

The Altamira I Colonisation Project

The colonisation process

The pattern of parcels

In mid-1973, in the area west of Altamira, the land extending on both sides of the Transamazônica had been, or was being, opened up by side roads built or being built, at five-kilometre intervals. The length of these side roads was initially 10 to 12 kilometres. Should the population grow, however, or if further colonists were settled, the roads could be extended. In any event, allowance was made for an extension to 20 kilometres.

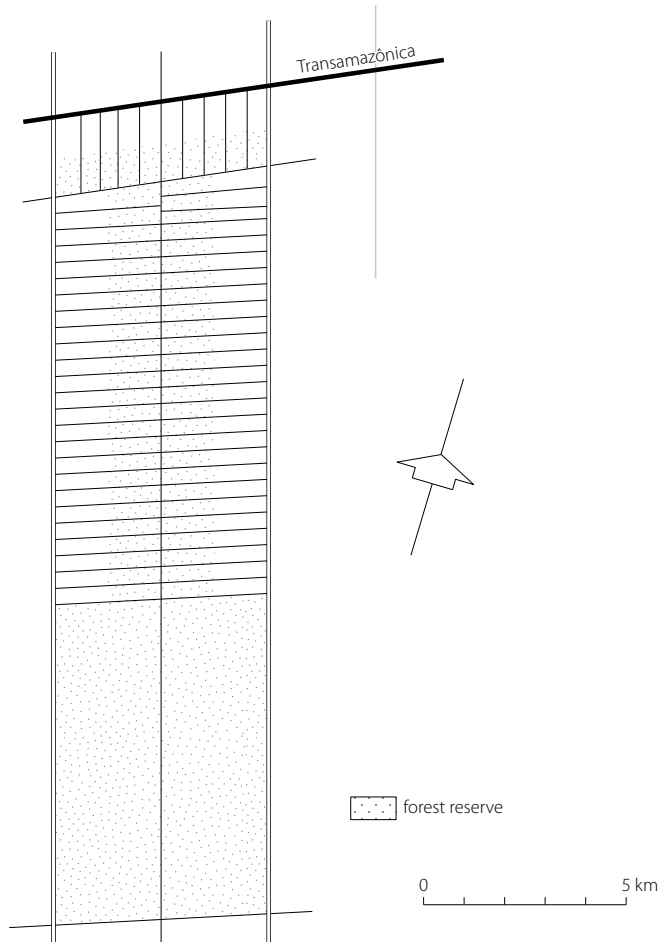
The *glebas* situated between the side roads were divided into parcels (*lotes*) of 100 hectares. Along the main road these had a length of 400 metres and a depth of 2500 metres. Along the side roads the dimensions were 500 x 2000 metres (see Fig. 8). This regular parcel form was adhered to as much as possible.

In addition to a *lote* of 100 hectares, which could be selected by the colonist, the families also received a *lote urbano* of between 1500 and 3000 square metres, at least if they settled in an *agrovila*.⁷⁶ On the *lote urbano* was built the dwelling. The area around the dwelling could be regarded as farmyard, offering scope for the keeping of small live-stock and small-scale gardening. The colonists not living in an *agrovila*, but in isolated houses along the Transamazônica, possessed only a single plot of land, of 100 hectares.

By mid-1973 an *agrovila* had been planned or already built on every *gleba*. In most instances, it was situated on a side road, but there were also a number of villages on the main road. At first, no more than 48 to 64 families were settled in these *agrovilas*, which meant that only the land at a distance of up to about 12 kilometres from the main road was given out, but since each *gleba* had a breadth of 5 kilometres and a depth of 20 kilometres from the main road, it contained about 100 parcels of 100 hectares and so colonisation could be continued within it through the granting of more land. This could be accompanied by an extension of the already existing *agrovila* or, if necessary, by the building of a second village or of isolated houses.

76 Small departures from these areas occurred as a result of differences in topography. They were generally of only a few hectares.

Figure 8. Pattern of parcels within a gleba of the Altamira I colonisation area



Source: INCRA (1972).

Almost immediately, problems also arose because insufficient account was taken in the planning of the parcel pattern of the nature of the soil and the terrain. There was consequently a considerable variation in the quality of the parcels, which caused a great deal of discontent, especially as the price for all the parcels was the same. The INCRA tried to solve the problems to which this had given rise partly by allocating more suitable parcels to the colonists, where necessary, but this sometimes meant that the colonist, living in the *agrovila*, found himself living farther from his land. Where the soil was very poor or the relief of the parcel made the land unusable, the parcel was not allocated, but maintained as forest. This did not always happen at the beginning, so that, in the mid-1970s, in some places one could see land that had been abandoned and reverted to forest. By 1976, the INCRA had also combined parcels which were unsuitable for arable farming into holdings of 200–300 hectares, where the colonists could carry on livestock farming.

Of the 100 hectares which were made available to each colonist only a half could be reclaimed. The other half had to remain *reserva florestal*. It was also laid down that reclamation had to take place in such a way that the remaining forest formed a continuous area (Ministério da Agricultura 1972b, 67). Figure 7 shows the way in which this was attempted. In the mid-1970s, the INCRA departed from its original standpoint that the *reserva florestal* of all parcels had to be so situated as to form a continuous stand of forest in each *gleba*. The forest reserve might be situated where the nature of the terrain made clearance undesirable or impossible.

The dwellings: facilities

Both the colonists along the road and the families concentrated in an *agrovila* would be accommodated in wooden houses with a floor area of 53.4 square metres. The dwellings contained a living room measuring 4.5 x 3 metres, two bedrooms each of 3 x 3.5 metres, a veranda of 6 x 1.5 metres, a kitchen of 2.5 x 3 metres and a wash-house constructed behind the dwelling. Because of the lack of mains water and sewerage, the toilet would be built at some metres distance from the house.

According to the plans, each *agrovilas* was provided with various basic facilities, such as a primary school, a pharmacy, a small building where a doctor could hold consultations, a cafe, and a shop for daily needs. The shops would be supplied by the Companhia Brasileira de Alimentos (COBAL), a company responsible to the Ministry of Agriculture, which had to ensure that the shops contained the necessary articles at reasonable prices. In this way, the colonists were not placed at the mercy of private traders who might exploit their position of power to demand exorbitant prices.

For other facilities, larger centres, known as *agrópolis*, were planned. The INCRA assumed that these would have an initial population of 1500 to 3000 and that they would perform a service function for some 10 to 20 *agrovilas*. Apart from a number of government offices, they would include a small hospital, other permanent medical facilities, cooperative buildings, small agricultural industries and secondary (technical) schools. In the official plans the maximum distance between the *agrópolis* was 40 to 50 kilometres, but there would naturally often be departures from this figure because the density of colonisation would not everywhere be the same.

Some *agrópolis* were already under construction in mid-1973, such as Brasil Novo, 45 kilometres west of Altamira. In mid-1973 there were mainly government officials, concerned with the colonisation process, living here. There were various offices of the government bodies in charge of the settlement and supervision of the colonists, as well as a few small industries and service establishments. A motel had already been completed in the neighbourhood of the centre.⁷⁷

Camargo christened the still larger service centres *rurópolis*. He proposed that these could be built at intervals of 140 to 280 kilometres and have a population of about 20 000. A number of *rurópolis* would be specially built, including the one planned near the intersection of the Transamazônica with the Cuiabá–Santarém highway. Further *rurópolis* would be created by the development of already existing centres. Not only Altamira, but also Marabá and Itaituba would assume a considerable service function

77 Settlements with central service facilities (*agrópolis*) were also proposed in the Rondônia colonisation areas (Ouro Preto and Sidney Girão).

in the near future as colonisation progressed and so they would emerge as *rurópolis* (Camargo 1973, 16 f., 21, 28). Measures to encourage this had already been taken.

This enlargement of function could already be clearly observed with Altamira. Until about 1970 it had been a very modest, sleepy little town on the Xingu. It consisted almost entirely of low, ramshackle little huts and houses, built along a few dusty and unmade north-south and east-west streets. The “urban” population of the municipality of Altamira was then only 5741. It lived chiefly from shifting cultivation, the hunting of certain kinds of animals, from gathering and from a little trade. It was a village without many social contrasts. In fact, everyone was poor. There was no electricity, sewerage or mains water.

Following the construction of the Transamazônica, however, the little town woke up. The simple commercial sector was greatly expanded. The number of cafés, bars and little restaurants became many times greater. A new cottage hospital was built. Electricity and water mains were laid. Several dozen taxis livened up the street picture. In mid-1973, preparations had already been made to provide some of the dusty and uneven streets with proper drainage and an asphalt surface. There was an air service to Belém, Itaituba, Santarém and Manaus three times weekly by the mid-1970s.

A distinction could now be made between the population of the *Cidade Nova* and that of the *Cidade Velha*. The latter was the old part of the town, while the former had its origin in the establishment of government departments and the settlement of officials concerned with the colonisation process.

The situation outside Altamira was different in the mid 1970s. Many side roads of the Transamazônica were of poor quality, so that they were almost impassable, particularly during the wet season. Many parcels were consequently difficult to reach, there were problems in gathering and transporting the harvest and the colonists were isolated. This isolation led, *inter alia*, to problems with food supply, especially during the wet season.

Photo 5. The town square of Altamira



Photo 6. One of the main streets of Altamira, mid 1973



Photo 7. Another of the streets of Altamira, mid 1973



Photo 8. The exit road from the fast-growing Altamira was improved in mid-1973

Land use

Under the original colonisation plan, the INCRA would reclaim a few hectares of land for each colonist, so that they could begin farming immediately. At first, the INCRA carried out this intention, but very soon it ceased to do so because of organisational problems. Consequently, the colonists received 100 hectares of forest land and they had to carry out the reclamation entirely themselves.

Without exception, the colonists began to clear part of the forest with the aid of simple equipment, such as an axe and machete; methods which were characteristic of shifting cultivation. Some of the trees were felled and the timber, after it had dried sufficiently, was then burnt. As a result, much of the land had the chaotic and “dirty” appearance characteristic of recently cleared forest plots. A number of, usually dead, trees remained standing, the plot still contained tree stumps or other tree remains and the crops were planted among them.⁷⁸ In general, clearance proceeded slowly, because the colonists had no money to pay for hired labour, nor did they wish to take up large loans to finance clearing. They had in fact to fall back mainly on the available family labour, but this was already largely needed for cultivating the few hectares of cleared land.

The some 1400 colonists who settled in the INCRA-Altamira area during 1971 had reclaimed, on average, 10 hectares of land by 1973. Those colonists who did not arrive until 1972 had, in general, reclaimed no more than two or three hectares for cultivation. There were colonists who reclaimed larger areas, but their numbers were small.

⁷⁸ The use potential of the arable land was therefore estimated at 70 % for the first year, but by the third year the proportion had risen to 90 %.

Photo 9. A recent reclamation



Photo 10. One of the agrovilas under construction near Altamira



Photo 11. A 'street' in one of the agrovilas



Photo 12. A colonist house along the Transamazônica near Altamira



The total area of cultivated land could therefore be estimated in 1973 at about 16 000 hectares, which meant that it had not yet reached the extent originally anticipated. According to the official plans, the total area in the first year should have been about 12 000 hectares and as much as 18 000 hectares in the second year. The target for the third year was a cultivated area of 24 000 hectares and 33 000 hectares for the fifth year. These figures were based on assumed averages per colonist of 4, 6, 8 and 11 hectares, re-

spectively (Ministério da Agricultura 1972b, 163).⁷⁹ The total area of land brought into cultivation in the Altamira zone was estimated in mid-1976 at no more than 22–25 000 hectares. The majority of colonists had cleared less than 10 hectares.

The colonists did not use fertiliser and practised a form of agriculture that bore the characteristics of shifting cultivation. This had the approval of the INCRA, which even assumed, in drawing up its colonisation plans, that the colonists would practise such a form of farming. They assumed this for the following reasons:

- the types of farming that would make possible a permanent and more intensive use of the humid tropical forest soils were only poorly developed in Brazil, certainly as far as family holdings were concerned;
- the majority of farmers who offered themselves as candidates for colonisation did not possess much agricultural training. Those who could be recruited in the North East, the Amazon region or elsewhere in Brazil were not capable in their new environment of much more than shifting cultivation;
- it is extremely difficult to change farming traditions radically in a short time. INCRA experts believed, therefore, that the colonists had to arrive at better production techniques by gradual means;
- it was difficult to realise the necessary conditions for the application of more perfected agricultural methods in the short term. Such methods required the availability of fertilisers, machines etc., which meant that the colonists had to borrow more money, that they had to receive more intensive technical training and that a cheap and plentiful supply of fertilisers had to be made available.

The latter was certainly not the least important problem, since no artificial fertiliser was yet being produced in Northern Brazil. Everything had to be imported from elsewhere, so that the use of artificial fertiliser was an expensive matter at the time and justified only for the cultivation of high value crops. Lime, for the improvement of acid soils, was also insufficiently used for the same reason. Its price was ten times as high in some parts of the North as in the South East.⁸⁰

Although they were free within certain limits to grow what they wished, nearly all colonists produced mainly rice, beans, manioc and maize, for which the natural environment was generally not unfavourable. The emphasis was also on these crops in the colonisation areas of Rondônia, with rice being by far the most important.

Initially, the colonists did not, in fact, have many other possibilities, because numerous other products could not yet be grown properly on the recently cleared plots, with their many tree stumps. A further point is that the colonist was generally already more or less familiar with the crops we have named and they did not make too many demands on his technical capabilities. These crops were also able to provide a major

79 There are two reasons for the failure to achieve the expected figures: a) it was assumed that 3000 colonists would be present at each date, which was unrealistic because settlement took place gradually; b) it was assumed that the colonist would already be able to cultivate four hectares in the first year because of the support of the INCRA, but the new settlers did not have more than two hectares available.

80 North Brazil accordingly consumed in 1971 only 0.2% of all the artificial fertiliser used in the country (Condurú 1973, 15 and 17).

part of the colonist's primary subsistence requirements and to supply him quickly with some income (Ministério da Agricultura 1972b, 163).

In 1973, therefore, the farming was still characterised by the production of commonly used food crops. The lack of large markets at not too great a distance acted as an important brake on the expansion of the range of crops and the colonists complained that they could not dispose of certain production surpluses, such as those of bananas, other fruits and manioc. The situation was more favourable only for rice, because the Companhia Brasileira de Alimentos (COBAL) had agreed to buy up the surpluses.⁸¹ In doing so, it paid at least the minimum price, but often a higher one.⁸² Other crops were not bought up or only to a more limited extent. In view of this situation, there was not yet too great a tendency for the colonists to become rapidly commercially orientated.

In mid-1976 an estimated 70–75 % of the cultivated land was still planted with rice (18 630 ha), approx. 10 % with maize and beans, and approx. 10 % with more commercial crops.⁸³ Many of the plantations had not yet reached the productive phase.

It was not the INCRA's intention, however, that the farmers should continue to produce mainly simple food crops which could also be consumed on the farm. The emphasis would be changed gradually to true cash crops, which was indeed also the aim in other colonisation areas, such as those in Rondônia. The INCRA was thinking, therefore, not so much of extensive commercial production of simple food crops such as rice, because it was doubted whether such commodities could be produced cheaply enough in the North to compete with the products of the North East and South East, but had much more in mind high value commercial crops, such as sugar cane, pepper, soya, cocoa, rubber, cotton, tobacco, groundnuts, mallow and fruits such as pine-apples, bananas, citrus and guaraná. Accordingly, it also encouraged the planting of these products. Various colonists had already begun growing different crops, while the INCRA and other government bodies were engaged in making available increased quantities of seeds and young plants.

In the short term, sugar cane was expected to be the most important crop. In 1972, the government had already planted 20 000 sugar cane seedlings on an area of 185 hectares with the aim of multiplying the cane to provide sufficient seedlings to plant an area of 1000 hectares (*Relatório anual de atividades* 1972 1973, 93). About 130 colonists, who incidentally also produced food crops, had been involved in the scheme. There were also colonists who had planted some cane on their own initiative.

It would soon be possible to process the sugar cane locally, since a sugar factory was already being built near the present cane fields, about 9 kilometres west of Altamira. The work was making relatively slow progress, because everything had to be brought in from elsewhere, but it was hoped in 1973 that the factory would be completed during the course of 1974. The production capacity would then be 500 000 bags per year. In 1976 the factory was processing sugar-cane into sugar and alcohol. Panagides wrote

81 If the harvests were good there were easily production surpluses. The rice yield could reach 1500 kg per hectare, 1000 kg milled. A family required only 270 kg per annum, however, for its own consumption. The harvest of brown beans was estimated at 800 kg per hectare, while the average family consumed 180 kg per annum (Ministério da Agricultura 1972b, 184).

82 This minimum price was 21 cruzeiros per bag.

83 The main cash crops are sugar cane, cocoa and pepper, occupying in 1975–766, according to the INCRA, 1256, 905 and 461 ha, respectively. Some 150 farmers grew sugar-cane, about 185 cocoa and about 400 pepper.

in 1973 that insufficient studies had yet been made to discover which crops best lent themselves to commercial production along the Transamazônica, but that the government nevertheless wished to show some quick results from its colonisation policy. It was therefore encouraging sugar production and had proceeded to build a processing factory (Panagides and Vande Lage 1973, 17).

Photo 13. Sugar cane field near the sugar factory under construction, mid 1973



Photo 14. Sale of pepper at one of the stops on the Transamazônica



No rubber trees had yet been planted, but cocoa and pepper were among the typical commercial crops already in production in 1973. Cocoa plants were introduced in 1973 and about 100 colonists had already planted this crop in that year. Pepper had also recently been introduced. There was considerable optimism with regard to this crop since the Japanese had begun growing it in the Amazon region during the 1940s and since it had appeared that it could yield very high returns per hectare. Pepper could even be one of the most lucrative crops. Incidentally, the success of the Japanese was due mainly to the great care which they devoted to the crop and to the use of fertiliser. Since many colonists had a low level of technical ability in agriculture, it was therefore by no means certain that the enthusiasm with which some of the Brazilian colonists took up the crop – or would shortly do so – would eventually result in pepper growing on a large enough scale to provide many farmers with a reasonable standard of living. It is noteworthy in this connection that the INCRA assumed that only about 10 % of the farmers in the Altamira I colonisation zone would be engaged in the exacting cultivation of pepper (Ministério da Agricultura 1972b, 164).

There was no incipient fruit growing or horticulture as yet in mid-1973. Many colonists did have a few banana trees, but they were unable to dispose of the surpluses, so that the fruit was used mainly for home consumption. Fruit growing and horticulture on any scale were not to be expected until food conserving industries were established. Several colonists had shown themselves in favour of this. They criticised the government's attention to wood-working industries and large-scale livestock holdings, which were of no use to the small arable holdings of the colonists.

Apart from the absence of a nearby market, a number of other factors hindered the rapid expansion of the commercial plantations, such as the delay of a few years before the trees and shrubs yielded a harvest, the absence until about 1974 of plentiful supplies of seeds and plants, the reluctance of the Banco do Brasil to advance long-term credits, the limited farming experience of many colonists and the late and inadequate advice supplied by the experts, who had first themselves to gain the necessary experience of local production conditions (Wesche 1974, 112; Kohlhepp 1976a, 197).

The farming practice of the colonists was almost wholly directed towards arable production. Cattle farming played an insignificant part. The colonists had little or no experience or interest in this field and it was not being propagated by the INCRA. The following were the reasons for the INCRA's attitude in this respect (Kohlhepp 1976a, 201):

- the soils in the Altamira zone were of good quality and lent themselves well to the production of arable crops. Livestock farming, on the other hand, could better be practised on the poorer quality soils, which occurred in numerous places in the Amazon region;
- cattle farming demanded more capital and provided relatively little employment;
- cattle farming yielded better returns on large holdings;
- the colonists who had already been settled or were waiting to be settled had little or no experience of cattle farming.

Very few colonists at that time possessed cattle.⁸⁴ Of the 2800 colonist families who had been settled in the field of operations of the INCRA-Altamira in mid-1973, no more than about 100 owned cattle, with a total of no more than 700 head. They held on average only a few animals, mainly zebu, which served both for milk and meat production. Livestock farming was limited mainly to the keeping of a few pigs or chickens, principally for subsistence. The breeds were those that had been traditionally raised in the region. There was no question of the introduction of highly productive cattle races from elsewhere. In the view of the INCRA, cattle farming was better practised by larger holdings on the poorer soils.

Farming techniques

Farming practice was still characterised in the mid-1970s by simplicity. In order to produce simple food crops and, eventually, typical commercial crops, the colonists had, without exception, adopted methods that were characteristic of shifting cultivation. No fertiliser was applied to the land, which was not surprising in view of the existing agricultural traditions in Brazil, the lack of knowledge of many of the colonists and the absence of fertiliser factories in northern Brazil. Only a few colonists were beginning to use very small quantities of artificial fertiliser for demanding commercial crops. There was hardly any livestock farming and those who kept cattle had so few animals that no large-scale production of manure was possible. Animal manure was therefore not used to maintain soil fertility. Insecticides were used, but by only a very few colonists and on a modest scale, since they also had to be brought in from elsewhere and were consequently expensive.

There was no mechanisation whatsoever. The forest was cleared with simple tools, such as axe and machete, while burning was an important additional aid. The methods used resulted in badly cleared “dirty” land, with tree stumps, remains of roots etc., so that the use of machines to work the land was impossible during the early years.⁸⁵ The land was cultivated only with the hoe.

Nor indeed did the colonists yet have the use of tractors or agricultural machinery for other purposes. They would have to buy them, but the majority were not yet able to do so. In the most favourable instances they had available a power saw, simple threshing machinery and an insecticide spray.

The colonist had consequently to rely mainly on manual labour, that of himself and of members of his family, for the reclamation of more land. It was to be expected, therefore, that further reclamation would progress slowly, unless colonists would shortly be able to bring in machinery or make use of paid labour on a larger scale. This was, of course, possible only if they obtained a sufficient income from the land already in cultivation or if they obtained bank credits for the purpose. In the light of developments until then, the former was not very likely in the immediate future, while colonists with modest farm incomes would obviously not be readily inclined to borrow

84 This also applies to Rondônia. In Ouro Preto only 40 of the 1000 families settled in 1972 had a livestock holding.

85 An exception was the land around the sugar factory (at the time under construction), which was intended for the production of sugar cane cuttings. This had been cleared by machinery and almost entirely freed of tree stumps and root fragments.

large sums of money, apart from the question of whether these could generally be obtained at all. It was most likely that many would try to reclaim the land mainly through their own physical labour.

This meant that it would become more difficult to increase the area of cultivated land as the holdings became larger. According to calculations made by the INCRA, the cultivation of 4 hectares of land with rice, manioc, maize and beans required about 295 man days per annum.⁸⁶ If it was assumed that each family had available 2.5 workers and that it was possible to work on the land for approximately 200 days a year, each family would not be able to cultivate more than 6–7 hectares. Consequently, mechanisation and paid labour would be needed to achieve further reclamation. The fact that colonists had to rely mainly on their own labour incidentally also explains why the tempo of reclamation was rather low in the early 1970s.

The agricultural advisory work of the ACAR-PA

The Brazilian government aimed to raise the level of farming skill of the colonists in order to create favourable conditions for a greater commercial bias in arable farming. The government also intended to assist the colonists in the cultivation of food crops that were still grown by traditional methods.

The Associação de crédito e assistência rural do estado do Pará (ACAR-PA) was brought in to realise these aims.⁸⁷ This body, which had the task of providing agricultural advice in the state of Pará, was given ample funds within the framework of the Programa de Integração Nacional, which enabled it to recruit more staff during the course of 1971 and acquire the necessary material to work along the Transamazônica.

At the end of 1972, the ACAR-PA had a total of 33 experts and 12 administrative staff working on the Transamazônica.⁸⁸ In 1975 it had 73 people in its service along this road with a qualification in economics or agricultural science. 59 of these were educated to secondary school standard and 14 to an advanced level.⁸⁹ Activity was concentrated in the zones of Altamira, Marabá, Itaituba and Santarém. In these places, ACAR-PA had established four *entros polarizadores* to enable it to carry out its work.

Advice was given for free. It concerned both arable and livestock farming, as well as nutrition, hygiene, health and housing. The agricultural advice related mainly to cultivation methods for food crops, production methods for commercial crops, such as sugar cane, pepper and cocoa, and to ways of conserving the soil. Advice in the field of nutrition related particularly to the composition of the daily menu, while that on

86 The cultivation of 1 hectare of rice required approximately 56.5 man-days, that of 1 hectare of beans 21 man-days, 1 hectare of maize 32.5 and 1 hectare of manioc 51 (Ministério da Agricultura 1972b, 165). The estimate of 295 man-days for 4 hectares was based on the assumption that part of the land would produce several harvests per year.

87 The Instituto Nacional de Pesquisas e Experimentação Agropecuária do Norte only carried out agricultural and pedological research; it did not provide advice.

88 The experts included seven agricultural engineers, 14 agricultural technicians with secondary education, one doctor, three social workers, seven workers with secondary education to give advice in domestic science and related fields and one nursing sister. At the end of 1972, the team of 45 people accounted for 26 % of the total personnel of ACAR-PA (*Relatório anual de atividades 1972 1973*, 23).

89 Agricultural advisers of the CEPLAC were also active along the Transamazônica, but they limited themselves to giving advice about cocoa and distributing seeds for this crop.

health and hygiene drew attention to the dangers of drinking unboiled or unfiltered water and to the necessity for building and using toilets. Advice began after the colonists had established themselves on their holdings. They did not receive any education before they moved.

The advice programme approved by the government ran from 1971 up to the end of December 1974. In mid-1973 it was not yet known what would happen after that date. ACAR-PA took the view that there was a permanent need for agricultural advice, although its intensity could be gradually reduced as the colonists gained more experience. Much would obviously depend upon the money and the manpower that the service had at its disposal. It was, therefore, by no means impossible that ACAR-PA would be forced to move its team largely to new colonisation zones in the course of time or to let its experts drift away.

ACAR-PA was dealing generally with farmers who were more receptive to ideas of farming improvement than the average country dwellers of North or North East Brazil. Nevertheless, its task was by no means an easy one. There were various reasons for this:

- the level of general education and farming knowledge of the majority of the colonists was low, particularly among the *nordestinos*;
- good farming practice and a satisfactory farm income depended not only on the nature and intensity of the agricultural advice, but also on numerous other circumstances, such as the availability of markets. The conditions of production during the previous years had been by no means favourable and this limited the effectiveness of the agricultural advice;
- many colonists lived scattered along the Transamazônica or in *agrovilas* along the side roads, which were difficult to access, particularly during the rainy season. These circumstances meant that the advisory service required a lot of personnel;
- the ACAR-PA possessed only limited means, as was indeed the case with many government services.

At first, the ACAR-PA enjoyed a great deal of confidence. The service had a high reputation among the colonists. This situation changed during the course of 1973, however, and this certainly did not make the task of ACAR-PA any easier. The reason was the failure of the greater part of the rice harvest on the holdings of a large majority of the colonists in the first half of 1973. At the end of 1972, ACAR-PA introduced a variety of rice that promised very high yields. Initially, the farmers were greatly in favour of the crop and some were unreservedly enthusiastic, but when the ears were due to form in May, the optimism changed to deep disappointment. Very few grains formed and the majority of colonists obtained very low yields. As a consequence, a lot of farmers had to tighten their belts, got further into debt, and did not have sufficient resources for the harvest of the following year to have a good chance of success. To add to their difficulties, the brown bean harvest also failed because of unfavourable weather conditions. Consequently, the situation was much less favourable in 1973 than in 1972, when the Altamira region produced 150 000 bags of rice and 35 000 bags of beans, which could have supplied 15 % of the Belém market, if required (*Boletim Informativo* 406, 27 December 1972). In September 1973 it was not yet known whether the government would come to the aid of the colonists and, if so, in what manner and to what extent. For many colonists this help probably would come at a time when they already had several difficult

months behind them. If ACAR-PA was to regain the confidence it once enjoyed, the government had to pay reasonable compensation.

The shattered confidence could lead to the accelerated creation of cooperatives. These did not yet exist in mid-1973. Most of the colonists had only recently been settled on their holdings, so it was understandable that they had not yet passed beyond the stage of rather vague plans.

Accommodation for the storage of the harvest

Apart from ACAR-PA, the Brazilian government also made use of the services of the Companhia Brasileira de Armazenamento (CIBRAZEM) for the construction of storage accommodation, thus enabling some of the rice bought up by the COBAL to be stored locally. With a fund of 2.36 million cruzeiros, made available within the framework of the Programa de Integração Nacional, CIBRAZEM built, in 1972, three metal storehouses, each with a capacity of 3600 tons, in Imperatriz, Marabá and Brasil Novo, respectively. A similar store had already been constructed earlier in Altamira. In 1976 a total of seven stores with a combined capacity of 350 000 bags were completed in the region of Marabá–Altamira–Itaituba–Santarém, three of them in the area near Altamira. These made it possible to buy up surpluses of the principal product (rice) and put them into store. The government paid the minimum price when it bought the crop. If the farmer succeeded in selling his harvest to private dealers he paid only storage costs.

The plan was to bring the total number of stores along the Transamazônica to eleven, because the storage space for rice was not yet sufficient during years of good harvests, especially since the area of cropland was continuing to expand. Consequently part of the harvest had to be stored in a primitive manner, which resulted in losses. The transport was delayed by bad roads and transport costs had risen as a result of increased fuel prices.

CIBRAZEM had also already built a number of smaller storehouses of combustible materials (*Relatório anual* 1972 1973, 5 and 12).

The granting of credit

Although its name suggests that ACAR-PA granted credits, this was not, in fact, the case. The farmers had to rely wholly on the facilities of the Banco do Brasil to obtain business credits, although ACAR-PA did offer advice and make applications for credit on the colonists' behalf.⁹⁰ When ACAR-PA supported a request for credit, the Banco do Brasil, in fact, almost automatically granted the request.

In order to be able to offer its services effectively, the Banco do Brasil had opened offices in the larger centres along the Transamazônica, such as Altamira, Itaituba and Marabá, or was planning to do so shortly. In Altamira, which was the service centre for the most important colonisation zone of the INCRA, the bank possessed a modern office, which was one of the most striking buildings of the little town.

The credit facilities offered to the colonists were very favourable by Brazilian standards, partly as a result of the special measures promulgated in 1971 to stimulate the agricultural sector in the North East and North (PROTERRA). No interest was due if

90 This bank also granted business credit to non-colonists.

the credit was granted for the purchase of *insumos*, i. e. materials such as seeds, fertiliser and insecticides. In other cases, the interest was 7%, since the government accepted responsibility for 5% (Carneiro 1972, 7). Consequently, the interest rate owed was lower than the rate of inflation.

The repayment periods for the loans varied according to the purpose for which the money was required. Credits for rapidly growing crops had normally be repaid within one year. For tree crops, such as cocoa, however, which did not yield an income until after several years, credits with a currency of 12 years were possible and repayments generally did not need to begin before a number of years. Loans could be made for very different purposes, such as the clearance of forest, the purchase of tools or machinery, the laying down of pastures, the purchase of seedlings etc.⁹¹

Many colonists made use of the credit facilities. They had, in general, little or no capital and so were forced to borrow money. The Altamira office of the Banco do Brasil was consequently quite busy and waiting periods of 30 to 40 days sometimes occurred before loans came through. The farmers were aware of these long delays and tried to make their applications as early as possible. Nevertheless, the slow processing of their applications sometimes created problems for them. Another complication was that the issue of the property deeds by the INCRA was not always quick enough.

The Banco was extremely cautious and granted particularly short-term loans, mainly to finance rice-growing and clearance operations (Wesche 1974, 112).

It was also possible for the colonists to borrow money, where necessary, from a special INCRA fund in order to be able to provide temporarily for their subsistence during the early stages.

Incidentally, not everyone was in favour of the quite generous credit facilities. Some people feared that the farmers would incur too many debts and not be able to meet their obligations, which might result in the forced sale of their holdings. Some inhabitants of Altamira, therefore, who were concerned with the well-being of the colonists and somewhat anxious about their future, advised them to take up as little credit as possible and to try to expand the holding gradually from their own resources. There was also a certain fear among the colonists of falling too much into debt. In mid-1973, however, it was still too difficult to judge to what extent the Brazilian government's credit facilities were having undesirable side-effects.

The obligations to the INCRA

Besides financial obligations to the Banco do Brasil, the colonists had debts to the INCRA. The Brazilian government originally took the view that the colonist should not receive his land, the dwelling and his equipment free, but should pay for them. This seemed better from the educational point of view, while the obligation to repay a portion of the costs might lead to a stronger tie with the holding, thereby reducing the tendency to move away as soon as there was any set-back. This was by no means unnecessary in a country like Brazil, where the ties between the land and the people who cultivated it were often rather weak. A further important advantage of the requirement to repay was that the government received money from which further colonisation could be financed.

91 8 year credits were available for reclamation with repayments beginning after three years.

The colonists had to pay approximately 4000–7000 cruzeiros for the land they received from the INCRA.⁹² They also owed about 4000–7000 cruzeiros for the house that they occupied.⁹³ These sums had to be repaid within a maximum period of 20 years, beginning after the third year.

The colonist further received from the INCRA a set of implements, including a hoe, axes, machetes, a scythe and a dibber, to the value of 153 cruzeiros. Lastly, he received a sum equivalent to six months legal minimum wage, in order to be able to provide subsistence for himself and his family. The minimum wage in 1973 was 240 cruzeiros per month.

The value of the tools had to be repaid within three years, beginning after one to two months, as did the subsistence payment (in instalments of 30, 30 and 40 %) (Ministério da Agricultura 1972b, 206). After four years, therefore, the colonist had repaid these debts, while he also enjoyed full ownership of the land and house after a maximum of 23 years.

He received a declaration of authorisation at the time he was settled, which gave him the status of legal occupier. After two years, he signed a deed of conveyance for the house and the land.

The selection of the colonists

The people who wished to be selected for settlement on a holding had to satisfy a number of conditions which did not apply exclusively to the Amazon region, but were also used for colonisation projects elsewhere. To sum up the conditions, the colonists:

- had to be at least 18 years old and not older than 60 years;
- they had to have done their military service;
- they must not have any serious physical disabilities or illnesses;
- they had to be of good character;
- they had to have farming experience;
- they must not enjoy considerable sources of private income.

There was a preference for married colonists with wide agricultural experience, aged between 25 and 45 years and with children who were already able to give some help on the holding. Such families were most easily able to score the necessary number of points at the selection stage. Families with many children were given precedence over those with few, at least if the other circumstances were the same. Illiterates were not excluded, although the ability to read and write increased the chances of being selected.⁹⁴ The possession of initial capital was not a prerequisite.

In fact, the requirements placed on the candidates were not severe and the selection was not rigorous. Those who could satisfy a few elementary conditions already stood a good chance of being selected. This explained why by no means all the colonists adhered to the procedure originally desired by the INCRA. At first, the latter selected the candidates through the agency of its regional offices, which took the responsibil-

92 Inclusive of land surveying costs.

93 1 cruzeiro was worth approximately £0.077 in mid-1973.

94 At the end of 1971, 1118 colonists had been selected for the project. 74 % of these could read and write, 1 % had enjoyed full primary education and 25 % were illiterate (Ministério da Agricultura 1972b, 202).

ity for sending the colonists on to the Amazon region. Various problems arose from this procedure, as a result of which, after some time, many candidates moved to the Amazon region on their own initiative before reporting to one of the INCRA regional offices. Provided a person satisfied a few minimum conditions and possessed the necessary papers (which he could easily ascertain for himself after some inquiry), he had a good chance of being eligible for a holding, either immediately or after a short space of time.⁹⁵

It has already been remarked that the plans for the opening up and colonisation of the Amazon region took concrete shape after the North East had again been struck by an abnormal drought in 1970. The government then emphasised that the foremost aim of the colonisation was to provide a better livelihood for *nordestinos*. In later publications, however, the government linked the colonisation less strongly to the problems of the North East. For the Altamira I project it was clearly stated that the colonists should be recruited from all areas with serious social tensions. Emphasis was also placed on the desirability of recruiting colonists from the more developed southern regions in order to raise the level of farming skill of the colonist population. In the detailed plan for Altamira I the desirable ratio between colonists from the North East and other problem areas and farmers from the more developed South and South East, was put at three to one (Ministério da Agricultura 1972b, 203; 1972c, 12).

Table 5 illustrates the regions of origin of the colonists who had been settled in the zones of Altamira, Itaituba and Marabá at the beginning of 1973. This summary shows clearly that, in practice, the colonists came from all parts of the country. It also appears that the North East (including the Meio Norte region) accounted for only 44.2 % of the total colonist population, with the states of Ceará and Rio Grande do Norte providing by far the greatest number of families.

A further remarkable feature was the considerable share of the "North." Apart from seven colonists in the Altamira zone, the colonists in question all originated from the state of Pará. A large number of them were already living in the area, because they had moved there of their own accord or on the initiative of the government of Pará. These families had been resettled and now all occupied land legally.⁹⁶ The remainder were people who had moved to the colonisation zones from other, relatively nearby, parts of the state of Pará.

In the early 1970s there was some change in the origin of the colonists. At the end of 1971, 900 colonist families had been settled by the INCRA in the zone of Altamira and 218 were awaiting settlement. 57.7 % of these 1118 families came from the North East and Meio Norte while, according to Table 5, the share of these two areas had fallen to only 47 % in 1973 (Ministério da Agricultura 1972b, 202).⁹⁷

The colonists from other parts of Brazil, particularly those from the South East, proved in general to be better equipped to deal with the difficulties of the Amazon region than were the *nordestinos*, partly because they had a better agricultural and gener-

95 If this, nevertheless, did not eventually happen, the applicant generally succeeded in finding employment somewhere as a labourer. A number of Brazilians also migrated in the early 1970s to the Amazon region with the sole intention of finding paid employment in the colonisation zones.

96 In the Altamira area about 100 families were involved.

97 In addition, 16.7 % from Pará, 7.5 % from Minas Gerais, 4.4 % from Rio Grande do Sul, 5 % from São Paulo and 8.7 % from the remaining states.

al education and because many also brought some capital with them. The enthusiasm for colonisation in the North East, on the other hand, was not so great as had originally been expected.

Table 5. Colonist families settled at the beginning of 1973 in the colonisation zones of Altamira, Itaituba and Marabá, by area of origin⁹⁸

Zone	Total number of colonists	Division of the colonists by area of origin					
		South	South East	Meio Norte	North East	North	West
Altamira	2559	543	147	335	862	566	106
Itaituba	571	109	37	4	136	264	21
Marabá (Itupiranga)	643	3	34	262	71	114	159
Total	3773	655	218	601	1069	944	286

Many *nordestinos* found themselves in a much weaker position compared with the colonists from the South and South East, because of a number of circumstances already described. In addition, the relatively limited interest among the *nordestinos* for the colonisation projects in the Amazon region may also be attributed to the fact that they were less ambitious and that more attention was being devoted in the early 1970s to solving the rural problems of the North East itself.

Consequently, in the early 1970s, the INCRA showed a certain preference for colonists from the South and South East, who were more likely than the *nordestinos* to make a success of colonisation. In mid-1973, the early arrival was expected in Altamira of some 600 colonists, the majority of them from the more developed part of the country.

A provisional assessment

More intensive government supervision than before

It has appeared from the above account that the Brazilian government did attempt to supervise the colonisation process. The principal measures, already referred to, may be briefly summarised once more:

- the reservation of land along the roads through the Amazon region to enable the land to be occupied in an orderly fashion;
- the building of side roads to open up the land along the Transamazônica;

98 The figures have been provided by the INCRA and relate to the place of origin of the colonist. The state of origin is naturally by no means always the state where a colonist was born. The Table defines as the South: Rio Grande do Sul, Santa Catarina and Paraná; as the South East: São Paulo, Rio de Janeiro, Guanabara, Espírito Santo and Minas Gerais; as Meio Norte: Maranhão and Piauí; as the North East: Ceará, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe and Bahia; as the North: Pará, Amazonas, Amapá, Roraima, Rondônia and Acre; as the West: Mato Grosso, Goiás and the Distrito Federal.

- a planned subdivision of the land and systematic land grants to the colonists;
- the selection of colonists;
- the building of *agrovilas*, including a school and a store, among other facilities, and the building of larger service centres;
- the building of houses for the colonists, including those living scattered along the Transamazônica;
- the provisioning of the shops in the *agrovilas* and other centres;
- the propagation of seeds and young plants to assist the dissemination of the various crops;
- the provision of an agricultural advisory service;
- the provision of loans for subsistence and for the purchase of simple tools;
- the making available of credit facilities;
- the buying up and removal of certain production surpluses;
- the building of storehouses to hold the harvest.

To these may be added the following:

- the provision of medical facilities, particularly in the larger centres along the Transamazônica;
- the training of labour for various jobs, both agricultural and non-agricultural, by means of special courses (including the use of power saws).

Although it may be noted, therefore, that the government supervised the colonisation process and did so more intensively than before, it was still by no means possible to speak of a successful colonisation. The colonisation process during the preceding years showed a number of obvious faults and shortcomings. These were partly the result of inadequate planning and partly of plans being carried out incompletely or too late. A number of unforeseen unfavourable circumstances also arose, as may appear from the following provisional assessment of what had been achieved up to the middle of 1973.

Unsatisfactory settlement forms; late and inadequate provision of facilities

A debatable aspect of the planning was the fact that a large proportion of the farmers were settled in *agrovilas*. Although there were most certainly arguments in favour of a concentrated form of settlement, there were also very serious disadvantages to the colonists from such a form of settlement. The farmers lived several kilometres from their land, sometimes as much as five to eight while, at certain times of the year, they needed to visit it frequently. Moreover, they did not own any means of transport, not even bicycles, and these would be difficult or impossible to use in any event, because of the poor quality of the side roads.

The consequence of this situation was that a considerable number of colonists were forced to go and live on their *lote* during the busy season of the year, under a simple canopy (*tapiris*) constructed of wood, leaves and other materials. If they lived there alone, the bond was broken with the family that remained behind in the *agrovila*, while they also had to provide completely for themselves or be regularly supplied with food. If they took their families with them, they were faced with another set of practical

domestic problems and the children no longer attended school. Among some of the *nordestinos*, in particular, the children were readily kept away from school.

Because of this state of affairs, a great many *agrovilas* were, in fact, inhabited largely only at the weekends during the farming season. During the week many houses were closed up.

Living on the land incidentally had another advantage. There were difficulties in keeping free range small livestock (poultry) in the *agrovila*. People could keep livestock on the *lote urbano* only if they provided fencing, but such measures were not needed out on the land.

In 1973, the normal situation was that the colonists lived outside the *agrovilas* in self-built structures or built their homes in the village themselves.⁹⁹ Only during the first two years did the INCRA build houses. The majority of the colonists found the simple wooden houses of the INCRA, which were said to let in the rain and to be quite poor in other respects, too expensive. As a result of this unforeseen development the INCRA decided as early as 1973 to build no further new *agrovilas* and to permit the colonists to live on their land. In the villages there then lived only those colonists who wished to live there of their own accord. Newcomers were settled there only if they expressed a preference to do so. In several *agrovilas* the colonists had rented out some of the houses to labourers.

It was not to be expected that the limited range of facilities existing in the villages would be increased to any extent, since many colonists were showing a preference for living on their land.

Problems also arose for a great many colonists because the INCRA or other bodies did not always succeed in providing the promised facilities in time for the colonists to obtain immediate benefit from them. During the early 1970s colonists had arrived to find that their *agrovilas* or houses were not completely ready for them. Some of these were families who had been selected through the regional INCRA offices. The latter were by no means always sufficiently familiar with the many problems facing the executive organs of the INCRA in the Amazon region and so could not properly judge how many colonists they should send out. The regional offices were also sometimes under pressure. After selection had taken place, a great many colonists had given up their work and sold their possessions, and were more or less compelled to set out for the Amazon region. They could not wait if there were delays in the building of the villages. A further point was that it was also necessary to leave by a certain date in order to be able to clear some of the forest in good time and prepare the ground before the beginning of the farming season.¹⁰⁰ Some of the problems were caused by the fact that, in addition to the officially selected colonists, other candidates were arriving on their own initiative. They naturally also wished to be settled as soon as possible.

In order to understand the problems which had arisen, it should be remembered that the Brazilian government wished to show quick and spectacular results from its colonisation activity, so that, at the beginning, it made a great deal of propaganda and urged the INCRA regional bodies to proceed quickly in selecting and sending out

99 In June 1973, 2550 families had been settled in the area of Altairaira, but only 2065 houses had been completed. In the area of Marabá and Itaituba the situation was still more unfavourable (Arruda 1973, 33).

100 The most favourable period to arrive was May–August, enabling part of the land to be prepared for cultivation before December. The agricultural season proper lasts from December to June.

colonists. The offices in Belém and Altamira were not willing to admit immediately in response to this that it was, in fact, impossible to absorb and settle satisfactorily large numbers of colonists in a short time.¹⁰¹

In 1973, the operation was carried out with rather less haste. Up to September of that year, INCRA-Altamira was able to prevent colonists arriving in large numbers. There may also have been a diminution of interest in the country for a pioneer life along the Transamazônica.

The failure to provide facilities in time meant that some of the colonists arrived late and so had difficulty in clearing sufficient land in time, or it meant that the colonists had to go and live in *tapiris*. In mid-1973, a number of colonist families were living in primitive accommodation of this kind, some of them along small jungle tracks. This was the situation in the zone 150 kilometres west of Altamira, for example.

Delays in the building and handing over of houses had, incidentally also already resulted in some of the colonists building their own homes in consultation with the INCRA.

Nor were the facilities in the *agrovilas* by any means everywhere ready in time. In a great many villages, which had already been inhabited by colonists for a considerable time, people still did not have the use of *privadas*, shown in the building plans, which was not very conducive to hygiene. The INCRA promised to build these as soon as possible, but it had insufficient money or suitable labour or it had more important facilities to provide. The colonists could naturally build themselves simple *privadas*, especially since the ACAR-PA distributed leaflets setting out clearly the various construction possibilities, but many colonists considered that the INCRA should do this. In addition, by no means everybody saw the necessity of privies. Many families also previously lived without a *privada* and those who lived outside the *agrovila*, on the land, also had to manage without one.

Another area where the executive bodies failed up to mid-1973 was in the provision of a piped water-supply. In some *agrovilas* immediately adjoining the Transamazônica, the Fundação Serviço Especial de Saúde had provided a water-supply network, but in the *agrovilas* situated along the side roads in the Altamira I colonisation zone this was not the case. Here, the authorities had limited themselves to the sinking of simple wells. Where not even this had been done, the colonists had to drink spring or river water.

Only the *agrópolis* of Brasil Novo had a mains electricity supply.

Lastly, there were delays in the field of educational supplies. The INCRA built simple schools, both in the *agrovilas* and elsewhere for the needs of the scattered population, but the location of some of them was not ideal and not everywhere had they been completed in time or provided with the furniture and the school materials needed to enable the schools to function properly. The provision of these items was the responsibility of the Ministry of Education.

There was a lack of doctors and other medical personnel and the often inaccessible *agrovilas* were seldom if ever visited by a doctor. In order to improve health care, the Brazilian government had provided various new medical facilities along the Transamazônica and expanded or improved existing ones by 1973. These facilities varied

101 Alberto Tamer phrased his criticism as follows: "O INCRA logo a inicio das obras de entrada transferiu sem qualquer planejamento centenas de familias para Altamira, talvez com o objetivo de demonstrar realizações" (1971, 99).

from simple stations with one doctor to small hospitals with a few dozen beds. They were concentrated mainly in the larger centres, such as Altamira, Marabá and Itaituba. Anyone requiring medical care was compelled to travel to one of the larger centres, more or less far away, hoping that rapid and adequate help would be available. Nevertheless, the health situation was certainly not without its problems. Malaria was prevalent. An unexpected hindrance for many colonists was a species of mosquito which occurred in large numbers at several places during the rainy season along the Transamazônica.¹⁰² With their bites the *borrachudos* had already caused a great many cases of illness, as well as undermining people's resistance. A number of children had already spent some time in hospital as a result of these mosquito plagues. The use of mosquito nets could have prevented a great deal of misery, but many colonists had no experience with them, while their housing was not always suitable for their use. Many people also found them too great a luxury.¹⁰³ A further point, already mentioned, was that the great majority of colonists did not have a piped water supply in their houses and sanitary provisions (*privadas*) were still inadequate or completely lacking. According to local experts, infant mortality was still high, but precise figures could not be obtained.

This medical provision served not only for the colonists, but also for the road builders and the Indigenous population. There were also mobile units at work and a start had been made on immunising the workers and the colonists against various diseases.

The shortcomings noted here were partly a result of the circumstance that a number of government bodies were involved in the work. First class coordination was required, but this could not always easily be achieved. The failures could also be attributed to the lack of experience, finance and manpower. Panagides wrote that the INCRA staff in Altamira in 1972 consisted of no more than 80 people and that there was a turnover during that year of 90 % (Panagides and Vande Lage 1973, 19). The great distances to the important urban centres undoubtedly also formed a serious handicap.

Limited investments

Criticism can also be made of the fact that the government ultimately invested very little per family in the colonisation project, as appears from the following points:

- far too little money was allowed for the construction of a number of good secondary feeder roads. The Transamazônica was of very good quality by Brazilian standards and traffic could move quite quickly along it, but the side roads were downright bad. Their quality was even such that they were almost or entirely unusable during the rainy season, with the result that it was difficult or impossible to bring in and dispose of part of the harvest and the colonists had difficulty in reaching their land (bicycles were out of the question). This situation also made it difficult for doctors to reach the villages and there were often delays in the supply of articles to meet the basic necessities of life. Many agrovilas were isolated for months during the rainy

102 The increase of these mosquitoes may have been assisted by the existence of large expanses of stagnant water on both sides of the Transamazônica, as a consequence of the fact that this highway had interrupted the natural drainage in a number of places.

103 Something was being done about expanding these. In 1977, for example, a small 100-bed hospital was under construction.

season and some farmers had to walk tens of kilometres to buy certain provisions in Altamira. Some bodies were buried on the land because of the lack of transport to Altamira;

- the wooden dwellings in which the colonists were housed were extremely simple and would probably already have largely perished or fallen into disrepair before they had been paid off;
- the road surface in the agrovilas was of very poor quality;
- the facilities in the villages were limited to the barest essentials. There was electricity only in the already existing small towns and in the agropolis of Brasil Novo. The *agrovilas* had no electricity supply. Only those centres situated along the main road had a piped water supply. The little schools were extremely simple and, because of the low salaries, they were by no means all staffed with trained teachers. Where provision had been made for a doctor, who was presumed to visit the *agrovilas* occasionally, such provision was limited to a very simple wooden building. Most of the *agrovilas* did not yet have a church. The INCRA had built an “ecumenical temple” in only four villages, although churches were under construction in a few villages;
- the farmers were provided with very limited farming equipment. They received only a few tools, so that reclamation was very crude, as was also usually the case elsewhere where shifting cultivation was practised.

The total investment in the Altamira I project, intended for 3000 colonists, was estimated in 1972 at 78 824 million cruzeiros. This sum included the value of the land and the houses and the costs of educational and health facilities. This meant an investment per colonist of 26 275 cruzeiros (worth at that time nearly £1630), of which 15 284 cruzeiros had to be repaid.¹⁰⁴ The investments were therefore quite modest. On the other hand, the Brazilian government did spend large sums on the construction of new roads to open up the country, such as the Perimetral Norte. The government evidently wanted to open up a large part of the Amazon region as quickly as possible and found it less attractive to use the available money to ensure the proper development of a relatively small area. The enormous sums of money being invested in the ambitious roads programme might also have been used for the building of good side roads, for mechanised help in the clearance of forest and for various other kinds of support.

The problem of markets

A serious problem was the lack of nearby markets and local processing industries, the only exception being the sugar factories. In mid-1973, there were only a few of these along the Transamazônica, because there were no large population concentrations along this highway. The nearest large urban centre was Belém but, because of the absence of direct links, the distance between Altamira and Belém was still about 1460 kilometres. In Belém, however, the farmers of Altamira had to compete with the products brought in from elsewhere, including those from areas situated along the Belém–Brasília highway. In view of the high transport costs, such competition was by no means easy. In other places, such as Manaus, the situation was not much more

¹⁰⁴ The costs of education, health care and road construction did not have to be repaid (Kleinpenning 1977, 14).

favourable. The markets in the Centro-Sul and abroad were too far away. The farmers would therefore have to concentrate on high-grade products, while the government would have to provide support by such means as establishing local food-processing and conservation industries. The future would show what the outcome would be. In the mid-1970s agriculture was still very much adapted to the production of simple food crops, partly for home consumption, and rice was by far the most important of these.

As a result of this still low degree of commercial orientation little had come of the planned crop rotation schemes on the majority of the holdings. This might mean that the colonists would eventually be compelled to clear fresh areas of land and let the cropped areas rest.

Disappointed colonists

The circumstances described above were part of the reason why there was little optimism or satisfaction among the majority of colonists in mid-1973. A great many colonists were disappointed or even embittered. Many had lost confidence in ACAR-PA, which had supplied the wrong seed, and in the INCRA, which had promised more than it could achieve. Only a small proportion of the colonists had so far been able to achieve a certain level of prosperity. For the great majority, however, the farm income had been very modest as a result of the still small area of cultivated land, the crude farming practices, the limited markets and the occurrence of poor harvests. Even if they were better off than where they came from, they do not earn very much more than the official minimum wage, which, for the majority of families, was no more than a hunger wage. According to the INCRA, 10–15 % of the colonists had left again as a result of sickness or other circumstances.¹⁰⁵ Experts in Altamira, who had no official connection with the INCRA, remarked that these percentages meant relatively little. A great many colonists would have preferred to return to their place of origin. Those who lived along the side roads, in particular, had a difficult life. The fact that they stayed on was sometimes the result of divisions within the family, but very often solely of the fact that they had incurred debts through accepting a house, land, equipment and a few months' wages from the INCRA. Particularly those whose harvests failed were finding things very difficult in mid-1973.

Many inhabitants of Altamira foresaw a relatively sombre future for the colonists. They feared that the 1973–1974 rainy season would be even more serious for many people than the previous one, because they had passed through difficult times and had little resistance left. In late 1973, the Northern bishops had already expressed their grave concern about the fate of the colonist population.

By the end of 1975 the situation along the Transamazônica had not improved. Taking the Altamira project as an example, a total of 4125 colonists had been settled there between the commencement of the scheme and the end of 1975. But no fewer than 1125 had left again, i. e. about 27 %, particularly after 1973. There were similar re-emigration rates in the Marabá and Itaituba zones.

105 Alberto Tamer also referred in the second edition of his *Transamazônica* to this emigration of colonists. He stated: "os primeiros resultados estão sendo altamente negativos, com dezenas de colonos retornando para suas terras" (1971, 99).

Potential farm incomes; the reality

Many colonists, therefore, found themselves in difficult circumstances. In 1972, however, the Brazilian government stated in a popular publication that the colonist could expect to enjoy an income of 12 000–15 000 cruzeiros within a year, or considerably more than the official minimum wage (*Uma nova marcha ao norte / Une nouvelle marche vers le Nord* n. d.). In calculating potential farm incomes the INCRA had taken as its starting point two different cultivation schemes. The first scheme assumed that the farmers grew rice, beans, maize, manioc, cotton, castor oil plant, tobacco, pepper and cocoa. The second scheme was largely the same as the first, except that groundnuts, soya and guaraná were grown instead of the last three crops. In both instances, a cultivated area was assumed of 11 hectares.

According to calculations made by the INCRA in 1972, following the first cultivation scheme could yield a total gross income of 15 623 cruzeiros, while expenses, inclusive of labour, would be 8288 cruzeiros, giving a net income for the farmer of 7335 cruzeiros. 764 cruzeiros should be deducted from this sum, being $\frac{1}{20}$ of the investment due to be repaid, so that the net income for consumption would then be 6571 cruzeiros. This was an average of 548 cruzeiros per month or 219 cruzeiros per worker, assuming 2.5 workers on a holding. These monthly sums were then higher than the legal minimum wage, which was only 172.8 cruzeiros at the time the calculation was made.

The above sum of 6571 cruzeiros would be the net income available for consumption. The net farm income, however, would be greater, since the farmer also earned 764 cruzeiros towards repayment of his debt, 1210 cruzeiros by not making use of paid labour and 780 cruzeiros because he did not sell part of his farm output, but consumed it himself. The *rendimento real* would therefore amount to 9325 cruzeiros.

The sums involved in the second cultivation scheme were somewhat higher. The gross income was estimated at 15 911 cruzeiros and the exploitation costs, including labour, at 7497 cruzeiros, giving a net income of 8414 cruzeiros. The disposable income, after compulsory deduction of 764 cruzeiros for debt repayment, was 7650 cruzeiros or 637 cruzeiros per month (255 cruzeiros per worker). The *rendimento real* in this instance would be 10 246 cruzeiros (Kleinpenning 1977, 16 and 19).

The Brazilian government concluded on the basis of these calculations by the INCRA that there was a better life in store for the colonists. In our view, however, too rosy a picture was painted of the initial phase. It was assumed that the farmers had available 11 hectares of land, but most of them did not do so for several years (officially five). The INCRA also assumed that the farmers produced a number of high-grade commercial crops, that the marketing conditions for the produce were normal and that the farmers obtained normal yields. There was certainly no question of the latter, at least in 1973. The observation that one could obtain an income above the minimum wage was not very realistic, since the legal minimum wage was extremely low. It was, in fact, not much more than a hunger wage. After the poor harvests of 1973 the majority of colonists did not earn even this amount. Only in the longer term was there possibly a prospect of greater prosperity.

Expansion of employment

As well as being optimistic about the income per holding and per worker, the Brazilian government cherished good expectations of the profitability of the investments it was required to make in the Altamira I project. Assuming a total investment per colonist family of 26 275 cruzeiros and an average work force of 2.5 persons per holding, this gave a figure of 10 500 cruzeiros needed to create one job in the agricultural sector. It should be remembered, however, according to the INCRA, that this one job, through multiplier effects, created four other "indirect" jobs. In other words, the capital necessary to provide a living for 3000 colonist families created a total of a further 30 000 indirect jobs (Kleinpenning 1977, 32). If the total investment of 78 824 038 cruzeiros was divided by the total number of jobs, it would appear that the creation of one job by the INCRA ultimately required an investment of only about 2100 cruzeiros. This was very low in comparison with the investments often required in other sectors.

To place these positive conclusions in perspective, however, the following should be noted:

- the assumption that one job created in agriculture created four other jobs elsewhere was somewhat optimistic, certainly when the colonists continued to concentrate on the production of simple food crops;
- in order to create "indirect" jobs, further investments would naturally be required by private concerns or other government bodies;
- it was not only the volume of employment that was important. There was also the question of quality, i. e. of the income yielded by the employment.

The danger of soil exhaustion

If the situation in mid-1973 gave cause to view the future with some concern, such concern was further justified when it was also realised that the farming methods employed were rather crude. The detailed colonisation plan originally drawn up for Altamira I recommended that no fertilisers should be used during the early years, but that advantage should be taken of the natural soil fertility (Ministério da Agricultura 1972b, 18).¹⁰⁶ The colonists were therefore working the land at the time in the traditional manner. They were using the reclamation methods associated with shifting cultivation, not applying fertilisers and this usually resulted in an appreciable deterioration in the condition of the soil over a period of three to four years.¹⁰⁷

In mid-1973 it was not yet clear how it was intended to prevent or solve these problems. Would the farmers simply let the reclaimed land lie fallow when yields declined and would they then take another part of their land into cultivation? Or would they try to plant tree and shrub crops as soon as possible in order to limit soil exhaustion?

106 Advantage was also taken of the natural fertility in the Rondônia colonisation area and no use was made of fertilisers.

107 Thanks to the fact that the INCRA had so far restricted colonisation near Altamira to the zones with fertile terra roxa soils, the IPEAN experts believed that arable farming could be practised for a longer period before marked degradation of the soil occurred. They had in mind a period of 10–12 years, which nevertheless meant that problems would arise in a relatively short time.

Or would they try to introduce a crop rotation in which legumes and green manures played an important part? Much would depend upon the support and advice provided by the INCRA and other government bodies, and upon the speed and the degree to which farming was able to take on a commercial character.

It must be concluded in this connection that the Brazilian government acted with rather too much haste.¹⁰⁸ It had settled colonists on soils that it knew might be relatively quickly exhausted if simple agricultural methods were employed, while there might be no positive or real possibility in the near future of maintaining the soil fertility.

It was, in fact, by no means unlikely that the farmers would be compelled to practise shifting cultivation permanently, which would mean that, with a 20-year rest period, only 5 hectares of the holding could be exploited annually (including the *reserva florestal*).

Conclusion

To briefly summarise the above, we may state that the colonists in the Altamira area had to contend with a number of serious problems and that, in mid-1970s, one could hardly speak of a well-prepared and intensively supervised colonisation. The majority of colonists still enjoyed little prosperity. One should speak rather of a greater dispersal of poverty and hardship than of a remarkable socio-economic advance. The colonisation was still modest in extent and, partly for this reason, had so far scarcely contributed towards the reduction of the many serious problems in the North East. It was questionable, moreover, whether tens of thousands of *nordestinos* would be prepared to emigrate to the Amazon region, even if there was more government propaganda to encourage them to do so. It was still difficult to judge how the process of colonisation would develop in the near future, but there was certainly no reason for unlimited optimism.

Various countries, including the Andean states, had tried during the decades before 1970 to make their thinly populated regions more accessible and to encourage colonisation there, with the aim of relieving population pressure in other parts of their territories. Analysis of these attempts shows that the results have nearly always been modest. The fact is that well-prepared and properly supervised colonisation projects demand a lot of capital and know-how, which developing countries lack, while there are generally all kinds of other problems which hinder the colonisation work still further. Sponsored colonisation projects therefore nearly always progress very slowly in these countries. The alternative is not to control the colonisation process, but then the enthusiasm for a pioneer existence often fades, while those who do venture upon such a course are frequently faced with so many difficulties that they cannot solve them unaided. These colonists, therefore, often remain poor.

Brazil felt obliged to opt for sponsored colonisation for the occupation of the vast North but, due to hasty planning, limited government investment, insufficient deployment of manpower, lack of experience of many officials (partly as a result of a high turnover), inefficient organisation, insufficient coordination of the work of the various government bodies, as well as various unexpected obstacles, the results up to the mid-1970s were unsatisfactory.

108 Panagides reached a similar conclusion (Panagides and Vande Lage 1973, 16).

If the situation described in this chapter was to be improved, in any event, more capital and more manpower would have to be invested in the preparation and execution of the colonisation projects. It would have been no easy task to find large numbers of capable officials prepared to assist in the realisation of the colonisation process in the Amazon region, but it seems to us that it would have been less of a problem to invest more capital. As long as the government was willing to continue with the building of great highways, such as the Perimetral Norte, the need for which was still debatable, lack of money formed no excuse.

The following were the minimum requirements for more satisfactory results:

- the construction of good side roads, usable at all seasons of the year;
- the making of more generous provisions in the fields of housing, education and health; the necessary facilities needed also to be completed in time;
- the development and dissemination of farming techniques to assure the maintenance of soil fertility;
- the creation of conditions that would allow farming to become strongly commercial in character;
- the encouragement of mutual cooperation among the colonists (creation of cooperatives and associations of workers).

We have concentrated so far on the more qualitative aspects of the colonisation, without considering the size of the programme so far realised up to the present. Turning to the number of colonists settled, we find that, despite of all the efforts of the government bodies, nothing had come in practice of the plan to settle at least 100 000 families along the Transamazônica by 1975. In January 1974 a total of only 4697 families had been settled in the zones of Altamira, Itaituba and Marabá. Since then, because of a change in government policy which will be discussed later, the process of settlement had gone even more slowly, so that, by the end of 1975 no more than some 6000 to 6500 families had been settled, with the Altamira area taking more than 3000.

A total of 29 *agrovilas* had been completed, one of which was situated near Marabá and all the rest in the zone 20–120 km west of the little town of Altamira. In the area of Marabá and Itaituba nearly all the colonists had been settled on their actual holdings, which stretched away from the Transamazônica while, in the zone of Altamira, many colonists had moved on to their land of their own accord. In practice, therefore, dispersion had become the dominant form of settlement. In the *agrovilas* there were no more than about 1500, often not permanently inhabited, houses.

The number of *agrôpolis* remained limited to two, i. e. Brasil Novo (45 km west of Altamira) and Miritituba (near Itaituba). The latter, however, contained little more than the barracks of government officials. Only in Brasil Novo had a considerable part of the originally planned facilities been realised. A similar situation existed in respect of the first stage of the *urópolis* of Presidente Medici, situated near the crossing of the Transamazônica with the road from Cuiabá to Santarém. It had a population of about 2000.

It is also clear from the numbers of colonists quoted above that, in fact, nothing had come of the plans to make an important contribution towards relieving the socio-economic problems of the North East. Ultimately, only a relatively small proportion of the colonists came from the North East. From the beginning, the INCRA had also admitted colonists from other regions and had even done so increasingly since

1972. It was the INCRA's original intention in settling experienced farmers from the South East to give the colonists from other regions the opportunity to become familiar with better farming methods. At a somewhat later stage, however, the INCRA also settled many non-*nordestinos* simply because large numbers of prospective colonists were arriving from all parts of the country and because it hoped that better results might be achieved with non-*nordestinos*. The INCRA made this departure from the original plans acceptable by pointing out, *inter alia*, that in this way various problems of the *entro-Sul*, such as minifundism, could be reduced.

According to data from mid-1973, about 40 % of the colonists in the zone of Altamira originated from the northeastern states (inc. Maranhão) and 26 % from the three southern states. A not inconsiderable proportion originated from the North (19%). There were certain differences between the projects as far as the origin of the colonists was concerned. In the Marabá area, for example, more than 50 % of the colonists were *nordestinos*, but in the zone of Itaituba they made up only 25 %.¹⁰⁹

The most successful colonists generally came from the Centro-Sul. Both because of their greater knowledge and experience and the possibility of taking over the holdings of other colonists, many of them had been able in the course of time to settle on parcels which were more accessible or had lower relief and better soils. According to Wesche, they had also already become more commercially orientated than the other farmers and were beginning to use insecticides, artificial fertilisers and other inputs in the process. Because they often lived more or less together in particular *glebas* the influence which these more successful colonists had been able to exercise on the others remained below expectation. Particularly in the area west of Altamira lived relatively many farmers from the Centro-Sul (inc. those of Japanese origin) (Wesche 1974, 112). Accordingly, the commercial orientation was relatively strongest there.

109 Data supplied by the INCRA (personal communication).

