems inherent in the partial approach to the farm enterprise, the program does not allow farmers to interplant pasture grass along with the financed crop at any time during the financed crop's cycle. Pasture is said to limit the growth of the crop, and to make difficult the burning and working of the land for crops.

11.05 The interplanting of crops with pasture is common in the project area. Sometimes it is done routinely, sometimes it is done when the farmer thinks that a certain crop is not going to produce adequately--either because of insufficient rainfall, faulty seed,

pests or blights. If the crop fails, he will have pasture for his animals or, also common, he will rent his pasture out to others. The farmer also harvests and sells the seed of the pasture grass, adding to his income in one more way.

11.06 Small-farmer pasture earns income in the project area in yet another way, according to a system of "livestock sharecropping." In this system, called "sociedade," better-off farmers buy cattle and hand them over to the "sharecropper"--or lend him some of their own animals-for fattening. The sharecropper pastures the animal on his land until the animal is sold, and the two parties divide the net return--i.e., the return from the sale minus the capital cost of the animal.

11.07 The small farmer plants pasture as a hedge against crop failure. If the crops fail, he will have pasture for his animals or the sharecropped ones, or he can rent pasture out to others. Thus a comprehensive analysis of the farm enterprise, including considerations of risk, might well show that the farmer is better off interplanting his pasture with his crops--even if it is true that pasture grass retards crop development.<sup>1</sup> The project, then, may be leaving the farmer worse off by taking away the complementary source of income provided by pasture grass. A more appropriate form of technical assistance might be the recommending of an improved technology for interplanting pasture with crops. Or, as suggested by an EMATERBA

<sup>&</sup>lt;sup>1</sup>Data generated by the Bank-sponsored SUDENE/IBRD Survey provide some partial evidence on this question. Comparisons of average yields of certain crops and crop combinations with and without interplanted pasture grass show no significant differences in yield. See Table 26.

official, the project ought to look into ways of facilitating the acquisition and use of commercial pastures by small farmers. Common pasturing, this official reported, is a well-established custom among small farmers in the project area. It cannot be overemphasized that it is difficult to gain these perspectives on the problem when assistance is tailored to a crop-specific credit program.

## Conflicting constraints: the small farmer and the extension agency.

Ideally, one would like an integrated rural development project to be able to analyze and finance the farm enterprise as a unit, including all its activities.<sup>1</sup> But this is a much more complicated task for an extension service and the banking system. Concentration on technology and financial analysis for a few crops may be the only realizable task that can be asked of an extension service. At the same time, it is important that the program not penalize farmers for engaging in the mixed-farming system that is basic to their survival. The only justification for taking away these diversifying and risk-averting activities from the small farmer would be a program of comprehensive insurance against failure. As the insurance section demonstrates, however, the credit insurance available to farmers today insures them

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<sup>1</sup>Another income-yielding activity of small farms in the project area is the harvesting of the nut of the coconut palm "uricuri", which grows naturally in the sertão. The whole family works on the extraction of the nut from the coconut. The product is being bought in the region for the making of livestock meal by the international agribusiness firm SAMBRA, at Cr\$4.50 a kg. (in August of 1977).

against only a fraction of their losses in case of total failure-and only on the financed crop. This is not a high enough level of protection to warrant the prohibition against protective behaviors like interplanting.

11.09 Ironically, the crop-specific financing of the PN/PIDERP program makes the program look more restrictive of small-farmer activities than the traditional lending policies of the Bank of Brazil. As noted in the World Bank's 1974 report on the Northeast, small farmers have virtually no access to credit for long-cycle crops from the Bank of Brazil. This, along with land tenure problems, limits their activities to short-cycle food crops. In many cases, however, it is the long-cycle crops for which the marketing system is better developed and for which demand is more stable partly because most of the long-cycle crops are export crops. As the SUDENE/IBRD farm survey pointed out, farm income for producers of export crops was higher and more stable than for domestic staple crops; the report suggested that a significant improvement in Northeast small farm incomes would be dependent on facilitating the access of these farmers to the production of long-cycle crops.

11.10 The PN/PIDERP program is even more restrictive, inadvertently, than the BB. It not only allows no access to long-cycle crops, but it started out financing a very limited list of short-cycle crops-namely, corn and beans. (The program now has plans to incorporate

some financing for manioc and castor bean in the near future.) These originally excluded crops are an important part of the small farm production of the project area. They also are more drought resistant than corn and beans, a comparison which was painfully apparent after the initial drought year of the program. Home processing is also important for both crops, giving employment to various members of the family.

11.11 It is not the decision to finance corn and beans that is being questioned here. Rather, it is the concept of allowing financing for only a limited number of activities--and, even more serious, prohibiting the mixture of some activities--to an enterprise that derives its sustenance from a mixture of many activities. If this is a farmer's first chance to get institutional credit, he may be perfectly willing to abandon his traditional mix of activities in order to qualify. But this abandonment may not be the best thing since it may leave him worse off than before, as in the case of the above examples.

11.12 This issue should be looked at as a dilemma between what makes sense for the service institution and what makes sense for the small-farmer enterprise. The many-activity approach may not make sense for the institution because it is an unreasonable set of tasks to impose on the institution--not necessarily because such a style of production in uneconomic for the farmer. To the small farmer, in

contrast, the many-product approach can make good economic sense. Indeed, some of the ineligible crops and proscribed ways of doing things may offer more of a pathway to individual farm development than concentration on crops eligible for financing.

11.13 The program ought to find ways of taking in to account the efficiency constraints of both the service institution and the beneficiary. The extension service should be able to limit the span of its expertise and financing to a few crops, if that is the best way for it to work. At the same time, this organizational limitation should not take the form of a prohibition against the mixed farming system, or strong disincentives against it.

Interplanting. The problematical outcomes described in the introduction to this section result to a considerable extent from a lack of appreciation for the positive role of interplanting in the small-farm system. There has been a growing tendency to appreciate better the mixture of activities characteristic of the peasant farm, partly as a result of the recent literature, which has demonstrated the rationality of this method of production in many instances. Despite this new awareness, however, programs continue to get designed and implemented as if the old thinking still prevailed. Even though many technicians now recognize certain efficiencies in the peasant system, that is, they still end up designing or running programs that discourage or penalize the use of that system--without necessarily meaning to. The stories told above are examples of the lag between the thinking and the doing. 11.15 According to PIDERP, the World Bank has allowed only two interplanted crop combinations to be financed with credit under the project. They are beans/corn, and beans/castor-bean. PIDERP says that the interplanting combinations removed from the project at the Bank's suggestion were: beans/corn/castor-bean, beans/corn/manioc, tobacco/manioc, and beans/manioc. PIDERP had wanted these interplantings retained in the project because, they said, such combinations were commonly practiced in the project area. That they were common, they felt, must be a reflection of their viability both in agronomic and economic terms. "It is the peasant farmer," a PIDERP technician said, "who is the master economist."

11.16 According to PIDERP and EMATERBA, the Bank cited various reasons on different occasions for exclusion of the four interplanted combinations cited above. The Bank, it was said, expressed a preference for financing single crops, not combinations of them. With respect to the excluded three-crop combinations, the Bank was said to have felt that they were too complicated for the model used in project design and also that the triple combinations were not common in the project area. (PIDERP vigorously disagreed about the latter fact.)<sup>1</sup>

<sup>&</sup>lt;sup>1</sup>The random sample of the SUDENE/IBRD Survey for the zone of which the project area is a part turned up the triple combinations in no considerably lesser proportion than the double and single crops--for the zone of which the project area is a part (semi-arid sertão). There were 100 cases of manioc/corn/beans (feijão macaçar); and 17 cases of corn/beans/castor-bean. For corn alone, 18 cases; beans alone, 45 cases, corn/beans, 95 cases; manioc alone, 128 cases. It should be noted that the survey includes only one municipio from the project area itself--Tapiramutá. (See Table 25.)

11.17 With respect to the excluded combination of manioc with tobacco or beans, it was said that (1) there was a general reluctance to give any encouragement to manioc, because of an alleged low price elasticity and resulting vulnerability to gluts on the market and low prices; and that (2) the shade given by manioc stifles the growth of the shaded crop, requiring larger spacing between plants and resulting in lower yields. (These last two allegations have also been made by EMATERBA and PIDERP technicians.) EMATERBA reported that it had been told by the Bank directly and through PIDERP that a comprehensive approach to the total farm enterprise was too complicated and would take too much time, thus delaying approval of the project.

11.18 The Bank's side of the story suggests that there was some lack of communication in the matter. Mainly, the Bank seems to now characterize the exclusion of certain interplantings as a simplification carried out purely for reasons of presentation of the project appraisal report. The criteria of inclusion or exclusion, it is said, were for purposes of illustration in the appraisal report. They were not at all meant to keep the excluded interplanting combinations from actually being financed under the project--if PIDERP and EMATERBA so desired.

11.19 It seems strange that there would be such completely different interpretations of what was decided on such an important issue, and that neither of the parties involved sought to clear the

confusion up. (PIDERP maintains that it spent hours in heated discussion with the Bank on the excluded interplanting combinations.) It may be that the confusion continues because the issue was <u>not</u> an important one to the parties involved--though it does seem to have evoked strong feelings on the part of some PIDERP and EMATERBA technicians. The question was never aired, in other words, so that the strangely contrasting stories of the different parties could be reconciled. If the Bank had had to take a stand on the interplanting issue, it is difficult to believe that it would have defended a position against interplanting--given the sympathy it has demonstrated to the findings of recent research regarding the benefits of interplanting.<sup>1</sup>

11.20 If interplanting had been an important issue, it is hard to believe that the Bank could have continued thinking that the interplanting exclusions were only for illustrative purposes while PIDERP and EMATERBA were proceeding as if they were for real. Needless to say, the confusion was also contributed to by the many visits of different Bank technicians or consultants, stretched out over a long period of time. What each visitor says gets melded by the Brazilian counterparts into a "Bank position"; it soon comes to be considered as a <u>sine qua non</u>

<sup>1</sup>The Bank-sponsored SUDENE/IBRD Survey generated some data on output, income and cost for several Northeast crops and crop combinations. See par. 11.24 below.

for getting any Bank assistance at all. The matter may never get raised to the level of an "issue"---to a level where a position <u>is</u> elicited from the Bank.

11.21 The moral of the story is not that the Bank was wrong. I do not think that the Bank really took a position or sought to defend the position that the Brazilians thought it took. The moral is, rather, that this is a matter that should not be allowed to slip through the cracks. The Bank, as an important sponsor of both research and rural development projects, is in a unique position to apply the findings of agricultural research. It is understandable that the Bank might not want to push too hard in certain areas, if there were considerable recipient-country resistance to the new thinking. But the Bahian case was fertile ground: there was strong sympathy for interplanting at PIDERP and EMATERBA, and for treating the peasant farm as a mixed-activity, comprehensive enterprise. And despite the new thinking, the Brazilian system continued to operate in accordance with the old thinking--incentives to single-cropping and disincentives to interplanting.

11.22 In Bahia, then, the Bank had a chance to support those who were sympathetic to small farmer cropping systems. This opportunity was important to act upon, because the sympathy of these technicians to the approach reflects a more general sympathy to small farmers and a willingness to re-orient public programs in their direction. The

empowerment of these types of technicians through Bank-financed projects, in turn, is a crucial element in the success of small-farmeroriented projects, which normally have such difficult going institutionally and politically. Because the interplanting issue was not an important one, then, it went the way of all other projects designed under the outmoded thinking--and without anyone really realizing it.

11.23 The interplanting issue is not an easy one to deal with. As the story of the project illustrates, it is not simply a matter of demonstrating sympathy for interplanting, or letting pro-interplanting technicians have free rein. The power of the anti-interplanting "mythology" is a powerful and pervasive one. It is part of an outlook that says that the poor are poor by their own doing--because they do not use different and better production techniques--instead of because of injustice and unequal distribution of wealth and income.

11.24 Instead of being just sympathetic to interplanting, the Bank needs to engage itself with this issue in a concrete way. It is remarkable that there is no research on the project area to back up the commonly-cited reasons of extension and bank people for being against certain interplantings--given that such research could be accomplished simply and in fairly short order. The little research that is available suggests, at the least, that many of the "reasons" against interplanting are simply not true and, indeed, that in some

cases the opposite is the case--i.e., that the interplanted system may give superior results to the single-cropped one.

11.25 Data collected by the SUDENE/IBRD Survey, for example, show that there were almost no statistically significant differences in yields between single crops and interplanted ones.<sup>1</sup> The Bank should ask what research it can finance on this question as part of the project; it should ask the pro-interplanting technicians to present their proposals with respect to specific combinations; it should make available to the sympathetic technicians the research findings sponsored by or known to the Bank; it should find out what strategies there are for changing specific practices of banks, extension services, and other public agencies, which inadvertently discriminate against the mixed-activity peasant enterprise. Getting these services to change their practices, it should be noted, can be easier than one might think. In many cases, the practices are the result of an engrained and unquestioned way of doing things, rather than of a

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<sup>&</sup>lt;sup>1</sup>Except in the case of two triple interplantings--(1) feijão de corda vs. feijão de corda/manioc/corn and (2) feijão de corda/corn vs. feijão de corda/ manioc/corn. A t-test was performed on the mean per-hectare yields of the various crops and crop combinations. At the 95% confidence level, the test showed significant variation only for the two comparisons noted above. Tables 25 and 26 present these data.

specific intent to discriminate.

<u>Two kinds of bean</u>. As mentioned above, several crop combinations were excluded from the proposed project at the Bank's suggestion--the excluded combination that is used most widely in the project area is beans and manice. The reasons cited by PIDERP for exclusion of this combination was (1) that manice stifles the growth of the beans and (2) that there is a reluctance to encourage manice production because of the "low" prices and price elasticity of that product. As suggested above, these types of explanations--commonly cited by technicians of EMATERBA, the state agriculture department, and the Bank of Brazil-need to be looked at more closely. The case of beans will be discussed first and the manice question in a separate subsection following.

<sup>&</sup>lt;sup>1</sup>The SUDENE/IBRD Survey data noted above show no significant variation in yield between single-cropped beans and beans interplanted with manioc. The data allow comparison only for one type of bean--feijão de corda--interplanted with manioc. This is the type most common in the project area. See Table 26.

But the recommendation against the bean/manioc combination applies to a type of bean that is hardly produced in the project area--the short-cycle bean, "feijão de arranca". The bean produced in the project area is the longer-cycle "feijão de corda" or "feijão macaçar"; correspondingly, the manioc/feijão-macaçar interplanting is one of the basic combinations used by farmers in the project area.

11.28 Interplanting manioc with feijão macaçar, EMATERBA says, is okay. Only with feijão de arranca do they think that the combination gives undesirable results. Despite this judgment, the Bank of Brazil in Salvador says that it does not finance feijão macaçar or corn interplanted with manioc because the latter "gives too much shade". It will accept the interplantings of both types of bean with corn, and of feijão macaçar with cotton. (Cotton is not produced in the project area.) The discrepancy between what extension and bank people say is a good example of the conflicting beliefs and "evidence" one hears on these questions, even within agencies.

11.29 The exclusion of the bean/manioc combination from the

164a

proposed project, then, seems to be a case of having singled out the wrong bean. Manioc and beans go all right together, according to extensionists, if one is talking about the kind of bean produced in the project area. The exclusion, however, is not only a result of misplaced identity. Agricultural and bank technicians frequently convey the impression that the bean produced in the project area is of low quality and not worthy of support--for reasons explained momentarily. This means that the manioc/bean exclusion is not only an inaccurate generalization of alleged feijão-de-arranca characteristics to feijão de corda. It is also the result of a general neglect of feijão macaçar.

11.30 Feijão de arranca, produced mainly outside the project area, is considered a noble bean--"um feijão nobre"--as compared to feijão macaçar, which is considered "poor people's food". (Actually, feijão macaçar is at least as high in nutrients as feijão de arranca.) Feijão macaçar is consumed almost completely within the rural area where it is produced, and is preferred in consumption by the people of the interior. This variety is also lower in price than feijão de arranca.<sup>1</sup> In general, feijão macaçar is looked at by consumers and agricultural-sector

<sup>&</sup>lt;sup>1</sup>Because of the great variety of beans and prices, and the scattered nature of the price data, I do not have the data to make an adequate comparison of the difference between the market prices of the two beans. The SUDENE/IBRD farm-survey data, for the zone of which the project area is a part, show feijão de corda as earning about 66% of the gross revenue per kg. as feijão de arranca. The minimum price set by the government for the former bean was almost half that of the price for the latter during the 1977-1978 crop year. As Table 26 shows, the yields of the two varieties are not significantly different.

technicians as a low-quality product not worth encouraging.

11.31 Feijão macaçar seems more suited to the project area than feijão de arranca in that it is more hardy, more resistant to dryness and pests, and more tolerant of poor soils. It is also compatible with the needs of the subsistence farm enterprise, in that it does well when interplanted with manioc, a basic staple in the diet of poor farmers and their families. It has a longer cycle (100-110 days) than feijão de arranca (90 days).

11.32 In contrast to the project area, the Irecê region produces feijão de arranca on its more fertile soils and is a major supplier of that bean to all the Northeast. The region is just north and northwest of the project area. The Irecê region, in other words, has specialized in feijão de arranca with its more demanding requirements for soil and water, while the project area has specialized in feijão macaçar, with its greater tolerance for the type of dryness and poor soils characteristic of the area.<sup>2</sup>

<sup>&</sup>lt;sup>1</sup>The picture is not quite as black-and-white as I have represented it. The Bank of Brazil, for example, recently financed short-term credit for about 18,000 hectares of feijão macaçar in the areas of Brumado, Caetetê and Guanambi, just south and southwest of the project area. The project area itself, however, has not been the recipient of such special programs.

<sup>&</sup>lt;sup>2</sup>The SUDENE/IBRD Survey showed three times as much feijão-de-corda production as feijão-de-arranca production in the zone of which the project area is a part (semi-arid sertão). Feijão de arranca was found to exceed feijão de corda by a significant proportion only in the humid coastal zone (three times greater).

11.33 If the proposed project, along with general credit and extension policies, tend to favor feijão de arranca and neglect feijão macaçar, this could encourage the project area to switch some of its bean production over to the nobler bean. This type of induced change would take the project area out of production of a bean in which its comparative disadvantage is least, and into production of a bean in which its comparative disadvantage is greatest--in comparison to the already-specialized bean-producing region of Irecê. This could make bean-producing farmers worse off than they are now, and expose their production to greater risks.

11.34 Any discouragement of the production of feijão macaçar in favor of feijão de arranca also means that people are being encouraged to stop producing what they eat in order to produce something they don't eat. This is doubly true in that interplanting with manioc, a basic staple of the rural diet, is recommended against for the better bean. From an economic point of view, of course, it does not make sense for farmers to produce what they eat if they can produce something else more efficiently, and exchange it on better terms for what they need to eat. Unfortunately, the relative profitability of the various crops and combinations within the project area has not been analyzed. Thus it is not possible to assess the economic implications or desirability of the crops and combinations being discussed.

11.35 Even without the data to make relative profitability

assessments, one fact of the situation is apparent. The target farmers of the proposed project are characterized by their dependence on their own production for what they eat, and by consumption at subsistence levels. Any change in production that, like the change discussed here, threatens a home-based source of food supply without providing a guaranteed income to buy that food, can have severe adverse consequences on the production and nutritional status of the target population. There are various reasons, then, for the proposed project to be cautious about reinforcing the present system of incentives and disincentives to bean production in the project area.

11.36 Particular care needs to be taken in cases like this, where the neglected crop or variety constitutes the food of poor, country people and is rejected by better-off, urban consumers. In such cases, a series of economic and agronomic arguments will often appear to justify the neglect of such a crop, and to promote its substitution by one preferred elsewhere. It is in these cases that the economic and agronomic arguments must be carefully evaluated. That feijão macaçar is at least as nutritive as feijão de arranea exemplifies the fact that frequently-repeated "technical" statements about a crop can sometimes represent the mythology surrounding the crop rather than the truth.

Manioc. As noted above, the proposed project started out financing only corn and beans. This excluded two other important small-farmer

crops in the project area -- manioc and castor bean. The latter two crops do better in the project area than corn and beans, and at the same time are complementary in planting with corn or beans. The interplanting of the excluded two with the included two is common in the project area, for reasons discussed momentarily. Until the current planting season, any PN/PIDERP subproject financing to farmers for corn or beans would not allow interplanting with the excluded crops. The proscription against interplanting with manioc or castor 11.38 bean, like most of its kind, was not written down. It sometimes resulted simply from the fact that the credit was meant to go along with a commitment to follow technical assistance recommendations for the financed crop. One could not make recommendations and expect compliance for a portion of the crop that one was not financing, a portion that was intermingled with the financed crop. Even for the financed crop, moreover, the recommendations one would make would be different if it were to be interplanted with something else rather than planted singly. Thus though interplanting was not officially proscribed, the need to implement a program covering some interplanted crops and not others was tantamount to proscribing the interplanting of the excluded crops. The stories recounted above are testimony to this. 11.39 Financing for short-term credit for 12,000 hectares of manioc had been part of the original PIDERP plan, on the expectation that PETROBRÁS would establish a plant in the area for the processing

of manioc into alcohol. Following the 1973 petroleum crisis, the Brazilians have attempted to reduce their imports of petroleum by, among other things, increasing the alcohol content of the fuel used in automobiles. This plan was consistent with the government policy of supporting the domestic sugar-cane industry, which would be producing the alcohol. The Brazilians have already pushed the alcohol content of their automobile fuel to 10% and hope that they can reach 20%. Going beyond 20%, they say, would require modification of automobile engines. 11.40 Brazilians have frequently looked for industrial schemes that would use manioc. Brazil is the world's largest producer of manioc, which is a staple of much of its small-farm production, especially in the Northeast. Out of the search for a way of using alcohol in automobile fuel came the idea of using at least some alcohol made from manioc. Because manioc can be left in the ground for several months after it is ready to harvest, it was felt that an alcohol plant could count on a more even flow of the raw material than would be the case of a crop, like sugar cane, with a more typical harvest cycle. To the extent that there is a harvest season for manioc, according to PIDERP, the variety of climatic conditions in the area creates two distinct and complementary harvest times for that tuber.

11.41 The idea of a manioc-based alcohol plant went far enough that a decree was passed giving PETROBRÁS the power to set up such a plant in Bahia. That state is the largest producer of manioc in Brazil,

accounting for about 20% of the country's production. In expectation of the realization of this plan, PIDERP included 12,000 hectares of manioc in its plan for credit to project beneficiaries. After the decree was announced, the sugar-cane producers of the Northeast and the South mobilized against the plan, carrying out an intense campaign in the press. They claimed that they were more than capable of supplying the alcohol necessary to fulfill the goals of the automobilefuel program. They were successful, and the plan for a manioc plant was suspended. With this, PIDERP removed manioc from its program. Manioc had not been included in the PIDERP program as a food 11.42 product, it was said, mainly for two reasons. One was that the manioc flour produced at the small farm level was not covered by the minimumprice program. This is because of problems of humidity and of testing for toxicity--as discussed at length in paras. 8.19-8.23.<sup>1</sup> The other reason given for not including manioc is that it is said to be a product with little price elasticity and therefore vulnerable to market gluts and low prices. Manioc could not afford, it was felt, any undue increases in production resulting from increased credit or other incentives.

<sup>&</sup>lt;sup>1</sup>That manioc was not covered by the minimum-price program is somewhat of an excuse for not including it in the proposed project, since the corn and beans produced by small farmers and included in the project are also not covered by the minimum-price program. It is true, of course, that if the minimum-price program made a decision to start covering these products, there might be more work involved with manioc than with corn and beans because of the toxicity and humidity problems.

Without an analysis of price and supply data, it is not 11.43 clear whether the above-stated view of manioc is an accurate one. Other sources report quite a contrary picture of manioc-i.e., a secular decrease in the area planted in the state, resulting in high prices and scarcities, and government storage and sale programs to alleviate the scarcity among urban consumers. With respect to price fluctuations, the fact that manioc can be stored in the ground would lead one to believe that fluctuations would be less than is the case with most other agricultural commodities. Farmers often leave their manioc in the ground when the price is low, that is, until the price is more to their liking. Similarly, a high price for manioc will bring a lot of manioc out of the ground. All this makes for a supply elasticity for manioc that would be higher than is characteristic of most agricultural commodities. It would seem that this greater supply elasticity -- a function of the natural storagability

<sup>&</sup>lt;sup>1</sup>One study speaks of a recent decline in Bahian manioc production resulting from a substitution of manioc areas by cotton, citrus and cattle. Partially as a result of the decline, the retail price of manioc meal rose considerably between 1971 and 1973 and again in 1975, to the point that the government sold its manioc meal stocks at prices below the market in poor urban areas. Alvaro Bueno, et. al., "Cultura Mandioca: Subsídios Para O Documento de Implantação do Centro Nacional de Pesquisa de Mandioca e Fruticultura," Cruz das Almas: Escola de Agronomia, 1975; as cited in William Saint, <u>The Social Organization of Crop Production: Cassava, Tobacco and Citrus in Bahia, Brazil, Ph.D.</u> Dissertation, Cornell University, 1977.
of the crop--would contribute to evening out somewhat the wide price fluctuations in farmer income that are associated with most other agricultural commodities. Without further evidence and analysis, then, it does not seem possible to defend the case for not supporting manioc on the grounds of alleged low prices and price elasticity.

11.44 There is a more generalized reason for the shying away from manioc in Brazilian agricultural and credit programs. Manioc is generally looked down upon by technicians who deal with agriculture and food policy decisions--a tradition that is not restricted to Brazil. Like feijão macaçar, manioc is considered an ignoble product-a crop that one moves away from as one develops and one's agriculture gets better. Manioc production is not something a country is proud of.<sup>1</sup>

The lack of interest in manioc seems to be more pervasive in Brazil than in the world's other important manioc-producing countries. (In descending order of importance, those countries are Indonesia, Nigeria, Zaire, Thailand, India, Tanzania, Mozambique, Ghana, Angola, Colombia and Paraguay.) A recent FAO publication on manioc describes FAO-sponsored research and processing programs requested by the governments of eight manioc-producing countries. Brazil, the world's largest manioc producer, was not among them. Similarly, a comprehensive 150-item bibliography on manioc appended to this publication--including academic and government publications--contained only one item on Brazil. (FAO, <u>Cassava Processing</u>, by M.R. Grace, Rome 1977.) The research program on manioc of CIAT in Colombia is considered to be among the best among the programs of that center. The Bahian agricultural research station at Cruz das Almas has recently started a manioc research program.

<sup>&</sup>lt;sup>1</sup>I myself was surprised to discover from the <u>Anuário Estatístico</u> that Bahia is the largest manioc-producing state in Brazil and is second only to cacao in the value of its crop production. I had never heard that from the Bahians, who are known to be proud of their state and to wax eloquent about its accomplishments.

11.45 The tendency to dismiss manioc as an inferior crop has probably been reinforced by the tendency to characterize it as an inferior food from a nutritional point of view. Manioc is high in carbohydrates and is relatively low in protein.<sup>1</sup> Because of manioc's low protein in relation to its bulk, some nutrition planners have said that manioc is the exception to the rule that peasant populations will generally obtain their required amounts of protein simply by eating an adequate amount of the staple foods they normally eat. More recently, manioc has come to be considered less of a nutritional problem and, instead, certain advantages of the crop are being pointed to. Some nutritionists now state that the protein-deficiency description of manioc is an incomplete characterization of the problem of manioceating populations, in that it neglects what people eat manioc with --mainly beans in the Northeast, which are high in protein.<sup>2</sup> What causes malnutrition in these and other populations, these nutritionists say, is not the kind of staple that people are eating but the sheer lack of adequate amounts of food. Clearly, this view has major implications

<sup>&</sup>lt;sup>1</sup>The manioc root is also high in ascorbic acid and calcium. The leaves and stems are high in protein and vitamins. Some manioc-eating populations, particularly of Africa, eat the leaves; others do not. In South America, eating of the manioc leaves is not common.

<sup>&</sup>lt;sup>2</sup>These nutritionists feel that if there is a nutrition-deficiency problem caused by the role of manioc in some groups' diets--rather than by just plain lack of adequate amounts of food--it is restricted to children. Children will often not want to eat as much of the high-bulk manioc products as is necessary to meet their nutritional needs. If this is the case, such nutritionists would recommend nutrition-supplement programs for the child population.

for policy, for it characterizes malnutrition as a poverty problem, and not as a result of the nutritional features of the staple foods that poor people eat.

Manioc has certain properties that enable people living on 11.46 the edge of starvation to survive--a combination of features that almost no other staple has. Manioc is the only food staple produced in the project area that is drought resistant, and endures well the annual dry seasons characteristic of the Northeast sertão. Of the food staples consumed in the project area, it is the most tolerant of its poor soils. It is also relatively free of pest and disease problems, nor is it subject to animal predators.<sup>1</sup> Manioc is propagated by cuttings of the stem, which are pushed into the hilled earth. Thus there are no seed-acquisition costs associated with manioc; also part of the roots do not have to be retained as seed, as is the case with yams. (Roughly one third of this latter crop is retained for seeds.) 11.47 Of major importance to the small-farm household is the fact that manioc can be stored in the ground for several months after it is ready to harvest. Roots become edible within six to 12 months of planting, and can be left in the ground up to 48 months.<sup>2</sup> This means

<sup>1</sup>Though animals enjoy manioc roots, they will stay away from the bitter manioc and its toxic prussic acid content. Most of the manioc grown in the project area is of the bitter type. Manioc is subject to problems with leaf-cutter ants.

<sup>2</sup>Optimum size and starch content is at 18 months.

that peasants have natural storage for their food supply between harvest times without having to invest capital in storage, or lay out cash for its operation. It also means that peasants do not have to sell their manioc and "buy it back" for home consumption at higher prices before the following harvest--as commonly occurs in the Northeast with staples like rice and beans.<sup>1</sup> Similarly, manioc's natural storage allows producers to keep the production they intend to sell, if the price is low, until prices are better.

11.48 Manioc is also complementary in production with corn and beans, the other two staples grown by peasant farmers in the project area.<sup>2</sup> Its root system is deeper than these latter crops, making it possible to draw on soil nutrients at various levels. The depth and bulkiness of the root system loosens and aerates the soil for these other crops. Manioc can survive an intense dry period when the other two crops will not--thus guaranteeing some return to the farmer's investment

<sup>2</sup>In Brazil, corn is often used for animal feed rather than human consumption, though there are significant exceptions. I do not know to what extent corn is used for human consumption in the project area.

<sup>&</sup>lt;sup>1</sup>The low price of manioc in relation to other staples, as well as its natural storage, probably plays a role in allowing producers not to sell for cash what they know they will need later. The opportunity cost of storing it, that is, is not as great as for the higher-priced food crops. Also, a large part of the cost of manioc production is in the harvesting, transporting and home processing of the roots. Thus deferral of harvest defers costs as well as income.

in land clearing and planting. Finally, manioc contains more calories per hectare of production than any other of the staple food crops.<sup>1</sup> For all these reasons, manioc planting has often been promoted by African governments as a "famine reserve crop". In one country, failure to plant it was penalized with fines.

11.49 The Bahian extension service and the banks will often discourage interplanting of other crops with manioc because they say the latter provides too much shade and stifles the growth of the shaded plant. Even if it were true that the growth of the shaded plant were slowed down, then it still remains to be proven that the single-cropping <u>system</u> is more economic than the interplanted one. Some of the considerations discussed here suggest that the interplanted systems may make more economic sense for small farmers in the projectarea environment than the single-cropped ones.

11.50 To discriminate against manioc--if only by ignoring it while giving support to other crops--is to threaten the viability of a basic mechanism of adaptation by the poverty-stricken Northeast population to the harshness of its environment. A program that ignores manioc may well leave the target population worse off than it was before.

<sup>&</sup>lt;sup>1</sup>Because of the dependency of this calculation on average yield estimates, calorie-per-hectare figures vary considerably from one study to the next. Though the figures and the differences between them vary widely, however, manioc is always at the top of the list in calorie-per-hectare yields. A 1952 comparison for Brazil shows manioc as having double the calorie yield of the second-highest crop, yams and sweet potatoes (14.2 million vs. 7.5 million calories per hectare); corn and rice follow with 4.4 and 3.9 million respectively. Cited in William O. Jones, <u>Manioc in Africa</u>, Stanford: Stanford University Press, 1959, p. 25.

This is particularly evident in the examples cited above, where project beneficiaries pulled out the manioc they had interplanted-or switched to single-cropping.

11.51 All the statements concerning manioc presented above--both pro and con--are easily testable ones. Yet there seems to be no empirical evidence for many of the oft-cited "facts" about manioc. Because the statements about manioc that underlie agricultural policy and prejudices in Brazil are often contrary to the evidence of empirical work in other countries, it is important that these statements be tested as part of the monitoring of the proposed project. It is important because the policies toward this crop can have a major impact on the lives of the target population.

<u>Castor bean</u>. Castor bean is an important small-farmer crop in the project area. It is the only export crop produced by small farmers throughout the area.<sup>1</sup> As in the case of manioc, Brazil is the world's largest producer of castor bean and Bahia is the largest producing state, accounting for about 45% of Brazilian production. Castor bean is a relative of manioc, and shares its properties of drought resistance, tolerance of poor soils, and complementarity in interplanting with

ern and beans. Also similar to manior, castor beas has a cycle of t

<sup>1</sup>Cotton is produced in Bahia, but not in the project area. Tobacco is produced in the southeast corner of the project area and sisal in the northeastern corner. There is some question as to whether or not sisal is produced by small farmers.

corn and beans. Also similar to manioc, castor bean has a cycle of 18 months to 24 months. Finally, castor bean cake (farelo) is an important source of fertilizer in Bahia. Given the proposed project's concern for promoting the use of modern inputs -- and given the high prices of chemical fertilizer--this by-product is an important characteristic of castorbean production. For various reasons, then, castor bean ought to receive careful attention in evaluation of the proposed project. Until recently, the PN/PIDERP program excluded castor bean. 11.53 PIDERP reported that this exclusion partly resulted from a preference by the Bank for including only food crops in the project. (Tobacco was also first excluded on these grounds.) A reason for general hesistation in Bahia about castor bean is that, since 1974, its price has been declining from its petroleum-crisis peak, as discussed in paras. 5.25-5.27. Since 1975, the market price of castor bean has been below the minimum price.<sup>1</sup> As a result, castor bean has not been encouraged by credit or extension policy. As part of the discouragement, the allowable percentage for castor-bean credit has for some time been only 50% for both the regular and POLONORDESTE credit lines. This compares to 60% for most crops receiving regular credit, and 70%-80% for almost all crops with POLONORDESTE credit. Manioc, ironically, is the only other important Northeast crop for which the allowable percentage is also low at 50%.

<sup>&</sup>lt;sup>1</sup>It should be pointed out that though the price of castor bean has been declining since 1974, it has shown some months of increase, especially recently. Though the dollar price has been declining since 1974, moreover, it is still well above the pre-petroleum-crisis level.

11.54 The reluctance to encourage castor bean production in Bahia is part of the reason that this crop was not included in the original PIDERP program. Partially because of the recent upturn in the price trend, castor bean has now been included in PN/PIDERP plans. Another reason for its recent inclusion in the project may be the strong feelings of some of the extension agents against the exclusion of a crop which they felt was much more suited to the soils and climate of their area than were corn and beans. Credit for castor bean under the PN/PIDERP program is available for the current planting season in Castro Alves, Itaberaba and Santo Estevão.

11.55 Much of the previous discussion of manioc is applicable to castor bean. The extension service and the banks are sometimes reluctant to encourage it or finance it when it is interplanted, as is the custom, with corn or beans. It provides too much shade, it is said, and stunts the growth of the shaded crop. Again, no studies have been made by EMATERBA, the BB, or PIDERP to determine the yield of the interplanted system vs. the single-cropped one. And again, as the stories above illustrate, farmers were exposed to losses and lower yields that might not have occurred if they had not pulled out their interplanted castor bean--or if they had not refrained, in order to get credit, from their custom of interplanting the castor bean with the financed crop.

11.56 Castor bean is different from manioc in that it is an export crop. The SUDENE/IBRD Survey pointed out that farm income for producers of export crops was higher and more stable than for domestic staple

crops. The report suggested that a significant improvement in Northeast small farm incomes would be dependent on facilitating the production by small farmers of export crops. In the case of castor bean, one has an export crop that is already produced by small farmers. 11.57 For the reasons cited above, castor bean deserves some special attention in the proposed project, rather than being allowed to ebb and flow with the price trends for that commodity and the policy reactions to them. It has been suggested by some that part of the price problem of castor bean--at least with respect to the small farmer--has to do with monopsonistic power held by a multinational corporation which buys most of the raw product. If this is the case, it may be that the project could make some inroads on these problems by focusing on the marketing sector for this crop.

Manioc, castor bean, and modern inputs. It may be that the neglect of manioc and castor bean is partially a result of their favorable characteristics. Agricultural development and increases in small farmer welfare are assumed to be characterized by the use of "modern inputs"--fertilizer, selected seeds, pesticides--and by the construction and adequate operation of storage facilities. Yet the main advantages of these crops are that they require less of these things than most other crops: storage facilities in the ground, propagation from the producer's own cuttings instead of from seeds, less need for pesticides

and fertilizers.<sup>1</sup> At the same time, some of the important problems of these two crops seem to lie in the area of marketing--where modern inputs will not make much difference.

Most of Brazil's programs for small farmers require a 11.59 certain level of use of "modern inputs", as discussed elsewhere. Rural development programs have the same modern-input bias: improvements in small-farmer production and welfare are sought in things that can be bought -- pesticides, storage facilities, mechanization equipment or services, etc. It is not surprising, of course, that rural development projects take this form. If change were not embodied in things to buy, then there would be nothing to spend money on and no project. Perhaps the assumption that projects must involve mainly physical items that can be bought is a restrictive one. The assumption may be keeping projects from covering areas where they might be able to achieve some success; and it most likely results in the neglect of other areas, with undesirable consequences, as illustrated by the case of manioc. One example of an expenditure not involving physical items 11.60 is the personnel costs of, say, an extension service or land titling service. The Bank and other international financing entities shy

away from financing these recurrent costs, for various good reasons.

<sup>&</sup>lt;sup>1</sup>Interestingly, some experiments with manioc in various countries have shown that application of fertilizer does not necessarily result in increased yields of root or starch. In Brazil, for example, experiments showed that increased applications of nitrogen might result in greater yield of roots with no increase in the production of starch. Jones, <u>Manioc in</u> <u>Africa</u>, p. 17.

As the discussion of technical assistance suggested, however, more gains may be made for peasants because a service institution identifies and advocates with their cause, than through the techniques and the implements that that institution is scheduled to bring to them. Achieving this kind of identification and advocacy, needless to say, requires considerable expenditure on items that are not physical--like training, increases in personnel, and per diem costs. Though this particular example may not be feasible for Bank financing, it is mentioned so as to illustrate the bias and the constraints on development projects caused by the fact that they limit themselves to financing concrete things.

11.61 Inadvertently, then, the repeated pairing in projects of rural development objectives with the purchase of things results in the assumption that the purchase of things is the key to rural development. To a certain extent, this will often be true. In the case of manioc, it is clearly not true.

## XII - Cooperatives and Credit

12.01 Like many areas of the Northeast, the Paraguaçu Basin has remarkably few cooperatives--three functioning coops and five moribund groups in various states of attempted resuscitation by PIDERP or other state programs. All of the coops were formed by medium to large livestock farmers; one of the groups markets the sisal production of its members.

12.03 Despite the almost complete absence of coops in the project area--let alone coops composed of small farmers--these institutions play an important role in PIDERP's development strategy. As in many such programs, they are looked to as a key institutional piece in making possible the servicing of small farmers, particularly with credit. The benefit of such an approach is said to lie in

certain institutional economies of scale. Public sector institutions, it is said, can service the target population more effectively through groups rather than individually. Only through such groups is it considered possible for the public sector to reach a significant number of small producers.

12.04 A companion argument to this line of reasoning about coops is that local producer-based groups can break the monopsony and monopoly power that private merchants have over small producers. In that coops will have their farmer-members' best interests at heart, it is argued, they will charge lower prices to their members and pay higher prices for their output than will the profit-seeking private merchant. Doing so, it is assumed, they will still be able to cover their costs.

12.05 These alleged benefits of the coop approach have often turned out to be illusory--mainly because the task of building a well-functioning business organization out of a group of individual farmers has turned out to be a difficult one. Correspondingly, coops have often not been able to do any better on prices than the private merchant. Indeed, they frequently have had to charge members as much for inputs as the private merchant charges---and on top of that have their costs subsidized. And they have often had to pay less in buying their members' output--let alone more--than the price paid by the profit-seeking merchant.

12.06 For all these reasons, it is important to proceed with extreme caution with respect to relying on coops as key institutional links in a rural development program--especially in a case like PIDERP, where the coops have yet to be formed. At the same time, it is important to recognize the expressed need for strong local institutions of one form or another in helping to make a rural development program work--the kind of need that leads to the placing of such great hopes on cooperatives.

The cooperative of Ipirá. So far, PIDERP has worked considerably with one coop in the project area--the cooperative of Ipirá. The experience in Ipirá is worth relating in some detail, since it is the only experience so far and is a model of what PIDERP intends to do elsewhere. The Ipirá coop was formed in 1973 by 235 medium and large livestock farmers who were interested in buying inputs. (The coop considers "medium" as a medium livestock operator having 200-500 hectares.) Entrance fees were set at Cr\$100, were recently raised to Cr\$540, and are now being raised once again to Cr\$700.<sup>1</sup> The original members could pay their fees in ten Cr\$10 monthly installments; the fee must now be paid in no more than six monthly installments.

<sup>1</sup>Entrance fees for other coops in the project area have been reported as high as Cr\$2,000. There is some question as to whether these high fees are required by the legislation.

12.08 The Ipirá coop received its legal authorization in 1974, when it started buying and selling inputs for livestock operations. The inputs were sold to members at prices about 20% cheaper than market prices, according to the coop, and to non-members at market prices. Six months after the group started operations, they ran into financial problems and almost closed down. Among other problems, they had used up all their capital to make improvements in their warehouse, and were without working capital to buy inputs.

12.09 Seeking a way out of its problems, the coop applied in 1975 for a Cr\$29 million loan from the local branch of the Bank of Brazil. Much of the proposed loan was for equipment; the bank rejected the proposal on the grounds that the coop could not offer a sufficient property guarantee. In the meantime, the group caught the attention of PN/PIDERP as a possible conduit for small-farmer crop credit, though it had no members small enough to qualify for the credit. With PIDERP assistance and encouragement, the coop recruited 100 small-farmer members.<sup>1</sup> 12.10 As a result of the new membership, the coop received PN/PIDERP technical assistance funds for equipment and employee salaries, and a Cr\$2 million PN/PIDERP loan from the Bank of the Northeast (BNB).

<sup>&</sup>lt;sup>1</sup>It should be pointed out that the Coop Section of EMATERBA was in opposition to the selection of this group for PN/PIDERP credit. They felt that a coop should be used to on-lend production credit to members only if it also marketed their production. Without the control of member repayment through the marketing function, they felt, the coop had no way to assure repayment.

Of this amount, Cr\$1,150,000 was for short-term subloans to its small-farmer members (37 of the 100 new members received loans under this rubric); \$500,000 was for working capital for inputs (selected seeds, barbed wire); and \$400,000 was for a future program of manioc subloans to the small-farmer members. The credit for onlending was lent to the coop at 5%, under standard PN terms, for re-lending to members at 7%.

12.11 As a condition of the loan to Ipirá, the ENE required that the coop directors personally guarantee the credit--a condition that was much resisted by the directors, as discussed below. The president of the coop was the ward boss of Ipirá. He and one or two of the directors had lent considerable amounts to the coop to keep it afloat. Though they did not like the idea of guaranteeing the BNB loan, they ultimately consented because, it was said, they saw the loan and the PN/PIDERP assistance as a way of getting the coop into a position where it could pay them back. As a way of providing some protection to themselves, the directors required that all the subloans carry PROAGRO credit insurance. Similarly, the coop deducted the Cr\$544entrance fee in three installments from the three disbursements of each subloan (land preparation and planting, "tratos culturais," and harvest.)

12.12 The coop's first experience with credit for sublending involved considerable problems. The coop directors and original

members were leery about lending to the new and unfamiliar smallfarmer members who, in their eyes, had been thrust upon them as a price for getting credit and technical assistance. Even after the subloans were authorized, and the coop drew down enough for the first disbursement, the larger members were afraid to disburse to the small farmers, mainly because they thought it would not rain. The small-farmer members, already with their credit contracts but no money, ended up making several trips to the town to receive their money from the coop, each time being turned down for one reason or another. "It was worse," one small-farmer member said, "than trying to get a loan at the Bank of Brazil!"

12.13 At one point in this series of events, the coop was so apprehensive about whether there would be adequate rainfall that it asked the local extension office to put a memo in the record saying that rainfall would indeed occur and would be sufficient. There was such an outcry by the small farmers, who had had to finance land preparation and part of the planting out of their own funds, that the coop finally decided to disburse and even took the money to the countryside. During this period, the coop says, it ran up a worrisome debt in interest payments to the BNB on the first parcel of subloans, which it had drawn down from its loan account at the BNB a considerable time before it finally decided to disburse. This unanticipated cost, approximately Cr\$7,500, was now of major concern to the coop.

12.14 Not surprising, there was considerable dissatisfaction among the original livestock members of the coop. They were unhappy with having had to accept small-farmer members, with whom they normally would not form groups or socialize. On top of that, they were not allowed to benefit from the credit that the small-farmer members brought to the coop. The credit was for crops, not livestock; this meant that the livestock members could not receive subloans. Originally, moreover, the input credit was to be used mainly for purchasing crop inputs and not livestock items. But the original members pressured to have that restriction changed--mainly, to allow more input credit for barbed wire. The BNB agreed to this request, on the grounds that the input-supply operation needed a larger percentage of items with more rapid turnover. Out of the Cr\$500,000 credit for input, then, more than half (Cr\$295,000) was ultimately designated for livestock items--barbed wire and "grampos". (At the moment, these are the only items that the coop's input-supply operation is selling.)

12.15 Even if the coop were able to receive PN/PIDERP livestock credit for subloans in the future, many of the original members have properties too large to qualify (over 300 hectares). They were hopeful that the recent change of the ceiling on livestock credit from 300 to 500 hectares, and on crop credit from 50 to 100 hectares would make some of them eligible.

12.16 For the original members of the coop, the denial of access to the PN/PIDERP production credit came on top of the substantial decline in concessional credit for livestock of the PROTERRA program. This was coupled with the banking system's tightening of all investment credit, which had taken place over the previous months. The Bank of Brazil, the coop said, was simply closed up for investment credit, resulting in a liquidity crisis in the livestock sector. These problems were also reflected in the input-supply operations of the coop. It was not able to sell even the two items it had in stock, which were financed by the BNB credit--the barbed wire and the "grampos" (which it was now selling at only about 3% less than prevailing prices).

12.17 The original coop members were so angry about their exclusion from credit that they, the director, had to personally guarantee, that they refused to contribute to a capital increase voted for recently by the coop assembly. The coop manager, whose salary is to be paid by PN/PIDERP, tried to explain to the membership that even though they now had no access to the credits being channeled through the coop, they were bound to benefit from the strengthening of the coop that would result from the free technical assistance being supplied by PN/PIDERP. (These technical assistance funds are paying for the salary of the manager, an accountant and a few workers, and for the pruchase of office equipment and supplies. The salary of the manager has not yet started to be paid, though it was scheduled to start several months ago.)

## THE REPORT OF A DESCRIPTION OF A DESCRIP

Large farmers with small farmers. Though the Ipirá coop's experience with PN/PIDERP is still too young to judge, the "forced" marriage of amall crop farmers and larger livestock farmers seems to start the coop off with a considerable handicap. It puts together two groups without common interests and who, indeed, may often have conflicting interests. The larger farmers, with greater economic and political power, will be able to exercise control over the programs for the small farmers, and not necessarily in the best interests of the latter.

12.19 An example of such control was the increase in the entrance fee from Cr\$100 to Cr\$540 when it was decided that small-farmer members would be recruited. This was more than five times the fee paid by the original members only a year or so previous--an increase much greater than the rate of inflation. (Cr\$540 was about the monthly salary of a permanent agricultural worker in the state of Bahia in 1976, when the new members of the coop were recruited.) The entrance fee has just recently been raised again to Cr\$700, in keeping with changes in the regional minimum wage.

12.20 The Cr\$540 entrance fee of 1976 amounted to about 13% of the gross annual average income for farms less than ten hectares in the subregion of which Ipirá is a part.<sup>1</sup> Clearly, this was a stiff

<sup>&</sup>lt;sup>1</sup>PIDERP estimated gross annual average income in subregion IV at Cr\$4,050 for 1976. Most of the new members of the coop had landholdings of this size; a significant minority were non-owners, with a gross average annual income of Cr\$3,918, as estimated by PIDERP.

price to pay for access to credit--especially in a locality where there were non-coop PN beneficiaries who were getting their credit at no extra cost from the Bank of Brazil. As noted above, moreover, the coop also deducted the entrance fee from the borrower's credit payment. This was questionable from the point of view of banking regulations; it also seemed to have been insufficiently explained to the sub-borrowers, many of whom thought the deduction was a prepayment of interest.

12.21 As another example of possible conflicts of interest between large and small farmers in a coop, the Ipirá coop required, to protect itself, that sub-borrowers buy the optional credit insurance. To meet the insurance requirement that 15% of the cost of the credit be used for modern inputs, the coop insisted that sub-borrowers use selected seed for beans, which was brought into the area for the first time. The seed turned out to cost almost twice as much as the seed the farmers had been accustomed to--Cr\$20 per kg. vs. Cr\$11.67 per kg. Without this high price, the coop said, the sub-borrowers would not have been able to meet the 15% modern-input requirement for the insurance. Though the sub-borrowers members resisted the high-cost seed vigorously, they had no choice. The seed component of the credit was given in kind rather than cash.

12.22 The coop says that it will be difficult to meet the 15% requirement for insurance on the forthcoming manioc program, since

there is no improved root material and mechanization is not possible. They say they will require the use of pesticides, whether or not they are desirable, if that is the only way they can fulfill the 15% requirement.<sup>1</sup> Finally, the reluctance of the Ipirá coop to on-lend to its members until it rained, though understandable in terms of the interests of the non-borrowing and guaranteeing director, was not in the best interests of the small farmers. Indeed, this waiting for the rains has been cited in the past as one of the more undesirable behaviors of the BB branch banks with respect to small-farmer lending. 12.23 The actions of the original coop members and the directors can be seen as perfectly reasonable attempts to protect their interests -especially given the fact that they were not directly benefiting from the credit. Yet the costs to the small farmer of taking credit this way turned out to be more than that of getting credit directly from the Bank of Brazil -- an institution that is not considered by small farmers to be particularly accessible. BNB officers noted that it would have cost them less, in this particular case, to make the 37 loans individually. The coop, moreover, does not know if its 2% earning on the credit will cover costs because, it says, much of its costs are paid for outside the coop through PN/PIDERP technical assistance. Also, the unexpected 5% interest cost mentioned above

<sup>&</sup>lt;sup>1</sup>As pointed out in the PROAGRO section, the 15% requirement is bound to evoke this kind of reaction from any institution running such a program. The EMATERBAS have also admitted to including a particular input in a program just to meet the 15% requirement.

far exceeds, they say, their 2% return on the credit.

12.24 The Ipirá story shows considerable signs of the problem involved when heterogeneous economic groups are put together in a coop, with one group having much more power than the other. This kind of arrangement may perpetuate the paternalism that has been said to characterize the coop movement in Bahia, and to have been one of the causes of its poor performance. Another result is that the cooperative, seen as a way of more efficiently channeling credit to small farmers, may turn out to be more costly for both borrowers and lenders than individual lending. Though the coop's credit experience cannot be judged from this startup experience, these results are not uncommon to other such attempts.<sup>1</sup>

12.25 What are the possible outcomes of the Ipirá-type situation? One outcome is that the small farmers would take over power from the large farmers, in which case the large farmers and their coop would have been used as an interim arrangement to get a small-farmer group

<sup>&</sup>lt;sup>1</sup>Another example of this type of problem, related by EMATERBA, occurs with coops that market member production. In the case of products that are covered by the minimum price, the coop with marketing credit must buy member production at no higher than the minimum price. The coop may later sell the production at the market price and return the difference to the producer, minus any costs that are incurred. Some coops, it is said, take this difference that is owed to the member and invest it in coop funds that are exempt, by law, from paying interest to the members. Such funds are usually termed "development funds". (The law requires that coops must pay 12% interest per annum to members on the "capital social" of the coop.)

going. PIDERP points to the experience in Sergipe as evidence that this can actually occur. There, the Technical Unit administering a PN project is said to have succeeded in helping small-farmer members of project coops to throw out the large-farmer directorate and put in their own people. As of now, there are no small-farmer members on the five-member Board of Directors in Ipirá, which was elected by the general assembly in 1976 for a term of three years. This does not augur well for small-farmer interests, at least until 1979. 12.26 Another possible outcome of the large-farmer/small-farmer combination is that the large farmers are given more of what they want from PN/PIDERP, as a price for getting them to accept small-farmer members. This might involve giving more input credit to finance the sale to members of livestock items -- as was done in the case of Ipirá. Or it might involve direct subloans for livestock. Though this kind of payoff makes sense, there is the danger that the benefits to the larger farms will gradually overwhelm those to the smaller ones. The payoff approach may simply weaken the defenses of a program that already is barraged with pressures for admittance by larger farmers. The latter, as noted above, are already eyeing with hope the change in the hectareage limitations of PN from 50 to 100 hectares for crops, and 300 to 500 hectares for livestock. Giving them something for their efforts may give them a strong and unmovable foot in the door. If the larger farmers were kept at a further distance from PN programs,

they would be more likely to exert their pressures for increased credit elsewhere--e.g., for a resumption of PROTERRA lending. 12.27 The mixing of large farmers with small ones deprives this form of local organization of a mainstay of its strength: the cohesion that results from the grouping together of individuals of similar class, with the same problems, needs hostilities, and views of the world.

Lessons of Ipirá. The story of the Ipirá coop experience thus far leaves one with the impression that it may have been less costly to start from scratch with a group composed of small farmers only. Or, alternatively, that it would have been less costly to invest the same personnel and technical assistance resources into the local Bank of Brazil branch. The branch bank, at least, has some tradition of lending to small farmers, and its manager is not as directly vulnerable to loss on these loans as is such a coop and its director. Hence the bank will take less action in the interests of protecting itself against the perceived risk of small-farmer lending.

12.29 Put in another way, the supposed institutional economies of scale of small-farmer credit turn out to be true, but in a different way than is assumed when making the argument in favor of cooperatives. The coop can be seen as too small-scale an undertaking--and therefore subject to the <u>dis</u>economies of small scale--in comparison to a bank

branch and the system of which it is a part. One of the coop's diseconomies is that it has too undiversified an array of assets to lend with ease to small farmers. In a way, the large-farmer/ small-farmer form of the coop can be seen to raise even more obstacles to small-farmer borrowing than the existing system, criticized for its rigidity, traditionalism, and lack of interest in small farmers. This happens because two very different economic classes are pitted against each other by virtue of the organizational form by which they are brought together--something that does not happen in a branch bank.

12.30 It is often said that the large-farmer/small-farmer combination is necessary for coops in order to provide managerial talent. Yet the Ipirá experience shows that even with such a combination, a period of intense tutelage is necessary. That amount of assistance could just as well be invested in a more homogeneous group.

12.31 What are the alternatives? First, the Ipirá experience should be watched for possible unexpected and favorable outcomes. The above analysis may be wrong; PIDERP's hope that it can help the small farmers take over from the large ones may be realized. Second, PIDERP and the Bank should take a close look at one of the successful experiences with small-farmer coops in the Northeast--that of neighboring Sergipe. This may provide some useful lessons for re-designing of

the coop component of the program. Third, PIDERP should attempt to seek out more homogeneous groups of farmers, as well as to take advantage of existing informal groupings of such farmers. The possibility of lending to small farmers through informal credit associations, as in the case of Mexico, should be studied because they are a much less demanding institutional form than the coop. Rotating credit associations are another simple institutional form, which has often been found to occur naturally in peasant economies. The director of the BB Rural Credit Policy Department also noted that spontaneous groups for purposes of taking credit were frequent in the areas where he had been branch manager. He felt that such groupings were much less cumbersome and less vulnerable to problems and dishonesty than were the existing coops. Indeed, the Bank of Brazil has shown itself willing to lend to such groups, if they materialize in the project area, and says that existing practice and legislation already allow such lending. The Rural Credit Law of February 14, 1967, allows groups to be takers of credit (Decree Law 167, Article 2, single paragraph). Such loans have already been made in the case of rural electrification and common watering holes for cattle. The BB also states that borrowers in such cases would not necessarily have to be property owners. To facilitate the formation and servicing of such groups in the project area, the judgment of an anthropologist could be sought as to the suitability of various group forms to the

social environment of the project area.

12.32 The Ipirá experience, along with many similar ones in the literature, should be used to re-evaluate the accepted wisdom that coops can deliver services more economically than existing public or private institutions. What Ipirá and other experiences suggest is that the cost of servicing small farmers is high, whatever the approach, and that the coop approach may be the most costly and least likely to succeed of them all. Careful attention should be paid, therefore, to innovative approaches to servicing small farmers in existing institutions--for example, the mobile credit units of the Bank of Brazil.

(12 BB branches and 2 BNB branches) Growth of Rural Credit, 1973-1976 Paraguaçu Basin: Table 1

			ų.				Per	centages	of tots	1
Year	Value (c	constant 19	76 Cr\$1000s)	Numbe	er of loa	su	Valu	e	Contre	cts
	Crops	Lvstk.	Total	Crops	Lvstk.	Total	Crops	Lvstk.	Crops	Lvstk.
1973	44,026	139,232	183,258	2,147	1,908	4,055	24.1	75.9	53.0	47.0
1974	29,612	293,427	323,039	1,876	2,809	4,685	9.2	90.8	39.9	60.0
275	37,314	563,246	600,560	1,574	3,885	5,459	6.2	93.8	28.9	1.17
1976 <sup>a</sup>	89,683	940,552	1,030,235	3,450	7,355	10,805	8.7	91.3	32.0	68.0

a. Includes four new BB branches (Ipirá, Mairi, Maracás and Seabra); and two new BNB branches (Itaberaba and Feira de Santana), the first in the project area. Though the BNB Feira branch opened in 1975, disaggregated data were not available for that year.

b Current cruzeiros converted to 1976 constant figures using Index #24 of <u>Conjuntura Econômica</u>, crop-livestock prices paid to farmers in Bahia.

Source: Based on data from Table 19.

	Growth	in consta	nt value	Grow	th in num	ber
Year	Crops	Lvstk.	Total	Crops	Lvstk.	Total
1973	-	-	-	-	_	-
1974	-32.7	110.7	76.2	-12.6	47.2	15.5
1975	26.0	91.9	85.9	-16.1	38.3	16.5
1976 <sup>a</sup>	140.3	67.0	71.5	119.2	89.3	97.9

Table	2
Paraguaçu	Basin:
Annual Percentage Growth of	Rural Credit, 1973-1976
(12 BB branches and	2 BNB branches)

<sup>a</sup>Includes four new BB branches (Ipirá, Mairi, Maracás and Seabra); and two new BNB branches (Itaberaba and Feira de Santana), the first in the project area. Though the BNB Feira branch opened in 1975, disaggregated data were not available for that year.

Source: Calculated from data in Table 19.

				Tab.	Le :	3		
Comparison	of	Number	Pa of	Loans	to	Basin: Number	of	Farms1973, 1976 <sup>a</sup>
				CP of C.		"Bent		

Comparison	1973	1976
No. of crop loans <sup>b</sup> as % of no. of farms	2.7	3.7
No. of lvstk. loans as % of no. of farms	2.6	9.0
No. of lvstk. loans as % of farms over 50	D ha. <sup>c</sup> 14.6	50.6
No. of total loans as % of total farms	5.5	13.2

<sup>a</sup>For the 12 BB and 2 BNB bank branches in the project area.

<sup>b</sup>Includes only short-term credit, which accounted for 93% of the number of crop loans in 1973 and 89% in 1976.

<sup>C</sup>This alternative calculation is made because it is said that the farms of most livestock borrowers are over 50 hectares.

Source: Based on data from Tables 1 and 4.

Table 4 Paraguaçu Basin: Comparison of the Number of Loans to the Number of Farms, by Bank Branch, 1976

total loans e total farms 22.9 as % of 12.7 13.3 19.4 2.3 31.0 13.9 16.6 15.8 15.9 2.3 10.0 13.2 ש No. of loans as % of farms total farms farms >50 ha. crop loans lvstk. loans 149.6 74.7 31.3 9.2 16.8 50.2 49.6 34.6 43.1 7.411 18.2 109.8 50.6 as % of total as % of 9.7 с. С. 6.1 5.2 0.8 6.2 5.5 з**.** 3 1.9 3.0 1.1 2.6 3.7 82,0446 5,595 8,532 7,502 3,738 4,252 4,902 6,403 9,566 15,199 6,898 4,044 5,413 No. of farms<sup>c</sup> >50 ha. 971 943 1,423 1,110 1,561 852 1,873 1,618 1,890 356 1,411 528 14,537 crop<sup>a</sup> lvstk. total<sup>b</sup> 1,318 1,133 1,062 1,281 724 172 684 1,088 644 220 542 7,355 10,805 1,411 1,937 No. of loans 613 725 812 938 488 102 977 314 488 96 391 506 518 195 541 263 213 3,076 271 132 122 64 110 141 Riachão do Jacuípe Feira de Santana<sup>f</sup> Castro Alves Itaberaba Bank branch Ruy Barbosa Mundo Novo Serrinha. Lençois Maracás Total Seabra Ipirá Mairi

## Footnotes to Table 4

<sup>a</sup>Excludes long-term crop credit--ll% of total crop loans.

<sup>b</sup>Total includes long-term crop credit and thus is not the sum of the previous two columns.

<sup>C</sup>Based on IBGE and INCRA 1970 census data, as reconciled by PIDERP. To estimate the 1976 figures, I have increased the 1970 data by a factor of 1.23639. This represents the rate of growth of the 1960-1970 period in the number of farm establishments in Bahia, reduced to its six-year equivalent. Bahian data from IBGE, <u>Anuário Estatístico</u> 1976, p. 162.

<sup>d</sup>These comparisons should be taken as maxima, because they assume that each loan represents a different borrower. It has been said that livestock borrowers, who account for 68% of loans in 1976, average three loans per year. If this is true, then the percentages of borrowers to farms would be considerably lower than those shown in the table.

<sup>e</sup>Livestock loans are assumed to go to farmers with more than 50 hectares. That these percentages are so high, and in some cases greater than 100, suggests that (1) many borrowers have more than one loan, and (2) livestock loans are given to farms less than 50 hectares.

<sup>f</sup>Combines loans for both the BB and BNB branches.

<sup>5</sup>The 1970 figure for the total number of farmers from which the 1976 figures were estimated, is 66,358. This is less than the total of 71,790 generally cited for the PIDERP area for the following reason: in order to fit the data to the bank-branch jurisdictions, I have excluded five of the 50 municipios included in the PIDERP area. The excluded five are served by bank branches outside the project area. These five municipios account for 7.5% of the total number of producers in the 50 municipios.

Source: Loans based on data from Table 19. Farms based on data described in footnote c above.

Table 5 Paraguaçu Basin: Comparison of Number of Projected FN/PIDERP Borrowers to Number of Farms

No. of PIDERP borrowers brwrs.: 19.0 18.3 12.9 26.9 23.3 as % of no. of farms total farms 21.1 14.5 21.2 16.5 24.0 21.6 16.3 19.4 lvstk.: total 8.3 6.9 5.9 8.4 2.3 6.9 farms 6.7 4,6 > 50 I ł ŧ I Ł ha. crops: farms 23.0 19.5 14.3 30.3 31.6 16.4 25.5 21.9 22,6 33.4 33.2 22.9 17.4 < 50 ha. 82,044<sup>e</sup> 5,595 3,738 total 8,532 7,502 4,252 4,902 6,403 6,898 9,566 5,413 15,199 4,044 1976<sup>b</sup> 943 ~ 50 1,873 1,618 No. of farms, 1,423 1,561 1,890 852 **771** 1,110 1,411 528 356 67,505 14,537 ha. 2,176 5,007 7,109 2,633 6,392 4,785 3,029 4,624 3,400 14,255 9,038 5,057 < 50 ha. 15,932<sup>d</sup> No. of projected PIDERP borrowers<sup>a</sup> 2,786 1,062 1,102 1,142 2,066 789 616 880 2,021 1,357 1,139 972 crops lystk. total 129 136 129 43 675 8 57 97 I L ŧ I Ł 2,786 1,096 1,062 1,018 1,013 660 1,221 2,066 559 875 2,021 880 15,257 Riachão do Jacuípe Feira de Santana<sup>c</sup> jurisdiction Castro Alves Bank-branch Ruy Barbosa Itaberaba<sup>c</sup> Mundo Novo Serrinha Lençois Maracás Total Seabra. Ipirá Mairi

## Footnotes to Table 5

<sup>a</sup>Municipios were aggregated according to the 1976 jurisdictions of the BB branches. Since the BNB branches include a much wider jurisdiction--and since projections of borrowers are by municipios and not by bank branches--it was not possible to consider the BNB jurisdictions in this allocation.

<sup>b</sup>Based on IBGE and INCRA 1970 census data, as reconciled by PIDERP. To estimate the 1976 figures, I have increased the 1970 data by a factor of 1.23639. This represents the rate of growth of the 1960-1970 period in the number of farm establishments in Bahia, reduced to its six-year equivalent. Bahian data from IBGE, <u>Anuário Estatístico</u> 1976, p. 162.

<sup>C</sup>There are both BB and BNB branches in these cities.

<sup>d</sup>The most recent breakdown of projected beneficiaries by municipio is from the time when the total number of crop beneficiaries for the first five years was 16,060 (15,009 without the municipios excluded in this table)--and the number of livestock beneficiaries was 940. Since then, the number of livestock beneficiaries has been decreased to 675 and the number of crop beneficiaries increased to 16,325 (15,257 without the municipios excluded in this table). I have therefore reduced the number of livestock beneficiaries in each municipio by 28.2% (940 minus 675 equals 265 for 28.2% of 940). Similarly, I have increased the number of crop beneficiaries in each municipio by 1.7% (15,257 minus 15,009 equals 248 or 1.7%). Because of the rounding involved in this estimation process, some of the subtotals are not exact.

<sup>e</sup>The 1970 figure for the total number of farmers from which the 1976 figures were estimated, is 66,358. This is less than the total of 71,790 generally cited for the PIDERP area for the following reason: in order to fit the data to the bank-branch jurisdictions, I have excluded five of the 50 municipios included in the PIDERP area. The excluded five are served by bank branches outside the project area. These five municipios account for 7.5% of the total number of producers in the 50 municipios.

		-1976)	owers
Table 6	Paraguaçu Basin:	1 of BB and BNB Crop-livestock loans (1973-:	red to Projected Number of PN/PIDERP Borrow
		Growth	Compe

a		Number of	loans		Project	ed PN/PIDER	borrowers	Ratio of	
Bank branch"	1973	1976	Gr. no.	owth %	five yrs.b	three-yr. equiv.	<i>k</i> growth 1977-1980 <sup>d</sup>	PN/PIDERP &	rowth to
Castro Alves Riachão do Jacuípe Ruy Barbosa Serrinha	305 348 348 318	1,281 1,088 644 542	776 692 296 224	153.7 174.7 85.1 70.4	1,062 1,139 972 880	637 683 583 528	49.7 62.8 90.5 97.4	0°32 0°40 1°06	
Feira subgroup <sup>e</sup>								) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) ) )	
Feira de Santana BB	1.521	1, 383	95 L_	Г О І					
BNB		554				•	1	1	
Feira subtotal	1,521	1,937	914	27.4	2,786	1,672	86.3	3.15	
Tpirá Moinie	1	1,133	1,133	1	1,102	199	58.3	1.71 f	
Mundo Novo	518	059 1,062	659 544	105.0	616 1,357	370 814	56.1 76.6	0.56 <sup>1</sup> 0.73	
Subtotal	2,039	4°,791	2,752	135.0	5.861	3.517	73.4	0 51	
Itaberaba subgroup									
Itaberaba									
BB	305	969	391	128.2	I	1	1	I	
subtotal	305	102	28 0 Lil	1 201	1 1	-	1	1	
The second se		121	4T4	+• ICT	601	4.(3	65.3	0.48	
Maracas	1	684	684	1	1,142	685	100.1	1.00 <sup>1</sup>	
Subtotal f	305	1,408	1,103	361.6	1,931	1,159	82.3	0.23	
Lençois subgroup <sup>4</sup>									
Lençois	144	172	28	19.4	2,021	1,213	705.2	36.35	
BIUBAC	1	520	220	1	2,066	1,240	563.6	5.63 <sup>1</sup>	
Subtotal	144	392	248	172.2	4,087	2,452	625.5	3.63	
Paraguaçu grand total	4,055	10,146	6,091	150.2	15,932	9,559	94.2	0.63	
ahia Tourtoort	30,259	59,879	29,620	6.79					
voruneast 3razil	1.30,011 812,208	223,002	86,191 276,417	63.0 34.0					
Srazil	812,208	1,088,625	276,417	34.0					
<sup>a</sup>Branches are listed somewhat differently from the order of other tables to accomodate for the fact that some branches did not exist in 1973. Thus growth rates for the groupings of branches are more reliable than those for individual branches from which municipios were taken away as a result of the opening of the new branches. The branches are therefore grouped so that the subtotals reflect the same group of municipios as between 1973 and 1976. The branches not yet in existence in 1973 were the following: the BB branches in Ipirá, Mairi, Maracás and Seabra; and the BNB branches in Itaberaba and Feira de Santana.

<sup>b</sup>Excludes municipios of Antônio Cardoso, Milagres, Abaíra and Cafarnaúm. These municipios are covered by BB branches that also cover municipios outside the project area. The four municipios account for about 7% of the grand total of beneficiaries. They were excluded because there was no way to allocate the amount of credit going to them and the amount going to the non-project areas--and because they do not represent a large share of the projected number of beneficiaries. The exclusions apply only to municipios with crop beneficiaries; all the livestock beneficiaries are included.

The most recent breakdown of projected beneficiaries by municipio is from the time when the total number of crop beneficiaries for the first five years was 16,060 (15,009 without the municipios excluded in this table)---and the number of livestock beneficiaries was 940. Since then, the number of livestock beneficiaries has been decreased to 675 and the number of crop beneficiaries increased to 16,325 (15,257 without the numicipios excluded in this table). I have therefore reduced the number of livestock beneficiaries in each municipio by 28.2% (940 minus 675 equals 265 or 28.2% of 940). Similarly, I have increased the number of crop beneficiaries in each municipio by 1.7% (15,257 minus 15,009 equals 248 or 1.7%). Because of the rounding involved in this estimation process, some of the subtotals are not exact.

<sup>c</sup>I have multiplied the previous column by a factor of 0.6 in order to get a three-year growth equivalent that is comparable to the actual growth figures for the 1973-1976 period.

<sup>d</sup>This reflects the projected number of beneficiaries for three years as a percent of the number of loans in 1976.

<sup>e</sup>The new Ipirá branch took the municipio of Ipirá from the BB/Feira jurisdiction, and the municipio of Serra Preta from the BB/Mundo Novo jurisdiction.

Because these branches were created after 1973, there is no percentage growth available for comparison with projected PN/PIDERP growth. The ratios in these cases are therefore calculated on the basis of absolute 1973-1976 growth for these new branches and absolute projected PN growth. They are therefore not strictly comparable to the other ratios.

<sup>g</sup>The new Mairi branch has jurisdiction over three municipios, only one of which is in the project area (Mairi). This municipio was previously under the jurisdiction of the BB/Mundo Novo branch. I have recorded only one half of the number of BB/Mairi loans for 1976, assuming that the other half went to the non-project municipios. I allowed one half rather than one third to Mairi because it is where the bank branch is located.

h Only two of the BB/Maracás branch's six municipios were previously served by a BB branch within the project area (Itaberaba). I nevertheless include all the Maracás loans because the other four municipios, though previously served by branches outside the project area, are themselves in the project area.

<sup>j</sup>Eight of the BB/Seabra branch's nine municipios were taken over from the Lençois branch. The ninth one (Piata) is inside the project area and was previously served by the BB/Brumado branch. Brumado is outside the project area and serves two municipios in it.

Source: BB figures based on Table 19 and PN/PIDERP figures based on data from PIDERP.

Table 7 Bahia, Northeast, Brazil: Size Distribution of BB Loans for Crops and Livestock--1973<sup>a</sup> (percentages)

Size range			Crop	ũ					Livest	ock		
(no. of minimum	Number	of 1	oans	Valu	e of .	loans	Numbe	r of 1	oans	Valu	e of ]	oans
salaries) <sup>D</sup>	Bahia	NE	Brazil	Bahia	NE	Brazil	Bahia	NE	Brazil	Bahia	NE	Brazil
0-25	65.9	30.8	64.3	16.0	16.0	9.5	37.3	50.6	52.0	4.8	8.7	8.5
26-50	17.5	9.7	15.2	12.9	7.6	7.7	24.6	20.6	19.0	8.5	10.2	0.0
21-100	8.3	4.5	8.5	12.0	T.7	8.4	16.0	13.4	13.8	10.1	12.6	12.5
101-500	7.2	4.2	10.0	31.5	18.9	30.3	18.8	13.4	13.6	38.0	37.5	35.1
> 500	1.2	0.7	1.7	27.5	50.4	43.9	3.4	1.9	1.5	38.6	31.0	34.8
total <sup>c</sup>	100.0 10	0.0	100.0	100°0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a Size distribution data was not available for the BNB. Data on the BB Paraguaçu branches were available only for crops and livestock combined. See Table 9. b The size ranges are calculated in terms of the highest minimum salary in 1973, which was Cr\$297.60. (This is the weighted average of the 1972/1973 and 1973/1974 salaries.) See note 1 of par. 1.28.

<sup>c</sup>Totals may not add up to 100% exactly because of rounding.

Source: Based on data from the Bank of Brazil.

Table 8 Bahia, Northeast, Brazil: Size Distribution of BB Loans for Crops and Livestock--1976<sup>a</sup> (percentages)

Brazil 5.8 6.3 8.0 33.0 46;8 100.0 100.0 100.0 Value of loans 52.6 45:6 4.9 34.7 6.4 8.4 NE 32.3 Bahia 3.2 5.1 6.7 Livestock Brazil 100.0 100.0 100.0 50.6 3.8 11.5 20.0 18.1 21.5 18.0 15.9 Number of loans 44.3 13.2 4.5 NE 20.7 13.8 6.7 37.2 Bahia NE Brazil 100.0 100.0 100.0 28.5 6.2 5.2 6.6 53.5 Value of loans 25.9 9.5 6.4 7.0 51.2 36.2 40.2 Bahia 8.0 6.7 6.1 Crops Brazil 13.5 58.7 4.6 3.3 12.6 15.1 100.0 100.0 100.0 Number of loans 70.2 8.5 6.9 1.7 H 15.3 Bahia 56.1 9.8 15.7 2.9 (no. of minimum salaries)<sup>b</sup> Size range total > 500 51-100 101-500 0-25 26-50

Data on the BB Paraguagu branches were See Table 10. <sup>a</sup>Size distribution data was not available for the BNB. available only for crops and livestock combined.

<sup>b</sup>The size ranges are calculated in terms of the highest minimum salary in 1976, which was Cr\$689.59 See note 1 of par. 1.28. (This is the weighted average of the 1975/1976 and 1976/1977 salaries.)

<sup>c</sup>Totals may not add up to 100% exactly because of rounding.

Source: Based on data from the Bank of Brazil.

Table 9 Paraguaçu, Bahia, Northeast, Brazil:

Size Distribution of BB Loans up to 100 Minimum Salaries for Crops and Livestock Combined-1973<sup>a</sup> (percentages)

Size range		Number of	loans			Value of	loans	1
(no. of minimum salaries) <sup>b</sup>	Parag	Bahia	NE	Brazil	Parag	Bahia	NE	Brazil
0-25	66.1	56.9	73.6	61.7	12.2	10.3	13.5	9.3
26-50	14.5	19.7	12.3	16.0	9.9	10.7	8.5	8.0
51-100	8.7	10.7	6.6	9.6	10.6	11.1	0.0	9.3
Subtotal	89.3	87.3	92.5	87.3	32.7	32.1	31.0	26.6

Size distribution data for the 12 Paraguaçu BB branches are available only for crops and I have therefore aggregated the livestock combined, and only up to 100 minimum salaries. I have therefore a crop-livestock data of Table 7 for purposes of comparison to the Paraguagu. ൽ

<sup>b</sup>The size ranges are calculated in terms of the highest minimum salary in 1973, which was Cr\$297.60. (This is the weighted average of the 1972/1973 and 1973/1974 salaries.) See note 1 of par. 1.28.

Source: Based on data from the Bank of Brazil.

Paraguaçu, Bahia, Northeast, Brazil: Size Distribution of BB Loans up to 100 Minimum Salaries for Crops and Livestock Combined--1976<sup>a</sup> (percentages) Table 10

Size range		Number c	of loans			Value of	loans	
(no. of minimum salaries) <sup>b</sup>	Parag	Bahia	NE	Brazil	Parag	Bahia	NE	Brazil
0-25	37.0	48.6	64.2	57.0	3.0	4.9	8.0	6.1
26-50	15.6	17.5	14.3	15.7	3.7	5.6	6.4	5.4
51-100	16.8	<b>μ.</b> ιι	8.4	9.8	9.0	7.3	7.5	6.9
Subtotal	69.4	77.5	86.9	82.5	15.7	17.8	21.9	18.4

a Size distribution data for the 12 Paraguaçu BB branches are available only for crops and livestock combined, and only up to 100 minimum salaries. I have therefore aggregated the crop-livestock data of Table 8 for purposes of comparison to the Paraguagu.

b The size ranges are calculated in terms of the highest minimum salary in 1976, which was Cr\$689.59. (This is the weighted average of the 1975/1976 and 1976/1977 salaries.) See note 1 of par. 1.28.

Source: Based on data from the Bank of Brazil.

Amon	No. of	loans	Valu	le
Area	1973	1976	1973	1976
Paraguaçu	66.1	37.0	12.2	3.0
Bahia	56.9	48.6	10.3	4.9
Northeast	73.6	64.2	13.5	8.0
Brazil	61.7	57.0	9.3	6.1

Table 11 Paraguaçu, Bahia, Northeast, Brazil: Changes in the Size Distribution of BB Crop-Livestock Loans Less than 25 Minimum Salaries--1973, 1976<sup>a</sup> (percentages)

a See par. 1.28 for explanation.

Source: Based on data from Tables 9 and 10.

Bank branch	No. of rural loans	No. of employees	Loans per employee
Castro Alves	1,281	28	46
Feira de Santana/BB	1,383	106	13
Feira de Santana/BNB	554	56	10
Ipirá	1,133	23	49
Itaberaba/BB	696	28	25
Itaberaba/BNB	28	13	2
Lençois	172	16	11
Mairi	659	18	37
Maracás	684	21	33
Mundo Novo	1,062	23	46
Riachão do Jacuípe	1,088	33	33
Ruy Barbosa	644	28	23
Seabra	220	12	18
Serrinha	542	36	15
Total	10,146	441	23

Table 12 Paraguaçu Basin: Number of Loans per Person in the BB System, 1976

a Based on information gathered by PIDERP directly from the BB branches. Includes all employees except "estagiários" and those related to "portaria."

		Branch
		Bank
		BB
	in:	μď
e 13	u Basi	Loans
Tabl	raguaç	Large
	Ра	and
		Small
		of
		Distribution
		Size

14 1

1 4 70

Ω	ize Dist.	ribution	of Small	and Large	Loans by I	3B Bank B	sranch19	973, 1976		
Bank branch	Percent	age of ya	lue of ru	ral credit	Shar	e of hra	nch in w	nend eile		
	I.oans	< 25 MS <sup>a</sup>	Loans >	1000 MSb		1973		7777	1976	
	1973	1976	1973	1976	all rural loans	- loans < 25 MS	loans > 1000 MS	all rural loans <sup>c</sup>	loans < 25 MS	loans : 1000 M
Castro Alves	14.9	17.2	0	29.4	7.4	9.5	0	5.6	22.6	3.5
Feira de Santana	13.0	7.0	37.0	80.7	40.2	46.2	69.7	33.0	5.5	63.2
Ipirá	1	13.6	-1	14.0				3.9	13.8	1.3
Itaberaba	9.3	3.1	28.8	31.5	9.5	8.6	13.6	7.7	6.1	5.9
Lençois	U I	3.0	U I	8.0	8.1	1	1	2.4	1.6	0.4
Mairi	I	9.0	ı	7.0	1	•		5.7	12.1	0.9
Maracás	1	4.0	I	0.11	1	1		3 <b>.</b> 8	4.2	
Mundo Novo	14.0	3.0	0	15.0	9.3	9.4	0	11.8	7.6	t.3
Riachão do Jacuípe	19.0	5.0	0	8.0	8.1	13.6	0	7.4	14.6	2.2
Ruy Barbosa	4.6	1.7	27.0	20.6	11.3	4.8	14.6	7.6		3.7
Seabra	I	7.0	ı	16.0	ì	ı	,	1.9	4.0	0.8
Serrinha	13.5	0.3	7.0	13.8	6.2	7.8		L.0	и С	
Total <sup>d</sup>	12.6	5.6	25.0	21.3	100.0	100.0				

<sup>a</sup>MS refers to the highest minimum salary prevailing in the country, as used by the Bank of Brazil in tabulating its loan-size distribution data. In 1973, the highest minimum salary was Cr\$297.60, giving a value for up to 25 MS of up to Cr\$7,440. In 1976, the highest minimum salary was Cr\$689.59, giving a value for up to 25 MS of Cr\$17,240. (Since the minimum salaries are increased on May 1 of each year, the salaries cited are averages of the two salaries that prevail during any calendar year, weighted by the number of months each prevails.)

<sup>b</sup>For the 1000 MS figure, the cruzeiro values are Cr\$297,600 for 1973 and Cr\$689,590 for 1976.

<sup>c</sup> These percentages are slightly different than they would be if they included the two BNB branches, for which size distribution data were not available.

<sup>d</sup>The first four percentages are simple averages, unweighted by the value of each branch.

<sup>e</sup>Size distribution data for Lençois were not available for 1973.

Source: Based on data from the Bank of Brazil.

		1973-1	
Table 14	Paraguaçu Basin:	ison of the 14 Branch Banks,	(Annual averages)
		Compar	

976

employee, 1976d loans per Growth in No. of 46 5 5 49 52 2 33 H 37 46 33 53 18 12 23 1973-1976 (%)<sup>c</sup> 153.7 128.2 no. of -9.1 19.4 105.0 174.7 150.2 loans 70.4 85.1 I. 1 I I I I 1973, 1976 data) < 25 > 1000 Size distribution of rural credit values (avg. of 29.4 58.8 14.0 30.1 n.a. n.a. MS 8.0 7.0 11.0 15.0 8.0 23.8 16.0 10.4 23.1 16.1 6.9 13.6 6.2 n.a. 3.0 0.0 4.0 8.5 12.0 3.2 7.0 п.а. 6.9 9.1 SW in rural 21.3 % crop credit 13.7 0.3 13.0 8.5 5.4 11.2 credit 6.3 31.0 9.5 5.5 5.0 14.0 21.0 13.1 8.6 no. 16.3 6.0 12.3 5.2 0.3 1.6 14.3 7.4 9.7 7.5 4.5 2.4 3.8 100.0 100.0 (1973-1976 annual avg.)<sup>a</sup> % share of branch in 26.0 16.4 4.8 walue 4.4 6.3 0.2 2.5 7.1 4.8 0.6 5.3 5.3 total 2.3 5.4 Rural loans 9,203 1,499 790 554 1,133 476 1,318 no. 28 148 416 684 893 693 220 351 Cr\$1000)<sup>e</sup> (constant 1,395 18,172 32,353 35,081 46,234 52,091 65,628 119,256 34,664 38,685 38,788 39,308 189,761 17,177 728,593 value 1976 Riachão do Jacuípe/BB F. de Santana/BNB F. de Santana/BB Castro Alves/BB Itaberaba/BNB $^{\rm f}$ Ruy Barbosa/BB Mundo Novo/BB Itaberaba/BB Bank branch Maracás/BB<sup>f</sup> Serrinha/BB Ipirá/BB<sup>f</sup> Lençois/BB Mairi /BBf Seabra/BB Total 1

<sup>a</sup>Based on data from Table 19.

<sup>b</sup>Based on data from Table . "MS" refers to the highest minimum salary prevailing at the time (see note of Table ). Size-distribution data not available for the two BNB branches. For Castro Alves, Mundo Novo and Riachão do Jacuípe, no loans were made over 1,000 MS in 1973; the large-loan average for these branches is therefore 1976 figure only. For Lençois, size distribution data was available only for 1976; largeloan and small-loan average is therefore 1976 figure only.

<sup>c</sup>From Table 6. The branches with no growth rate were created in 1975 or 1976.

d From Table 12.

<sup>e</sup>Years previous to 1976 were inflated according to Index No. 24 of <u>Conjuntura Econômica</u>, prices paid to crop-livestock farmers in Bahia.

<sup>f</sup>These branches opened in 1975 or 1976 and data is available for 1976 only. Averages for these branches are therefore 1976 figures. Table 15 Feira de Santana Branch of the BB: Rural Credit, 1973-1976

	loans < 25 MS	46.2	n.a.	n.a.	5.5
11 credit.	loans > 1000 MS	69.7	n.a.	п.а.	63.3
Paraguac	total	40.2	41.5	42.0	29.1
Share of	lvstk.	36.3	<b>τ</b> η • Γτη	L.24	29.2
	crops	52.5	42.5	40.3	28.6
(s0)	total value	26,458	65 <b>,</b> 331	142,879	300,094
ent Cr\$100	stock % total	68.6	90.6	94.0	91 <b>.</b> 4
edit (curr	live value	18,151	59,192	134,354	274,405
Rural cr	ps % total	31 <b>.</b> 4	9.4	6.0	8.6
	cro value	8,307	6,139	8,525	25.689
	Year	1973	1974	1975	1976

Source: Based on data from Table 19.

Table 16 Bahia: Comparison of Production and Credit by Crop, 1973<sup>a</sup>

value credit: value prod. 3.6 7.3 0.2 9.1 10.7 0.7 2.7 5.3 0.8 5.0 6.0 5.1 (%) % credit: (ratios) % prod. 1.79 1.46 0.03 L7.0 2.11 0.14 0.53 1.05 0.16 0.98 1.19 1.00 in total % crop 10.8 48.8 13.9 5.4 2.5 0.3 3.2 2.1 0.3 87.4 12.6 100.0 Short-term credit 5,844.1<sup>b</sup> Cr\$1000s 599.8 87,838.9 551.5 (current 19,376.0 25,034.9 4,515.9 3,711.4 9,751.7 157,224.2 22,698.8 179,923.0 value in total % crop 15.2 27.2 6.6 6.0 3.7 2.0 18.1 8.7 1.9 89.4 10.6 100.0 Production Cr\$1000s) (current 965,485 233,702 537,799 133,033 642,172 309,623 212,183 68,001 value 69,864 3,171,862 376,759 3,548,621 castor bean subtotal sugar cane total tobacco tomato others manioc beans sisal cacao Crop corn

<sup>a</sup>Production data available for Paraguaçu are not accurate and consistent enough to make these same comparisons for the project area. See note under "Source".

<sup>b</sup>Includes credit to mills (Cr\$4,562,300), growers (Cr\$1,276,800), and for "rapadura" (Cr\$5,000).

Source: Production data from IBGE, <u>Anuário Estatístico do Brasil, 1974</u>. This was the last year for which value data by crop by state was printed in the <u>Anuário</u>. Though the <u>Anuário Estatístico da</u> <u>Bahia</u> has published more complete data, and a series for 1974 as well as 1973, those data seemed highly inaccurate. The value figures for each crop, when divided by the tonnage figures, gave implicit per-ton prices that varied by a factor of 2 to 300 from one municipio to the next. Table 17 Paraguaçu Basin and Bahia: Short Term BB Credit by Crop, 1973 and 1976<sup>a</sup>

Percent Paraguaçu 6.71 1976 12.0 12.7 9.3 3.8 20.7 28.0 27.7 29.7 in Bahia (%s) 1 I 5.5k 1973 15.8 5.6 11.8 14.8 35.8 0.7 20.5 34.2 5.7 1.0 1976 12.8 45.7 2.7 10.6 5.1 6.7 Percentage share of crop in total short-term credit (%s) 0.6 0.3 15.5 100.0 I Bahia 1973 10.8 48.8 13.9 5.4 2.5 0.3 3.2 2.1 0.3 12.6 100.0 1976 24.2 4.9 27.6 14.7 15.7 2.7 1.4 8.8 100.0 Paraguaçu I I 1973 14.3 31.1 6.1 7.11 6.8 2.2 12.2 12.9 0.3 16.7 27,328.5 48,935.0<sup>4</sup>500,185.9 730,737.1<sup>3</sup>100.0 3,330,<sup>4 d</sup>13,507.3<sup>e</sup> 16,2<sup>4</sup>6.6<sup>f</sup> <sup>4</sup>8,819.8<sup>e</sup> 244,192.1 333,620.8 77,327.0 93,638.3 19,929.1 37,240.3 3.528.4 1,308.0 10,317.7 4,664.7 2,265.0 658.4 4,319.1 63,102.7 113,232.1 1976 1 (constant 1976 Cr\$1000s)<sup>b</sup> Bahia 53,865.3 69,597.0 27,109.7 12,554.2 1,533.2 1,667.4 Value of credit 1973 3,188.1 7,183.7 1,858.1 7,699.8 8,495.4 11,854.2 2,391.1 671.8 1976 Paraguaçu I I castor bean 3,914.2 596.3 87.3 1,671.9 1973 sugar cane total tobacco manioc tomato others beans Cacao sisal Crop corn

<sup>a</sup>Credit breakdowns by crop were not available for the BNB,

<sup>b</sup>1973 cruzeiros inflated to 1976 constant with index no. 24 of <u>Conjuntura Econômica</u>, prices paid to crop-livestock farmers in the state of Bahia. (This index shows an increase of 2.78 from 1973 to 1976; the index for crops only shows an increase of 3.68. I have used the former index, however, to be consistent with other conversions.)

<sup>C</sup>Includes credit to mills, growers, and rustic production of unrefined sugar cakes ("rapadura"). Credit to mills represents the largest part. The mill credit, listed in BB printouts as short-term planting credit, is passed on by the mills to growers, or used in growing operations of the millers. See notes to each figure for breakdown by category.

<sup>d</sup>Represents 5 loans of the Feira de Santana branch to mills.

<sup>e</sup>Represents 6 loans of the Feira de Santana branch--five to mills for Cr\$12,693,300 and one to growers for Cr\$812,000. (Also included ia a Cr\$2,000 loan by the Maracás branch for "rapadura".)

<sup>f</sup>Cr\$4,562,300 for mills; Cr\$1,276,800 for growers; Cr\$5,000 for "rapadura".

<sup>g</sup>Cr\$38,343,900 for mills; Cr\$10,475,900 for growers; Cr\$118,400 for "rapadura".

<sup>h</sup>In current cruzeiro terms, this total is 27% less than that of Table 19 (Cr\$48,935 vs. Cr\$66,607). The latter total was calculated from BB printouts of rural credit by branch for each of the Paraguaçu branches, broken down by type of credit but not by crop. The total of this table is calculated from BB printouts of credit by crop for all of Brazil, broken down by state and further by branch. The 1973 total of Table 19, in contrast, is more or less consistent with that of this table. I was not able to determine the reason for this inconsistency. It affects, of course, the share of each crop in total credit. Using the total of Table 19, for example, sugar cane would account for 20% of the total of Paraguaçu, instead of 27%. (See also following footnote.)

<sup>j</sup>In current cruzeiro terms, this total is 11% less than that of Table 19 (Cr\$730,737 vs. Cr\$818,045). This discrepancy occurs to a greater extent in the data for the project area (see above footnote). The 1973 total of Table 19 is more or less consistent with that of this table.

<sup>k</sup>If cacao is excluded from the calculation, this share rises to 10%. <sup>1</sup>If cacao is excluded from the calculation, this share rises to 12%. Source: Based on data from the Bank of Brazil.

Table 18
Minimum Prices as a Percent of Market Price (1973-1976)
and Percentages of Costs Financed for Principal
Small-farmer Crops in Paraguaçu, 1973-1976

Crop	Min. price as % of mkt. price <sup>a</sup> 1973-1976	% of cost financing	s allowed b by credit	% of acture receipts financing previous	al expected allowed g (product of <sub>c</sub> two columns)
		regular	PN	regular	PN
beansd	45.2	60.0	70.0	27.1	31.6
castor bean	56.2	50.0	60.0	28.1	33.7
manioc <sup>e</sup> root flour	43.9 61.4	50.0 -	50.0	22.0	22.0 -
corn	69.5	60.0	80.0 <sup>f</sup>	41.7	55.6

<sup>a</sup>For each of the four years, the minimum price for the crop year (July-June) was calculated as a percent of the lowest monthly market price during that crop year. The figures in the column are a simple average of those four percentages. Price data are from Ministério da Agricultura, Comissão de Financiamento da Produção - CFP, <u>Anuário Estatístico 1977</u>. (Market prices are an average of prices paid to farmers in the state of Bahia and minimum prices are an average of the prices set for the state.)

<sup>b</sup>The amount of short-term crop credit allowed to an individual farmer is a percentage of his estimated receipts from the harvest. Receipts are estimated by multiplying an estimate of yield per hectare by the minimum price. (The previous column shows the extent to which the minimum price has fallen short of the market price.) The percentages in these columns are ceilings set by the Conselho Monetário Nacional (CMN) for each crop; banks can choose to finance lesser, but not higher, percentages. The POLONORDESTE percentages are higher and are determined by a special instruction of January 1975, which allowed higher percentages for all programs with technical assistance in the North and Northeast.

## Footnotes to Table 18 continued

<sup>c</sup>These columns show an estimate of the percentage of <u>actual</u> receipts that can be financed with credit, given the percentage ceilings set by the CMN and given the extent to which the minimum price falls short of the market price.

<sup>d</sup>The prices used are for "feijão de corda" or "feijão macassar", the most prevalent type of bean produced in the Paraguaçu--rather than for the higher-priced "feijão de arranca," produced in the Irecê region outside the project area and preferred by urban consumers.

<sup>e</sup>Credit calculations for manioc are based on the minimum price for the root rather than the flour. The latter price is usually set some time after the planting aeason.

 $^{\mathrm{f}}$ The BNB finances only up to 70% of estimated receipts for corn.

Table 19 Paraguagu Basin: Rural Credit of the 14 Bank Branches, 1973-1976---Master Table (current Cr\$1000s)

505 560 812 812 1,521 1,586 1,505 1,383 144 113 163 172 1,133 305 41.7 1,85 696 1,318 518 953 1,040 554 28 6814 2 Total luans 4,850 9,761 25,51.3 51,016 6,289 24,338 26,840 70,322 26,458 65,331 142,879 300,094 5,345 6,196 13,471 21,417 6,141 21,865 52,819 107,656 value 119,256 35,081 1,395 52,091 34,664 122 267 405 476 236 1152 1152 725 689 848 929 869 542 234 635 700 812 613 60 107 102 Total lystk no. 12 314 977 4,863 20,304 149,514 103,422 18,151 59,192 134,354 274,405 3,192 7,166 22,830 43,820 4,528 5,796 12,010 18,873 value 30,601 5,008 23,116 25,490 67,241 1,320 48,826 23,632 118,973 Livestock loans •ou 137 341 598 803 815 733 340 4,1,8 94 241 241 348 223 615 716 716 6 2027 2027 679 273 Long-term value 3,069 6,554 19,654 32,813 16,400 57,626 123,663 254,412 84**,9**52 4,646 22,292 20,608 57,845 1,146 44,636 4,821 19,654 44,179 94,966 4,490 5,737 10,244 18,389 22,369 2<sup>1</sup>,881 15 182 384 Short-term ("custeio") 91 11 136 136 28 164 128 165 202 အၛၟၯ 298 18538 8 Ę no. 123 612 3,176 11,007 1,751 1,566 10,691 19,993 362 824 4,882 9,396 value 5,720 1,766 1,184 ł, 1.90 1,263 42 650 5,335 8,456 34,021 38 174 (continues) 353 324 314 556 832 738 576 514 12 183 150 80 220 520 16 84 756 70 284 340 250 .ou 341 370 crop Total 1,658 2,595 2,683 7,196 8,307 6,139 8,525 25,689 817 400 1,461 2,544 3,265 value 283 1,281 1,222 1,350 3,081 11,032 1,278 1,561 3,305 4,234 4,480 75 0 Crop loans 01 02 3515 20 F 30 33 ŝ £3883 0 6 12 9 9 78 20 7 37 37 8 Long-term 344 886 898 1,061 203 22 1,121 1,974 216 118 182 676 value 3,824 2,927 2,180 3,656 0 19 118 117 1,039 5,344 517 Short-term ("custeio")<sup>b</sup> 332 303 541 . 00 799 560 194 12 160 160 179 179 263 264 311 329 213 213 518 16 6, <u>F</u> 3, B 271 4,483 3,212 6,045 22,033 value 1,442 2,477 2,501 6,520 937 336 452 2,020 699 283 750 1,505 2,748 5,688 h,461 1,075 1,539 2,184 2,260 283 75 F. de Santana/BNB de Santana/BB Castro Alves/BB Itaberaba/BNB Mundo Novo/BB 1973 Itaberaba/BB Bank branch<sup>a</sup> Lençois/BB 1973 1974 Maracás/BB Ipirá/BB 1976 Mairi/BB 1974 1974 1975 1976 1973 1974 1975 1976 1974 1974 1975 1976 1976 1976 1975 1976 1976 1974 1975 1976 . E

<sup>a</sup>Excludes municipios of Antônio Cardoso, Milagres, Abaíra and Cafarnaúm. These municipios are served by BB branches that mainly serve municipios outside the project area. The four municipios account for about 7% of the total number of beneficiaries. They were excluded because there was no way to allocate the amount of credit as between the project and the non-project areas--and because they do not represent a large share of the projected number of beneficiaries.

In 1976, the jurisdictions of the 12 BB branches were the following:

Castro Alves: Castro Alves, Santa Terezinha

Feira de Santana: Feira de Santana, Anguera, Ipacaetá, Santa Bárbara, Santo Estevão, São Gonçalo dos Campos (not in project area)

Ipirá: Ipirá, Serra Preta

Itaberaba: Itaberaba, Boa Vista do Tupim, Iaçu, Ibiquera

Lençois: Lençois, Andaraí, Ibicoara, Itaetê, Mucugê, Palmeiras, Wagner

Mairi: Mairi, São José do Jacuípe, Várzea do Poço (latter two are not in the project area)

Maracás: Maracás, Barra da Estiva, Iramaia, Marcionílio Souza, Planaltino, Contendas de Sincorá (latter not in project area)

Mundo Novo: Mundo Novo, Baixa Grande, Piritiba, Tapiramuta

Riachão do Jacuípe: Riachão do Jacuípe, Candeal, Ichu, Tanquinho

Ruy Barbosa: Ruy Barbosa, Lajedinho, Macajuba, Utinga

Seabra: Seabra, Boninal, Ibipitanga and Ibitiara (both outside project area), Iraquara, Mucugê (Distrito de Guiné), Piatã, Souto Soares

The branches of Ipirá, Mairi, Maracás and Seabra were created in 1976. They took some municipios away from other branches in the project area. Thus the pre-1976 data and comparisons with it represent different municipio aggregates than those that for 1976. The changes are the following: Footnotes to Table 19 continued

<u>Ipirá</u> took Ipirá from the Feira de Santana branch jurisdiction, and Serra Preta from Mundo Novo

Mairi took Mairi from Mundo Novo

Maracás took Iramaia and Marcionílio Souza from Itaberaba

Seabra took all its municipios except one (Piata) from Lençois.

<sup>b</sup>Includes short-term crop credit for category numbers 10, 11 and 14,599 of BB printouts (i.e., "custeio de entressafra--lavoura," "extração de produtos de espécies nativas," and "outras aplicações de custeio"). Excludes credit for processing and the minimum-price purchase-storage program of the government (category numbers 12 and 13 of the BB printouts--"beneficiamento" and "preços mínimos"). Two other category-number 14 groups did not appear in the Paraguaçu data-no. 14,364, "integralização de cotas-partes de capital"; and no. 14,425, "manutenção do produtor e sua familia."

Minimum-price credit was zero in the project area in 1973; Cr\$28,622,000 in 1974 or three times other short-term crop credit; Cr\$290,368,000 in 1974 or 21 times short-term crop credit; and Cr\$280,791,000 in 1976, or four times short-term crop credit. Most of this credit was for sisal, and was granted mainly through the BB branches in Serrinha and Riachão do Jacuípe (see footnotes c and d).

<sup>C</sup>Minimum-price credit was Cr\$4,195,000 in 1974, or 15 times short-term crop credit; in 1975, Cr\$42,266,000, or 70 times short-term crop credit; in 1976, Cr\$38,610,000, or 29 times short-term crop credit.

<sup>d</sup>Minimum-price credit was Cr\$23,454,000 in 1974 or 23 times short-term crop credit; in 1975, Cr\$246,277 or 684 times short-term crop credit; in 1976, Cr\$241,946,000 or 16 times short-term crop credit.

Source: Based on data from the Bank of Brazil and the Bank of the Northeast.

		1973-1976 <sup>a</sup>	1973-1976
		Bank Branches,	Bahk Branches,
able 20	uaçu Basin:	for the 14 :	nt Cr\$1000s)
E	Parag	edit Funds	(curre
		Rural Cr	Rural Un
		Sources of	Jourses of

Others Total value		lue %	)23 1.4 65,876	49 0.1 136,422	15 0.7 340,790	:33d19.8 1.031.181
		∦ va.]	<u>6</u> .	- - -	.5 2.4	.2 204.5
	total	value	46,688 70	116,612 85	281,058 82	538,482 52
	٦đ	29	г. г	0.3	0.5	0.7
RRAC	laı	value	700	398	1,808	6,273
PROTE	ment	6	68.0	83.9	81.1	50.0
	invest	value	44,825	014.411	276,320	454,996
	nputs <sup>c</sup>	<i>1</i> 9/	1.8	1.3	0.9	2.6
	modern i	value	1,163	1,804	2,930	24,128
nds		26	27.7	14.41	16.8	27.9
Own fu		value	18,265	19,661	57,317	288,166
	Year		1973	1974	1975	1976

<sup>a</sup>The two BNB branches enter the data only in 1976, as is the case with the four new BB branches.

<sup>b</sup>Represents short-term financing for modern inputs, mainly at zero rate of interest.

(Cr\$910,230), rather than of the total of the table (Cr\$1,031,181). The values for 1976 have not been correspondingly increased by the estimated BNB amount. Thus the PT value breakdown does not add up for modern inputs, investment and land in 1976, therefore, are taken as a share of the BB total only The percents to the total PT value in the table--the latter value including the BNB and the former not. Also, the estimated percents of the PT breakdown do not add exactly to the total PT percent, because of <sup>c</sup>The data for the two BNB branches for 1976 is available only for the FROTERRA total. the estimating procedure.

<sup>d</sup>Of this figure, the largest single category is an emergency drought credit, which accounts for 56% of this "others" category.

Source: Based on data from the Bank of Brazil.

Table 21 Paraguaçu Basin: Comparison of Shares of Credit to Shares of Cattle Herd by Bank-branch Jurisdiction

Bank_hranch		°r U	400 40 0		(2007) 200	8			8	
jurisdiction		972 <sup>b</sup>	19 19	76 <sup>c</sup>	tot % tot	al.	a of J stock o	LIVe- tredit	+ Cr	edit
	no.	20	no.	20	1972/1976	average			<i>P</i> <sup>6</sup>	erd
		total		total	1973	1976			(rat	ios)
					ordering	ordering	1973	1976 <sup>a</sup>	1973	1976
Castro Alves	33,706	5.5	58 <b>,</b> 194	5.9	5.7	5.4	6.4	4.7	1.12	0.87
Feira de Santana	721,197	19.8	218,628	22.3	21.12	12.5	36.3	4 <b>1.</b> 8	1.72	3.34
Ipirá	4	1	ı	I	ı	T.01	ı	3.3	I	0.31
Itaberaba	98,706	16.2	149,810	15.3	15.8	12.5	10°0	7.2	0.63	0.58
Lençois	37,777	6.2	97,640 <sup>e</sup>	10.0	8.1	6.2	0.0	2.0	1.11	0.32
Mairi	1	1	1	1	ı	4.8		5.2	1	1.08
Maracás	ī	1		I	I	7.4	ı	2.5	1	0.34
Mundo Novo	153,661	25.1	180,179	18.4	21.8	12.8	7.6	0.11	0.44	0.86
Riachão do Jacuíp	e 77,414	12.7	125,600	12.8	12.8	12.1	9.6	6.8	0.75	0.56
Ruy Barbosa	74,057	12.1	115,493	11.8	12.0	4.II	14.1	6.8	1.18	0.60
Seabra	ı	1	-	!	1	1.5 <sup>f</sup>	ı	1.5	I	1.07
Serrinha	14 <b>,</b> 595	2.4	34,888	3.6	3.0	2.9	5.1	2.9	1.70	2.45

<sup>a</sup>Because of the unreliability of data sources on livestock, the figures for herd size of 1972 and 1976 are averaged, in order to arrive at a percent-share for each bank-branch jurisdiction in the total cattle herd of the project area. In addition, two groupings of the municipios were made--one for 1973, and one for 1976 when four more BB branches had been created, taking municipios away from some of the bank-branch jurisdictions of 1973.

<sup>b</sup>Source: Based on data from INCRA, as compiled by PIDERP.

<sup>C</sup>Source: Based on data from GERFAB, Third stage of vaccination against hoof-and-mouth disease, November 1976, as compiled by PIDERP. This source is considered to be at least as accurate as the census data. As the table shows, the percentage distribution of the animals between bank-branch jurisdictions is fairly consistent with that of the 1972 INCRA data, except for a few cases.

Data is ordered according to 1973 bank-branch jurisdictions, in order to show comparability with 1972 data.

<sup>d</sup>Includes two new BNB branches in Feira de Santana and Itaberaba.

<sup>e</sup>Data for six of the ll municipios in the Lençois jurisdiction were unavailable. According to the 1972 data, these municipios accounted for 1.8% of the total herd in the project area. This percentage was used to estimate their share in the 1976 data.

<sup>f</sup>All of the five municipios of the Seabra branch were transferred from the Lençois jurisdiction. Thus the 1976 herd size for these municipios, which enters into this average, was estimated according to the procedure described in the above footnote.

	Val	ues (curren	t Cr\$1000s)		Parag	. 85 %
Type of credit	Pa	rag.	Bahia		of Bahia	
	1973	1976	1973	1976	1973	1976
crop	15,824	89,683	263,285	1,617,837	6.0	5.5
livestøck	50,044	940,552	273,340	2,470,975	18.3	38.1
total	65,868	1,030,235	536,625	4,088,812	12.3	25.2
% of total:						
crop	24.0	8.7	49.1	39.9	-	-
livestock	76.0	91.3	50.9	60.4	-	-

Table 22 Paraguaçu and Bahia: Comparison of Rural Credit by Type of Activity--1973, 1976

Source: Based on data from Table 19.

Category	Parag. as % of Bahia
Credit	
Crop	
1973	6.0
1976	5.5
Livestock	
1973	18.3
1976	38.1
Total	
1973	12.3
1976	25.2
Indicator <sup>a</sup>	
cattle herd, 1972	10.9
no. of farms, 1970	16.0
land in farms, 1970	17.3

Table 23 Paraguaçu and Bahia: Comparison of Credit Shares and Other Indicators

<sup>a</sup>Percents are slightly lower than in Table 24 because they pertain to the 45 municipios covered by the 12 BB bank branches, rather than the 50 municipios of the project area. For cattle herd, the 45-municipio number is 644,321; for number of farms, 86,776; for land in farms, 3,867,624 hectares.

Source: Tables 21 and 24. The 45-municipio indicators for the Paraguaçu based on IBGE data as compiled by PIDERP.

Indicators	Valu	Parag. as %	
	Parag. <sup>a</sup>	Bahia <sup>b</sup>	of Bahia
cattle herd, 1972 (1000 head)	660 <sup>c</sup>	5,897 <sup>d</sup>	11.2
rural population, 1970 (1000 inhab.)	687 <sup>e</sup>	4,408	15.6
no. of farms, 1970	88,070 <sup>f</sup>	541,566	16.2
land in farms, 1970 (1000 ha.)	3,986 <sup>g</sup>	22,261	17.9
land surface, (km. <sup>2</sup> )	61,340 <sup>h</sup>	559,951	10.9

Table 24 Paraguaçu and Bahia: Comparison of Various Indicators

<sup>a</sup>Refers to the 50 municipios. Note that the percent share of Paraguaçu credit in Bahia credit of Tables 22 and 23 refers to 45 municipios rather than 50.

<sup>b</sup>Source: FIBGE, <u>Anuário Estatístico do Brasil</u>, <u>1976</u>, except for livestock data. See note d.

<sup>C</sup>Source: INCRA, as compiled by PIDERP. This differs from the figure of 691 which may appear in other reports, when the number of municipios to be included in the project was 59 instead of 50.

<sup>d</sup>Source: Secretaria de Agricultura, Estado da Bahia, <u>PAPA</u>, 1977, Vol. I, p. 35. (The number is printed in the cited source as 3,897 rather than 5,897, but the index accompanying this 1971-1977 series, and the rest of the numbers, suggest that the 3 should be a 5.) I have not used the IBGE source here because the <u>Anuário</u> data on size of cattle herds are available only for 1970, 1973, and 1974, but not for 1971 and 1972. Though the <u>PAPA</u> cites the IBGE as a source for its figures, the published IBGE data for 1973 and 1974 are slightly higher than the PAPA numbers (by 4%-4.6%).

<sup>e</sup>Source: IBGE, as compiled by PIDERP.

# Footnotes to Table 24 continued

<sup>f</sup>I use here the unadjusted IBGE figure, to be comparable with the IBGE figure for Bahia. The lower PIDERP figure of 71,790 farms is a PIDERP reconciliation of the IBGE figure and the lower INCRA figure of 46,640. The main difference between the two figures is a conceptual one, which also is reason not to reconcile them here: INCRA counts as one farm all separate parcels belonging to one owner, whereas IBGE counts each separate parcel as one farm. The PIDERP figure for the number of farms would give a percent of 13.2 of Bahia, rather than the 16.2 of this table.

The PIDERP listing of this data by municipio actually adds up to 88,044 farms, rather than the 88,070 used by PIDERP in its presentation of data by sub-area. I have used the latter figure here to be consistent with other presentations.

<sup>g</sup>I use here the unadjusted IBGE figure, to be comparable with the IBGE figure for Bahia (see above footnote). The lower PIDERP figure of 3,895,000 farms is an adjustment of IBGE and INCRA data (the INCRA figure is 3,833,871).

<sup>h</sup>Source is IBGE, as compiled by PIDERP.

Table 25 Average Yields of Selected Crops and Crop Combinations Produced by Small Farmers in the Paraguagu Basin<sup>a</sup>

Mean cost 383.20 906.79 397.90 1,525.18 306.74 906.79 397.90 1,525.18 420.29 370.19 469.20 1,525.18 906.79 370.19 469.20 per ha. 475.11 596.22 454.03 420.29 469.20 475.11 369.00 596.22 471.76 (cr\$) incomed Mean net 950.90 5.31 436.64 408.00 696.41 -24.90 109.08 148.71 323.04 32.61 per ha. -55.44 5.31 32.61 -169.59 5.31 436.64 -408.00 696.41 -24.40 109.08 448.71 27.30 -408.00 448.71 (Cr\$) mean stand. Mean gross income deviat 379.66 185.17 89.13 370.76 440.15 107.76 157.43 33.86 46.31 119.80 48.18 185.17 157.43 33.86 370.76 119.80 370.76 33.86 185.17 89.13 440.15 46.31 119.80 46.01 101.08 per ha. 912.10 834.54 1,117.18 584.19 1,044.93 912.10 834.54 1,117.18 692.04 402.80 444.80 398.59 912.10 402.80 444.80 499.06 1,044.93 584.19 213.61 444 80 1,257.64 1,116.70 1,044.93 1,116.70 Cr\$ mean stand. 126.57 27.82 481.79 1,475.65 1,185.41 26.29 67.60 49.19 55.24 57.49 56.45 53.87 35.77 8.67 20.60 37.73 36.24 234.38 92.05 49.19 22.55 33.51 44.04 222,12 deviat. Mean yield per ha.<sup>c</sup> 3,985.94 2,928.30 1,439.00 1,712.95 230.86 172.82 352.60 147.10 346.02 129.40 78.32 195.66 220.10 118.10 227.68 332.76 278.18 291.87 419.18 352.18 427.17 385.71 280.43 284.11 340.80 kg. vations No. of obser-11 10 95 30 11 1010 128 10 100 120 120 11 92 100 10 95 11 30 arranca/castor bean /corda/castor bean corn/castor bean /corn/castor bean arranca/pasture arranca/manioc /corn/pasture arranca/corn corda/manioc /arranca/corn manioc/corn manioc/corn /corda/corn /corda/corn Crop or crop combination<sup>b</sup> castor bean arranca /manioc corda corda arranca alone alone alone corn/ corn/ alone alone corda<sup>g</sup> manioc COLD

<sup>a</sup>The data is for the semi-arid zone (sertão) of the Northeast, which accounts for most of the project area. The project area is represented in the sample by one municipio.

<sup>b</sup>The first item in each crop category shows the results of the crop when planted alone. The subsequent entries in each crop category show crops results when the crop is interplanted with the other crops. The yield listed is always that for the crop heading the category. The manioc, corn and castor-bean entries are repetitions, for purposes of facilitating comparison, of entries in the "arranca" and "corda" categories (except for the single entries for manioc, corn and castor bean).

<sup>C</sup>It is important to note that the yield figures do not adjust for a decrease in the number of plants per hectare that results from interplanting vs. single-cropping. Thus the single-cropping and interplanting yields for a crop are not strictly comparable, unless one assumes that the number of plants per hectare does not decrease when one interplants. Since there usually is some decrease, which could not be determined for this sample, the yield comparisons will give an exaggerated picture of any decrease in yield resulting from interplanting.

<sup>d</sup>These figures were derived by pricing the number of man-days required for each crop at the minimum wage prevailing at the time of the survey (Cr\$7.00) and subtracting the result from the gross income of the previous column. Other costs were not computable because they were presented in quantity rather than price units. The bulk of the costs in this survey zone, however, are labor costs.

<sup>e</sup>Computation described in above footnote.

<sup>f</sup>I.e., feijão de arranca, a bean variety. This variety is not commonly found in the project area.

<sup>g</sup>I.e., feijão de corda, a bean variety. This variety is the most common in the project area.

Source: Based on data from SUDENE/IBRD, <u>Coeficientes</u> <u>Técnicos</u> <u>do</u> <u>Nordeste</u>, Recife, 1976. Table 26 Test of Significance of Differences in Yield for Selected Crops and Crop Combinations

3.83<sup>f</sup> 1.63 4.24<sup>f</sup> 0.40 0.78 1.23 0.33 1.44 1.37 1.17 0.19 1.09 1.25 1.32 1.32 1.89 1.84 ړ د Avg. yield per ha. (kg.)<sup>b</sup> 346.02 195.66 172.82 129.40 78.32 1,439.00 1,712.95 352.60 78.32 78.32 147.10 280.43 352.60 118.10 352.60 118.10 compared 220.10 291.87 278.18 220.10 227.68 crop 419.18 230.86 346.02 346.02 346.02 3,985.94 1,439.00 172.82 419.18 419.18 419.18 129.40 332.76 332.76 427.17 230.86 284.11 419.18 427.17 427.17 crop lst arranca/corn/castor bean corda/manioc/castor bean castor bean/arranca/corn corda/corn/castor bean castor bean/corda/corn corn/conda/castor bean arranca/corn/pasture arranca/corn/pasture corn/arranca/pasture arranca/corn/pasture corn/arranca/pasture arranca/manioc/corn crop combination<sup>a</sup> corda/manioc/corn manioc/corda/corn corda/manioc/corn corda/manioc/corn corn/corda/manioc Compared crop or corda/manioc manioc/corda corda/corn corda arranca/corn/castor bean crop combination<sup>a</sup> First crop or arranca/corn manioc/corda corda/manioc arranca/corn corn/arranca castor bean castor bean corda/corn arranca<sup>d</sup> arranca arranca arranca arranca cordae manioc corda corda corn corn corn

<sup>a</sup>The same crop combinations sometimes appear here more than once in a different order, because the yield figures are for the first crop listed in the combination.

bSource: Table 25. As noted in footnote c of Table 25, the yield figures are not adjusted for any decrease in the number of plants per hectare that results from interplanting vs. single-cropping. Thus the single-cropping and interplanting yields of a crop are not strictly comparable, unless one assumes that the number of plants per hectare does not decrease when one interplants. Since there usually is some decrease, which could not be determined for this sample, the yield comparisons will give an exaggerated picture of any decrease in yield resulting from interplanting.

<sup>c</sup>A significant variation between yields occurs when the value of the t-statistic is greater than two--which occurs for only two of the comparisons in this column. The differences in average yields were tested for significance at the 95% confidence level with the formula

 $\overline{X} - \overline{Y}$  with  $(n_1 + n_2 - 2)$  degrees of freedom,  $\overline{X}$  is the  $\sqrt{\frac{1}{n_1} + \frac{1}{n_2}} \sqrt{\frac{s_1^2 + s_2^2}{s_1^2 + s_2^2}}$ 

average yield per hectare of the first crop or crop combination;  $\overline{Y}$  is the average yield per hectare of the compared crop or combination;  $n_1$ and  $n_2$  are the number of observations for the first and the compared crops and crop combinations, respectively;  $s_1$  and  $s_2$  are their standard deviations. The average yields, numbers of observations, and standard deviations are from Table 25.

<sup>d</sup>That is, feijão de corda, a variety of bean common to the project area.

<sup>e</sup>That is, feijão de arranca, a variety of bean not commonly found in the project area.

<sup>f</sup>These are the only two cases the test shows a significant difference in yield.

Source: Based on data from Table 25.

September 27, 1977

Memorandum

To: Eldon Senner

From: Judith Tendler (Consultant)

This memo outlines some of the reasons that it is contradictory to Bank policies and objectives to include a livestock component in the integrated rural development project being appraised for the Paraguaçu basin of the state of Bahia. Briefly, the reasons are the following:

- the livestock sector of the Basin already receives a much morethan-proportionate share of crop-livestock credit, constituting an incentive to unprofitable investment and resulting in a serious neglect of agriculture;
- investment by the Bank in livestock in this particular project has little justification on either economic or social grounds in this region; it is highly questionable whether livestock is the best economic alternative for regional development, and the projected livestock beneficiaries are considerably above the bottom 40% of the rural population;
- agricultural credit programs that include livestock often tend to become concentrated on the livestock, rather than agricultural, beneficiaries.

The following data suggest that livestock is already more than adequately taken care of by the existing credit system; and that on the grounds of relative scarcity, it would be worth concentrating on credit for agriculture exclusively:

- though cattle in the project area account for 10% of the head of cattle in Bahia, this sector nevertheless received 33% of the value of the state's livestock credit in 1976.\* The project area's crops, which accounted for 14% of the state's crop production, received only 6% of its total crop-livestock credit;
- the percent of the value of livestock output financed by credit in the project area was 80% for cattle in 1973; for crops, the percentage was only 8% (for Bahia, it was 7%). The livestock percentage is not only high in relation to agriculture. It is also high for Brazil in general, and for the United States as well. For Brazil, the percent of total crop-livestock credit

<sup>\*</sup>All credit figures refer to the 12 Bank of Brazil branches in the project area. Cattle have accounted for 99.1 to 99.5% of total livestock credit in the last four years.

in total crop-livestock production was 52% in 1973; thas been about 60% in the United States. (The ratio for Brazil is weighted heavily by credit and production in the center-south region, where the ratio is much higher than in the Northeast; hence the **80**% figure for the project area is remarkably high in comparison to the 52% cited for Brazil.)

- the share of crop-livestock credit going to livestock was much higher in the project area than in the state in general: in 1976, 60% of the value of Bahia crop-livestock credit went to livestock; in the Basin, the livestock share was 90%. Similarly, 42% of the state's credit went to crops in comparison to only 30% of project-area credit;
- the comparison of credit contracts to number of farm establishments in the project area also suggests considerable distortion in favor of livestock: in 1976, the number of livestock credit contracts amounted to 46% of the number of farms over 50 hectares in the project area (most BB livestock borrowers owned no less than 50 hectares). For crops, in contrast, credit contracts were 3% of the total number of farms (or 4% of farm establishments less than 50 hectares).

Parts of the project area are considered livestock areasnamely, subregions II and IV. Perhaps this can explain the morethan-proportionate share of cattle credit of the project area in the rest of the state. But cattle in the project area are, if anything, <u>less-than-proportionately</u> represented in the state: whereas the project area has 18% of the state's land in farms, 16% of its rural population, and produces about 14% of its agricultural product, it accounts for only 10% of the state's cattle herd. Indeed, even the two livestock subregions (II and IV) do not have a more-than-proportionate share of the state's cattle: subregions II and IV together have 12% of the state's land in farms, 7% of its rural population and 7% of the cattle herd. (As discussed below, the data do show a specialization in cattle within the project area for subregion IV, but not for subregion II.)

It has been suggested that the above picture of credit favor to livestock has probably changed dramatically in the last several months, with the winding down and temporary suspension of PROTERRA credit, and the recent constraint on credit as part of overall anti-inflationary policy. The credit data show, however, that banks tended to lend their own resources to livestock borrowers in face of the PROTERRA decline. In 1973, during the height of PROTERRA lending, the value of PROTERRA credit accounted for 71% of

total crop-livestock credit committed by the 12 BB branches in the project area. (Almost all of PROTERRA credit went for livestock.) Livestock credit was 76% of total credit from all sources in that year, showing that only about 5% of the livestock credit was covered by the Bank's own resources. In 1976, after a considerable decline in the availability of PROTERRA funds, PT lending accounted for only 53% of total BB credit in the project area. Livestock credit, however, had risen to 90% of the total credit from all sources, compared to 76% in 1973. This meant that the banks were supplying about 37% of the livestock credit out of their own resources in 1976, as compared to 5% in 1973. The banks, in short, seemed to adjust their own lending to make up for declines in outside funds for livestock. Thus the livestock sector did not suffer anywhere near the extent that the figures on PROTERRA decline might suggest; livestock's share of the total went up 14 percentage points during the time when PROTERRA was declining. Indeed, this shows that crop and not livestock credit was the major victim, indirectly, of the PROTERRA decline.

The suspension in PROTERRA is considered a temporary one by the banking authorities. Its resumption is contingent on a letup of the current policy of monetary restraint, and on a reformulation of PT lending policies. The reformulation is now under way, and is being based on the experience with PROTERRA in the past. One of the features of the reformulation will be an attempt to channel the credits to smaller farmers. By the time the Paraguaçu project gets under way, then, the medium livestock operators who are projected beneficiaries of PIDERP are likely to have access to a reformulated PROTERRA line of credit--or, at the least, the existing livestock credit of the branch banks' own resources. The data suggest, in conclusion, that the probability is high that a PIDERP livestock beneficiary will be substituting PIDERP credit for other livestock credit. My visits to PIDERP crop-farming beneficiaries in the project area showed that a good share of them had already had credit from the Bank of Brazil--which meant that they were substituting the 7%-PIDERP credit for the 13%-BB credit. This kind of substitution is even more likely with livestock farmers, since they will all be property owners, and since 45% of them are already covered by the credit system--in comparison to 4% for the small crop-farmers.

When credit-to-output ratios are as high as they are for livestock in the project area, it is likely that the marginal return to investment in that activity will be particularly low in cases like Brazil, where subsidized interest rates have encouraged use of credit beyond its real economic return. That livestock credit
finances 85% of livestock production, and crop credit only 8% is itself an indication that the marginal return to taking a unit of investment away from livestock and putting it in agriculture would be considerable. This is without considering any of the distributional questions, discussed below.

Even without considering the relative over-investment of credit in livestock in relation to crops in the project area, there seems to be little argument to support cattle projects in this area, given the Bank's objectives for rural development projects -- i.e., reaching the lowest 40% of the income distribution, and helping to alleviate problems of rural unemployment. Cattle farming creates very little employment, especially in relation to agriculture, and no positive indirect employment effects in the region. To the contrary, livestock expansion in the area has been associated with evictions of tenant farmers from croplands. More pervasively, it requires a system of shifting, primitive cultivation which prohibits crop-farming tenants from staying on one parcel for any length of time; they are allowed to clear and cultivate a parcel of the owner's land for only one season--after which, they must deliver it back to the owner in pasture. For the Bank to invest in credit to medium livestock farmers exacerbates the eviction problem and the shifting cultivation syndrome and its accompanying low levels of technology and income. Needless to say, it also increases the effect of official subsidies, which make livestock farming artificially attractive.

The projected livestock beneficiaries of the project area would own between 50 and 500 hectares of land. These farm sizes fall within the upper 17% of the land-size distribution in the project area-far from the bottom 40%. It is said that most of the beneficiaries will be "small"--in the 65-100 hectare range. But these "small" farmers are still within the upper-17%--the bottom 8% of the upper 17%. Indeed, if one wanted to limit the beneficiaries to the bottom 40%, one would have to choose a land size ceiling somewhere below 10 hectares -- approximately the range within which current PIDERP crop beneficiaries fall. Non-owner operators and landowners up to 10 hectares alone, that is, represent the bottom 53% of the land distribution. (This 53%, of course, does not include the landless rural workers. Adding them to the bottom of the distribution would increase the less-than-ten-hectare group to even more that 53% of the distribution.) Though it has been argued that the projected livestock beneficiaries are frequently poor in terms of annual income, it is not possible to defend their choice on these grounds if one is speaking of relative poverty. They are far from the bottom 40% in terms of land-size holding, and land-size holding is closely correlated with income.

It has also been argued that the two livestock subregions in the project area are "cattle country"--that they are not suited to agriculture, and that cattle ranching already prevails in these areas. The above-cited data showed that these regions, and the project area in general, did not play a more-than-proportionate role in the Bahian cattle sector--suggesting that they do not merit livestock attention on those grounds. Further, subregion II makes a more significant contribution to agricultural production in the project area than to livestock production: it accounts for 18% of the crop production in the project area as compared to 12% of the number of cattle (and 22% of the land in farms, 9% of the number of farms, and 12% of the rural population). The situation is reversed in subregion IV, which accounts for 31% of the value of crops and 57% of the cattle. (Subregion IV accounts for 49% of the land in farms, 30% of the number of farms and 35% of the rural population.)

The two livestock subregions show higher rural population densities than the non-livestock regions I and III--10.9 rural inhabitants per square kilometer for IV (where 80% of the livestock beneficiaries would be located) and 6.9 for II--as opposed to 2.9 for region I and 6.6 for region III. (Feira de Santana shows 35.4, the highest rural population density.) Finally, the distribution of bank credit between crops and livestock does not seem to vary significantly as between those banks serving the livestock regions II and IV and those serving the rest.

All this is to say that agriculture and rural population seem to be equally as important in the livestock regions as in the other regions, and that the problems of giving employment to the rural poor are at least as great in the livestock regions as without -if rural population densities are used as a proxy for measuring such problems. PIDERP itself points out that in subregion IV, the most important for the livestock project, the "constant growth of livestock ranching has resulted in a fall of crop farming, principally subsistence, causing a social problem of large proportions." The evidence suggests, in sum, that there is a substantial mixture of crop and livestock farming in the livestock regions of the project--that they cannot really be characterized as exclusively "cattle country" in comparison to other regions -- and that the specialization in cattle that has occurred in these regions may be more a result of the official favoring of livestock vis-a-vis crops, rather than of a greater economic return to livestock production. (Interestingly, almost all BB managers whom I asked about the low percentage of agriculture credit in total credit of their branch responded that their region was "cattle country" --both inside and outside the livestock subregions.)

5

Even if it could still be maintained that some areas within the livestock regions are not suited to agriculture, it is not clear that cattle is the best alternative. Goat culture, for example, is more suited to the dry climate of the sertão than cattle--goats drink less and are able to thrive on various natural scrub plants. Just as important, goat-raising is more characteristic of small farmers than is cattle. Whereas 15% of the cattle population in the project area is located on farms less than 50 hectares, 22% of the goat population is located on such farms (and 40% of the sheep population). The goat (and to a certain extent sheep) alternatives suggest that cattle is not necessarily the better alternative for zones in which crop farming is not possible or desirable. Goats and sheep, by the way, account for 53% of the livestock numbers in the project region, 13% of their value, and less than 1% of the livestock credit. Another alternative for areas unsuited to agriculture and more in line with Bank objectives than livestock would be small-scale food processing or other local industries--because they provide demand and sure markets for small-farmer crops, as well as employment.

Finally, if the Bank feels compelled to support livestock, there are ways of doing so that would conflict less with its equity objectives. For example, a state-run bull-rental service, using improved-breed animals, might be provided--as has been done in some other countries. Since it is uneconomic for farmers with a few animals to own their own bulls, such a service would accomplish one of the major objectives of livestock programs -- improvement of the herd--while at the same time not concentrating resources on the upper reaches of the income distribution. (Bull-renting from private larger farmers in one form or another occurs in many small-farm crop-livestock systems.) Improved grasses could also be introduced in a non-individual way--by making the seed or material available at subsidized prices or, as has been done in some cases, by planting the new grass on public rights of way and just letting it spread. Indeed, evaluations of several of the Bank's livestock programs show that genetic improvement of the herd and introduction of improved grasses were their major accomplishments. Other objectives related to changes in individual-rancher practices had a much spottier achievement record. Since these two improvements are those most likely to be achieved, and since they are not dependent on the will of the individual farmer, they can be introduced independently of a program dealing with individuals. And in this case, they can be associated with distributional effects that are consonant with the overall objectives of the program.

The Bank has been concerned for a long time with the distorting nature of the subsidies in the Brazilian agricultural credit system. The distortion not only takes the form of relative shares of credit going to livestock vs. crops. It also inheres in the form of credit and the institutional structure by which it is administered--mainly, subsidized investment credit, which meets the credit needs of livestock ranching more than of crop farming. In addition, takers of subsidized investment credit (who, as the data show, are mainly livestock farmers) have been able to use those credits for labor costs, amortizing them over more than one year. These investment loans, moreover, have financed 100% of investment costs. Small farm operators, in contrast, get only a portion of their short-term costs financed--between 40% and 60% when one takes into account the difference between real prices and minimum prices -- and do not get the labor of themselves and other family workers financed with the credit. Even if their own- and family-labor costs are somehow covered, they are not allowed to pay off these costs over a longer term, as are the livestock ranchers; yet the clearing activity engaged in by many small farmers is really an investment activity that pays off over more than a year.

The favoring of the livestock farmer over the small crop farmer by the subsidy system in the Northeast is heightened during a drought. In addition to the various aspects of this phenomenon discussed elsewhere, long-term "emergency" credits are made available to livestock farmers so that they will not have to sell their cattle; many BB managers reported emergency credits to livestock farmers of 7% and 5% interest with 8-10-year amortization after the drought period of 1976 and 1977. The small farmer, with less investment to "protect" and often without the requisite title to the land, does not qualify for this long-term drought protection--even to protect him from the sale of his one or two animals. In a sense, the drought credits allow the larger livestock ranchers to buy off the one or two animals being sold in desperation by the small-farmer operators.

The Bank's concern with the Brazilian subsidy system has focused on the distorting effects of the system on loan capital in the banking system and the viability of its financial institutions, and on the resulting bias in favor of larger farmers. The Bank should be just as concerned, in financing the Paraguaçu livestock component, with the bias of this system against small-farm agriculture. Though the Bank may not have the power to change the general features of the subsidy system, it is able to pick and choose those project components which involve less distortion and/or which redistribute the distortion in favor of desired activities or beneficiaries. To finance livestock in the Bahia project seems, however, to merely add to one of the worst distortions of the subsidy system.

One last reason that the Bank should reconsider the financing of the livestock component relates to institutional factors. To combine livestock with agricultural assistance is to saddle the extension service with a complex program, perhaps decreasing thereby the probability that extension will do either program well. Bankfinanced livestock programs in Latin America have fared well when the financed region already showed some sophistication in livestock production (Uruguay), and/or where technical assistance was quite extravagant (20 farm visits a year in Ecuador), and/or where Bank supervision was very close (also Ecuador). None of these characteristics describe the Paraguaçu livestock component and the project area.

If it has been difficult for Bank-created project units-working exclusively on livestock sub-borrowers under constant Bank supervision--to bring about productivity changes among livestock ranchers, then the probability of bringing about such changes through an extension service working on livestock and several other things-and on Bank-financed and non-Bank projects--would seem to be low. The exception is the two changes mentioned above--genetic improvement of the herd and the introduction of improved grasses--but these improvements do not require individual livestock sublending. Without the productivity changes that are basic to the profitability of the livestock models, of course, there is little economic justification for including livestock in the project.

The inclusion of livestock along with crops in the PIDERP extension-service program may thus jeopardize the success of a singlefocus program. That is, the extension service program seems to have more of a chance if it is able to concentrate on one area in which technology is to be mastered, promoted, and made available--rather than two.

A related aspect of the above point is the fact that the economic class of the small crop beneficiary and the medium livestock rancher are different; in the Bahian context, these two classes are in conflict. When a public-service entity like the extension service has to service two different and conflicting groups, it is difficult for it to develop an allegiance to either group. This type of allegiance is important to developing the <u>espirit de corps</u> that is basic to executing such a difficult program. Usually, the more powerful interest group wins out in terms of receiving the better half of the agency's services. The problem of large-client intrusion can be kept somewhat in control by placing a ceiling on the amount of funds and the number of beneficiaries permitted to the more powerful group--in this case, livestock. (The history of such projects shows that these kinds of ceilings are often ignored after the project gets under way and the more powerful groups claim a greater share of the funds.) Even if ceilings were to be placed on the participation of livestock beneficiaries in the Paraguaçu project, however, this still would not allow the extension service to concentrate on one task; it would not provide the best environment for the extension-service units to build up an allegiance to the small farmer. I saw signs of this allegiance developing in some of the field extension offices with personnel working solely with small farmers.

September 29, 1977

Memorandum

To: Eldon Senner

From: Judith Tendler

Re: Addition to September 27 memo

There are other ways that the Bank might support a livestock component in the Paraguaçu project that fit in better with its rural development and equity objectives. It is not clear, for example, why the project focuses on small farmers (0-50 hectares) for crops but medium farmers (65-300 hectares) for livestock. One gathers, from conversations with PIDERP and other technicians, that it is felt that any impact on output could only be achieved from these medium farms, and that the smaller operations are not of efficient size. The IBRD/SUDENE Farm Survey shows, however, that the small farms are quite important in livestock production: 25% of the gross value of livestock production in the zone in which the livestock subregions are located comes from farms less than 50 hectares. (These farms contribute 34% of crop production.) This 25% share is not much less than the percentage of production coming from farms between 50 and 300 hectares, which is 30%. With respect to potential impact on livestock production, then, there seems to be little reason to choose medium-size rather than small livestock farmers.

I would suggest that the real problem in financing livestock farmers with less than 50 hectares is one of the technical knowhow of the Bank and the Bahians. That is, the small farms show a much larger share of animals such as goats, sheep and swine than do the large farms -- as reported in the Farm Survey, and as shown in Table 2 of Annex 1 of the draft livestock annex. (The text of the annex states, in contradiction to the table, that the distribution of sheep and goats by farm size is the same as that of cattle.) The small-scale production of these particular animals, in contrast to larger-scale cattle, does not seem to be represented among the technologies in which technicians are versed, and which are promoted by the Bank and the Brazilians. One reason for this is that these animals never had the status, at least in Brazil, that cattle have. That they are associated with peasants instead of people of means contributes to this lack of status. (Cattle, it should be noted, are not absent from small farms. They account for 15% of the cattle on all farms in the project area:) ason for the difficulty of the Bank and the is coping with an approach to livestock on small farms

Another reason for the difficulty of the Bank and the Brazilians in coping with an approach to livestock on small farms is that the livestock is mixed in with crop farming. For anyone who has observed this mixture, it involves an extremely efficient use of resources--feeding the animals on the otherwise wasted byproducts of crop production and on the refuse from human consumption. The mixed farm also involves a sophisticated system of diversification against risk.

It is ironic that the small-farmer programs of PIDERP already functioning in the project area impose a serious constraint on the functioning of this system: they will not finance the farmer, nor can he be allowed to be insured, if he interplants pasture with his crops--a practice that is quite common in the small-farm system of the project area. Though the farmer knows that pasture is not good for crop growth, he plants it as a hedge against crop failure-and often does so only if he thinks his crops will not produce (pests, bad seed, etc.) or that rain will be insufficient. If the crops fail, he will have pasture for his animals, or he rents it out to others. Though the pasture grass may retard crop development, a more comprehensive analysis of farm profits including risk and uncertainty might show that the farmer is better off planting pasture. If this were the case, then the project could help the farmer by studying and recommending an improved technology for interplanting pasture with crops--instead of taking away this alternate source of income.

The Bank and PIDERP have not looked into the potential problems associated with the technological recommendations involved in the project. One reason probably is that the small mixed-farm system is assumed to be inefficient and irrational. It is assumed inefficient, however, because most technicians have little experience with it--even though it may be a better alternative--an efficient system which might benefit considerably from some marginal improvements. (Another example: organic fertilizer is widely used among small farmers in the project area, but proposals for improving its use, production and marketing have not been forthcoming; use of chemical fertilizers is simply assumed to the the desired alternative.)

The livestock draft annex mentions that goat culture has not gone very far in the project area partly becuase of demand problems-i.e., there is no tradition of drinking goat's milk. But goat's milk is made into cheese, which is widely consumed in the Northeast. Cheese is a more efficient product than milk within the constraints of the Northeast small-farm economy and within the consumption constraints of the poor. Milk production is usually channeled to city populations and requires of the consumer immediate consumption or investment in a refrigerator. If milk is produced in the countryside where there is no refrigeration, it requires immediate sale by the producer. Cheese, on the other hand, can be stored indefinitely and is an important source of protein for poor people. Cheese production, moreover, is labor intensive at the farm level, and is usually carried out by the female members of the family--thus providing employment for family members who might not find employment elsewhere. Finally, the unused residue from cheese production, whey, is high in nutrients and is fed on small farms to the swine. Thus though the existing system of goat production could be quite efficient, the livestock draft annex suggests that a goat component in the project would not be feasible unless the current system of production were changed entirely.

Since it may be too late for the Bank to modify the livestock component in favor of the smaller farms, other animals, and the mixed system--and since the "technology" now exists only at the farm level, in a sense, and not at the "technician" level--I would suggest that the project in some way facilitate the acquisition of this technology--not only on the part of the Brazilians, but by the Bank itself. I am not familiar with the kinds of technical assistance that can be included in such a project, or in the other projects in agricultural extension and research which the Bank is financing. But I think it is crucial to sensitize and familiarize technicians with the efficient aspects of the existing mixed systems on small farms, and to work on well-defined questions as to how the components of these systems might be improved.