

Piauí: Renters and Sharecroppers

Judith Tandler
December 1978

Table of Contents

	<u>Page</u>
Introduction	1
The landless and the project	6
Farm Systems	8
The Parnaíba areas--Middle Parnaíba, Teresina and Delta	9
The rental or sharecropping contract	12
Preparing the land	15
Planting	17
Credit	20
Babaçu	21
"Tractorized" land	25
Animal traction	29
The shortage of land	32
Picos	35
Tree cotton	36
Sharecropping	38
Other crops	41
Conclusion	44
Implications of the farm system for the project	46
A land-transfer program	52
Support for land transfer	56
Land and Land Entities in Piauí	58
COMDEPI	60
Fazendas Estaduais	60
Land sales	63
COMDEPI and the project	65
A land institute	68

	<u>Page</u>
Other Income-earning Activities and Group Action	72
The Legião Brasileira de Assistência	74
The social extension program	76
Kitchen gardens	78
Community action	83
Health miniposts	86
A fund for community projects	87
Rural Labor Unions	89
Landlord-tenant disputes	93
Union participation in the project	99
Summary and Recommendations	104
A land-transfer-program	104
The political climate for land redistribution	105
Conditions favoring a land-transfer program	107
Mechanisms of land transfer: expropriation	109
Mechanisms of land transfer: land credit	111
Public lands	115
A land institute	116
Generating income outside agriculture	117
Household manufacture	118
Women's productive activities and agriculture	122
Kitchen gardens	122
Organic fertilizer	124
Selected seeds	125
Babaçu	125
Community resource mobilization	126
Rural labor unions	129
Miscellaneous recommendations	130
Tables	

Introduction

1.01 The state of Piauí has the highest proportion of landless farmers in Northeast Brazil.¹ Of the total number of farms in the state, 66% are operated by renters or sharecroppers, a proportion that is almost double that of the rest of the Northeast states (Table 1). The majority of Piauí's landless farmers work plots of less than ten hectares, and these small plots account for the majority of the state's agricultural production. Of farms under ten hectares, 88% are worked by tenants and sharecroppers. The ten-hectare farms account for 56% of the state's agricultural production and 68% of its principal crop, rice (Table 3).

1.02 Associated with Piauí's landlessness is the most concentrated income and land distribution in the Northeast. The poorest 40% of the population accounts for only 7% of the income while the upper 10% accounts for 67% (Table 4).²

¹With the exception of Maranhão, for which the landless-farmer proportion is 88%. Most of the landless farmers in Maranhão are squatters on public lands rather than renters and sharecroppers, as in Piauí.

²Even though Maranhão's landless are a greater proportion of farmers than in Piauí, its income distribution is only the third most concentrated, with the bottom 40% receiving 16% and the top 10% receiving 53%.

With respect to landholding, 62% of the farms are less than ten hectares and occupy 3% of the land, while 2% of the farms are more than 500 hectares and occupy 50% of the land (Table 2).¹ This extreme concentration of land and income is not associated with high population densities. Indeed, Piauí has the lowest population densities of the Northeast states, regardless of the measure used--total population to total area (6.9 per km²) rural population to land in farms (11.9 per km²) or economically active population in the primary sector to land in farms (3.6 per km²). (See Table 5.)

1.03 Both the urban and rural inhabitants of Piauí are concentrated in the proposed project area. Occupying only 15% of the state, the project area accounts for 33% of the land in farms, 48% of the total population, and 41% of the rural population (Table 6).² Population densities are correspondingly higher than those of the state in the project area, with total population density at 21.3 inhabitants per km² in contrast to 6.9 for the state--reflecting in part the state's two largest cities, Teresina

¹Maranhão's land concentration is greater, with farms less than ten hectares accounting for 82% of the total and 6% of the land, while farms over 500 hectares account for 2% of the total and 57% of the land.

²These and subsequent project-area data in the report exclude the less-densely populated small subarea of Valença, which had not yet been eliminated from the project area when the data were collected.

and Parnaíba (Table 6). Rural population density in the project area is 14.9 per km² of land in farms in comparison to 11.9 for the state; the number of economically active persons in the primary sector per km² of land in farms is 4.6 in the project area, in comparison to 3.6 for the state. Though all these densities are higher than those of the state, they are still lower than most of the rest of the Northeast states (Table 5).¹

1.04 Landholdings in the project area are somewhat less concentrated on large farms than in the state as a whole, though the concentration is still greater than in all the other Northeast states except Maranhão and Rio Grande do Norte (Table 2). Farms over 500 hectares occupy 38% of the land in farms in the project area, in contrast to 50% for the whole state. At the same time, the concentration of farmers on small holdings is greater than the rest of the state. Farms with less than ten hectares account for 79% of the farms in the project area, in contrast to 71% for the whole state.

1.05 Of the four project subareas, Teresina is the largest in total area, area in farms, rural population and number of landless farmers (Table 3). Its rural population density (16.7 per km²) is

¹Except for the measure of total population in the project area to total area (21.3), which reflects the state's two largest cities. Lower total densities are found in Maranhão (9.2) and Bahia (13.4).

somewhat lower than that of the Delta (18.7), which has the highest rural population density in the project area. In all other measures, the Delta is the second most important subarea, though it is much closer in these measures to Teresina than to the other two subareas. The proportion of landless to total farmers is also highest in Teresina and the Delta (79% and 80%); of only those farmers with less than 50 hectares, the landless farmers are 89% in both subareas (Table 7). The concentration of land in farms over 500 hectares is also the highest in Teresina and the Delta--50% and 47% respectively. Consistent with the higher population densities in these two subareas, the proportion of cultivated land is also higher--74% of total cultivable land is utilized in crops or pasture in Teresina, and 61% in the Delta.

1.06 The Middle Parnaíba is the third most important subarea in terms of the number of landless, though it is lowest in size, land in farms, and rural population. Landless farmers represent 70% of its total farmers, and 79% of farmers with less than 50 hectares. Though its agro-climatic conditions and cropping systems are similar to those of Teresina and the Delta, the concentration of land on farms over 500 hectares (34%) is less than that of these latter areas. Also, its population density is the lowest of the project area (10.5), as is the proportion of cultivable land that is utilized (39%).

1.07 Picos is quite distinct from the rest of the project area in its rainfall and cropping patterns (see paras. 2.39-2.53). Though it ranks only third in area, land in farms, rural population, and rural population density, it has the largest number of property-owning small farmers in the project area (Table 7). Thus the relative shares of landless and small-propertyowning farmers in Picos are exactly the reverse of those of the other subareas; the landless account for 17% of total farmers in Picos and the property-owners for 83%. (Of farms less than 50 hectares, the landless account for 25% and the propertyowners, 75%.)

1.08 This major difference between Picos and the rest of the project area is also reflected in the size distribution of farms less than 50 hectares. Whereas in the other areas, farms between ten and 50 hectares account for no more than 8% of farms under 50 hectares, in Picos these larger small farms account for 38% of farms under 50 hectares. Correspondingly, landholding is much less concentrated on farms over 500 hectares in Picos than in the rest of the project area; these large farms occupy only 15% of the total land in farms. Both the rural population density and the share of cultivable land in utilization in Picos (12.7 and 47% respectively) are less than that of Teresina and the Delta though higher than the Middle Parnaíba.

1.09 Landlessness, in sum, is a striking feature of three of

the four proposed subareas. As will be seen in the following discussion, the problems of the landless in the Middle Parnaíba are remarkably similar in kind and in intensity to those of Teresina and the Delta, even though the lower population and land-utilization indices of the Middle Parnaíba would lead one to expect otherwise.

The landless and the project

1.10 Up until now, the Bank's rural development projects in the Northeast have been designed for small landowning farmers. Though landless farmers were not specifically excluded, the emphasis of these projects on a package of agricultural credit and productivity-increasing technical assistance made it difficult to reach the landless: they neither had access to institutional credit nor to secure land tenure.

1.11 The Bank and the POLONORDESTE project units have not ignored the landless problem. Land-credit components were included in some projects, and attempts have been made to convince landowners and bank branches to give tenants direct access to bank credit. As a result of various problems, however, the land-credit components have not functioned. The Bank-financed projects have experienced some limited success in overcoming the resistances of landlords and banks to credit for sharecroppers and renters. The number of such

cases is not significant, however, and this action has sometimes had counterproductive results--mainly, the appropriation by the landlord of the sharecroppers' increased income resulting from project participation, or the eviction of the sharecropper.

1.12 It will be difficult for a rural development project in Piauí to have an impact on low-income farmers if the productivity-increasing strategy plays the key role that it has in most other POLONORDESTE projects. The project will require a strategy for the landless, in relation to which any traditional components like agricultural credit and technical assistance will have to be defined and justified. A description of the farm and tenancy systems in the proposed project area helps to illustrate the point, and to suggest where opportunities for such a landless strategy might lie.

Farm Systems

2.01 The proposed project area is a crescent starting in the north on the state's small strip of Atlantic coast at the mouth of the Parnaíba River (the Delta). The area continues southward down the right bank of the Parnaíba (the left bank is in the state of Maranhão), passing through the region of the state capital, Teresina. The area then continues along the river until the Middle Parnaíba, at which point it turns inland, extending almost to the eastern edge of the state to encompass the cotton-producing area of Picos.

2.02 There is a major difference between the three river-bordering areas--Delta, Teresina and Middle Parnaíba--and Picos. Briefly, the three Parnaíba areas are characterized by upland rice production associated with subsistence crops, annually shifting cultivation involving four to six years of fallow for every one year of use, rental or sharecropping contracts denominated in rice, and some tractor usage on land that has been stumped. The arid Picos region, with significantly lower precipitation, is characterized by perennial-cotton cultivation, the only area in the state where tree cotton is grown.¹ In Picos, the same parcel of land is used

¹The Picos region is akin to the arid Sertão regions of Ceará and Rio Grande do Norte, where tree cotton is also grown. Annual precipitation in the Picos region is 650-750 mm, in comparison to levels of 1,000-1,500 in the three Parnaíba subareas.

successively year in and year out, animal traction is common (it is nowhere to be found in the Parnaíba areas) and sharecropping is the predominant form of tenancy with shares denominated in cotton production.¹

The Parnaíba areas--Middle Parnaíba, Teresina and Delta

2.03 The cropping and tenancy systems of the three Parnaíba areas are quite similar. All the areas have in common the production of rice as a "cash crop",² the earning of income by tenants from the collection and breaking of the babaçu coconut, rentals or sharecropping shares that amount to about 20% to 25% of rice production, a system of annual cultivation requiring five years of fallow after every one of cultivation, and the predominance of hoe cultivation with some pockets of tractor use.

2.04 The Delta and some of the northern parts of Teresina are different from the rest of the Parnaíba areas in that there is some wet-rice cultivation and a small amount of irrigated rice (the latter

¹One is tempted to explain the absence of renting in Picos on the grounds of crop differences--i.e., in that rice is an annual crop and tree cotton, perennial. This explanation does not bear out, however, because whereas renting is predominant in the upland-rice areas of the Middle Parnaíba, sharecropping is prevalent in both the wet-rice and upland-rice areas of the Delta region.

²Even where annual cotton is grown, as in Teresina and the Middle Parnaíba, rents are denominated in rice.

not involving small farmowners or tenants). Rainfall is higher in some parts of the Delta and Teresina than in the other areas, there are several lagoons in the Delta that allow for wet-rice cultivation in the dry season, and rice yields are somewhat higher than in the other areas.¹ Wet-rice cultivation in the Delta is carried out under the same sharecropping arrangements as upland rice, with tenants typically sharecropping wet-rice on one small parcel and upland-rice on another. Salt- and fresh-water fishing is an important activity of the rural population of the Delta, because of its seacoast, its lagoons and its Parnaíba tributaries. Palm extraction in addition to babaçu is also found in the Delta--mainly, carnaúba (wax) and tucum (fiber). Some tractor usage is found in the Delta (about 20% of the rice lands) and in the Middle Parnaíba, as compared to little tractor usage in Teresina. Finally, annual cotton has no importance in the Delta, in contrast to the other two Parnaíba areas.

¹In the Middle Parnaíba, yields for pure-stand rice are 1,900-2,500 kg. per hectare; in the Delta, they vary between 2,800 and 4,000. Annual precipitation in Teresina is 1,200-1,400 mm; it is greater than 1,500 mm in parts of the Teresina municípios of União and Miguel Alves. Precipitation is 1,200-1,500 mm in the Delta município of Luzilândia, and 1,000-1,250 in the Delta municípios of Parnaíba and Buriti dos Lopes. Precipitation in the Middle Parnaíba is 1,000-1,200.

2.05 An important determining characteristic of the farming system of all three Parnaíba subareas--and of the possible interventions that a development project might make--is the cultivation of land for no more than one crop cycle. Except in cases where manioc is grown, this means that a tenant works a piece of land for no more than one year, planting rice together with corn and beans. When manioc is interplanted with the annual crops, the land is held into the second year until the manioc is harvested (after about 20 months). No other crops are planted in the second year, because the manioc has by then created too much shade and root competition. Renters who plant manioc normally rent another plot in the second year, since the manioc production alone will not be enough to sustain them through a full year. Harvesting of the manioc is usually done during the slack period in September or October, between the burning and clearing of the new plot. Most tenants cultivate parcels of from one to five hectares, though plots over three hectares are not common. It is common for a tenant to have two or three parcels, sometimes to take advantage of differing growing conditions and sometimes because it is often difficult to find a parcel of adequate size to sustain a family (paras. 2.36-2.38).

2.06 Since land is left in fallow for five years after each year of cultivation, tenants must clear and burn each year before

planting. Commitments from landlords on new plots to rent for the coming agricultural year are obtained at harvest time of the preceding year (May-June)--and sometimes not until the time that preparation of the land for burning actually begins (July-August). Many tenants are not able to obtain successive plots year after year from the same owner. As they move from one parcel and propertyowner to the next, however, they tend not to move out of the area. Thus "shifting" describes their agriculture more than their living patterns. This contrasts with the more truly nomadic agriculture in the neighboring state of Maranhão, where families are annually on the move in function of their shifting agriculture, rarely returning to the same area.

The rental or sharecropping contract. The rental agreement between the tenant and the landlord is a verbal one. It lasts the duration of the clearing and crop cycle--from July-August to June, except when the longer-maturing manioc is planted, in which case the land is kept for almost two years. In the case of rice sharecropping, some landlords make a claim before the harvest on their 25% share, identifying 25% of the rows that "belong" to them. Sharecroppers complain that the owner often selects the best-yielding rows, thus ending up with the best rice for seed and with more than 25% of the harvest.

2.08 Tenants usually have no say in the plot of land they are assigned by the landlord, and often complain that the landlords assign them the worst land. Some Delta sharecroppers estimated that wet-rice yields were 2,800 kg. per hectare on their plots and 4,200 kg. on the land worked directly by their landlords. Extension agents of POLONORDESTE project in the Delta reported that they have attempted to convince landowners that it was in their own self-interest to assign their good land to sharecroppers if they were not using the land themselves. But they were reluctant to rent it out, the extensionists reported, for fear that the tenants would "ruin" it.

2.09 Rental or sharecropping payments in all the Parnaíba areas are expressed in rice production--even where annual cotton and sugar-cane are planted.¹ The most common rent for non-stumped land is 231 kg. per hectare.² Yields of upland rice interplanted with corn and beans on non-stumped land in the Parnaíba areas are said to be 1,050 kg. per hectare. Thus the rent corresponds to about 22%

¹In 1970, rice constituted 58% of the value of crop production in the Middle Parnaíba and 40% in the Delta. Production figures do not include extractive crops. Based on data from IBGE, Censo Agropecuário do Piauí, 1970, as elaborated by the Project Unit.

²This is expressed as two "quartas" per "linha" or "tarefa". A "quarta" is 35 kg. and there are 3.3 "linhas" or "tarefas" in a hectare. The tarefa measurement is larger in some other Northeast states (e.g., 2.3 per hectare).

of rice production, close to the 25% of rice production required in the sharecropping contracts of the Delta, where yields are somewhat higher (para. 2.04). To the extent that farmers interplant their rice with subsistence crops, the rents and shares represent a smaller percentage of the value of total crop production. At the same time, however, rice yields seem to vary substantially from year to year, as shown by fragmentary time-series data for Piauí, which also suggests that the average yield of 1,050 kg. per hectare may be an overestimate if these variations are taken into account. Thus rental shares may not be as low as they seem, when agro-climatic risks are taken into account.¹

2.10 Rent and sharecropping payments are traditionally paid in rice at harvest time. The tenant disposes of his corn, beans, manioc or cotton production as he pleases. When the rice crop is not sufficient to pay the rent, owners will require payment in these

¹A four-year series for the entire state shows yields of 1,134 kg. in 1973, 540 in 1974, 1,300 in 1975, and 910 in 1976. These data would overestimate the yields of upland rice, since they include the wet- and irrigated-rice production of the Delta, whose yields vary from 2,800 to 4,000 kg. Yield data for 1970 show 405 kg. for the Middle Parnaíba and 762 kg. for the Delta. In that year, rents in the Middle Parnaíba would have amounted to 57% of rice production. (Based on data from IBGE, Censo Agropecuário do Piauí, 1970, as presented by Project Unit. The 1976 yield figure is from a 1974-1976 series in the IBGE, Anuário Estatístico do Brasil, 1976. The 1974-1975 figures of this series are the same as those of the Project Unit's 1973-1975 series.)

other crops. Some owners in the Middle Parnaíba have started to require rental payments, or a deposit on them, before ceding the land. Renters complained that this made it difficult for them to rent land.¹

Preparing the land. After the rental agreement is made, the renter proceeds to the task of preparing the land for burning. The land usually has four or five years of secondary growth ("capoeira"); primary forest is rarely cleared in the project area. Preparation of the land for burning takes about two to four weeks, depending on the size of the parcel; outside labor is rarely used, though labor exchanges are frequently made with neighbors. The burning takes place in August and September, after which there is one or two months of waiting before commencement of the task of clearing and fence construction. During this slack period, the farmer will often harvest the manioc from a previous year's plot.

2.12 The clearing and fencebuilding task takes place in November and December. The fencebuilding is an onerous operation, requiring complete enclosure of the plot each time it is cleared.

¹The rural labor union in Picos assisted one such renter by providing a third-party guarantee to the landlord that it would pay the rent at harvest if the renter defaulted; the landlord in question accepted this guarantee in lieu of the advance payment.

This practice of fencing in the rental plot is characteristic of the extensive livestock system where livestock owners typically do not fence in their cattle. Fencing in of crops is not found in the perennial-cotton-growing region of the state, or in the other states of the Northeast outside Maranhão. In contrast to most other agricultural areas of Brazil, those with crops provide the fencing rather than those with livestock. Instead of fencing livestock in, landowners have their tenants fence them out.¹ The fence must protect the crops against smaller animals as well as cattle--mainly pigs and goats. The wood members of the fence are therefore densely woven and the fence stands about seven or eight feet high, looking like a stockade. The work of building the fence can take as much as one month.²

¹It is not only crops that have had to be fenced in against the cattle in Piauí. The national highway department has fenced in the four national highways that traverse the state, resulting in miles of "free" perimetral fencing for landowners with road frontage. In the Picos area, the hottest part of the state, fencing in of the highways has been particularly necessary. During certain months of the year, when the nights are cooler than usual, the cattle seek out the asphalt still warm from the day, and sleep there.

²Extension agents at the São Pedro regional extension office (Middle Parnaíba) calculate that it takes about 15 man-days to fence the perimeter of a one-hectare plot.

2.12a When the renter moves on at the end of the crop cycle, his plot reverts to pasture and brush and the fence is no longer needed. The renter is not able to dismantle the fence, however, and use the wood or sell it. The fence typically reverts to the landlord, who allows it to fall apart and makes use of the wood for other purposes. The renter receives no compensation for this investment. (Article 95, Section 8 of the Land Law of 1964 requires that compensation be paid for such investments by renters.)

2.13 From the landowner's point of view, this pattern of shifting cultivation and "wasteful" fence investment can be seen as an efficient use of resources at the farm level--especially for the absentee landowner typical of Piauí. In some ways, it is an environmentally efficient system as well. With very little investment, a property can yield an income from crops, cattle and wood in a way that--contrary to how this system is often portrayed--does not use up exhaustible resources. Without resorting to the use of purchased fertilizer, one protects the soil by liberal fallow periods, by the leaving in of stumps whose weed growth and root system provides protection from the intense sun, wind and rain, and by soil enrichment resulting from the ashes of the burning process, the pasturing of animals, and the fixing of nitrogen in the soil by the interplanted bean crop. The system generates a constant supply of wood for firewood, charcoal and fencing, basic

necessities in such an economy, without requiring the destruction of primary forest cover; the wood supply is a by-product of the secondary growth following clearing. The system also allows for the complementary production of livestock with crops, again with little need for cash outlays or investment, aside from the purchase of the animals themselves. Any intervention by a development project in this area has to adapt itself to the economic rationality of this system for the landowner.

2.14 Another salient aspect of the annually-shifting cropping patterns in the Parnaíba areas is that there is not a slack employment period concentrated in the dry season. Because renters must burn and clear their land every year--and build a fence as well--the slack periods of work during the dry season are not that long. The period after burning and before clearing, together with those between weedings, amount to about four months a year. Since these periods occur in month-long segments, it may be more difficult to arrange a block of slack-season employment--as in the case of farmers who seasonally migrate.

Planting. Planting starts in January after the rains commence. Farmers interplant their rice with corn and beans and, where soil conditions permit, manioc and annual cotton. Women and children work in the planting, as well as the weeding and harvesting.

Purchased inputs are rarely used, except for an insecticide solution (Aldrin) with which the rice seeds are treated before planting. The landowner typically does not participate in the decisionmaking about what crops to plant and how; he supplies no inputs except cash advances, as discussed below (paras. 2.19-2.21). Planting is done with a planting device called a "matraca", except where the earth is hard, in which case the hoe is used. The matraca is used only by the men; women and children use the hoe even where the earth is suitable.¹

2.16 Renters almost universally use their own seeds, retained from the previous years' harvest--with the exception of seeds for cotton (see following paragraph). Even those renters working with bank credit and extension from the INAN project used their own seeds. The project's extensionists promote the use of improved seed, or at least, selected seed. Improved seeds are rarely available, however, and farmers prefer to select their own seeds rather than make cash outlays for them. Even when families run out of food supplies before planting time, they will not eat the rice they have set aside for next year's planting.

¹The matraca has been available in the Middle Parnaíba region for about four years. It costs about Cr\$120 and lasts two or three years. It was only recently introduced in the Rio Grande do Norte project area, where it was considered to represent a substantial improvement over the hoe.

2.17 Cotton seeds are frequently traditionally acquired by renters from the "fiadeiras"--women who make yarn from raw cotton by a rustic home procedure. The fiadeiras or their families also usually rent small parcels of land. They rarely purchase their raw material--selecting the best cotton from their family's plot for spinning, or receiving the cotton from someone who wants the finished yarn in return. In the latter case, the fiadeira receives half of the spun yarn as payment, and sometimes the seeds as well.

2.18 This selection process, it would seem, would result in good-quality selected seed, in lieu of the non-existent improved seed. The proposed project might assist this seed selection and purchase process, instead of promoting the purchase of seed from unreliable private or state suppliers, and given the reluctance of farmers to make cash outlays for seed. Assistance to the fiadeiras might be given so that they could improve their equipment and productivity. Credit might be given to finance their working capital costs, so that they would be able to expand their incomes and production. Also, the fiadeiras might be used by the project as intermediaries for the distribution of selected or improved seed. This might bring about better adoption rates, as well as increases in the incomes of fiadeira families, who are often among the poorest.

Credit. After the planting takes place, two or three weeding periods are required, between which the farmer has two or three slack periods of 30 or 20 days each. During this time, he usually asks for advances from the landlord, either in cash or in staples, or he sells his crop "in the bush" to a merchant to obtain cash. In such cases, the price he receives may be half of the price he would receive if he could wait until harvest time.

2.20 When borrowing from the landowner, the tenant typically pays 10% a month interest, though some renters with "good" landlords reported paying "only" 5%. Some renters also reported paying back the landlord for staples advanced before the harvest at a rate of "two for one"--one can of kerosene, for example, would be paid back with two. If one assumes a repayment period of three or four months--i.e., borrowing takes place after planting and repayment after the harvest--then the implicit interest rate of these transactions is about 30% a month. If one compares these rates of interest with the 13% charged by the banking system for small working-capital loans to farmers--not to mention the 10% of POLONORDESTE--it would seem that considerable decreases in these tenant-farmers' costs could be achieved simply by making bank credit available to them.

2.21 That landowners are so important in the supply of credit to tenants, at high interest rates, would suggest that they would lose income from a transfer of the credit function to the

banks. It is not surprising, then, that landowners are reluctant to give the letters of permission legally required by the banks for their tenants to have bank credit. Though the extension service under the INAN and POLONORDESTE projects in the Middle Parnaíba and the Delta have succeeded in persuading some landowners to give the letters of permission, it is not clear whether these few cases represent "the first olive out of the bottle" or a small minority of landowners with no financial interests in lending to their tenants.¹ In order to assess the potential impact of a credit program on tenants, the probability of obtaining permission for tenant credit from a significant number of landowners should be more carefully investigated during project identification.

Babaçu. Tenant families in the Parnaíba areas typically supplement their income by collecting and cracking the coconut of the babaçu--an activity carried out exclusively by the women of the household. The babaçu harvest takes place during the dry season, when plots are being burned and cleared and fences built. Since women do not

¹In the Middle Parnaíba, about 150 loans out of 300 were made to renters under the INAN program during 1978, all of which would have been accompanied by the landowner's letter of permission. In the Delta, about 30 loans were made to sharecroppers under the POLONORDESTE program.

participate in these stages of the crop cycle, they are able to devote full time to babaçu.¹

2.23 The babaçu palm grows naturally and produces a small coconut that yields from two to eight nuts about the size and shape of the Brazil nut; the nuts are sold for extraction of their oil. The babaçu-breaker cracks the coconut by holding it against the blade of an upended axe--the handle of which is secured under a bent leg in a seated position--and whacking it with a wooden mallet. The axe and the mallet are supplied by the worker. The coconuts are almost impossible to break by machine without shattering the nuts (though the Japanese are said to have recently invented a machine that accomplishes the task). Partly for this reason, babaçu is not yet grown commercially, though there are plans to initiate two or three integrated babaçu projects in Piauí and Maranhão, which would include plantations and the processing of oil and other byproducts.

2.24 Babaçu palms grow wild and abundantly in most of the Parnaíba areas and produce for up to 100 years; they propagate so readily that they are never planted, and indeed are often considered

¹Actually, the causality may be the other way around. Because women are occupied with babaçu-cracking during the dry season that is, they are therefore not available for clearing work. Though it is usually said that women do not participate in clearing because it is heavier work than planting, weeding and harvesting, it was found that women in the Picos region, where there is no babaçu, were also participating in the clearing parts of the crop cycle.

a difficult weed by tenant farmers. Renters and sharecroppers on properties with babaçu palms are expected to collect and crack the babaçu coconut, and must sell the nuts to the landowner. The owner retains from 50% to 70% of the income from the nuts--buying them from the tenant at Cr\$2 to Cr\$4 and selling them at Cr\$7 or Cr\$8.¹ A woman who works a full day cracking babaçu will produce about eight kilograms of nuts--resulting in a daily wage of Cr\$16 to Cr\$28, which is considerably below the prevailing daily wage of Cr\$30-Cr\$35. Despite the low wage for babaçu-cracking, this activity represents an important source of income for a large share of the farm families in the Parnaíba areas.

2.25 The coconut shells that result from the babaçu-cracking process may be kept by the worker for use as fuel, without charge by the landowner. These shells, in fact, are said to produce a high-quality coal; the integrated babaçu projects now under way plan to produce and export this coal. That the landowners do not charge for the byproduct coconut shells is probably indicative of the relative abundance of fuelwood in the Parnaíba areas, which results from the system of long fallow periods and annual clearing

¹ Some extensionists in the Delta cited the importance of the babaçu income to landowners as one reason for the shortage of land to sharecrop. They suggested that landowners were loathe to grant larger parcels to their sharecroppers, who then might spend less time in babaçu extraction.

of scrub. This byproduct might be marketed in the Picos region-- only three hours away from the Middle Parnaíba by paved road, where there is a shortage of wood for fuel.

2.26 Despite the important role that babaçu plays in the incomes of poor rural families and in the employment of women, it tends to be neglected in the planning of development projects for this group. The same is true of the other naturally occurring palms, like carnaúba and tucum. The wax of the carnaúba and the fiber of the tucum are, like babaçu, important sources of income for poor rural families. Whatever the palm, the collector must render at least half the income from the product to the owner of the trees. Most of the rural poor do not own land, so they do not have their own trees.

2.27 It is ironic that the babaçu palm--a costless investment that can yield a lifelong income--is looked at by tenants as an annoying weed when it occurs on their plots. This, of course, is a result of the fact that the land does not belong to them, and that they will not be able to earn from a tree growing on their plot--or, more accurately, that there are many other trees outside their plot from which they will be able to earn at the same rate. The proposed project should look into the possibilities of increasing the income traditionally earned by rural families from babaçu and other natively-growing palms. Markets for babaçu-shell fuel, for

example, might be sought in wood-scarce areas like Picos. Since the babaçu plant propagates so easily and yields so rapidly, moreover, efforts might be made to designate and develop communal babaçu plots on state, municipal or church-donated lands. Or the state and the municipality might themselves develop or add to trees on existing public lands in areas where low-income families are concentrated, allowing these families to break and sell the babaçu nuts directly to merchants.

2.28 In any land redistribution effort that would take place in the babaçu-producing area, the new landowners would be guaranteed a minimal income from the start, a major advantage for a land redistribution project. Thus the widespread existence of the babaçu in much of the project area, with a large rural tenant population already collecting and cracking it, makes it possible to envision a redistribution program that would minimize the amount of public-sector tutelage that such programs usually entail, and on which they usually founder. (The land-distribution topic is discussed further in paras. 2.61-2.66.)

"Tractorized" land. In the Delta and the Middle Parnaíba, the partially-cleared burnt plots of the renters coexist with a considerable number of parcels of stumped land, called "campos"

(fields).¹ Alongside the hoe cultivation of the plots "in the stump", the campos are worked with tractors and, in a few cases, are harvested with mechanical harvesters. The intermediate technology of animal traction is not to be seen, and hence tenants also refer to the stumped parcels as "tractorized land" ("terra mecanizada"). Crops are planted in rows in the campos, if not in pure-stand rice, in comparison to the "tossed salad" of the plots on unstumped land.² The fields are farmed for some years in succession, and fertilizer and other soil additives are not commonly used in the Middle Parnaíba--at least in the case of renters. Rents for campos are 50% higher in the Middle Parnaíba than on land in the stump--347 kg. of rice per hectare as opposed to 231.³ Yield estimates for pure-stand rice on stumped land in the Middle Parnaíba are 1,900 kg. per hectare, which gives a rent

¹The non-stumped plots don't have a name like "campo", but are referred to as "in the stump" ("no toco"). When you ask a tenant what kind of land he works, he says, "in the stump, I have so many hectares," or, "I have so many hectares of campo."

²Extensionists commonly use this term when criticizing the traditional system of planting seeds without concern for making rows.

³That is, three "quartas" per "linha". A quarta is 35 kg. and there are 3.3 "linhas" in a hectare.

of approximately 18% of total production.¹

2.30 One would expect landowners to be working their stumped land directly with salaried labor while continuing to rent out their unstumped lands--just as the owners of irrigated rice lands in the Delta work their irrigated land directly and sharecrop out the unirrigated parts.² Because of the investment required in stumping, that is, such lands are usually treated with more care. The phenomenon of stumped land worked by renters with the same contractual insecurity and lack of input use as that prevailing on non-stumped lands, in short, is perplexing. Without further investigation, it is not possible to explain why landowners have invested in the stumping of their land and then treated it so casually. That rents are 50% higher than non-stumped land suggests that the returns to stumping and tractor use are high; but the fact that soil protection measures do not seem to be used also suggests

¹At first glance, it would seem from these figures that rents might be a higher share of total crop value for stumped vs. non-stumped land. On non-stumped land, that is, there is production of corn, beans, and manioc which do not enter into the yield or rent calculations, thus making the rent a considerably lower share of total production value than the 231 kg. or roughly 22% of rice production charged. It is not possible to make an adequate comparison, however, without yield figures for interplanted rice on stumped land or for pure rice on non-stumped land, and without knowing the shares of total production value attributable to the non-rice crops.

²It was not verified what proportion of the stumped lands in the Middle Parnaíba were worked directly rather than rented.

that these returns may start to fall off rapidly after some years.

2.31 The casual treatment of stumped land in the Middle Parnaíba may result in part from the availability of highly subsidized credit for tractor acquisition and of subsidized tractor services. The extension service has promoted tractor use among medium and larger farmers in the Parnaíba areas for some time, and is now promoting the use of mechanical rice harvesters on farms over 200 hectares. At the same time, PROTERRA and POLONORDESTE credit have been available for tractor purchase since 1972 at even more subsidized rates than previously--7% interest until 1977, and 10% thereafter, with five-year repayment periods. With rates of inflation between 20% and 40% a year during this period, such rates were highly negative in real terms and hence the ups and downs of tractor credit were highly correlated with tractor sales.¹ Added to the interest-subsidy effect is the common arrangement between branch banks and large farmers of refinancing the latter's outstanding debt from time to time. A Bank of Brazil executive in Brasilia complained that because of this highly subsidized credit, farmers were scrapping their

¹John H. Sanders and Vernon W. Ruttan, "Biased Choice of Technology in Brazilian Agriculture," Chapter 10 of Hans P. Binswanger, et. al., Induced Innovation: Technology, Institutions, and Development (Baltimore: Johns Hopkins University Press, 1978), pp. 276-296.

tractors and buying new ones before they needed to, not willing to invest small (unfinanced) amounts on repair.

2.32 More recently, the state input-supply company CIDAPI has offered tractor-rental services to larger farmers at rates that are said to be subsidized.¹ The renters of stumped land in the Middle Parnaíba usually reported that their tractor services were from CIDAPI; more likely than not, the influence of the landowner would have been necessary to secure the services. An environment of free-and-easy tractorization, then, may explain in part why landowners have not been more careful of their stumped land.²

Animal Traction. Subsidized tractorization policies have probably also contributed to the fact that one sees no intermediate forms of land preparation between the hoe and the tractor on the Parnaíba landscape. The complete absence of animal traction in these areas

¹In the Delta region, CIDAPI charges Cr\$130 per hour for smaller tractors and Cr\$220 for larger tractors. Price information for the Middle Parnaíba was not obtained, nor was it ascertained whether these rates are subsidized.

²The above-cited article by Sanders and Ruttan analyzes some of the adverse effects of Brazil's policy of subsidizing tractors on factor allocation in agriculture--mainly, the adverse impact on employment in agriculture, the disincentive to the intermediate phase of animal traction, and a shifting of the comparative advantage in certain crops from the Northeast to the South.

is even more curious when one finds that ploughing and weeding with animals is common practice in the Picos region, only 200 kilometers away from the Middle Parnaíba. One reason that animal traction is found only in Picos is that the region produces the tree cotton characteristic of the most arid parts of the Northeast interior. In the other important tree-cotton-producing areas of the Northeast, animal traction is also common. That tractorization policies have not succeeded in supplanting animal-drawn plows in these areas is perhaps a result of the perennial nature of arboreal cotton, which requires land preparation only once in five years. Animal-drawn plows, moreover, are very important for weeding as well as plowing in the tree-cotton areas, and perhaps can maneuver better than tractors on fields with the tree-like cotton plants.¹ Though smaller tractors and tractor-drawn plows could conceivably allow for the same

¹The use of animal traction in weeding represents a major advantage for small farmers, since weeding requirements are one of the principal labor bottlenecks in the tree-cotton crop cycle. The importance to small tree-cotton farmers of economizing on labor for weeding was revealed by their resistance in the RURALNORTE project to the traditional recommendation of extension agents of narrower spacing of the cotton plants within rows, on the grounds that such spacing increases cotton yields. Farmers resisted because they were accustomed to weeding with the ox-plow in both directions--i.e., between rows and across them. The narrower recommended spacing within rows would have allowed them to plow only between rows and not across them. The remaining weeding between plants within rows would have had to be done by hand.

flexibility as the ox-drawn plow, Brazilian policy has not stimulated the production of smaller tractors.¹

2.34 Another reason that animal traction is conspicuously absent from the state except for Picos is that Picos is the only subarea where the majority of small farmers are small property-owners--about 75% of the farmers with less than 50 hectares (Table 7). In the rest of the state, the small farmers are overwhelmingly landless, not knowing from one year to the next where the next plot will be. Clearly, an investment in traction animals would be an impractical and risky one under such conditions, even if landowners permitted their tenants to have such animals. (Landowners typically do not permit tenants to have large animals.) For small property-owners, however, the investment in animals makes more sense; indeed, the return to the adoption of animal traction for tree-cotton cultivation has been found to be high.² Finally, one finds in Picos

¹Sanders and Ruttan report that Brazilian production of tractors of less than 40 hp declined steadily from 1963 to 1970, when it ceased altogether. Light tractors started to be produced again by one manufacturer in 1975. Op. cit., p. 281.

²Studies by a group at the Federal University of Ceara, used for the appraisal of the RURALNORTE project, showed a return of 35% on the investment in traction animals for the tree-cotton cultivation system. On the basis of this projected return, the RURALNORTE project included financing for traction-animal acquisition by small farmers in the tree-cotton growing area of the state.

that not only are traction animals used by farmers, but there is a rental market for them--a rather unusual phenomenon. The unique existence of animal traction in the Picos region, in sum, would seem to be a result of the crop system combined with the existence of a critical mass of small propertyowners.

2.35 The case of animal traction illustrates the problems involved in trying to make developmental interventions in the Parnaíba areas. Animal traction is a good candidate for financing in a small-farmer program: returns to the investment are high, the technology is familiar, it is suited to small farms, it is a once-and-for-all technological change that is easy to administer, and it allows farmers who are completely reliant on family labor to expand their area under cultivation.¹ But it is not possible to facilitate such an investment where farmers do not own their land, are not able to rent more than they presently do, and have no certainty about where they will be working from one year to the next.

The shortage of land. One of the most frequently voiced concerns of tenants in the project area is "the shortage of land to rent."

Extensionists providing credit and technical assistance under the

¹ Animal traction is used on 9% of the farms in the Northeast, and tractors on 0.6% of the farms. Outside the Northeast, animal traction is used on 43% of the farms, as compared to 4% with tractors. Data is from IBGE, Censo Agrícola de 1970, as cited in PREALC, Estrutura agraria y empleo en el nordeste del Brasil, PREALC/146 (May 1978), Table II-3.

INAN program to low-income renters in the Middle Parnaíba confirmed these scarcities. Renters receiving bank credit for the first time, they said, did not increase the area they planted--contrary to the extensionists' expectations--because of the difficulty of finding additional land.¹

2.36a The shortage of land to rent is not easy to explain. It is not associated with high population densities or land prices. Densities in the project area are on the low side in relation to other Northeast states (Table 5) and land prices are the lowest in the Northeast, even lower than in the lightly populated western area of Maranhão. In 1974, average per-hectare prices for Piauí land were about 30% of land prices in the semi-arid "sertão" of the other Northeast states, and about 70% of prices in lightly-populated western Maranhão.² Similarly, land-rental prices in Piauí are particularly low in relation to other Northeast states. Sharecrop and rental prices amount to 20%-25% of rice production and thus to even less of the value of total production on any particular plot (para. 2.09). Finally, the predominance throughout the project area of the liberal fallow system of five years for one year of cultivation--uncharacteristic of the rest

¹The constraint on increasing cultivated area may also be a peak-period labor constraint. Daily wage rates, normally Cr\$25 to Cr\$35 a day in the rice-growing areas of the project area, rise to Cr\$60-Cr\$80 during the planting and harvesting season. Many renters do not hire outside labor.

²Not to mention the agreste and zona-da-mata areas, of which Piauí land prices were, respectively, 11% and 5%. SUDENE/IBRD Survey.

of the Northeast--also suggests that population pressures on the land are not that great. The scarcity of land to rent, in sum, does not seem attributable to a scarcity of cultivable land or to a high density of rural population.

2.37 The scarcity of land to rent is particularly puzzling in the Middle Parnaíba, where complaints of shortage seemed most acute. This subarea has the lowest rural population density in the project area--11 rural persons per km² of land in farms (Table 5). Even the overall density for the state of Piauí, which is weighted downward by the lightly populated southern third of the state, is still slightly higher than that of the Middle Parnaíba--12 per km². Also, the proportion of unutilized cultivable land on farms in the Middle Parnaíba is higher than in the other Parnaíba areas--61% vs. 39% and 26% for Delta and Teresina (Table 11).

2.38 A possible explanation of the scarcity of land to farm in the Parnaíba areas is the availability of large amounts of highly-subsidized credit for livestock investment over the last several years, combined with the increasing activity of the rural labor unions in attempting to enforce the provisions of the land law regarding rental contracts (paras. 5.07-5.14). The very existence of such recourse for the tenant is a new phenomenon in the Northeast and it has made landowners quite leery of rental arrangements. The scarcity of rental land may also relate to the fact that the Piauí landless, as noted above, are not as nomadic a population as one often finds with shifting agriculture. Their search for land seems

more limited to the small area in which they live. The scarcity of rental land and its implications for the project are discussed further in the closing section of this chapter (paras. 2.54-2.66).

Picos

2.39 The most striking change in the landscape when one travels from the Middle Parnaíba to the Picos region is the fences. The high, stockade-like wood fences give way to frail-looking fences with two or three strands of barbed wire strung on widely-spaced stakes. Perimetral fences become commonplace, as owners fence in their cattle, rather than relying on agriculturalists to fence them out. There is more stumped land, and the same parcel of land is cultivated one year after another without rest, though fertilizer is not used.¹ One of the most significant differences between Picos and the rest of the project area, as noted above, is the relatively large number of small propertyowners and the less concentrated landholding structure (paras. 1.07-1.08).

¹This is partly because tree cotton makes less demands on soil nutrients than most other crops, especially in its later years. Brazilian research on the response of Northeast tree cotton to fertilizer application has shown that yield increases are not significant.

Tree cotton. Much of the uniqueness of Picos is attributable to its principal crop, tree cotton, and the agro-climatic conditions that facilitate its growth. The cultivation of tree cotton is limited to the Picos region because of its aridity, which makes the region more similar to the sertão of Ceará, Rio Grande do Norte, Paraíba and Pernambuco than to the rest of the project area. Tree cotton is a xerophytic plant, which thrives best under such dry conditions.

2.41 Farmers interplant their cotton with corn and beans. Though the extension service recommends that this be done only in the first year of the cotton tree, many small farmers typically continue the interplanting in some, if not all, of the subsequent years. As in Rio Grande do Norte, the small farmer's reluctance to give up the interplanted crops after the first year of the cotton planting is a common complaint by extension agents--as is the complaint by small farmers about extensionist "harping" on the matter.¹ Cattle are an integral feature of the cotton/beans/corn complex. The cattle are pastured on the crop leavings and the cotton-tree leaves after the harvest, when pastures have started to dry up; this does not damage the production of the cotton tree

¹The issue is whether the expected total return from the small-farm crop system is higher under the recommended planting regime than under the traditional one. The extension recommendation is based solely on cotton yield differences with and without interplanting.

in the following year. On sharecropped farms, tenants are not allowed to have cattle; the landowner pastures his cattle after the harvest on the tenant's plot.

2.42 The five-year cycle of the cotton plant imposes more stability on the agriculture of the region, in comparison to the annual crop regimes of the Parnaíba area. Because one must cultivate the same piece of land for at least five years, investments in stumping and fencing become worthwhile, and there is therefore relatively less clearing of scrub every year.¹ Correspondingly, there is also a shortage of wood, which explains to a certain extent the barbed-wire as opposed to wood fencing, as well as a recent municipal ordinance in Picos requiring the tethering or enclosure of all small animals. (The strands of barbed wire are too far apart to keep out pigs and goats.)

2.43 Tree cotton is the only perennial crop of importance in the state of Piauí cultivated by small farmers, who produce virtually all of the area's cotton--either as small propertyowners or sharecroppers. Cotton, in fact, has been characterized as a "democratic" crop in the Northeast, precisely because of its suitability to small-farmer production. Thus the large number of small propertyowners and the less concentrated land distribution,

¹Not only because of the five-year life of the cotton tree, but because new trees are planted in the wake of old ones on the same plot with no intervening fallow period.

unique to Picos, can be explained in part by the unique presence of tree cotton. In contrast to the tree-cotton-producing areas of other Northeast states, moreover, that of Piauí does not have the characteristic large, self-sufficient "fazendas" with numerous tenant populations and comprehensive dependency relations between landlord and tenant. The "democratic" propensities of the tree-cotton culture, then, may have had more of a chance to develop in Picos than elsewhere.¹

Sharecropping. Sharecroppers in Picos tend to be allowed to farm one plot for more than one year, though their contracts are not written or multi-year. As in other cotton-producing areas, they will often be evicted by the landowner before the five-year cycle is completed, and without compensation for their investment in establishing the cotton trees. In such cases, the landowner

¹Actually, one is also tempted to attribute the more equal distribution of Picos landholding to the undesirability of the area to large landowners relative to Teresina and the Delta. The latter areas have much more desirable rainfall conditions, are near the state's two major cities and border its principal waterway and its coast. Picos, in contrast, is stuck in the interior of the state and is part of the drought-stricken sertão, even though it has areas of good soils. Its locational advantage at the hub of the federal highway network of the Northeast interior would be only recent. When landholding patterns were being formed, the advantage of the fluvial and maritime transport of the Parnaíba areas would have been much more significant.

usually decides to pasture his cattle on the cotton plants of the sharecropper's plot before the harvest, calculating that his share of the remaining harvests of the trees will not give him enough cotton to warrant withholding the planted area for forage. In these instances, the sharecropper can lose his subsistence crops as well as the cotton.¹

2.45 The sharecropping system of Picos is significantly different from that of the tree-cotton regions of Rio Grande do Norte and Ceará. In the latter states, sharecroppers pay one half of their cotton production to the landowner, and sometimes a third or a fourth of the corn and bean production. The landowner provides all inputs, and delivers the land to the sharecropper already planted with the cotton. (The landowner may hire the sharecropper to do the planting as a wage laborer, for reasons explained in para. 2.46). In Picos, in contrast, sharecroppers plant their own trees, get no inputs from the landowner except for stakes, barbed wire and staples for fencing, and pay 25% of their cotton and none of their subsistence production to the landowner. As in the other states, however, the Picos landowner requires that the sharecropper market his (the

¹Article 95, Section 1 of the Land Law of 1964 stipulates that tenancy contracts can be terminated only after the harvest, even in cases where the harvest is delayed. Section 8 of the same article requires that tenants be compensated for any investments made in the land.

sharecropper's) own cotton through the landowner, and plays an important role in advancing credit to the sharecropper (typically at rates of 10% per month).¹

2.46 That the landowner in Rio Grande do Norte plants the cotton trees with salaried labor and then hands the land over to the sharecropper is a recent phenomenon resulting, in part, from the fear of actions by the rural labor unions. The unions have become increasingly active since 1972 in intermediating cases between landlords and peasants, usually involving evictions without compensation and the release by the landlord of his cattle into the tenant's plot before the harvest (paras. 5.07-5.14). The unions have sought to enforce the land-law provisions requiring that evicted tenants be compensated for any investments they have made in the landlord's property, including the planting of perennial crops that have not completed their producing life. In Rio Grande do Norte, landowners are dealing with this possibility of enforcement of the law by planting the perennial crops themselves with salaried labor (often hiring the sharecropper himself as a daily laborer just for this task). Thus their legal obligation to the tenant is for

¹There is some confusion as to whether the obligatory sale of cotton to the landlord is more prevalent in the Picos area than sales to third-party intermediaries who buy the cotton in the bush.

no longer than the annual cycle of the crops interplanted between the cotton trees and the cotton harvest of that particular year. It is not clear why the landowners' fear of having to pay compensation to evicted sharecroppers would not have produced the same results in Picos as it did in RN--especially considering that the union there is an active one.

Other crops. The Picos region has some of the better agricultural lands of the state. It is not clear to what extent the good soils of the Picos region are occupied mainly by cotton. Cultivation of tree-cotton in the other Northeast states occurs mostly on poor soils. Yet the yields of the Picos region do not seem significantly better than those of the other states (about 200 kg. per hectare in the third and fourth year).¹ If cotton has the same yield on poorer soils, then it may not represent the best economic use of Picos' good

¹Information on tree-cotton yields in the Northeast varies wildly. EMBRAPA data on tree-cotton yields under traditional interplanted cultivation do show significantly greater yields in Piauí over the other states, but the yields reported are about double the 200-kg. figure reported to the Bank mission. In the third year of the cotton, the EMBRAPA data show 450 kg. per hectare for Piauí, in contrast to 350 for Pernambuco, 300 for Paraíba, 280 for Rio Grande do Norte, and 220 for Ceará. EMBRAPA, Pacotes tecnológicos para o algodão arbóreo (for the various states cited), 1974-1975; as cited in PREALC, Estrutura agrária y empleo en el nordeste del Brasil, PREALC/146 (May 1978), Table II-11.

soils, in which case the possibilities for more profitable crops might be investigated.

2.48 Aside from tree cotton, there has been considerable cashew planting recently in the Picos area. There is also an area of intensive dry-season garlic and onion cultivation in the bed of the Guaribas River. Otherwise, the crops produced are the same as those of the rest of the state--corn, beans and some mandioca. Of the cashew-tree production, only the nut is marketed while the fruit is left to rot on the ground; the fallen fruit is also good feed for the cattle. Farmers say that the fruit is not worth marketing, though it is found in the market in other areas, or is made into juice, sweets or preserves. This neglect of the cashew fruit is actually of benefit to tenant families, who are allowed to collect and eat it without charge by the landowner.

2.49 Assistance to small-farmer cashew cultivation under the proposed project would be desirable not only because of its profitability, but because of the possibilities for additional employment in the home production of juice, preserves and sweets for which EMATER already has a program in the Delta.¹ In that

¹This program has not gone very far for lack of resources, as explained in paras. 4.08-4.10. But the extensionists are informed of the techniques of home production from the cashew fruit, and have already successfully promoted such production in a few cases--usually financing the purchase of the simple equipment needed out of their own pocket. The techniques are described in the EMATER promotion manual, "Industrialização doméstica do pendúnculo do caju."

cashew is a perennial crop, care should be taken that its promotion does not exclude small farmers because of insecurity of tenancy or lack of access to investment credit.

2.50 Onions and garlic are grown on the banks of the Guaribas River near the city of Picos in a labor-intensive minifundio system that uses an organic fertilizer made from the carnaúba palm. If Picos were to be included in the project area, expansion of this garlic production should be considered. Garlic is a small-farmer crop that is highly labor-intensive and very profitable. From a demand point of view, conditions for expansion are also excellent. Brazil imports 45% of its garlic, and in 1976 the Ministry of Agriculture gave priority to achieving self-sufficiency in garlic production. Piauí is considered to be a traditional producer and to offer good conditions for expansion of production. At the same time, Piauí accounts for an insignificant part of domestic production, most of which (85%) comes from the southern states and Minas Gerais. Garlic, in short, has a unique constellation of advantages for inclusion in a rural development project for small farmers.

2.51 The town of Picos and the area around it is larger and busier than usual for the interior of Piauí. The pockets of good soils in its hinterland are only part of the explanation. Picos lies at the hub of a federal road network that connects Teresina, Floriano, the south of the state and points westward to Fortaleza,

Recife and Salvador (BR 20, 316, 407 and 230). As in other cotton-producing areas of the Northeast, the cotton-ginning industry has also contributed to town development. Finally, there is a large number of small and medium landowners in the Picos area, in contrast to the rest of the project area. Along with the relative absence of large landowners overseeing large tenant populations, this seems to make for a more vigorous community. The rural labor union in Picos, for example, is one of the most active in the state.¹

According to the Federation of Rural Labor Unions in Teresina, the Picos union is a strong one because the large contingent of small propertyowners in the area has resulted in an atmosphere of greater independence and aggressiveness than exists in other areas where agriculture is dominated by tenant labor. Interestingly, sharecroppers rather than propertyowners make up the majority of union members in Picos.

Conclusion. The comparison between Picos and the rest of the proposed project area raises the question as to whether one could avoid the obstacles to doing a traditional POLONORDESTE project

¹Rural labor unions are comprised of small propertyowners (up to 50 hectares), in addition to tenants and landless laborers. Since many of the smaller propertyowners are also sharecroppers, this makes for more of a commonality of interests between small propertyowners and tenants than one might expect. The labor unions are discussed in paras. 5.01-5.20.

in the Parnaíba areas by limiting the project to Picos. Though the good soils and less concentrated landholding structure of Picos are an argument for concentrating the project there, the target population of 9,000 small propertyowners may not be large enough to justify a Bank-financed POLONORDESTE project. More important, visits to the Picos region suggest that the sharecropper population may be considerably underestimated--perhaps closer to 50%, rather than 25%, of total small farmers in the area. Though the landless population of Picos may look less overwhelming in comparison to the rest of the project area, in sum, it is still too important in relation to the other Northeast states to be ignored in such a project.¹

2.53 The best lesson of the Picos-Parnaíba comparison may be that the conditions of the Picos area are particularly favorable to the successful initiation of a land-transfer program. A tradition of small propertyowning agriculture is already rooted in the region, and soils are good. Considerable infrastructure and external

¹Appraisal of the RN project, also located in the arid tree-cotton regions of that state, estimated that sharecroppers were 36% of farmers with land less than 200 hectares--a share that was later found to be considerably underestimated. One of the conclusions of the midterm evaluation of that project, two years after its commencement, was that it was not possible to have the desired impact on the low-income population of the project area because of the inability of the project to reach sharecroppers.

economies already exist in the form of the road network, the ginning industry, and the services offered by the interior town that is the center of the region.

Implications of the farm system for the project

2.54 For someone who has worked on rural development problems in other Northeast states, Piauí seems mercifully free of some of the characteristics that have been said to explain the persistence of poverty in these other places. Whereas aridity and poor soils plague the agriculture of the other Northeast states, the proposed project area in Piauí has more adequate rainfall (except for the Picos region), areas of good soils, a 500-kilometer strip of land bordering the Parnaíba as well as good lands bordering the tributaries of that river, and the alluvial soils of the Delta where the river flows into the sea. Whereas other such pockets of favorable agro-climatic conditions in the Northeast are often characterized by high population densities, the proposed project area--though encompassing the greatest rural population concentrations in the state--still has relatively low population densities compared to the rest of the Northeast. Whereas other developable areas of the Northeast often lack basic infrastructure and services, the proposed project area is already served by some major trunk roads, and is almost completely electrified as a result of the Boa

Esperança hydroelectric project and the state's rural electrification program.

2.55 Whereas land prices tend to be high in other parts of the Northeast where soil and climatic conditions are better and rural populations are concentrated, land prices in the proposed project area are a fraction of what they are in analogous parts of the other Northeast states. Finally, whereas the landless farmers in other Northeast states are often bound to their landowners in a feudal dependency relationship, which makes it difficult for a development project to intervene, the relationship between landlord and tenant in the proposed project area seems to be a more "modern", less involved one. Tenants are left to plant what they please and how, unremunerated labor services ("sujeição") are usually not required by the landlord, the tenant is free to market his share of the crop directly (except in the Picos area), many tenants do not live on the landlord's property and, in general, tenants seem less submissive than in other parts of the Northeast. The project area, in short, has a combination of favorable agro-climatic conditions and a mix of development and underdevelopment that is somewhat unusual for the Northeast. The area seems to be less rigidly set in the ways of poverty, to constitute a less difficult environment in which to do a rural development project.

2.56 Faced with this seemingly more workable constellation of circumstances in Piauí, one is puzzled to find the same structural constraints to development that have come to be associated with the limiting conditions of other Northeast states--the almost complete absence of small propertyowners (except for the Picos region), the widespread plaint of tenants of a shortage of land to work, the dependence of tenants on landlords for credit at high interest rates, despite their more "modern" relationship; insecurity of tenancy contracts, making it impossible for tenants to use agricultural practices that pay off over more than one crop cycle and, finally, the refusal of landowners to sign the letter of permission required by the banks of tenants who want credit.

2.57 Given these structural constraints and the farming system described above, a rural development project like those financed by the Bank in other Northeast states may not be able to have much impact. Attempts can be made to increase the access of tenants to bank credit, as is now being done in the POLONORDESTE project in the Delta and the INAN project in the Middle Parnaíba. These attempts involve the convincing of landowners, on a case-by-case basis, to give the letter of permission to their renters; likewise, bank-branch managers also have to be persuaded to process such applications expeditiously, many of whom simply will not cooperate. Though access to credit may improve the tenant's

condition, it is doubtful that these attempts can have wide impact because of the tortuous process of convincing landlords one by one.¹ Even if credit were granted to tenants on a significant scale, the INAN experience shows that the tenants receiving credit are still unable to produce any more than they have in the past. Either they are unable to rent more land, or their land insecurity prevents them from making investments that reduce peak labor demands (like animal traction) or from making cash outlays for increased hiring of outside labor.

2.58 There are other reasons that the production- and productivity-increasing approach to agriculture, the mainstay of the Bank's other projects in the Northeast, may not work in the proposed project area. The productivity-increasing approach to agriculture assumes that a more stable, intensive agriculture pays off, which may not be the case in the proposed project area, even for small farmers who already own their land. The system of five years fallow for every one of cultivation, that is, is unusual for the Northeast. This liberal fallow system would seem to be a function of the low population densities of the area in relation

¹It would be useful for project appraisal if an assessment were made of the impact of INAN and POLONORDESTE credit on the tenants who have received it, in comparison to small propertyowners who have received credit under these projects.

to the rest of the Northeast, combined with the relatively less developed infrastructure and marketing system of the state--resulting in little economic incentive to intensify agriculture. It is also possible, however, that the soils of Piauí cannot tolerate much more than this five-year fallow system--a question that should be carefully explored during appraisal. One would have expected, for example, that Teresina and Delta, with more than 50% higher rural population densities than Middle Parnaíba, would have had correspondingly shorter fallow periods. Likewise, one would have expected shorter fallow periods to be associated with the smaller proportions of unutilized cultivable land of these latter areas--26% and 39%, respectively, in comparison to 61% for Middle Parnaíba (Table II). Yet the five-year fallow is consistently the rule in all three areas.¹ The system of shifting agriculture, then, may remain the most economic one in the proposed project area for some time--given the quality of land, its relative abundance, and its low price.

2.59 In lieu of an "agricultural" approach to the project area, one might embark on a project strategy that would seek to draw up

¹In order to answer some of the questions posed here, it will be necessary to obtain information during appraisal that allows for some analysis of the variation in fallow with soil quality, farm size, farm management practice, and population density in and outside the project area. The question is a crucial one for the design of the project.

rural wages on the grounds that the structural problems noted above would best be alleviated this way. Indeed, it is not clear why the POLONORDESTE projects have placed so much of the burden for rural development on agriculture--given the highly unfavorable conditions for agricultural development in the Northeast in comparison to the rest of the country, and given the almost untapped potential in the area of small rural manufacturing. The interior areas of the proposed project area, like those of much of the Northeast, are remarkably undiversified in their lack of development of small-scale, light industry. Many basic products, for which there would be an active demand, are simply not available. Extensionists in the Middle Parnaíba, for example, reported that the small zinc storage silos used commonly by small farmers in the Northeast were not available in the area--which lies no more than two or three hours by road from the state capital. (The extensionists had wanted to help tenant-farmers acquire these silos by including them in their working-capital credit.) Similarly, there is a rich array of home-manufacturing activities in the project area, as discussed in para. 4.01, which for lack of assistance do not go much beyond the supply of the immediate household. In addition, the project area already produces several crops--both planted and wild--which offer various opportunities for processing in the area instead of, as is common, outside--mainly, cotton (annual as well as

perennial), cashew and other fruits like buriti, and the various palms (babaçu, tucum, carnaúba). In many ways, these rural-production opportunities seem to represent less constrained approaches to increasing the income-earning opportunities of the rural poor than does agriculture.

2.60 One of the implications of the farming system for the project, then, is that support for the development of light rural industry should have at least as important a role in the project as agriculture. The state already has a vigorous, though small, micro-industry program, to which such a project component could be attached.¹ The extension service and other agencies, moreover, have been working in the area of home manufacture on a very limited scale. This work could be expanded considerably with project support (paras. 4.01-4.10).

A land-transfer program. The highly constrained land situation in the proposed project area would seem to require that a land-distribution program be central to the agricultural component of the proposed project. The project area presents possibilities for such a program that do not exist in other parts of the state nor in the other Northeast states. These more favorable conditions,

¹CEAG Adventures, by Eldon P.P. Senner (Luzilândia: POLOPIPI Press, forthcoming). Also of interest by the same author, Brick-making in Picos.

in turn, make it possible for a land distribution program to be simpler than usual, and endow it with a higher probability of success.

2.62 Much of the farmland of the Parnaíba areas is either uncultivated by its owners or is rented or sharecropped out to tenants under the extensive system described above. Landowner income from these lands comes mainly from the rents of tenants, extensive cattle grazing, and the sale of babaçu nuts collected and cracked by the tenants. Landowners are often absentee. Transfer of these lands to their tenant cultivators, therefore, would not involve a disruption of commercial or directly-administered agriculture. The Parnaíba lands, moreover, are near the state's two largest food-consuming centers, the cities of Teresina and Parnaíba. They are traversed or bordered by an excellent paved road that connects them to the rest of the states of the Northeast, as well as to points west and southwest.

2.63 On a good part of the project-area lands, babaçu grows naturally and its collection and cracking is a traditional and significant income-earning activity of the tenant family. In the case of a land transfer, this income would immediately double, since landowners now take at least half of the income from the babaçu. The babaçu would provide a secure source of income in the first difficult years after

the land transfer, requiring no waiting time and no new inputs, investments, or public-sector assistance. In some areas, other native-growing palms would serve the same purpose, like carnaúba (wax) and tucum (fiber). Lands near the Parnaíba and its tributaries, similarly, would continue to provide a source of additional income and subsistence from fishing--an activity traditionally engaged in by many tenant farmers, particularly in the Delta.

2.64 Unlike many such programs, then, land transfer in the Parnaíba regions could be carried out with relatively little public-sector investment and assistance. The land-receivers already live on and work the land they would receive, and have established marketing channels outside the landowners. They would have an immediate source of income after the land transfer and would not be reliant on the completion of infrastructure projects. The cost of land thus transferred, finally, would be low relative to similar-quality lands in other states that have been considered for agrarian-reform actions in the past. Hence the financial burden of compensation would not be as great as it would have been in these other areas.

2.65 A land-transfer program in the proposed area would have the unusual combination of a strong equity and productivity justification. The Parnaíba lands are one of the state's valuable

natural resources for agriculture, especially those that border the river. Despite this value, and their proximity to infrastructure and consuming markets, the major part of them is not in cultivation--in contrast to similarly-situated lands in other Northeast states, mainly those of the Zona da Mata. A land-transfer program would activate this agricultural potential.

2.66 A land-transfer program in the Parnaíba areas would also make attractive public-sector investment in simple irrigation and flood-control schemes for the Parnaíba waters and its tributaries, investments that could be financed by the proposed project. What is important to the viability of the proposed transfer program, however, is that it would not be dependent on the immediate putting into place of such investments. Even without irrigation and flood-control systems, lands bordering the river would be particularly good candidates for the transfer program. The lands would be divided in long narrow strips, with one of the narrow edges fronting on the river, so that farmers could take advantage--as they traditionally do under these conditions--of the variety of soils and climates that occur on such a strip, as well as of the babaçu trees.¹

¹This model of narrow strips fronting a river has been followed in the successful colonization project run by Padre Anchieta in the south of the state.

Support for land transfer. In striking contrast to other Northeast states, there seems to be a consensus of opinion in Piauí that "nothing can be done" without confronting the problem of land. From branch-bank managers to extension agents to technicians of the state planning agencies--a surprising sameness characterized reactions to the question about what kind of rural development interventions could be made. "Unless you distribute land," it was said again and again, "you won't accomplish anything." "A POLONORDESTE-type project in this area," went another typical comment, "is just one more case of paternalism."¹ Because this consensus of opinion about the need for land transfer does not exist in other Northeast states, it should be seen as a resource that would be of great help in overcoming some of the political obstacles to such a program and assuring its sustained execution.

2.68 An institutional resource that could be drawn upon to assist in the execution of a land-transfer program is the system of rural labor unions in the state, headed by the federation in Teresina (FETAG). The unions and their work is described at length

¹The head of the state INCRA office claimed that anything short of expropriating a two-kilometer strip along the Parnaíba river from the coast to the Middle Parnaíba would be "pissing in the ocean." The INCRA director is himself a large landowner and cattle rancher, though his lands are just outside the Parnaíba areas. That he holds this opinion is illustrative of how widely held is the consensus about the land problem.

in paras. 5.01-5.20. Through their work in administering the government's rural retirement, medical and dental programs, the unions have come to know well and be known in the communities they represent. Through their action in arbitrating disputes between landlords and tenants, they and their legal staff have become highly informed about land problems and land law in the state. It would seem that a land-transfer program would benefit from this existing institutional capacity, its ties to the beneficiary group, and its considerable experience with land questions.

Land and Land Entities in Piauí

3.01 One third of the area of Piauí is estimated to belong to the state--i.e., 8.5 million hectares out of a total of 25.1 million. Most of these state lands are in the southern third of the state, a sparsely populated and little developed area. At the northern edge of these state-owned southern lands, the state also owns a large block of lands, Fazendas Estaduais (State Farms), which is now the subject of a titling and sale program (paras. 3.06-3.08). The state lands have not been surveyed, except for the two municípios of the first phase of the Fazendas Estaduais program (Floriano and Nazaré). The extent and location of state lands in the proposed project area is not known, though it is believed that they are not significant and are scattered. The regional INCRA office in Teresina recently contracted COMDEPI to begin a survey of state lands in the north, but then terminated the contract because of disagreement with COMDEPI's land-distribution policies in the south (para. 3.10).

3.02 About 20% of the state's land is thought to fit into the category of "sobras de data" and "ausentes e desconhecidos", jurisdiction over which lies with the office of the state attorney general (Procuradoria Geral do Estado). The "sobras" are pieces of land that were "left over" in past land titling and

purchase activities--mainly, lands eliminated by the purchaser as not desirable for one reason or another. The "ausentes e desconhecidos" represent lands that have been abandoned by their owners or whose owners are not present or known. A good part of these "absentees" result from the past practice of paying topographers for their services in land; many who received these payments were not interested, and abandoned the land. In order to acquire these lands, a claimant must make a public announcement of his interest; he gains right to the land if the claim is not challenged within 30 days. If the state were to exercise authority over these lands, it would have to follow the same procedures.

3.03 In addition to the state lands, there are said to be some lands in the state owned by the Federal Government, which also have not been identified. The Church is also said to be a significant landowner in Piauí, and has on some occasions donated land for settlement projects, mainly the Projeto Piauí. The extent and location of the Church's landholdings are not known.

3.04 In the proposed project area, then, almost no identification or transfer of public lands has taken place, and it is generally believed that public lands are not significant. COMDEPI's activities in Fazendas Estaduais and in the southern part of the state, described in the next section, represent virtually the only activity of the state in the area of land. As a result of this lack

of knowledge about the location and the magnitude of public lands in the state, and of the growing interest in the landless problem and low-income programs, the state government is preparing a proposal to create a state land institute (paras. 3.16-3.19).

COMDEPI (Companhia do Desenvolvimento do Estado do Piauí)

3.05 COMDEPI is a semi-autonomous state development company created in 1966 under the aegis of the State Department of Industry and Commerce. Its Division of Land Resources is entrusted with the state's two land-transfer programs--the land-titling program of Fazendas Estaduais in the south-central area, and the land-sale program in the south and in two municípios on the east-central frontier (Pimenteiras and São Miguel do Tapuio). The Land Resources Division has a staff of two agronomists, two lawyers, one surveyor, and two topographers. Most of its field work is contracted out to eight surveying teams of three (topographer, "portamira", and "babizeiro").

Fazendas Estaduais. The intent of the Fazendas-Estaduais program was to legalize the title of the squatters already working the land. The original idea was to transfer lands in lots no smaller than 110 hectares; this is the size of the INCRA "module" for cattle-raising, the principal activity of the region. By law, INCRA cannot register land titles arising from transactions that result in parcels

smaller than the module. A COMDEPI-contracted survey of the properties in the two first-phase municipios, however, revealed that 80% of the squatters in the area had less than 30 hectares. Thus COMDEPI decided that the 110-hectare minimum was too high and requested of INCRA an exception to the module limitation.¹ INCRA agreed to the request, and the land-size minimum was lowered from 110 hectares to five hectares.² Land parcels of less than 110 hectares would be transferred without charge, except for the price of the title (originally Cr\$500, now increased to Cr\$700).³

3.07 Those squatters who acquire plots over 110 hectares in Fazendas Estaduais pay a nominal price--Cr\$30 per hectare in five installments over five years without interest. COMDEPI has limited parcel sizes to less than 3,000 hectares, by requiring that

¹COMDEPI's argument to INCRA was made on social rather than economic grounds. It was not argued, that is, that a smaller property in this area and under this program could yield the four minimum salaries that the module is supposed to produce. Rather, it was argued that a large number of small squatters were without financial conditions to manage properties over 110 hectares, and that to replace these squatters with more financially capable owners would result in serious social problems.

²Anyone wanting to work a parcel less than five hectares would have to acquire it through a cooperative.

³State Law 3.271 of 14 December 1973 authorizes the state government to give away public lands in order to attend to a "social, financial, economic or political" problem. This case was considered a social problem.

purchasers be individuals rather than firms. (The law allows individuals to acquire state lands in parcels of up to only 3,000 hectares, whereas firms can acquire up to 25,000 hectares.) Those who acquire land under the Fazendas-Estaduais program are not allowed to sell it for five years, and are subject to losing the land if they do not work it. Within 180 days of acquiring title, they must present a development project prepared by the extension service or a private firm. (It is not known whether COMDEPI enforces any of these requirements.)

3.08 Titling under the Fazendas-Estaduais program did not begin until July of 1978, rather than in March as planned, because of a delay in receiving funds. Until now, COMDEPI has granted 119 titles, 109 of which are for properties less than 110 hectares. By July of 1979, COMDEPI expects to have distributed 181 more titles, for a total of 300 titles. Costs of surveying are said to have run at Cr\$4,500 per kilometer of demarcation.¹ COMDEPI has not yet set titling targets for 1979 nor does it have definite plans for Phase II, after work is completed in the first two municipios. The director of COMDEPI thinks that Phase II should involve the creation of medium-scale cattle enterprises and that

¹The director of COMDEPI says that these costs "are high" because they include the delays caused by disputes between neighboring squatters over claims. "Every squatter turns up with a lawyer and a congressman to back his claim, and that takes a lot of time."

investment carried out by these cattle operations under a Phase-II program could be an important source of employment in the region during the dry-season months.

Land sales. COMDEPI is also managing the sale of state lands in the southern part of Piauí and, to a lesser extent, in the two frontier municípios of São Miguel do Tapuio and Pimenteiras. The purpose of the program is to occupy the state's "empty spaces", and low prices are being charged--Cr\$60 a hectare for the southern lands and Cr\$80 in the east-central region. Individuals can buy up to 3,000 hectares, and no less than 110 hectares; firms can buy up to 25,000 hectares. Payments can be made in three installments over three years, with 40% of the payment being required at purchase; interest is not charged. In contrast to the Fazendas-Estaduais program, COMDEPI is not required to follow the purchaser after title is transferred, nor are there restrictions on the use or disposition of the land. Given the low price charged by COMDEPI, and the large tracts available, the program has attracted many interested purchasers. At present, the number of purchase proposals waiting for COMDEPI action is 2,000.¹

¹COMDEPI is preparing data for the Project Unit on the number of sales made under this and the Fazendas-Estaduais program, and on the size distribution of the properties.

3.10 COMDEPI has come under criticism for its handling of the land-sale program. Concern has been expressed over the large size of the tracts being purchased and the probability of laying the groundwork for the kind of land-concentration problem that now exists in the more populated parts of the state. Of more concern, however, has been the fact that most of the sales have been to groups from outside the state, particularly São Paulo. It is felt that COMDEPI is giving up highly developable areas of the state to "foreigners", and thus limiting the state's future development potential.¹

3.11 Criticism has also been directed at COMDEPI's handling of the Fazendas-Estaduais program. CERPRO technicians who participated in studies of the two municipios in which the titling was being carried out reported that many of the squatters obtaining title under the program were actually "absentee squatters"--e.g., a professional who lived and worked in Teresina and, in turn, had his own "squatters" or tenants who were living on the land and working it. In these cases, the absentee squatter would claim the land and present the necessary documentation, resulting in the eviction of

¹The regional office of INCRA has been one of the critics of COMDEPI. As a result of INCRA's dissatisfaction with COMDEPI's sales to "foreigners", INCRA terminated its contract with COMDEPI to survey some of the state lands in the north of the state.

the real squatter--i.e., the person actually working the land. The director of COMDEPI, when asked about these allegations, said that they were not true, and that proof of working the land was a requisite for successfully claiming title.

COMDEPI and the project. Further exploration of COMDEPI's work would be merited for the proposed project. The two Phase-I municipios of Fazendas Estaduais--Floriano and Nazaré--border the Middle Parnaíba subarea; the largest of the remaining nine municipios of Fazendas Estaduais also borders the Middle Parnaíba (Oeiras). Similarly, five of the 11 municipios border the Picos subarea (from north to south, Santa Cruz do Piauí, Santo Inácio de Piauí, Campinas do Piauí, and Isaias Coelho). In addition, one of the two large eastern municipios in which COMDEPI is selling state lands borders the Picos region (Pimenteiras). To the extent that these bordering municipios, or parts of them, are socially and agro-climatically similar to the project-area municipios, consideration might be given to including them within the proposed project area. Similarly, if Pimenteiras has a sizeable amount of state land, then this may be true of some of its neighboring municipios in the subarea of Picos--namely, Santo Antônio de Lisboa and the northern branch of the municipio of Picos. These COMDEPI areas could represent a unique opportunity to commence a land-titling and transfer program right at the start of the proposed project.

3.13 An important advantage of expanding the COMDEPI program under the proposed project would be that a precedent has already been set by INCRA for making a liberal exception to the module, allowing titling for acquisitions of as low as five hectares. Since it has been virtually impossible to obtain approval from INCRA for exceptions to the module in the land-credit components of other Bank-financed POLONORDESTE projects, the existence of a precedent in the Fazendas-Estaduais case represents a significant opportunity.¹

3.14 Fazendas Estaduais has also set the precedent of giving state lands for acquisitions less than 110 hectares--as allowed by state law in cases of "political, economic, social, or financial" expediency. The giving rather than selling of land to small farmers is usually frowned upon, but there may be reason to take advantage of this precedent in this case. Small landless farmers who buy land are often not able to cope with credit for investment and working capital, in addition to the payments owed on the land. If farmers receiving free land embarked at the same time on a program

¹The 110-hectare module, used for the sale of state lands and as the dividing line in the Fazendas-Estaduais program between land transfer with and without payment, is for livestock. The module for agriculture varies between 35 and 50 hectares in the project area. Starting in January of 1979, most of the modules will be reduced by about 40%, according to INCRA's Special Instruction No. 14 of January 1978. The new module sizes for Piauí were not available at the time of the Bank mission.

of land improvement financed by investment credit--and if the investment credit were secured by the land--this would have the same effect as a land-payment obligation, in terms of eliciting a commitment to work the land and of weeding out those claimants without such commitment. Transferring state land through donation rather than sale, moreover, might avoid some of the bureaucratic delays characteristic of such programs. An alternative approach, which would have almost the same advantage, would be to sell the land at the symbolic prices currently used by COMDEPI in selling its southern and eastern lands to large farmers and firms (Cr\$60 and Cr\$80 per hectare).

3.15 COMDEPI seems to be without a clear plan for the future, and to be somewhat unconcerned and unsophisticated about how to deal with the problems of low-income landless farmers.¹ This vacuum can also be seen as a potential opportunity, in that it might be easier for the proposed project to "take over" the COMDEPI land program or parts of it, and re-shape it for the purposes of the project. The land-transfer experience already gained by COMDEPI, particularly with Fazendas Estaduais, might serve to help get a project-financed land-transfer program off to a better start than if it were to be started from scratch. Indeed, it is the thinking

¹The idea of creating beef-cattle farms to "solve the employment problem", as noted above, is an example.

of the state's working group on the new land institute to transfer to that institute, when it is created, the staff of the land department of COMDEPI.

A land institute

3.16 The idea of creating a state land institute is part of a larger plan being elaborated by a working group in the state agricultural planning agency, CEPA. The task of the working group is to propose an integrated plan for the agricultural and marketing sector in Piauí--the State System of Agriculture and Supply (SEAAb). The plan, not yet completed, is to be the basis for a restructuring of the state department of agriculture. Special efforts are being made to complete this work soon, so that it can serve as a plan of action for the new state government, which takes office on March 15, 1979.¹

3.17 The idea of a state land institute is in part a result of a growing realization that Piauí's landless problem is of greater

¹At the time of the Bank mission, the only completed document of this group was a preliminary schematization of the various subject-headings to be included in the plan. The SEAAb is to cover four basic objectives: support to production, support to marketing and supply, relationship with economic and financial support (rural credit, minimum-price policy, etc.), and planning and basic studies. Land matters fall within the "production" category, and are comprised of three stages of activity: survey of the lands belonging to the state, regularization of titles for those with squatters' rights (and return to the state of lands claimed by those without such rights), and transfer of land to the private sector through colonization and titling. No details are available as to where these activities would be implemented.

magnitude than in other Northeast states.¹ The idea of a land institute is also a result of pressure from the Ministry of Agriculture on all Northeast states to come up with programs to deal with the problem of their low-income rural populations. Starting in 1976, this interest of the Ministry is said to have elicited the first efforts by the state to think about the rural poor as a direct objective of its agricultural programs. The newness of thinking about the problem explains to a certain extent the preliminary nature of the state's proposals for the landless, and a need for more thinking out of the implications of the various ideas being raised.²

3.18 The inappropriateness of some of the thinking about the landless goes along with considerable openness to other suggestions. Up to now, for example, most discussions about the land problem and the new land institute have assumed that action would be limited to lands owned by the state. Much ado has been made about the recent "discovery" that the state owns almost one third of its land. This has been looked at as an obvious and easy way out of the landless

¹The director of the regional INCRA office says that the land-institute idea originated with him in 1976.

²The ideas of the COMDEPI director for creating employment with livestock expansion are an example, as well as a pet proposal of the INCRA director to approach the landless problem by creating integrated dairy and beef enterprises on state lands.

problem, even though these lands are far removed from the landless population, in an area with almost no infrastructure. Discussions with Bank missions brought out the fact that the location of the state's lands meant an expensive and comprehensive program of colonization, with heavy infrastructural investments, if any inroads were to be made on the problem of the landless. After discussing this problem and the poor record of such colonization efforts in the past, state officials seemed quite open to discussing the possibilities of land transfer in the area where the low-income population is concentrated and where state lands are not available--i.e., in the proposed project area.

3.19 Further elaboration of the land-institute proposal awaits approval of the idea in principle by the future governor. Approval is expected to be obtained within weeks and legislative measures necessary to create the institute are hoped to be taken before March 15, so that the institute might be in existence by that time. In principle, the CEPA working group saw no problem in the institute's giving first priority to the proposed project area, even though this would mean giving up the priority on distributing state-owned lands first. The group suggested, moreover, that a survey of state and private lands in some selected municipios might be started even before the creation of the institute, so that appraisal of the proposed project would not be contingent upon creation of the new entity.

3.20 The institutional capabilities of the state in the area of land, then, offer distinct advantages and disadvantages for the proposed project. It is a clear disadvantage that there is no existing land entity to which a land program can be entrusted, and that thinking about land-transfer programs for low-income farmers is somewhat rudimentary. At the same time, it is clearly advantageous that there is a widespread concern about the land problem, a realization that the state has a more serious landless problem than other states, and an interest in taking action. At such a juncture, the Bank could play an important role in directing and supporting the course of action that the state eventually takes.

Other Income-earning Activities and Group Action

4.01 Given the constraints to increasing the income of the landless through the expansion of crop production, the proposed project should seek to expand the income-earning activities of rural families that are not dependent on the land. There are various traditional activities already carried out by women in the project area, often for home use only. The expansion of these activities could increase the incomes of landless families and would involve no major changes or technical-assistance efforts. A partial listing of such activities includes lace-making, crochet, embroidery, weaving, hammock-making or -finishing, and the spinning of the yarn from raw cotton; the making of rugs, hammocks, purses, baskets, etc., from palm fibers such as that of the tucum; the making of juices, preserves, and sweets from a variety of tropical fruits, such as the cashew and the buriti.

4.02 The byproducts of the various extractive activities involving the native palms of the project area--babaçu (oil), carnaúba (wax), tucum (fiber)--offer additional opportunities for family income-earning activities. One such possibility involves the traditional work of cracking the babaçu coconut and selling the nuts to the landowner (paras. 2.22-2.28). The shell of the coconut is said to yield a high-quality coal, but this

byproduct of the nut extraction process is presently accorded little value. Landowners allow the women to keep the cracked shells if they like, and some of them do take them home for fuel. The project might investigate the possibility of promoting the collection, preparation and local sale of this waste product for fuel by women who crack babaçu. The Picos region, adjacent to the Middle Parnaíba, is short of wood and might provide an excellent market for such fuel.

4.03 The making of organic fertilizer may be another opportunity for household income-earning resulting from the extraction of native palm products. One of the few organic fertilizers currently in use in the project area is a byproduct of the carnaúba palm, used by the garlic farmers of the Picos region. The possibilities for expansion of this production at a household level might be explored during appraisal, as well as those for any other organic-fertilizer byproducts of the various palm-extraction processes. Actually, women are already regular collectors and users of organic fertilizer for their kitchen gardens (paras. 4.11-4.12). Expansion of this activity might also be considered.

4.04 Household or small-scale local production of organic fertilizers would also be in accordance with the agricultural component of the proposed project. Organic as well as chemical fertilizers are hardly used in the project area. The price of

chemical fertilizers, or their inadequate supply, puts them out of reach of most farmers; yet there is a surprising lack of interest by the extension service in promoting the production and use of organic fertilizers--even though the raw materials for them are in abundance in many areas. If the project were to support some local fertilizer-producing activities, the extension service would be in a strong position to promote their usage.

The Legião Brasileira de Assistência

4.05 The Legião Brasileira de Assistência (LBA) has attempted to support some of the traditional home-industry activities of women, though their activities in this field in Piauí are too recent and limited to allow for an evaluation of the results. One of LBA's oldest and most successful efforts is a group of women in the south of the state (São Raimundo Nonato) who are now exporting embroidery to the south-central region of Brazil. (This project was carried out in conjunction with the Fundação Ruralista.) The LBA's most active program in home industry is in Parnaíba, where it works with groups making articles out of palm fibers, leather and wood (in conjunction with the state department of labor). It is also teaching manicure and the preparation of meals for street-vending ("marmiteiras"); a project in Correntes involves the preparation of a sweet from fresh lemons ("doce de limón").

4.06 The LBA approach is to form a small club of women to whom these activities are taught, and to provide the initial round of materials to the group for free (e.g., yardgoods and thread). This initial supply is treated as a "rotating fund"; out of the first round of sales revenue, a symbolic amount is deducted to "pay back" the LBA, and the rest is used to buy another round of materials. The LBA does not provide or finance equipment to the group, though it sometimes provides equipment for teaching purposes. The best students in the LBA courses are contracted to teach subsequent courses.

4.07 The LBA approach seems to hold promise as a model for the proposed project, though it is somewhat limited by the inadequate resources of the organization. The LBA works with a group for only one year, after which they are "released". Supposedly, the home economists of EMATER watch over the fortunes of the newly released groups, but their resources are also limited and their programs are not strongly oriented in the direction of income-earning activities (paras. 4.08-4.10). Also a limitation on the growth of its groups, the LBA does not concern itself with marketing, nor does it provide access to financing for increased levels of activity or for the acquisition of equipment. Regardless of these limitations, however, the LBA has substantial experience in this and other kinds of community-level work, which should be drawn upon for project

appraisal. The organization might actually play a role in a project component supporting such activities.

The social extension program

4.08 The extension service has also supported the income-earning activities of women through its home economics or "social extension" program, though it provided almost no funding for these activities. The social extensionists feel that the opportunities for growth of such activities are considerable; they express great frustration at not getting more support for these activities--at seeing them get off to a successful start and then die for lack of funds or materials. In the communities where these extensionists work, they say, the women constantly ask them to introduce a course in one thing or another, and help them obtain materials. Each extensionist has a moving story to tell of how she took the money out of her own pocket to finance such an activity, or how she borrowed money from friends. One extensionist in the Delta borrowed money from friends to help buy her group the simple equipment necessary for making "cajuina", a juice traditionally made from the cashew fruit. An agricultural extensionist in the Middle Parnaíba lent Cr\$500 of his own to a group who wanted to make cajuina; he is now being repaid in cajuina.

4.09 Though training courses for women are sometimes programmed, the social extensionists say, the monies for them

never materialize. "Budget money for training comes only for the men," they say, "not for the women." Thus they watch the budget closely for leftovers from the agricultural extension courses for farmers. A course for Delta fishermen in the making and repairing of fishing nets, for example, turned out to be poorly attended because of lack of interest by the fishermen. The social extensionists took advantage of the opportunity and turned the course into one for women and children. The women signed their husband's names so the course would qualify for the budgeted funds. The course was a success, and the women are now selling their nets outside their group.

4.10 The potential for the social extensionists to increase the income-earning activities of women seems blocked by a conceptual dichotomy between the social extensionists' work and that of the agricultural extensionists--a dichotomy characteristic of most Latin American extension services. The agricultural extensionists' work is oriented toward the generation of increased income, while that of the social extensionists is directed toward improvement of conditions in the home. Thus any activity involving the teaching of handicrafts, for example, is usually oriented toward supplying such items for one's own home, or for a member of the women's group (e.g., clothes for a layette or trousseau of a group member). The INAN program in the Middle Parnaíba is an example of

this social rather than production orientation; only women in the "vulnerable groups" are recruited for the clubs that, among other things, are taught to sew, embroider, etc.--i.e., women who are pregnant or with young children. Yet the women artisans in such communities are traditionally older; the "vulnerable" women usually have several young children and do not have the time to dedicate to such activities. Thus an INAN women's club will typically meet only one afternoon a week, the only time during which the handicraft activity takes place. This particular shortcoming is to a certain extent a function of the nutrition and hygiene focus of the INAN project; but the nutrition focus is also a central one of the social extension program, which suffers from this same kind of limited vision with respect to income-generating activities for women. The LBA concept is closer to a production orientation to women's activities, even though it is limited by a lack of resources.

Kitchen gardens. The work of the social extensionists in promoting kitchen gardens is another example of a wasted opportunity for increasing family income. Almost all rural households have a kitchen garden, usually the responsibility of the women of the house. The garden is traditionally planted on a small enclosed platform elevated off the ground on stakes. Gardens are kept off the ground to avoid ant infestation and damage by small animals; gardens on

the ground, moreover, are said to be "burned" by the heat of the sun. Kitchen gardens are typically a dry-season activity because the rainy season is said to produce too many pests; as a result, lack of nearby water is often a constraint on the development or expansion of such gardens. The kitchen gardens are traditionally fertilized with manure collected from family or other animals--a luxurious treatment of plants in contrast to the almost complete absence of fertilization of field crops. The gardens are quite small and are usually limited to cilenthro, green onions, red pepper and sometimes tomatoes; they are looked at more as a source of condiments for home cooking than of food.

4.12 The promotional work of the social extensionists is directed at encouraging the women to plant larger and more varied gardens--including lettuce, cabbage, carrots, sesame, eggplant, beets, etc. It is recommended that the expanded gardens be placed on the ground, to which there is considerable resistance; the women are also encouraged by the extensionists to plant their gardens during the rainy season so as to avoid problems of water availability.¹

¹The womens' disinterest in rainy-season gardens may also be related to the fact that they work in almost all phases of the crop cycle from planting through the harvest, and thus would have less time for kitchen-garden work during the rainy season. Work on dry-season gardens would not conflict with their field work.

The social extensionists hope that with the plans of PIASS to install community wells, the problem of water for the dry-season gardens will be considerably alleviated.

Both changes, of course, create a need for insecticide. Yet the garden program, unlike that for field crops, is not accompanied with credit for the purchase of such inputs and perhaps, more important, seeds are not made available.¹

4.13 The social extensionists say that women in the communities where they work express great interest in trying out new seeds and in learning how to expand their gardens, but the lack of resources for seeds, inputs and small implements makes it very difficult to act on this interest. One extensionist told of how she had succeeded in promoting a small communal garden that grew very well, but there was no money to buy insecticides and the garden was threatened with demise by pests. The extensionist, not wanting to see such good results lost, paid for the insecticide out of her own pocket.

4.14 The social extensionists commonly complain that they are unable to "sell" their ideas because they have nothing to offer in return. They feel that this is a major difference between their work and that of their male counterparts, where credit is a major attraction to farmers. The interest of the rural women in expanding

¹EMATER headquarters in Teresina was supposed to supply some seeds, the extensionists said, but they are almost never received.

their kitchen gardens represents an important opportunity to increase the nutritional status of the family and, if they are financed, their income-earning activities. If such gardens were successful as income-earning activities, they might also contribute to pulling up the rural wage for women's work. To the extent that the social extensionists garden-promoting work results in community gardens, moreover, this means they have brought about successful group action to improve conditions in the community. Finally, the kitchen garden is traditionally an activity in which experimentation with new seeds and plants takes place regularly. These gardens may therefore be a much more propitious area than field crops in which to experiment with new crops and better varieties.

4.15 For various reasons, then, the kitchen gardens merit attention in the proposed project. They direct the work of women toward income-earning activities; they take advantage of an organic fertilizer that is almost costless; and the land-saving intensity of the traditional kitchen-garden technology means that their expansion does not run up against the land constraint as quickly as does the attempt to expand field production with

agricultural credit.¹ Finally, the kitchen gardens represent an activity in which project beneficiaries have already expressed considerable interest and for which they have requested support.

4.16 Supporting kitchen gardens as an income-earning activity in the extension program will require supplying credit and/or inputs. Supplying seeds is not a new idea, in that the extension service has programmed for such supply on a limited scale, though it has not materialized. Some agricultural extensionists suggested that credit for kitchen-garden inputs could be included in the working-capital credit for field crops. An assessment of credit needs should be made so as to determine whether such an allocation would provide enough credit. Another approach would be for extension to provide the materials or capital for a rotating fund at the community level, just as the LBA provides such materials for the courses it gives to groups of

¹There is a danger that the traditional advice of the extension service regarding kitchen-garden technology may take away this comparative advantage. The extension-service recommendation that the gardens be removed from their raised platforms to the ground is one example; the recommendation to cultivate the garden in the rainy season rather than the dry is another. Both increase considerably the needs for the purchased input, insecticide. The rainy-season recommendation might also place a labor constraint on the expansion of this activity, given that women work in the fields during the rainy season. It might make better sense to expand the platform area and intensify the technology even further--rather than "extensify" it onto the ground, which involves increasing the use of purchased inputs in relation to the cheaper and naturally-available inputs.

women. Extensionists have already had experience with such group-purchase activities, as discussed in the following section.

Community action

4.17 The work of the social extensionists has often led to the mobilization of local groups for the purpose of carrying out projects desired by the community. The extensionists will often promote the organization of a "mutirão", an indigenous Brazilian form of the community work party--to build a school, a well, a health post, etc. Through local auctions, the extensionists have also been able to mobilize community savings for such projects. Since the communities are poor, each person will contribute something very small to the auction--an egg, an onion, a carrot. The collected items will either be used to prepare food, which will then be auctioned off in the community itself--or they will be sold directly as is. The monies generated will then be used by the community to buy the necessary materials or contract specialized services for the agreed-upon project. This type of group action, relying on customary forms of local grouping, seems to be relatively neglected in the planning and execution of development projects in Brazil.

4.18 The work of the social extensionists seems particularly suited to this kind of group-promoting activity. The focal point

of their work is human groupings--the household and the community--in contrast to that of the agricultural extensionists, whose work is more oriented to the field where crops are produced and to the individual farmer who produces them. The social extensionists try to bring about changes in the way families and communities do things, whereas agricultural extensionists try to change the way crops are planted.¹ Social extensionists are able to spend more time in the community than agricultural extensionists, because of the demands on the latter's time to execute office-bound tasks, mainly credit

¹This is not to say that the agricultural extensionists have not also facilitated community action through informal groupings. An agricultural extensionist in the Delta told of how the small farmers who attended a course on agricultural practices decided to save the money allotted to them for lunch, spending it instead on an insecticide sprayer for use by everyone in the group. Other extensionists also report having facilitated the purchasing of small pieces of equipment by such an informal group, which elects one of its members to keep the equipment and be in charge of lending it out. Any farmer who damages or breaks the equipment is responsible for repairing or replacing it. Though this activity does not take place on a large scale, it could serve as a model in the proposed project for providing credit to informal groups for this type of purchase.

work.¹ The group-mobilizing work of the social extensionists also involves them with everyone in the community, not just the women; they may organize a mutirão to construct a school, for example, among the male youths of the community, or they will summon the men to assist in the construction of a health post.

4.19 Through their exposure to the community, and their role there as a kind of public-sector "patron", the social extensionists are constantly acquiring a sense of what the community wants, what kinds of commitments are willing to be made to achieve these wants, and how such desires might actually be realized through the extensionists' knowledge and connections. The role of the agricultural extensionists is more to bring

¹It is extension-service policy in Piauí to have an agricultural and social extensionist work in the field as a team. Thus a driver's license is required of agricultural extensionists who enter the service, but not of the social extensionists--the assumption being that the vehicle will always be driven by the agricultural extensionist. Even though the social extensionist can spend more time in the field than the agricultural extensionist, then, she is still dependent on him for transportation to the field and must fit her agenda of field work to his. Thus the social extensionists often can not go to the field as many days as they are able to, because of the fewer number of field visits made by their counterparts, who manage the cars. In some extension offices, the social and agricultural extensionists work out these logistical problems so that the women who can drive are not dependent on the men, and take the cars when they need them. These logistic problems and the policy behind them should be evaluated during project appraisal.

to the community or its individual farmers ideas and services from the outside.

Health miniposts. The potential of the social extensionists to play an important, expanded role as community mobilizers is illustrated by their work on community health programs in some Northeast states, including Piauí. Where parallel or integrated programs in rural health have existed in one state (e.g., the state health and the extension services in Rio Grande do Norte), the extensionists have done better than the other entities in their part of the program, mobilizing community action and financing for construction and maintenance of health miniposts. In many cases, these accomplishments of the extensionists were aborted by the failure of the cooperating health entity to carry out its part or to take into account local desires and problems; or the health entity, jealous of the greater accomplishment of an "upstart" entity in its own field, would refuse to cooperate or would try to muscle the non-health entity out. Rural health programs of health entities have also sometimes duplicated the minipost construction of the extension service in the same communities, because the health entities were less field-deployed; because they had their own construction and equipment funds, moreover, their efforts often resulted in better physical facilities, which at the same time were beset with problems of maintenance and follow-through.

4.21 The case of the health miniposts shows that the social extensionists were sometimes able to accomplish even more than the public-sector entities specialized in a particular field, because of the location of these extensionists in the community and the importance to their work of community participation. It is unfortunate that this contribution of the social extensionists to the health program will be lost as PIASS and the state health entities stake a greater claim in this area. It is also unfortunate that the ideal position of the social extensionists to facilitate community resource-mobilization and project-execution is not being taken advantage of and that a good part of the extensionists' time is spent in a futile struggle for materials and resources, or in organizing the community for activities that will ultimately not be supported.

A fund for community projects. The proposed project should take advantage of this mobilizing power of the social extensionists by setting up a fund for community projects. Building on a positive experience of the extension service so far, a project component of this nature would also help to lessen the excessive centralization and paternalism characteristic of the planning and execution of POLONORDESTE projects. This would also be a way of channeling government services and resources to the rural population in groups--an important objective of Brazilian rural development policy--without

imposing on the program the cumbersome and rarely successful cooperative form. This approach would also take advantage of existing tendencies to group at the community level, instead of trying to convince people to group in a way that they resist. The social extensionist program, in sum, could be used as a vehicle for introducing community-level financing into the rural development efforts of the Northeast. Both the agricultural and social extensionists have various ideas as to how such a fund could be designed, based on their considerable experience at the community level so far. Their opinions should be sought during the elaboration of the project.¹

¹The proposed project might be able to facilitate one particular group action that was desired by some of the communities in the Middle Parnaíba. Poor farming families frequently live in dispersed settlement patterns in this particular region. A group of such families wanted to get together and form a small rural village where they could build their own houses and live closer to each other. Such a move would make it worthwhile for them to organize themselves to provide community facilities and services like a school or a well--by making it easier for them to undertake the group actions necessary to construct such facilities, and to benefit from them because of closer proximity. The extensionists were interested in helping the families with such a move, since it would facilitate their group work. Though they located the land and the resources to make such a move, it was not possible to subdivide the property into individual house lots because the land fell within the classification of a rural rather than an urban zone. Subdivision in plots less than one module (about 35-50 hectares) is not allowed in areas defined as rural rather than urban. The extensionists suggested that EMATER might be authorized to approve such subdivisions, and that a standardized letter could be designed and used by EMATER for such purposes.

Rural Labor Unions

5.01 Rural labor unions exist in 55 of the state's municipios, with a membership of 11,000 or 28% of the 39,000 persons qualifying for membership.¹ Of this membership, only 33% or 3,700 are dues-paying; monthly dues are Cr\$10. The most important unions, accounting for most of the active membership, are in Teresina (2,000 active) and Picos (about 1,200 active). These relatively low figures for dues-paying membership are not an accurate measure of the significance of the unions' activities, as explained briefly. The 55 unions are affiliated with the state federation of unions FETAG, with headquarters in Teresina; FETAG, in turn, is affiliated with the national confederation of unions, CONTAG, in Brasília.

5.02 The system of rural labor unions in Brazil was created by the post-1964 government, and had little significance until the mid-1970s. In 1972, the government initiated a rural social security program, FUNRURAL, and contracted the labor unions to administer the processing of applications for retirement payments. (Monthly retirement payments are now Cr\$780 a month.) The unions

¹Persons qualifying for union membership are temporary and permanent workers, tenant workers and farmers, and property-owners with less than one module of land (between 35 and 50 hectares depending on the region).

were also contracted to administer rural medical and dental assistance provided under the FUNRURAL program. Unions are obligated to provide these services to both members and non-members alike. Similarly, they must also provide their legal services to non-members as well as members.

5.03 The channeling of FUNRURAL services through the unions has given considerable impetus to their growth, since this was the first time that a social security system had functioned in the rural areas. That the unions are required to serve non-members equally with members, of course, makes it difficult to convince workers that they will receive special benefits if they join the union. Some rural workers told me, however, that they had joined the local union "in order to qualify for" FUNRURAL payments or medical and dental assistance. Some seemed to be ignorant of the fact that union membership was not necessary for qualification; or they reported that they "had heard" that the union was threatening to cut social security payments to all non-members "by January 1." Some unions may be deliberately conveying--or not correcting--the false impression that membership is necessary to receive such assistance. The union may also give better and more rapid attention to members, though they deny that this is the case. Finally, the union has simply used the opportunity of contacts with FUNRURAL clients to promote membership in the union. Even though

the FUNRURAL assistance is not limited to union members, then, unions still have been able to increase their membership somewhat as a result of administering the program.

5.04 That the unions are government-created and financed makes it difficult for them to develop the strength and the class militance that characterizes independent labor-union movements. As a creation of the government, the rural unions have also been vulnerable to manipulation for political purposes--especially during election periods like the recent one, when the press reported that in some areas union approval of FUNRURAL payments was being limited to supporters of the government ARENA party.

5.05 One of the requirements for qualification in the FUNRURAL program has put the unions in the position of advocate for tenant farmers vis-a-vis their landowners. To qualify for FUNRURAL, applicants must have their employers or landlords sign a simple standardized form verifying, in the case of tenants, that the applicant "exercised a rural activity" on his property during the stated time period. For various reasons, landowners often object to signing the form. There is a standard perjury clause, warning that perjury is punishable by certain fines and prison sentences. Many owners, the unions say, are particularly frightened off by that clause; the more illiterate ones who live on their properties in the countryside will see the words "from

one to five years of prison" and back off immediately, without verifying that the form does not give much opportunity to perjure oneself.

5.06 Other owners do not sign the FUNRURAL form because it requests the numbers of their registration with INCRA and CPF. INCRA is the land registration, and CPF (Cadastro de Pessoa Física) is the income-tax registration. Many owners either have not registered with INCRA or CPF--in which case the worker does not qualify for FUNRURAL--or are afraid that the listing of their registration numbers might result in an inquiry into their land or income-tax status. Other owners refuse to sign because they do not want any written testimony of their landlord-tenant status out of fear of possible tax or indemnification liabilities that may arise in the future. One landowner with several hundred tenants has informed them that he will not sign any FUNRURAL declaration; his tenants regularly leave the property before they turn 65, in search of another landlord or employer who will sign the declaration. Some owners, though signing the letter, require that the tenant pay for this service. Some tenants are able to get the signature from a former, if not the current, landlord; others can sometimes convince a neighboring landowner

to sign the declaration.¹ There are many cases, then, in which the landlord will not sign the declaration and the tenant or worker cannot receive his retirement payments. In these instances, the unions have invested considerable effort in convincing the landlord to sign--in many cases, with success.

Landlord-tenant disputes

5.07 Despite the government tutelage of the labor unions and their resulting inability to challenge government policy, they have been playing an increasingly important role in defending tenants against landlord abuse. They have based their actions on the Land Law of 1964, which has a comprehensive set of regulations governing tenancy contracts--most of which are not complied with nor enforced by the government. The federation of unions in Teresina has a staff of seven lawyers, most of whom are detailed to disputes arising in the jurisdictions of the various member unions. Most of these cases involve evictions of tenants before

¹It is not clear to what extent other signatures are legal. The Teresina union said that landowner-friends of the applicant, who have not necessarily employed him, may sign the declaration if the current landlord refuses. One tenant reported that his landlord would not sign the declaration, and so the treasurer of the union signed instead. It would seem that illegal signatures would not be that prevalent, given the fact that the unions try hard to convince the landlord to sign, and given the fear inspired by the perjury clause and the request for the INCRA and CPF registration numbers.

the harvest without compensation for the crops lost, or after the harvest without compensation for investments made, or release by the landlord of his cattle onto the tenant's plot before the harvest resulting in destruction of the crop. The Land Law prohibits eviction without compensation for investments or improvements made by the tenant¹ (Article 95, Section 8) and prohibits termination of the rental arrangement before the harvest even if the harvest is delayed (Article 95, Section 1).

5.08 When a tenant brings a case to the attention of the union, it at first summons the landlord and attempts to reach an agreement with the two parties. If compensation is warranted, the amount is calculated according to standard formulas of the extension service for agricultural input and labor costs. If eviction occurs before the harvest, for example, the amount of compensation is calculated by the union from an EMATER table on man/day per/hectare inputs for clearing, planting and weeding. The landowner may sometimes make a counter-offer of less compensation; the union will not accept anything but the legal amount, but the tenant may agree to the landlord's offer. If the compensation is agreed upon,

¹Landlords usually do not allow their tenants to make investments for this and other reasons. Cases of eviction without compensation for investment, then, usually involve areas where perennial crops are grown and the tenant is evicted before the trees have completed their producing life. If the tenant planted the trees, then he has a right to compensation. This type of case is common in the Picos region, where perennial cotton is the principal crop.

the union draws up a written agreement that has the force of law-- as it does for any case where the union arbitrates a landlord-tenant dispute. If the owner refuses to pay compensation or come to any other agreement--and if the tenant desires--the union will take the landlord to court. In 1978, FETAG took 48 of such cases to court; its written agreements resolving landlord-tenant disputes number in the hundreds.

5.09 Most of the cases taken to court by FETAG are decided in favor of the tenant. FETAG prefers not to go to court, however, because the process can take many months and even years, during which time the tenant will often withdraw from the case. The tenant who wins a compensation case, moreover, will usually be blackballed by other landowners, so that winning such a case represents a pyrrhic victory for the tenant. Indeed, the blackballing process will often start as soon as it is known that the tenant has sought the assistance of the union in a dispute with his landlord. Thus the union prefers to first seek to convince the landlord not to evict the tenant, or to reinstate him--rather than accept the impending or actual eviction as an accomplished fact and immediately bargain for compensation.

5.10 The unions have come to play the role of a kind of de facto rural court, then, because of the constraints of the judicial system and the lack of a political environment more

supportive of tenants' rights under existing legislation. Though the number of cases taken to court in any one year may be limited, the knowledge among landlords and tenants that such action is a real possibility is starting to have an effect on landlord treatment of tenants--at least with respect to those aspects of the law that the unions are attempting to enforce.¹ The fact that the number of union-negotiated written agreements between tenant and landlord is quite high also suggests that the threat of court action is a credible one to landlords. Finally, landlords are complaining more and more that unions are cramping the style of their relations with their tenants.

5.11 It is difficult to say whether the net effect of the rural unions' interventions in behalf of tenant farmers has been more beneficial than prejudicial to their cause. As often occurs

¹The unions, for example, have not yet felt strong enough to take on the landlords on that section of the law that prohibits the landlord from requiring his sharecropper to sell his (the sharecropper's) share of the cotton harvest to the landlord (prohibited by Article 93, Section 2). This practice is the rule in the perennial-cotton-growing areas of the Northeast. Since part of the landowner's income is dependent on his role as intermediary in the marketing of cotton, this issue is a more difficult one to force than compensation for eviction. With respect to this practice, then, the union (in Picos) restricts its intervention to attempting to convince the landlord to buy the cotton at the prevailing market price (required by Article 93, single paragraph). Landlords typically buy their sharecroppers' cotton at less than the market price.

when land laws are half-heartedly enforced, some landlords are becoming even more cautious about having tenants at all, because of the action of the unions; some are feeling more secure with cattle than with tenant-operated crops. For each story of prejudicial results, however, one usually hears of an action on the other side of the ledger. One landowner, for example, told of how he would now prefer a written contract with his sharecroppers to protect himself against "unwarranted" indemnification claims that a tenant might make in the future, with the union's support. "Without a written contract," he complained, "all the tenant has to do is cook up some witness to support his claim and drag him over to local union headquarters." That landowners attribute that much presence to the union--both in their negative and positive reactions--is testimony to the extent to which the union has established itself in the countryside.

5.12 Interestingly, the ability of the unions to create arbitration facilities for tenants at the local level is to a certain extent a function of their "weakness", and its association with their government tutelage. A more militant system of independent unions would not have been allowed to play this role, either by the government or by landlords. No matter how questionable their continuing government dependence, then, the work of the unions in arbitrating landlord-tenant disputes has

led to a growing understanding by the rural unions of the interests and problems of their class, and a growing acceptance of them by rural workers as a legitimate defender of their interests. At the same time, their role as government-indicated executors of the FUNRURAL programs has legitimized their position vis-a-vis establishment institutions, most importantly the landlords.

5.13 Although the rural unions were weak for several years, in sum, and were often just another channel for political patronage, they have started to come into their own in the last few years. Their government-sponsored status, and the lack of a national political commitment to enforce the land law, has forced them to seek solutions that work within the existing power structure. The lawyers hired by the union federations have been found to be particularly dedicated, and quite adept at negotiating workable solutions to disputes within the limited constraints of an environment where the land law is not enforced.

5.14 As the unions develop experience and strength, they are becoming less accommodating than in the past. In a nationwide meeting of union federations scheduled for May of 1979, for example, the federations plan to make a strong stand in favor of agrarian reform. At the local and federation level, moreover, it is not unusual to find members, staff and officials speak out openly about

land problems, with a strong sense of class identification and without the air of deference and submissiveness so common to encounters between Northeast peasants and urban technicians.

Union participation in the project

5.15 The growing ability of the rural labor unions would seem to make them desirable participants in the Bank's POLONORDESTE projects, particularly in Piauí. Up to now, the beneficiaries of such projects have been conspicuously absent in their design, execution and evaluation. Much emphasis, moreover, has been placed by POLONORDESTE on forging beneficiary groups into cooperatives--a somewhat futile overall strategy, because the task of creating such an organization is overwhelmingly difficult and because coops often act more in the interests of the large farmers than the small ones. Though the unions are not meant to serve the same economic function as the coops, they represent an already existing institution with a network in the countryside. They have proven a record of representing the interests of small farmers, and they have gained a certain level of acceptability among the other public-sector institutions involved in POLONORDESTE projects.

5.16 There are various ways in which the participation of the unions and the federation would be useful to the proposed project. They could be of great assistance in the land-distribution component

of the project. Partly through their experience in resolving land disputes, they are well informed about the landholding structures of the municipios in which they operate, and about the workability of a land-transfer scheme in any particular area. They know who the landlords and tenants are, who would be more willing to sell land, and where the social tensions resulting from land pressure are greatest. They are experienced and adept at solving the disputes that arise when land demarcation and transfer programs take place. They would be particularly helpful, for example, in identifying the tenants on a property or in an area who would qualify for receiving plots on that property. They might serve as formal guarantors, backed perhaps by a guarantee fund, of tenants buying land under a land-transfer scheme. This role was actually suggested for them a few years ago, in a land-credit proposal of the Ministry of Labor. They informally play a similar role today with respect to working-capital credit in the INAN program in the Middle Parnaíba. Extension agents often check out an applicant with the local union leader, that is, to find out if a tenant farmer who has never had credit before is "safe" to lend to.

5.17 The unions and the federation could also play a valuable role in improving the fit between the extension service's recommendations and what the small farmer really needs to improve his income. At present, there seems to be no way out of the

inappropriateness of much of the technical advice of the extension service--given that there is no communication between extension and research, and no value placed by extension or research on feedback from on-farm experience. The unions could help to break this vicious circle of inappropriateness in the extension service's technical recommendations by polling farmers on their needs, and on the practices that do lead to income increases in any particular area. This kind of dialogue would be more likely to bring about an impact on project execution than the discussions that now take place between project professionals on what small farmers need. If the unions could officially articulate the needs and desires of the farmers, and this articulation could be built into project design, then there would be a better chance that extension would have an impact and, if it did not, that the reason for the failure would be known in time to make adjustments in project execution.

5.18 During project appraisal, the unions and the federation could play a helpful role in identifying the target group. Because census data on the numbers of tenants and small propertyowners are unreliable,¹ the unions' data on their membership could be used

¹The extension agents of the INAN project could not find the 600 small propertyowners with less than 50 hectares which the census data had shown to exist in the relevant municipios, and with whom they were supposed to work. They found only 360 and, as a result, had to expand their definition of a small farm from under 50 hectares to under 80 hectares.

as an independent source--not only in counting the numbers of a target group, but in finding out how much land they work, what their status is (sharecropper, renter, etc.), whether or not they have bank credit, and whether they live in their own dwelling.¹

5.19 In many cases, extension agents already cooperate together with the local union at the field level, though there is no formal interaction at the state level. In addition to the "recommendations" of creditworthiness sought by the extension agent from the union representative, there are other examples of field-level interaction between the union and extension. The extensionists--both social and agricultural--will often ask a union representative to spread the word about a community meeting that is being called. Extension will sometimes facilitate transport to the countryside for the union's dentist (the dental-assistance contract of the union does not provide for transport). Extension will sometimes hold their meetings with farmers in a building belonging to the union. Extensionists will advise farmers to find out at the union about their rights to medical and dental assistance and the retirement program. A working relationship between extension and the union, in short, is not an unrealistic proposal.

¹These items correspond to a form filled out for every union member.

5.20 Participation of the union federation in the identification stage of the proposed project has been arranged for. The federation will appoint one of its lawyers to the Project Unit's subgroup on the land component. It is hoped that further suggestions for concrete involvement of the federation in the project will emerge from this participation, as well as from subsequent meetings of Bank missions with the federation and with CONTAG in Brasília. Both FETAG and CONTAG have already carried out programs in conjunction with other government entities--INCRA and MOBRAL, for example, as well as FUNRURAL. These joint actions have been carried out through convenios; the same mechanism would be conceivable for FETAG participation in the proposed project.

Summary and Recommendations

6.01 Most farmers in Piauí do not own their land. They are either renters or sharecroppers. They often can not find an adequate amount of land to crop, and their tenancy arrangements are insecure. These tenant farmers are the target group of the proposed project. The recommendations of this report are directed toward enabling them to increase their incomes and their production.

A land-transfer program

6.02 A land-transfer program should be the central component of the proposed project. The proportion of small farmers in the project area who are landless is the highest (80%-90%) for any Northeast state except Maranhão, and is double that of any Northeast area in which the Bank has financed rural development projects. The landless farmers account for a major part of the state's agricultural production and are encountering increasing difficulty in finding enough land to rent or sharecrop, despite the relatively low land-utilization and population-density indices of the area. They are unable to increase their production or productivity--as shown by the experience of the POLONORDESTE and INAN projects in the area--because of the shortage of land to rent and the insecurity of their tenancy arrangements. Thus a project modeled after the Bank's other rural development projects in

Northeast Brazil--with a central role played by agricultural credit and technical assistance--could have only a limited impact on the incomes and production of the target group.

6.03 A major part of the lands that might be transferred under the proposed project are now in private hands. Though the state has substantial landholdings, they are concentrated in the lightly-populated southern third of the state, which is far from the rural-population concentrations in the state and has little infrastructure or services. Transferring these state lands to landless farmers would thus require a comprehensive resettlement and colonization scheme, with heavy investments in infrastructure and substantial public assistance to the settlers.

The political climate for land redistribution. A land-transfer program in the proposed project area would encounter considerably less resistance than other agrarian-reform actions proposed or attempted in the Northeast. There is almost no commercial agriculture in the three Parnaíba subareas, with the exception of some pockets of tractorized upland-rice production in the Middle Parnaíba and the Delta and of irrigated-rice production in the Delta.¹

¹For the most part, this discussion excludes the subarea of Picos. Picos is substantially different from the rest of the project area in having a more arid climate, perennial-cotton cultivation, and numerous small propertyowners. It is not known at this time whether Picos will be included in the proposed project.

The majority of large landowners do not work their land directly, renting or sharecropping it out to tenants under one-year verbal contracts. The tenants practice shifting agriculture, with five years of fallow following every one year of cultivation, and are not directed or assisted by the landowner, except for credit.

Unlike some other Northeast areas where agrarian reform has been proposed, then, a land-transfer program in the project area would not involve a disruption of landowner-administered or commercial agriculture.

6.05 The relations between landowner and tenant on the large properties of the project area are not like those of the large "fazendas" of many other parts of the Northeast interior. The landowners of Piauí are often absentee, and the system of annually-shifting plots means that tenants also shift frequently from one property to the next. Thus landlords and tenants are not bound to each other in a complex web of mutual obligations, characteristic of the typical fazenda. A land-redistribution program, then, would not mean the breakup of plantation polities, nor the major loss of political power that occurs when a fazenda-style landowner loses a long-standing tenant population.

6.06 There is a new sympathy in Brasilia for limited agrarian-reform measures that are embedded in larger rural development projects. Piauí is considered to be one of the states

where such an approach ("controlled agrarian reform") would be justified. There is also a wide consensus of opinion at the state level that not much can be done with agriculture or for the rural population without undertaking a land-transfer program. The breadth of this consensus, unique for a Northeast state, is partly related to fears of heavy rural-urban migration to the state capital, which has already caused serious social and political crises there.

Conditions favoring a land-transfer program. In contrast to many areas of the Northeast, the proposed project area possesses a unique constellation of conditions that makes a land-transfer program desirable and relatively simple--endowing such a program with a higher likelihood of success than is often the case. The project area lies outside the drought polygon of the Northeast and has adequate rainfall, which varies between 1,000 and 1,500 mm per year. The area has some good soils, partly owing to its major river, the Parnaíba, and the tributaries and delta of that river. Intensive riverside and riverbed agriculture is commonly practiced by tenant farmers.

6.08 The urban as well as rural populations of the state are concentrated in the project area, and thus it has considerable infrastructure. The location of the state's two principal cities in the area offers a ready and accessible market for crops now

produced, as well as an excellent market for any new fruit-and-vegetable production that would result from the project. A large part of the cultivable land in the area is not in use, thus offering opportunities for expanded, as well as intensified, crop production. The existence of infrastructure and nearby consumer populations suggests that the net marginal return to development of agriculture on these lands would be high. At the same time, land prices in the project area are relatively low in comparison to other Northeast states; thus the compensation costs of a land redistribution program would be correspondingly lower.

6.09 The babaçu, carnaúba and tucum palms are commonly found in the project area and provide a significant part of the incomes of tenant families. The palms are the source of oil, wax and fiber, respectively. These palms, which grow wild and rapidly, belong to the landowners, who typically take at least one half of the income earned from their products; the landowner sells the product handed over by the tenant without adding any processing. Tenants who would receive land under a redistribution program, then, would immediately double the income they receive from collection and extraction from the palms on that land--without any additional effort, investment, or assistance. The availability of

an immediate source of increased income right after the land transfer is very important to the success of such an effort.

6.10 The existence of considerable land bordering the rivers in the project area--500 kilometers along the Parnaíba alone--makes attractive an investment by the state in simple irrigation and flood-control works, which could be financed by the project. The incomes of the land recipients, however, would not be dependent on the coming into service of such works.

6.11 A land-transfer program in the project area, finally, would not involve re-location of farmers, nor would it be dependent on their learning to cultivate unfamiliar crops. Tenants would receive parcels in the areas where they already live and cultivate; their traditional crops and cultivation practices could serve as a base while new crops and practices were being experimented with. This aspect of the proposed transfer would relieve it of the burden of heavy public-sector support that usually accompanies such programs and is often associated with their failure.

Mechanisms of land transfer: expropriation. Lands would be transferred under the proposed program through expropriation of private lands, sales of private lands financed with POLONORDESTE land credit and, to a lesser extent, transfer of state lands where they exist in the project area. A program of expropriation would

require that the area be declared a "priority agrarian reform area" by the federal government, which can be done through the national legislative process or by presidential decree. Obtaining such a declaration can be a very time-consuming matter and, more important, does not guarantee that expropriation measures will actually be carried out. In most of the Northeast areas declared to be of priority for agrarian reform, nothing has been done (as in the project area of RURALNORTE). The Ministry of Planning has suggested that there might be other more expedient ways of granting authority to the state to expropriate in the proposed project area, especially since such action would fit within the concept of "controlled agrarian reform."

6.13 Details regarding the transfer procedure and the criteria for selection of expropriable lands will have to await further clarification of these questions in Brasilia and further exploration of the subject by the Project Unit. It is hoped that such a program would try to transfer lands to tenants already working on a particular property or in the immediate area--thus minimizing the disruption of existing production. Since plots are now cultivated by tenants for only one year, the program would not face the problem of farmers who were attached to one particular piece of land.

Mechanisms of land transfer: land credit. The expropriation component of the land-transfer program would be crucial to the success of the land-credit component. The existence of an expropriation program would help counteract two problems characteristic of land-credit programs--the alleged tendency for land prices to rise as credit becomes available, and an insufficient amount of land offered on the market. Many landowners, that is, would be interested in selling their land under a land-credit scheme if they felt that expropriation were imminent.¹ Expropriation together with land credit, then, would help land credit to function and, at the same time, might make it possible to not undertake that much expropriation in the first place. In that the expropriation program would induce an increased supply of land to be placed on the market, this would dampen the tendency for land prices to rise in response to the availability of credit.

¹This opinion is shared by the director of the regional INCRA office and the lawyers of the labor union federation, FETAG. The INCRA director cited land-dispute cases where he had intimated to the landowner that the probability of expropriation was high; upon hearing of this possibility, it was said, the landowner readily "gave in." The FETAG lawyers felt that "only one large expropriation" would be necessary to have many of the large landowners in the project area offer their lands for sale under a land-credit program.

6.15 One of the advantages of proceeding with a land-credit mechanism in the proposed project is that legislation and funding for it already exist under the POLONORDESTE program, though it has hardly functioned because of the reluctance of the banking system. Credit terms are 20 years amortization, six years grace, and 12% interest without monetary correction; the credit may be used to cover the full cost of the land. A problem for small farmers is the bank practice of not allowing the land to serve as guarantee for more than 80% of the loan, though this is not required by BB regulations. This means that the farmer must offer another property guarantee, or the guarantee of a co-signer, for the remaining 20%, which would be virtually impossible for most farmers qualifying for financing under a land-credit program as proposed here. For the land-credit component to work, then, agreements to cooperate would have to be sought from the management of the Bank of Brazil and the Bank of the Northeast, as well as a resolution of the problem of the remaining 20% guarantee.

6.16 The rural labor unions and federation could play an important role in making a land-credit program work. One of the bottlenecks to the execution of such a program is that lands are offered for sale in large chunks but small farmers are able to buy only small ones. To resolve this problem, various solutions have

been proposed in Brazil--mainly, the intermediation of cooperatives and more recently, the creation of state-sponsored land banks that would buy or rent such properties and then parcel them for rental or sale to small farmers. The cooperative approach, with which there has been some experience in Sergipe, is limited in terms of its impact; also, there are no cooperatives in the project area capable of handling such a program. In that the land-bank idea is still on the drawing board, the institutional capacity to implement it would not be in existence for some time.

6.17 It is suggested that the labor unions and federation intermediate proposals by groups of farmers for the purchase of large properties that come on the market. This would involve considerably less demands on the limited institutional capacities of the state, in comparison to the land-bank and cooperative alternatives. If a large property were to come onto the market, for example, the local union would unite those of its tenants (and neighboring ones) who were interested in buying a piece of it. The union, with contractual assistance from the state's land agency (now COMDEPI, later a land institute) would help the buyers come to an agreement as to who would receive what part of the property. When the agreement was reached, and the parcels demarcated, the union would take the group proposal to the bank.

The bank, in turn, would make individual loan contracts to each purchaser, buying the property in one piece from the landowner. The group aspect of the undertaking would terminate, then, at the moment that the purchase and loan agreements were made. The unions would be particularly suited for this role because of their familiarity with tenants, properties and landowners and their experience in arbitrating land-related matters. Both FETAG and the locals visited felt that this approach would be a workable one.

6.18 Local extension agents might also play this intermediating role. Their work is already oriented toward working with informal, community-level groups of small farmers; like the labor unions, they are familiar with tenants and landowners--though they do not have the expertise of the labor unions in negotiating land-related matters. Whatever the intermediating entity, this approach takes advantage of the existing organizational familiarity of extension and labor unions with the local setting; by requiring only temporary groupings, it dispenses with the cumbersome and difficult organizational demands of group-transfer mechanisms. At the same time, such an approach allows for the acquisition of small properties by many more farmers than would be the case if the credit were administered by the banks only directly to individual purchasers of land.

Public lands. A third component of the proposed land-redistribution program might be the transfer of state-owned lands in the project area to landless farmers. In that the state's lands are thought to account for only a small part of the cultivable land in the project area, this aspect of the land-transfer program would be a minor one. The main reason to include it would be to build on the experience gained by COMDEPI in this area and the institutional capacity already in place.

6.20 The state development company, COMDEPI, is now carrying out two programs of transfer of state lands--one, a program of titling for squatters on state lands in the central part of the state (Fazendas Estaduais), the other involving sale at symbolic prices to large buyers of state lands in the southern and eastern "empty" parts of the state. The Fazendas-Estaduais area borders the southern edge of the proposed project area, and the eastern municipios of the land-sale program border the Picos region. If some of these municipios, or parts of them, have the same agro-climatic and population characteristics as the project area, then they might be annexed to that area for purposes of the land program. Project-area municipios bordering these state-land municipios, moreover, may turn out also to have considerable amounts of state land.

6.21 Another advantage of building on the COMDEPI program is that it has already set precedents with respect to problems inherent in most land-transfer programs in Northeast Brazil. Mainly, COMDEPI obtained approval from INCRA for an exception to the requirement that the INCRA land-size module be the minimum for registered land transfers--involving, in the case of Fazendas Estaduais, a reduction of the module from 110 hectares to five hectares; just as important, the exception was justified on purely "social grounds"--i.e., that there were numerous landless farmers already working small plots in that area. Two other precedents set by COMDEPI are those of giving rather than selling land to squatters with plots less than 110 hectares, and of charging only symbolic prices for sale of state land. Building on the COMDEPI program, in sum, might give the proposed project the chance to engage in some land-transfer activities right from the start, using an institutional mechanism already in place and working. During appraisal, COMDEPI's land-transfer activities in the Fazendas-Estaduais area should be evaluated for lessons to be learned for the land-transfer component of the proposed project.

A land institute. The operating institutions involved in the land-transfer component would be the regional office of INCRA in Teresina, the Bank of Brazil and the Bank of the Northeast, the extension

service and the labor unions, as outlined above, and COMDEPI or the proposed land institute. The incoming state government plans to create a land institute similar to those of the states of Bahia and Pará. Though planning for the institute was preliminary at the time of the Bank mission, the CEPA working group was sympathetic to giving priority to the proposed project in elaborating the institute's first-year operating plans. The institute is expected to be in existence by the time of the inauguration of the new government in March 1979, and to absorb the land program and staff of COMDEPI. With respect to the land-credit part of the program, firm commitments of cooperation would have to be sought from top-level management of the Bank of Brazil and the Bank of the Northeast--given their past reluctance to operate with land credit.

Generating income outside agriculture

6.23 Given the agronomic and structural constraints to agricultural development in the Northeast, too much of the burden for rural development in the POLONORDESTE projects seems to be placed on agriculture. Almost no attention is being paid to opportunities in the rural areas for small-scale production of goods traditionally consumed by the rural population, for the processing of agricultural outputs where they are produced, or for expanding traditional artisan and household production activities.

Because the income from these activities is not immediately dependent on the land, the promotion and financing of them might have more potential for drawing up the agricultural wage than the attempts to improve the incomes earned by tenant farmers from agriculture--given the proven ability of landowners to appropriate income increases resulting from improvements in the agricultural productivity of their tenants, and given the landowner's constant readiness to convert cropland to pastureland at the slightest provocation. The proposed project should assist and finance the expansion of these activities--namely, small-scale rural industry and traditional household manufacture. The existing CEAG program of financing "micro-firms" in urban areas should be expanded to the rural areas of the project; these possibilities are discussed in another paper of the Bank mission.

Household manufacture. One of the reasons that household manufacture has been neglected in POLONORDESTE projects is that it is the domain of women. Programs "for women" have fallen within the home-economics branch of the extension service in these projects, which takes a nutrition-and-hygiene approach to women's activities--in contrast to the production and income-earning orientation of the agricultural extensionists' work with farmers. Thus when the home economists taught women to sew or make fruit preserves, it was with the idea of supplying their household needs or of exchanging

the results of such efforts on social occasions, like weddings, births, etc. Indeed, the home-economics program--or "social extension" as it is called in Brazil--will often bring teachers from the city to instruct peasant women in a certain craft when the locality already has peasant artisans of a craft that is perhaps dying out and for which demand exists in outside markets.

6.25 A partial listing of items now being produced in the project area at the household level are: lace, embroidery, finishing of hammocks, spinning of cotton yarn and selling of the byproduct cotton seed, weaving of cotton piecegoods and hammocks; collection and processing of tropical fruits into juices, sweets and preserves; the making of handicrafts from fibers of the tucum palm and the sisal plant, such as rugs, baskets, purses, etc. The extraction of babaçu nuts is the exclusive domain of women in the project area, as are kitchen gardens; women also work in all phases of the crop cycle except clearing (in the Picos region, women also work in clearing).

6.26 The proposed project should take a production orientation to the income-earning activities of women, building on some limited experience in this area of the Legião Brasileira de Assistência (LBA) and the social extensionists of the ~~POLONORDESTE~~ and INAN projects in the Delta and the Middle Parnaíba. The LBA forms groups of women and provides courses to them for one year; it supplies

the first round of materials as a rotating fund--e.g., thread, yardgoods, palm fibers, leather, wood, etc. The project should consider supporting an expansion of this program, where the LBA would also provide equipment or financing for it--such as the simple implements needed to manufacture juice from the cashew fruit. At present, the LBA provides equipment only for teaching purposes. In this expanded LBA program, the LBA would also attend to the marketing aspect of the program, which it does not do now for lack of resources. During appraisal, the LBA experience should be looked at more closely.

6.27 The project should include a program of this nature within the social extension service, re-orienting the existing program in an income-earning direction--a change that is very much desired by the social extensionists themselves. They repeatedly express frustration at seeing such opportunities for expanding household production--and the interest of the women in doing so--and at the same time not being able to bring these opportunities to fruition, to the point that they will often finance the purchase of raw materials out of their own pockets. Though such a production-promotion program for women's income-earning activities might not seem to fall within the domain of an agricultural extension service, it would take advantage of the unique position

of the social extensionist among public-sector entities in being based in small rural communities, in knowing the desires, the capabilities and the cast of characters within the community, and in having the connections outside the community to help realize some of these capabilities.

6.28 The project should consider creating an LBA-type rotating-fund program to be administered by the social extension program, with materials being provided by the extension service or acquired on local markets. Alternatively, or additionally, a credit fund for such projects might be created and administered through the Bank of Brazil, with the social extensionists playing a role analagous to that played by the agricultural extensionist today in facilitating credit for farmers. Marketing should be an important focus of such a program, since it is for lack of marketing connections that the products of much artisan manufacture in the project area stay within the household. Again, the social extension service is in a unique position to assist in marketing, because of their position as intermediary between the community and the outside world. It is important that such a program be separated from the nutrition-and-hygiene-oriented activities of the social extensionists; these involve young mothers with many children, those who are least likely to spend significant amounts of time in household production. Similarly, artisans already

working in the community--usually older women--should be sought out as teachers for courses promoted by social extension.

6.29 In order to facilitate this expansion of the social extension program, the policy should be changed whereby the agricultural and social extensionist are required to go to the countryside as a team, the agricultural extensionists being in charge of the vehicle. (Social extensionists are not required to have a driver's license.) The ability of the social extensionist to go to the field should not be constrained by the work agenda of the agricultural extensionist, who must spend more days in the office than the social extensionist, mainly because of credit-preparation work.

Women's productive activities and agriculture. There are three areas in which certain productive activities of women could be linked to the agricultural component of the project--kitchen gardens, organic fertilizer, and selected seeds. Up to now, the social extension program has promoted the expansion of women's traditional kitchen gardens, but the effort has been limited because of a lack of seeds and other inputs, mainly insecticides; though seeds and insecticides for kitchen gardens have sometimes been included in extension-service operating plans, they have rarely materialized.

6.31 Kitchen gardens are of interest to the proposed project because (1) they are one of the few cropping activities in which fertilizer is used; (2) they are land-saving, in contrast to the highly land-extensive systems of the field agriculture of the area; (3) planted as they are in the dry season, the gardens create employment that is complementary to the rainy-season work in the fields; (4) the gardens involve plants that are different than those produced in the fields, and thus offer an opportunity to improve the nutritional status of the producing family, as well as to increase money income; and (5) the kitchen garden is an activity where experimentation is common, in sharp contrast to field crops; the gardens represent a vehicle for experimenting with improvements in agricultural inputs and practices.

6.32 For these various reasons, as well as the severe constraints on expanding field crops as discussed above, the kitchen gardens should be part of the agricultural component of the proposed project--whether the assistance to them is handled by the agricultural or the social extensionists. A seed-supply program for these gardens should be introduced as has been planned for on past occasions but never implemented. Credit for kitchen-garden inputs might be included in working-capital credit for field crops, as suggested by some of the agricultural extensionists, though arrangements for supplying seeds, insecticides and small implements

should also be sought outside such a "piggyback" credit arrangement; the latter would limit the amount of credit available for the kitchen garden and would limit the reach of this assistance to only those families qualifying for field-crop credit.

6.33 As noted above, women engage in the collection and use of organic fertilizer in their kitchen gardens, one of the few uses of fertilizer of any nature in the project area. (Another use is a mulch made from the bark of the carnaúba palm and used in the riverbed cultivation of garlic in the Picos region.) The simple production of organic fertilizer in the project area would seem to be a desirable objective of the agricultural component of the project--given the abundance of raw materials in the area, the minimal use and availability of organic fertilizer, and the continued high prices expected for chemical fertilizer. Since women are already engaged in the collection and use of organic fertilizer in their kitchen gardens, it would seem that their involvement in this area might be expanded. By making organic fertilizer available at a local level, the possibility for fertilizer use in the project area would be increased, as well as the incomes of the families engaged in its production. The agricultural extensionists would be in a particularly good position to promote the use of such locally-produced fertilizer. During

project appraisal, opportunities should be explored for other raw materials that might be made into organic fertilizer, perhaps byproducts of the various palm-extraction processes.

6.34 Women already play an important role in the project area in the supply of seeds for annual and perennial cotton. Tenant farmers often buy their cotton seeds from the "fiadeiras", women of poor tenant families who spin yarn from the raw cotton and sell the byproduct seeds. Since the fiadeiras try to select the best cotton for spinning, this process results in a certain selection of better seeds. The role of the fiadeiras in seed selection and provision might be supported and expanded under the proposed project. More generally, women might be contracted by the extension or research service to work on the production of improved seed or the adaptation of selected seed to their particular area; this could be seen as a logical expansion of their kitchen-garden activity.

Babaçu. The project should investigate the possibilities for increasing the income that women earn from extraction of babaçu nuts. One such possibility relates to the cracked shells, which currently are accorded little value, though they yield a high-quality fuel; the landowner typically allows the tenant to keep the cracked shells without charge. These shells might be processed and marketed for fuel by the workers who break them; perhaps they would find an

excellent market in fuel-scarce areas adjacent to those where babaçu grows, such as Picos. Other possible uses of the byproduct shells should also be explored.

6.36 Tenant women currently earn no more than half, at most, of the income obtained by the landowner from selling the babaçu nuts extracted by his tenants to intermediaries. During appraisal, the possibilities should be explored for creating "community" babaçu plots on public lands, from which babaçu could be extracted and sold directly by tenant women to intermediaries---thereby doubling the income they earn from babaçu. Since babaçu grows like a weed in the project area, the establishment of such a plot would involve almost no investment.

Community resource mobilization

6.37 A major shortcoming of the POLONORDESTE projects is that their beneficiaries play no role in planning and execution. One result of the absence of the beneficiaries is much inappropriate or unaccepted extension-service activity and advice. Another result is the neglect of considerable community potential to mobilize local resources and carry out local projects.

6.38 To a certain extent, the social and agricultural extensionists have shown that they can play an important facilitating role in bringing together project beneficiaries into traditional

informal groupings through which the community obtains what it needs by virtue of its own efforts and resources. The work of the social extensionists in forming groups to build and finance health miniposts out of community resources is one of the best examples. In general, the social extensionists have on various occasions succeeded in mobilizing community work parties--the traditional Brazilian "mutirão"--to execute projects desired by the community, such as the health post, a well, a school, a chapel. The agricultural extensionists of the INAN and POLONORDESTE projects, moreover, have sometimes brought about the formation of small groups of farmers who together purchased an agricultural implement for their common use--sometimes with per diem monies provided to them as part of an agricultural extension course and which they decided among themselves to save instead for such a group purchase.

6.39 The grouping experiences facilitated by the extensionists are significant because they show that the public sector can assist the low-income rural population through groups--an important aim of Brazilian rural development policy--while at the same time not having to rely on the cumbersome and difficult cooperative form. These experiences also show that the public sector does not have to bear the total cost of the rural development effort. The work of the extensionists, if properly directed and supported, can facilitate the mobilization of community resources for the partial

financing and execution of projects desired by them. The proposed project, then, should support and finance such community-based projects, taking advantage of the unique role of the extensionist as an "enlightened patron" from the public sector, whose working base in the community places her in a unique position to channel up the desires of the community, facilitate its organization, and bring it together with outside sources of assistance. This is a role that the extensionist already plays on an informal basis, so that the project need only formalize that role by providing resources to assist the community in the execution of such projects.

6.40 The creation of some sort of cost-sharing fund for community projects should be considered for the project; the fund could be administered initially by the extensionists or, in some cases, by the local labor union. During project appraisal, the administrative mechanism for such a fund should be worked out in consultation with the extensionists, who are full of ideas about how such a mechanism might be designed, based on their experience so far with community projects. At the same time, agreements should be sought with the Bank of Brazil and the Bank of the Northeast whereby investments desired by informal groups of farmers could be financed. Conversations with the Bank of Brazil in Brasilia suggest that there is now a willingness to finance such informal groups.

Rural labor unions

6.41 Another way to alleviate the absence of the target group in project design and execution is to involve the rural labor unions, the only organized representatives of the target group in the project area. A start has already been made in this direction; the federation of labor unions, FETAG, will participate in the Project Unit's subgroup on the land-transfer component.

6.42 As discussed in the land section above, the labor unions could be of considerable assistance in the design and administration of a land-transfer program. The unions could also play an important role in project monitoring, in that they could assay the experience of project beneficiaries with the practices and inputs recommended by the extensionists. Until now, there has been no such feedback in the POLONORDESTE projects, so that extension frequently continues to recommend practices that are outdated or inappropriate. Since the very institutional structure of the extension and research entities makes it difficult for such feedback to take place, it would make more sense to place the feedback function with a group in whose self-interest it was to register both complaints and requests for more. The membership records and other survey material of the rural labor unions could also be particularly useful during appraisal in the identification of project beneficiaries; tenant farmers are usually underestimated in census data.

6.43 No matter what the form of the labor unions' participation in the project, this participation would help to strengthen the unions and hence the power of the target group to command resources and attention. The very political weakness of the target group has made it difficult to proceed very far with some of the development interventions of the POLONORDESTE projects.

Miscellaneous recommendations

6.44 1. If the Picos region is included in the project area, support should be provided for the expansion of garlic farming. Riverbed garlic production is traditional in the Picos area, though it involves no more than 500 minifundista farmers. Market conditions would be excellent for expanded garlic production, since Brazil imports almost half its garlic and has given priority to increasing domestic production, to which Piauí contributes only a small share. Garlic production as carried out in Piauí is a typically small-farmer activity--highly intensive and land-saving.

6.45 2. During appraisal, an evaluation should be undertaken of the tenant farmers who have received credit under the INAN and POLONORDESTE programs in the Middle Parnaíba and the Delta. The impact of this credit on tenant-farmer practices and incomes should be assessed, with the idea of finding out if credit can make a difference to farmers who do not own their own land and have

insecure tenancy arrangements. Comparisons should be made to the small propertyowners who have also received credit under these programs.

6.46 3. An assessment should be made during appraisal of the system of five years of fallow for every one year of cultivation, to determine whether this practice is more a function of the tenancy system or of the quality of the soils. Do the few small propertyowners in the area follow the same system and, if not, what are the differences in their farming practices and yields? This information will be basic to determining the minimum size of the parcels to be transferred under the land component.

6.47 4. During appraisal, an assessment should be made of whether a significant share of landlords would grant letters of permission to tenant farmers for credit under an expanded system of such credit in the proposed project. Assistance from the rural labor unions and the propertyowners' organizations could be sought for such a survey.

6.48 5. The feasibility of financing traction-animal purchases for small owners receiving land under the project should be investigated. Animal traction is not found in the Parnaíba areas, where there are no small propertyowners, though it is common in the Picos area, where

small propertyowners are numerous. Animal traction is an intermediate step between the traditional hoe culture of the Parnaíba areas, and the tractor usage found there on some larger farms. Studies at the Federal University of Ceará suggest that the returns to the adoption of animal traction by small farmers are high.

Table 1

Piauí and Other Northeast States: Proportion of Landless Farmers in Total Number of Farmers, 1970

State	% of total farmers		
	<10 ha	10-20 ha	all farmers
Piauí	87.9	25.2	66.1
Maranhão	96.1	55.4	87.8
Ceará	51.3	28.7	35.4
S. do D. do Norte	53.6	22.1	39.7
Paraíba	46.7	18.6	36.2
Pernambuco	46.8	14.9	38.8
Alagoas	36.8	9.7	29.5
Sergipe	31.7	3.7	25.4
Bahia	24.5	8.9	16.5

Source: Based on data from Censo Agropecuario de 1970, as presented by Serviço Censo de Recenseamento, "Estrutura Agrária, produção e emprego no Nordeste", IPEA/LUNES, April 1978, Table 9.

Project Area, Piauí and Other Northeast States: Percentage Distribution of Farms by Size and Number, 1970

Table 2

Area	Percentage distribution			
	≤ 10 ha		> 500 ha	
	No. of farms	Area (ha)	No. of farms	Area (ha)
Project area	78.6	5.6	1.0	38.1
Piauí	62.1 ^a	3.1	2.1	49.8
Maranhão	82.3	5.6	1.9	57.4
Ceará	37.6	3.9	4.6	35.9
Rio Grande do Norte	46.2	4.1	7.7	45.3
Pernambuco	57.0	8.1	4.3	33.3
Alagoas	63.7	10.9	6.1	29.3
Sergipe	58.3	10.3	7.4	34.0
Bahia	70.7	9.5	2.3	28.3
	45.1	4.7	2.7	34.8

Source: Based on data from Governo Castro de Regêdo, Estatística Agrária, Produção e Emprego no Nordeste, IPEA/INPES, April 1978, Tables 1 and 4. (The latter are based on data from Censo Agropecuario de 1970.

Project-area figures are based on data from Project Unit.

a/

This percentage is different from the 70.6% of Table 10; the latter is based on data from the Project Unit and is not used here for the sake of consistency with the data pertaining to the other states. The use of either of the two percentages does not change the conclusion of the text.

Pernambuco and Other Northeast States: Role of Smallest Farms (< 10 ha.) in Agricultural Production, 1970

Table 3

State	% contribution to value of production by farms < 10 ha.				all crop production
	perennial crops ^{a/}	temporary crops	rice ^{b/}		
Pernambuco	31.7	59.0	68.2		56.0
Maranhão	54.4	76.0	75.1		75.0
Ceará	20.3	28.9	—		25.6
P. do Grande do Norte	14.4	36.4	—		26.9
Piauí	22.4	41.3	—		35.9
Pernambuco	39.2	30.3	—		31.3
Alagoas	37.2	17.3	—		18.7
Sergipe	37.7	58.0	26.4		51.1
Bahia	11.0	33.6	—		23.4

Source: Based on data from Censo agropecuario de 1970 as presented by Serviço Censo de Roraima, "Estrutura Agrária, produção e emprego no Nordeste" IPEA/INAES, April 1978.

- a/ mainly perennial cotton for Piauí.
 b/ A subcategory of temporary crops.

Table 4
Northeast States: Percentage Distribution of Individual Income, 1970^{2/}

State	Percent of total income	
	Bottom 40%	Upper 10%
Pernambuco	7.2	67.3
Piauí	12.2	47.9
Alagoas	13.0	45.0
Sergipe	13.3	45.0
Paraná	9.1	55.0
Maranhão	10.0	47.2
Bahia	16.3	53.3
Ceará	12.2	47.4
	10.9	50.0

^{2/} Based on data from Antônio Luiz Abreu Santos, "Concentração de rendas e diferenças regionais do Nordeste", Revista Econômica do Nordeste (VI, no. 21), July/September 1974, as cited by the Project Unit.

Table 5
Project Area, Arari, and Northeast: Population = density Indices, 1970^{a/}

Region or State	total pop. ² per km ² of total area	rural pop. per km ² of land in farms	economically active pop. in primary sector per km ² of land in farms
Delta	24.2	18.7	5.1
Terena	34.8	16.7	4.9
Middle Paranaíba	11.2	10.5	3.5
Pico	12.3	12.7	4.4
Project area	21.3	14.9	4.6
Picuí	6.9	11.9	3.6
Northeast	18.3	22.0	7.0
Bahia	13.4	19.8	6.5
Ceará	29.7	21.3	6.2
Maranhão	9.2	20.7	7.1
Paraná	52.5	36.7	12.0
Rio Grande do Norte	29.2	17.8	5.3
Paraná	42.3	30.1	9.6
Alagoas	57.4	27.8	14.4
Sergipe	41.0	42.7	9.3

a/ Based on data from the Project Unit and from IBGE, Anuário Estatístico do Brasil, 1976.

Table 6
Significance of the Proposed Project Area in the State of Rio de Janeiro^{a/}

Measure	Project area	Rio de Janeiro	% project area in state
Total area (km ²) ^{b/}	37,900	250,900	15.1
Land in farms (km ²) ^{c/}	31,563	96,067	32.9
Total population (1000s) ^{d/}	825.5	1,734.9	47.6
Rural population (1000s) ^{e/}	557.2	1,368.0	40.7

^{a/} For the four subareas of Delta, Teresopolis, Middle Annular and Pico.
Excludes Vilanova.

^{b/} Based on data from the Project Unit and IBGE, Anuário Estatístico do Brasil, 1976.

^{c/} Based on 1972 INCEA data, as cited by the Project Unit.

^{d/} For 1970, based on data from the Project Unit.

^{e/} For 1978, based on estimates of the Project Unit.

Table 7

Project Area: Proprietary and Landless Small Farmers, 1977

Subarea	Proprietary		Landless farmers (renting but sharecropping)	Total small farmers	% landless in total small farmers
	< 50 ha.	total			
Delta	2,153	4,324	16,725	18,878	88.6
Teresina	2,438	5,263	19,983	22,421	89.1
Middle Park	2,550	4,371	9,521	12,071	78.9
Avis	6,831	11,328	2,249	9,080	24.8
Total	13,972	25,286	48,478	62,450	77.6

Source: Proprietary from INCRA 1977 as returned by the Project Unit. Landless from IBGE 1975 data as prepared by Project Unit and adjusted to 1977 levels.

Project Area: A Comparison of the Subareas

Table 8

Subarea	Area		Population		Target group (1000s families)	Total
	Total (km ²) (1000s)	Land in farms (km ²) (1000s)	Total (1970) (1000s)	Rural (1978) (estimate) (1000s)	Native share ^a Cripps	Native share ^a Cripps
Delta	8.9	7.6	216.1	160.8	16.7	18.9
Texasian	10.8	9.4	376.6	185.4	20.0	22.4
Middle Perm.	7.7	5.8	86.0	71.4	9.5	12.1
Pecos	10.5	8.8	146.8	139.6	2.2	9.1
Total	37.9	31.6	825.5	557.2	48.5	62.5

^a/ Source is Table 7 .

Source: Based on data from Project Unit .

9

Table

Project Area and Pinaré: Percentage Distribution of Small and Large Farms by Area, 1970
(1,000 hectares)

Area	Land in farms		Total	% of total	
	<10 ha	>500 ha		<10 ha	>500 ha
Delta	29.4	306.2	646.4	4.5	47.4
Tereima	32.7	384.6	763.1	4.3	50.4
Middle Arm.	24.7	117.6	343.1	7.2	34.3
Pinaré	45.4	98.5	627.3	7.2	15.7
Total	132.2	906.9	2,379.9	5.6	38.1
Pinaré	300.5	4,785.0	9,606.7	3.1	49.8

Source: Based on data from IBGE, Censag Agropecuario do Pinaré - 1970, as presented by Project Unit.

Table 11
 Project Area: Cultivable and Cultivated Land on Farms, 1972^{o/}
 (1,000 hectares)

Subarea	Land in farms	Cultivable		% Not Cultivated in cultivable
		Cultivated	Not Cultivated	
Delta	725.7	380.5	240.7	38.8
Theraina	963.4	593.1	211.6	26.3
Middle Parm.	551.1	168.5	265.2	61.1
Picaz	1,620.9 ^{u/}	605.2	679.7	52.9

^{o/} Based on data from INCRA, Estimativas Catastrales - 1972, as prepared by the Project Unit.

^{u/} These data seem to be based on a broader definition of the Área region than is used for other Project Unit data, which show Areas as having half the amount of land in farms.