

CHAPTER 68

ECOLOGICAL AND SOCIO-ECONOMIC ASPECTS OF EXTRACTIVISM ON THE MIDDLE RIO NEGRO

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INTRODUCTION

Although in decline, extractivism holds a strategic place in the economy of the populations of the Middle Rio Negro (see Figure 65.1, page 769). It is seen, however, as a demanding and low-status activity. An earlier study (Oliviera, 1975) emphasized a clear preference for agriculture, at least in discourse, if not in practice. The Middle Rio Negro region (municipios de Barcelos and de Santa Isabel) has a rural population density lower than 0.2 persons km⁻² and only a minimal percentage of the territory is cleared. Pasture land and timber exploitation zones are practically absent from this region. The status of land tenure is blurred, ranging from private property (or treated as such) to concessions for exploiting plant resources, to State land which can be freely occupied and exploited. Land tends to be claimed and exploited if it contains products like rubber or Brazil nuts with high market values. The local landscape is a mosaic of seasonally flooded or non-flooded forests, *caatingas*, *chãvascais* and *campinaranas*, on podzols or gleys, and occasional patches of *terra firme* forest on oxisols. The distribution of these formations partly determines the species used for extractivism.

The isolation of the community of Taperera contributes to the maintenance of socio-economic structures inherited from the beginning of the century. The community consists of 11 families totalling about 50 people. Their lives are characterized by a high level of mobility because of extractive work and various opportunities for temporary work.

In this example from the Middle Rio Negro, some of the ecological and socio-economic bases of extractivism are identified and extractivism is analysed as a component of the production system. The results presented should be interpreted as investigations of the dynamics, viability and possibilities for change of extractivism as a method of managing the forest.

AGRICULTURE AND EXTRACTIVE ACTIVITIES

Agriculture is based on manioc, and uses traditional *caboclo* practices. Swiddens are dispersed around the community within about thirty minutes walk. Manioc dominates the other cultivated species (*Ipomoea batatas*, *Colocasia esculenta*, *Dioscorea* spp., *Musa sapientum*, etc.). The swiddens are cultivated through two cycles of manioc and are enriched with fruit species (*Ananas comosus*, *Anacardium occidentale*, *Inga edulis*, etc.) from the second year on. The fallows are then maintained to produce fruit for three or four years before being abandoned. The entire rotation cycle lasts eight to ten years. At present, there seems to be neither intensification of pressure on land, with corresponding reduction in rotation length, nor conflicts over land rights. Each family considers that it needs at least two one-hectare swiddens for producing manioc. In addition, some 27 species of fruit trees are planted around the houses and spice plants (*Allium fistulosum*, *Ocimum* spp., *Capsicum frutescens*, *Coriandrum sativum*, etc.) are grown in containers above the flood-level and out of reach of marauding poultry. Nevertheless, manioc, together with hunting and fishing, is the central element in the diet and is also produced for exchange.

The local extractivist system is based on three main products (Table 68.1): *piçaba* fibre from *Leopoldinia piassaba*, used to make brooms; *sorvas*, *sorvinha* or *sorvaö* which is latex from *Couma* spp. used in chewing gum; rubber, the latex of the *seringuera*, *Hevea* cf. *spruceana*. Other plants are collected for other subsistence uses (house construction, domestic uses, fishing equipment, etc.).

An analysis of the changes in extractive activities over one generation shows that some products have been abandoned and the extraction sites are now generally closer to the houses. The extractive zones are heavily concentrated around Taperera but once spread from the mouth of the Rio Branco to the east and São Gabriel 500 km upstream.

Two factors underly the progressive concentration of the extraction zones around Taperera. First, *empresas* (remote collection trips, ordered by the patron which involved several tens of people for long periods) have become rare or been abandoned. Exploitation is more individual today. Second, since the 1960s, certain products, such as latex from *balata* or *maçaranduba* (*Manilkara bidentata* and *M. huberi*) are no longer collected as they have scarcely any application in world markets.

Phytoecological studies show that extractive use of forest resources can be compatible with long-term forest management. The study of a *seringal* tapped annually for 30 years shows active regeneration of *Hevea* cf. *spruceana* and that only trees < 20 cm dbh are tapped. Similarly, a study in a *piçaval* in Rio Preto shows that taking fibres from the leaf sheaths does not impair the palm's growth and it maintains its ability to regenerate.

Ecological and socio-economic aspects of extractivism (Rio Negro)

Table 68.1 Principal characteristics of the species exploited by the Taperera community

Local name	Plant species	Plant part	Extraction technique	Vegetation type	Conditions for extraction	Economic value
<i>Piaçabeira</i>	<i>Leopoldinia piassaba</i> Wall.	leaf sheaths	cut	forest on podzols, gleys	accessible at high water level	+++
<i>Sorvinha</i>	<i>Couma utilis</i> Mart.) Muell. Arg.	latex	tapping	forest on podzols, gleys	accessible at high water level	+++
<i>Seringa</i>	<i>Hevea c. spruceana</i> (Benth.) Muell. Arg.	latex	tapping	alluvial flooded forest	accessible at low water level	+++
<i>Cipó titica</i>	<i>Heteropsis</i> sp.	aerial roots	cut	various types of vegetation	-	+
<i>Castanheira</i>	<i>Bertholletia excelsa</i> H.B.K.	fruits	gathered	forest on oxisols	fruiting	+
<i>Sorvão</i>	<i>Couma macrocarpa</i> Barb. Rodr.	latex	felled or tapped	forest on oxisols	-	+

Rarefaction of resources seems to be only a secondary factor in explaining the decline of extractivism in the Middle Rio Negro. The spatial distribution of the different activities does not generate competition for land between agriculture and extractivism. The concentration of extraction zones rather reflects the closer interaction of agriculture and extractivism. Families rely less on a purely extractive strategy and more on mixed agriculture/extractivist systems. The distribution of different activities over the year shows that people have to make choices which favour one component of production at the expense of others. Climatic and hydrological constraints affect the organization of different activities and influence food strategies. The decision whether or not to clear a cultivation plot is a decisive stage in determining a family's self-sufficiency in food for the coming year. Forests can only be cleared in the dry season. However, this is also the best season for tapping rubber along the seasonally flooded banks. On the Rio Negro, a few hours away by canoe, *seringa* tapping is accompanied by plentiful fishing, seen as a complementary activity to rubber tapping. By contrast, the *piaçabas* and *sorvinhas* are most easily accessible in the wet season. They are found in forests on podzols or gleys in the upper parts of the Rio Negro's many tributaries. When the waters are high, the extractive zones can be reached in one or two days by canoe. In these remote areas, game is relatively abundant and completes a diet based on manioc flour. Fibre cutting and tapping *sorva* could be done all year round, but in the dry season difficult transport and competition with agriculture and rubber tapping makes them less attractive.

Thus, the choice of food production strategy partly determines the practice of extractivism. Hunting and fishing are closely linked to the ecological situation of the extractive resources exploited: fishing provides complementary food in the *seringa* season when the water is low, hunting is complementary to *sorva* and *piaçaba* collection when the water is high.

Meanwhile, individual itineraries are very variable, the strategies chosen reflecting the families' judgement of the available options, taking into account immediate necessities and room for manoeuvre. Market criteria, complementarity of activities, food security and personal preferences will together determine the choice of activities. Within a given ecological framework, the principal criteria on which a choice is based will be socio-economic.

THE EXCHANGE NETWORK

The Taperera study shows a wide variety of strategies, organized around the poles of extractivism and agriculture, most strategies being a mixture of these activities. Extractivism depends on the *aviamento* system, whose hold also extends to the circulation of manioc flour. Schematically speaking, three types of products are exchanged: manufactured goods make up the extractors' *rancho*, advanced by the patron in exchange for forest products; forest products are siphoned off by the patron to outside markets; manioc flour follows a double cycle, as it is produced for home consumption or circulated via the patron to other extractors, as part of their *rancho*. This series of exchanges involves numerous intermediaries in a rigid, vertical system where the patrons control the circulation of products and block conversion of a barter economy to a monetarized economy. Very little or no money appears in the local economy. The inequality of the exchanges must be emphasized. At the root of the system (the price of the extractive product), the deductions made from it and the price of goods making up the *rancho* are all imposed by the patron (Table 68.2). The *caboclo* lacks any point of reference for market prices, and is indebted from the first transaction: the Taperera study showed that in seven out of 13 cases, the balance of the extractive operation was negative, the income gained being insufficient to cover earlier debts; only in four cases did the extractor make a profit and in two cases there was open conflict with the patron. Despite the persistence of the *aviamento* system, a weakening of patronal power has been noted in this region. The patron/*caboclo* relationship has been altered by many factors, including decline in the market for extractive products, economic depression, attempts to diversify activities for holders of a little capital, the presence of small traders competing with patrons in the transport and sale of products, and finally an emergent political power.

THE EXERCISE OF POWER, NEGOTIATION OR RUPTURE?

Besides the economic link between patron and client, there is a social relationship, and the interplay of these two factors determines a variety of power relations. As they lose their rigidity, these forced relationships allow

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Table 68.2 Comparison of theoretical income from extractive and agricultural activities in July 1991

	Products of extractivism			Products of agriculture
	<i>Piaçaba</i>	<i>Sorva</i>	<i>Seringa</i>	Manioc flour
Weight prepared (kg day ⁻¹)	30	15	7	-
Weight prepared (kg month ⁻¹) ^a	450	225	175	200
Price (Crs kg ⁻¹)	100	60	100	150
Gross income (Crs)	45 000	13 500	17 500	-
<i>Tara</i> (percent) ^b	15	15	15	-
Net income (Crs)	38 250	11 475	14 875	30 000
Monthly price of the <i>rancho</i> (Crs) ^c	10 000	10 000	5 000	5 000
Theoretical income (Crs)	28 250	1 475	9 875	25 000
(US \$) ^d	80	4	28	70

^a Quantities calculated on the basis of 15 days work a month for *piçaba* and *sorva* extraction, because of hunting time, rainy days and distance from Taperera, and 25 days a month for *seringa* tapping.

^b The *tara*, or deduction made by the patrons varies according to the product. For *piçaba* it varies 10 to 20% according to the degree of humidity of the fibres. For *sorva*, the deduction roughly corresponds to the weight of the baskets made on site for carrying the coagulated latex. For *seringa*, it is a tax levied by the owner of the *seringal*.

^c The price of the *rancho*, i.e. the investment needed to live in the forest and in the village, includes ammunition, which makes up about 20% of its value.

^d \$US 1 = 350 Crs in June 1991

more room for manoeuvre. The patron aims to maintain his authority, and develops strategies to keep the client to himself, avoiding loss of labour. These strategies either rely entirely on the imposition of the patron's power, or are toned down by negotiation. In the first case, patrons may use coercion and may even keep tight control of people working in the extraction zones. They may also reinforce the vertical structure of the *aviamento* system, blocking opportunities for the *caboclos* to create an independent market. Patrons also manipulate debt, and Brazil's inflationary context allows the financial value of patron-client transactions to remain vague. Lastly, a patron can develop the loyalty of his clients, for example by friendly negotiations, bestowing apparent favours, or providing alcohol, for example. He can also actively participate in local religious festivals, where the clients drink quantities of alcoholic drinks out of all proportion with their meagre incomes.

The *caboclos* try to minimize the hold the patrons have over them, to keep their options open, though one of the commonest responses to the patron's manipulations is extreme conservatism allied with fatalism. Some, without entirely escaping the *aviamento* system, succeed in managing and controlling their debt. This success is usually linked to a certain level of education. Others try to maximize food security, by producing excess manioc flour which can be exchanged. Lastly, some try to ally themselves with the patrons, hoping to place themselves in a more comfortable

position in the system by changing their social status. However, there are some who break completely with the *aviamento* system, and try to develop new activities, based on monetarized exchange, either in agriculture or by using natural resources like aquarium fish (*piaba*). Others leave and take their chance in town.

In this situation, despite a wide variety of *caboclo* responses, few innovations appear in the system, and the patrons' control is omnipresent. The mobility of the *caboclo* makes the social fabric very fragile, leaving little room for collective projects which could oppose the patrons' monopoly. To satisfy their desire for autonomy and stabilization, constant themes in their discourse, the *caboclos* apply themselves to subsistence agriculture. Their ultra-conservative behaviour, strengthened by the game played by political and economic actors who cultivate dependency and client relations, suggest that the system is unlikely to change. Oliveira's (1975) monograph, written nearly twenty years ago, notes this immobility.

Our analysis of the production systems places agriculture and extractivism together as complementary activities. Several features stand out, related to their socio-economic value and their contribution to the diet. Agriculture has a marked social value, and is a symbol of autonomy, food security and a sedentary life, and thus also childrens' education. The lack of commercial outlets and technical skills and equipment limits it to subsistence agriculture. But the practice of extractivism rests on the enhanced value of traditional relationships with the forest (Allegretti and Schwartzman, 1987), and the fact that it is a way of life which gives access to hunting and fishing. This complementarity should be taken into account in all development projects, because while extractivism, as practised in the Rio Negro, conserves the potential of the environment, the socio-economic system which goes with it maintains poverty and dependence.

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