

The Management of Conservation Areas by Traditional
Populations: The Case of the Upper Jurua Extractive
Reserve.

DRAFT

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1. Executive Summary

The Upper Jurua Extractive Reserve is an example of a large conservation unit (500.000 ha), inhabited by a population of rubber tappers and riverbank cultivators (5,000) claiming legal tenure and management rights over its territory. Nearly one century of rubber tappers' presence did not inflict significant damages on the forest cover which remains almost intact except at the main river banks, given the low demographic densities associated with the rubber tappers' activity in the Amazon forest. Biological diversity is very high according to recent field studies, although game may be under pressure in many areas.

In section 1, this study describes the biophysical settings and the local history of the rubber tappers, mentioning the indigenous groups that live today near them. I try to explain how rubber tappers came to adapt themselves to a life mode based on forest resources. In section 3, I extend the historical presentation to show how the rubber tappers' movement came to develop the Extractive Reserve concept in order to guarantee for the future this forest mode of life. I stress that this goal involves the delicate problems of resource tenure and property. The rubber tappers' selected wise institutional solutions for these problems on the basis of their past experience and also learning from wrong approaches. Section 4 describes in some detail the current patterns of resource use in the Upper Jurua Extractive Reserve, emphasizing zoning, traditional resource tenure and new institutions for democratic representation and for effective rule-enforcement. This section closes the exposition of the basic institutional features of the Upper Jurua Extractive Reserve as an instance of the concept proposed by the rubber tappers' movement, as well as of the practical issues and difficulties of its implementation.

The following sections focus on organization issues. Section 5 points out that women and elders do not have a place in the Reserve's political structure, in spite of the important economic contribution of both groups (a point not obvious in the case of elderly people). Section 6 uses a historical presentation to argue that the interaction among local, national and international institutions was essential to the establishment of the Reserve. These institutions were grass-root, non-governmental, governmental and academic in nature. This wide array of partners alone could balance the weight of local power structures against both land reform and conservation strategies. Sections 7 to 8 address the relationships between the traditional population's organizations and the non-governmental, conservation organizations. It is argued on the basis of the rubber tappers' case that traditional populations must have their own non-governmental organizations in order to have power to directly express their demands. It is argued also that they must have local, territorially-based institutions for dealing with land tenure, management and planning issues. Political strengthening exemplified by autonomous bodies and funding is a condition for a balanced and respectful interaction between external agencies, either governmental or non-governmental, and traditional populations.

2) Background

Biophysical setting

Acre covers an area of 15,258,900 hectares, and contains a majority of areas of high timber and non-timber forest product potential and soils of good quality. In spite of a rapid increase in deforestation during the last decade, the state of Acre retains about 95% of its original forest cover, and its potential for conservation remains high, unlike the neighboring state of Rondonia. The Alto Juruá Extractive Reserve has 506.186 hectares (5.062 km²), situated between the parallels 8_40 S and 9_30 S, and between the meridians 72_00 W and 73_00 W, at the westernmost Brazilian border with Peru. Satellite imagery has shown that the Reserve area has suffered a minimal forest disturbance of below 1.0% until the end of the 80s.

The Reserve comprises all tributaries to the Juruá river from the Amonia river up to the Breu river at the Peruvian frontier -- excepted the Indian territories. These tributaries are Rio Amônia -- inhabited by rubber tappers on its lower course and by the Ashaninka on its upper course tributary, Rio Arara, Rio Tejo (having a Jaminawa-Arara group at the headwaters of its affluent, the Bage river), Rio Acuriá, Rio São João, Rio Caipora and Rio Breu (inhabited by the Cashinahua and by the Ashaninka upstream from its middle course). Rio Amônia is the boundary between the Reserve and the Serra do Divisor National Park (to the North); Rio Breu is the boundary between the Reserve and Peru. Rio Tejo is most important to the Reserve, both economically and socially. It is its biggest river, including the Rio Bagé, and a number of smaller tributaries at its headwaters: river Dourado, Riozinho, Camaleão, Boa Hora and Machadinho. Each of these rivers forms a community on its own, and in old times these rivers had each a separate trade post.

The Upper Juruá rivers have turbid waters which flow on sandy, flat riverbeds, logged by fallen trees. The total annual rainfall is 2,100 to 2,200 mm. The rivers have characteristic meanders which from time to time are cut off from and originate the oxbow lakes rich in fish. The Juruá river proper has a narrow flood plain ("várzea"). During the rainiest quarter (January-March) rainfall rises to 750 mm. During the driest quarter (July-September), rainfall drops to 100-200 mm. There are therefore two sharply contrasting rain regimes, the "inverno" (frequent, heavy rains) and the "verão" (rare, sparse rains). During the "verão" there appear small rapids (called "cachoeiras") which together with sand banks hinder the navigation except for canoes. Temperature varies from 16 to 32 degrees Celsius -- with a mild average of 24 to 26 degrees and falling as low as 8 degrees during the cold waves of June or July. Fishing is a significant part of the diet only on the Juruá margins and particularly during the dry season, although the migratory "mandi" (Pimelodidae) and the sedentary "bodes" (Loricariidae) are found everywhere.

The resident population has not in the past inflicted significant damages on the forest cover which remains almost intact except at the main river banks. The area has a high degree of biodiversity, as indicated by studies by Brown, Benson, Cardoso and others (1982,1989,1991) based on Lepidoptera,

Odonota, and Anurans. The area, including the Reserve and the National Park, has been identified, as an important center of endemism and biodiversity and has been classed among the highest priority areas for conservation, including endemic species (Rylands 1990; Miranda e Mattos 1992). At least sixty mammal species have been confirmed, from which about twenty and five are regularly hunted for food.

The Reserve has several forest types, including patches of bamboo forest, open forests with a high proportion of palm trees and vines, and dense forest. As one leaves the river margin, the landscape is full of small hills and streams. According to Radambrasil Project, soils are predominantly eutrophic, having high fertility but being fragile due to its composition of clay and sand on a hilly surface crossed by streams.

Cultural History

The Reserve had in 1991, according to the census conducted by the Association's direction 5.314 people distributed among 854 households and 10 fazendas. Households form localities (colocações), with 2-3 households each on the average. Localities are more populated along the Juruá banks. Thus, overall density is of 1.05 hab/km², ranging from 0.85 in the hinterland to 2.6 along side the Juruá. Most inhabitants say that they are "rubber tappers" (75%), while the remaining are "agriculturists". In the latter category are included carpenters, boat-makers, tinsmiths, blacksmiths, petty-traders and petty fazendeiros, all of them also cultivators". These parents and great-parents of this population arrived in the area early in this century with the rubber boom, and some during the second world war. How did they succeed to adapt themselves to the tropical forest environment?

In 1870 the first steamship went up the Juruá, bringing rubber traders. By 1876, the Middle Juruá received the visit of a steamboat every month, and in 1877, the first North easterners began to arrive. By 1890 the Upper Juruá rubber estates reached the whole Reserve to the Breu River -- the Reserve southernmost boundary, which is also the end of Hevea brasiliensis distribution. During this period, the Cashinahua, Poyanawa, Kontanawa and other Panan groups inhabiting the upper Juruá Basin were removed from the rubber extractors' path, often exterminated by killers who organized massacres for a living, abducting Indian women to be turned over to rubber tappers as prizes, while only on exceptional occasions "domesticating" Indians in settlements that were to supply forced labor to plantations and rubber estates. Many of these Panan retreated to Peruvian territory, beyond the reach of Hevea brasiliensis, where their descendants live to this day, with the days of the correries (massacres and slave raids) embedded in their memory. The Ashaninka (Campa), on the other hand, followed a different course, entering Acre during this same period, possibly forming alliances with patrons in their skirmishes against the Amahuaca and other Panoan groups, their traditional enemies.

The Cashinahua were one of the indigenous peoples who suffered most the extractive front impact, but some survived in Brazilian territory by integrating themselves in the extractive enterprise since the 1920s. Since that time, the Cashinahua and other surviving Panoan Indian groups remained tied up to the

rubber estate patron system in the Jordão river East of the Reserve. Possibly dating from the post-1920 period, after the severe slump in the rubber market, the aggressive expansion of rubber tappers abated. Several intermarriages occurred between rubber tappers and Panoan women, particularly at the upper Tejo River, whose headwaters join these of the Jordão. These mixed-blood seringueiros, called "caboclos", a term which Acre people use only to denote indigenous people, retain much of the cultural heritage of their Pano ancestors, particularly evident as a deeper knowledge of religious and technical uses of plants. The current president of the Rubber Tapper's Association is a representative of these seringueiros with a "caboclo" ancestry.

The convergence between Indian population and immigrants can be better appreciated taking into account the slump in the rubber market which took effect after 1912. Since the Belém-based trade companies went bankrupt one after another, the surviving rubber tappers had to hunt, fish, gather and cultivate manioc in order to provide their own food. The rubber tappers reacted to the crises by taking advantage of the fertile alluvial soils. The remote Tejo River, which due to its high productivity continued to produce rubber, started to import manioc flour from the river rubber estates, while diversifying the extractive products, people traded in hides and timber, besides rubber. Together, headwater areas of upland forests like the Tejo (with rubber, timber and hides) along with downstream, riverside areas like the Moa River (with agriculture) soon contributed a diversified productive base for exports from the Juruá area of Acre to the Lower Amazon. By 1936, the Juruá River as a whole produced cacao, manioc flour (exported to Manaus and Belém), muscavado sugar, cane brandy, coconuts, rice, copaiba oil, andiroba oil, vegetable ivory (jarina), timber, as well as otter, jaguar, deer and snake skins, and in fact Cruzeiro do Sul exports its high-quality manioc flour to this day. Local tinsmiths and blacksmiths began to supply work implements such as knives and buckets used in rubber extraction; clothes were confectioned locally; river vessels came to be built in the region, inaugurating a solid tradition of master-artisans that survives to date on the Upper Juruá. To this day, sugar, tobacco, and beans are produced along the Juruá banks within the Reserve, being sold either to the city of Cruzeiro do Sul or to the Juruá tributaries, from where comes most rubber.

Recently a similar process is on its course. From 1982 to 1992 rubber prices fell from US\$1.80 to around 40 cents as paid to tappers. At the Riozinho Estate in the Tejo headwaters, an area of nearly 30.000 hectares researched by me since the early eighties, the number of families fell from a maximum of 68 to 53 between 1982 and 1991, dropping to around 48 in 1993, a decline to 70% of the previous level that hardly may be considered mass flight, the overall Tejo river population did not drop significantly. But the difference is that at 1991, still before the crises was over, only 65 percent of the houses extracted rubber, while 35 percent cultivated riverside plots producing tobacco, sugar and beans, while others sought employment on small cattle ranches near the river. Thus, the main result of the acute fall in prices in the 80s was a transference of many families from the hinterland extractive zones to riverside agricultural activities.

This process is one explanation why the rubber estates remained in existence. They became forest estates in which rubber was just another article in a diversified agrarian-extractive economy, based on the domestic forest economy of rubber tappers who now became collectors, hunters, fishermen, manioc farmers and small ranchers as well. With a low population density (about 1 inhabitant per km²), the economy based on abundant game and fish reserves, on fertile swidden agriculture with long fallow periods, and on an arsenal of forest resources created several patterns of permanent occupation of the forest niches, whose fabric resided in groups of two-three houses (*colocações*).

Rubber tappers and riverside cultivators did not necessarily witness a decline in their standard of living. If measured in terms of quantity and quality of food consumption, in terms of work routine and in terms of personal liberty, the quality of life for rubber tappers probably improved. Besides manioc and sugar, crops included rice, maize, beans, peanuts, watermelons, squash and potatoes - planted on the river banks during the dry season for quick harvest with little labor input, as one may witness these same items planted and harvested along the banks of the Juruá between June and October. The situation worsened, of course, in terms of imported goods, but this probably affected more the patrons than the tappers.

Many Brazilian authors have assumed that survival conditions in the forest were intrinsically inferior to those of the arid backlands of the northeast and therefore tappers, lured to the forest by the promise of fortune, would remain in extractive activities only as long as chronic debts forced them to stay. However, there are no reports of rubber tappers who starved to death as a result of the rubber crisis, in contrast with the backland Northeast's droughts. The forest had supported indigenous populations with population densities comparable to those of the rubber extractors for centuries, and indigenous subsistence techniques were easily adapted by tappers with a minimum of imports, basically limited to iron tools and weapons for hunting. In other words, it seems likely that rubber extractors had their own interests in the forest, as they do today.

3) The legal status of the forest residents

Neighbouring indigenous groups

Today, both the neighboring Cashinahua who live in the Jordão river at the eastern side of the Reserve, and the Ashaninka who live in the Amonia River have formalized cooperatives and have gained land rights on their own. Their land are demarcated. On the other hand, the legal status of the rubber tapper's land is at the moment transitional.

Lack of citizenship rights for traditional forest residents

Until 1990, the Reserve area was for all practical purposes the private property of Consulmar, through a subsidiary (Santana Agropastoril Empreendimentos Ltd.). Consulmar de facto ownership of around 6.000 km², was only partially backed by valid titles. The rubber tappers or riverine cultivators who tilled the land could in theory claim titles to areas not exceeding one hundred hectares, but such rights were neither known by them nor enforced by the land agency.

Santana leased the area to a main Cruzeiro do Sul businessman who in turn who in turn supplied several local "patrons" at a number of trade posts placed at every rubber-producing river, having its headquarters at the Tejo River's mouth. The leasing contract, stating not the area leased, but the number of trails it contained was used as collateral to obtain generous loans from the local agency of the federal Bank of Brazil, each "pair of trails" being worth 400 kg rubber's value. During the first half of the eighties, rubber had its price set at around US\$3,00 by government (at least three times as much it was worth in the international market). Brazilian tyre industries and others purchased this rubber under a quota scheme. Loans were for half the eighties free from interests and were readjusted below the inflation rate, and they were only one of the many incentives. In other words, government policies were extremely favourable to landowner (being liberal on the issue of valid titles) and to traders.

The rubber estate was based on two main rules. All household heads (the "titulares", literally "title-holders") were registered in the Trade Post's books. Each had to pay an yearly "rent" for each rubber-tree trail his household (i.e. him, his sons or in rare cases his employees) put in use, although no written contract existed. In older times the boss hired a trail inspector (the "mateiro") to check yearly the state of trails. Damaged trails were closed to use. Since the rubber-tappers themselves did the heavy, yearly task of keeping clear these 1.5 wide trails meandering for distances of 10 to 20 km, provided with rustic bridges and staircases), and in many cases opened themselves new trails, they resented this payment. In any case, payment for trails gave the boss a complete control over the occupation of the territory.

Another basic tenet of the rubber estate was the nearly absolute monopoly over trade. Every household head had one account recording his purchases at the post and his credit in rubber. Since the first working months of April-May were expended in clearing the trails, and August-September were dedicated to the preparation of slash-and-burn manioc-and-maize roçados, the average house

would fall into debt even if the accounting operations were fair and prices were competitive. In fact, the accounting schemes were complex, and household heads were strictly prohibited to sell rubber "out" if they had debts. The act of purchasing from an itinerante trader was punishable with eviction. Municipal policemen were routinely hired by patrons to enforce these harsh rules. In 1987, when the leading Cruzeiro do Sul businessman Cameli leased the current Reserve Area from Consulmar, a team of policemen headed by his overseer visited the rubber tappers houses to collect overdue debts.

In practice, patrons did not have complete control over the vast hinterland areas of the rubber estates. Trade union influence since early in the eighties was spreading the idea of rights to land. Residents felt that they had permanent rights to occupy the "settlement" -- as long as they paid the rent. Families comprising two or three generations formed networks of related household spreading along several *colocações* and cutting across the boundaries of property. Newly married couples occupied new places (they "settled") as a matter of course, either at the husband's or at the wife's "settlement", or still at another settlement. Such arrangements were informed only after the fact to the trade post. Residents moved often and made transactions among themselves. Nobody asked permission to grow a new manioc plantation, although it was universally acknowledged that they should not affect any rubber tree. Thus, the access to agricultural land, to game and fish, and also to non-rubber extractive products such as timber, vines and palm fruits was seen as a right limited only by the rubber estate's unwritten laws (such as the prohibition of felling or damaging rubber trees) and by custom and belief. Thus, there were two systems in work at the same time. The vertical system leading from individual households upwards to trade posts (a two-way route for rubber and imported merchandise) and the horizontal system linked several households together and based on kinship and neighborhood.

The Extractive Reserve Concept

In theory, rubber tappers and riverine cultivators could have access to land titles in the form of 100 ha plots. However, in previous experiences with agrarian reform based on separate land titles given to rubber tappers, in Eastern Acre, the fragmentation of titles was followed by the disaggregation of the rubber estate. First, the homestead size set by the land agency did not take into account the ecology of the extractive activity, under which a single household can explore up to 600 hundred hectares of forest. Even when the rubber tappers continued to explore their traditional areas, but gained the right to sell titles (which in practice gave access to the whole area), the ecology of forest extraction created a basic risk to the rubber estate as a whole. All a landowner needed to get hold of a whole rubber estate, was for a single house to agree to sell its rights to him. After this first defection, the neighbors would follow in a domino effect, since both extraction and hunting were damaged by the neighborhood of pasture land or logging. Thus, in this instance privatization led to an ecological and social tragedy.

Thus in October 1985 a meeting of tapper union leaders in Brasilia proposed the creation of Extractive Reserves, characterized in terms of the recognition

of rubber tappers' rights over forest settlements, "without dividing the land in lots". In December 1986, another meeting (now of the National Council of Rubber Tappers) adopted the institutionalization strategy of turning the private landholdings into public property conceded to peasants through the legal mechanism of use concessions. The aim was to block the scenario of fragmentation and reappropriation by the landlords, thus protecting those rubber tappers who wanted to keep their way of life based on the forest. Access to forest was seen as part of the rubber tapper's rights. Rubber estates were to be turned into public property to be exploited exclusively by resident rubber tappers -- because any other solution was seen as fragile.

In 1987, an administrative act within the National Agrarian Reform Agency (INCRA) allowed the creation of "extractive settlements", prescribing use concessions to "families" and limiting the area of forest that could be stricken down. In 1989, a task force of tappers and advisers, within IBAMA, the environmental agency, introduced in law a formal definition, which allowed concessions of public domain or expropriated areas classified as a national heritage (such as forests, fisheries etc.) to associations of traditional dwellers (and not only to individuals), subject to a use plan. Local institutions ("traditional" or not) were to enforce rules of access to, exit from and transmission of forest, at the same time blocking the commoditisation of the forest and hence the effects of the market over this peculiarly indivisible good.

In its institutional dimension, the concept of extractive reserves provided the strategy of rubber tappers' political organization to block a privatization tragedy, rather than representing a mere case of the survival of a traditional system of access to common territories.

It should be noted that the proposed institution of public property with individual concessions made through a local association could also block another tragedies. One resident (or even a minority network of houses) could become specialized in hunting for commercial purposes, making other houses face hunger. The other houses could be forced to follow up with the overall effect of total game depletion and decreased life quality for all. In this case too, the Extractive Reserve restricts individuals from disposing privately of a public good (which means the integrity of the forest), thus distinguishing the sum of individual interests, recognized through the practice of concessions, from collective interests, which must be established by means of a social pact over the territory as a whole. Hence, the rubber tappers' leadership did not formulate the proposal because of environmentalists' influence, but because they wanted to protect what they saw as the rights of the majority.

The Upper Juruá Reserve and the "rights" and "laws"

Following the courageous and innovative activity of the NRTC-Alto Juruá branch representative, Antonio Batista de Macedo, associated with Tejo river trade-union leaders such as Francisco Barbosa de Melo ("Chico Ginu"), the proposal to establish an Extractive Reserve in Tejo River (Consulmar Estate) gained momentum after 1988. By request from the regional NRTC branch, the Federal Attorneys (Procuradoria Geral da Republica) started an inquiry which resulted in an impressive body of evidence on three main points: the

conservation importance of the area, the slave-like labor relations pervasive in rubber estates, and the danger represented by the logging projects which the main boss, Orleir Cameli, was starting to implement. As a combined result of such legal action and of the grass-root movement which abolished de facto the patrons' sway over the rubber tappers already in 1989, a federal decree created in January of 1990 the "Alto Juruá Extractive Reserve", the first to be defined as a conservation area, subordinated to the environmental agency (presidential decrees, can only be overturned by congressional vote).

For all practical purposes, the customary "rent" was abolished, and so was the trade monopoly -- not only within the Reserve, but in many other estates.

Relevant Legal Acts

The Decree N. 98.897 (30 January, 1990) defined "extractive reserves" as "territorial spaces destined to the self-sustainable exploitation and to the conservation of natural resources, by extractivist population" (Article 1). Of special interest is Article 4 which says: "The self-sustainable exploitation and the conservation of the natural resources will be ruled by contracts of real-use concession...". The same article adds the following important paragraphs: (1) The use titles will be conceded without charge; (2) the concession contract will include a Utilization Plan approved by the IBAMA and will have a clause for termination whenever there is any damage whatsoever or transfer of the concession by sale. Finally, article 5 charges IBAMA with the responsibility of supervising the extractive reserves and of following up the enforcement of the use concession contracts.

Another presidential decree (Decreto N. 98.863, 23 January 1990) created the first Reserve within the environment agency. This was the Alto Juruá Extractive Reserve, subordinated to the IBAMA (Instituto Brasileiro de Meio Ambiente e dos Recursos Naturais Renováveis). This decree says in Article 2: "The IBAMA, aiming the implementation, protection and management of the Reserve, may make agreements with the legally established organizations existing in the Reserve, such as cooperatives and associations, in order to define the measures necessary to the implementation thereof". Article 3 declares the Reserve of "ecological and social significance" for purposes of expropriation by the federal government.

Two years later, on January 1992, the IBAMA expropriated the Reserve area, based on Decree 98.863. Legally, the Reserve is now the property of the Union Consulmar Ltd., the biggest landowner, and a few other having at least partially valid land titles, received an indemnization. However, there are pending cases, particularly those of the riverine cattle-ranches and petty-patrons who grow pastures along the Juruá margin and did not benefit from the indemnization. They claim compensation for the pasture and other so-called improvements in the area.

The Reserve's "Association of Rubber Tappers and Agriculturists" has formally demanded from the federal agency the concession of the area to the Association, which would manage directly the common-use areas and also issue Use Licenses to individual dwellers. The Association has conducted a first census of residents, which is also a register of the rubber-tree trails occupied

by each family, together with a map at the scale of 1:250.000 showing every resident's localization. The Association has also prepared and submitted to the government a Use Plan to be obeyed by the residents, under the Association's supervision.

Rules to access to forest territory, monitoring of Use Plan and enforcement of its rules, transmission of rights and rights of the residents vis-a-vis the supervisory rights of the Association are among the difficulties involved in the proposed solution to the problem of land tenure.

An administrative act (Portaria No 51-N, 11 May 1994) issued by IBAMA describe in detail the steps to create and legalize an Extractive Reserves, including: (1) Request made by residents, (2) Existence of Resident's Association, (3), IBAMA field mission, (4) data gathering (on geography, biology, socio-economy, photographs and legal aspects), (5) committee approval and creation of the Reserve, (6) land regularization (e.g. expropriation and indemnization), (7) census of residents, (8) use plan, (9) letter of agreement from IBAMA to residents (for financing purposes, before the Use Concession), (10) use plan approval, (11) Real-Use Contract with the Association. The latter is "an administrative contract under which the Union transfers "public land" for a time which may be indeterminate, for a specific goal. Finally, coes (12) the Development Plan.

Alto Juruá Extractive Reserve had fulfilled the condition (1) by 1988, conditions (2)-(3) by 1989, condition (5) early in 1990, condition (6) in January 1992, conditions (7)-(8) from October to December of 1991. Development plans were proposed (to BID, to UWF, to BNDES) this Reserve has pioneered all these steps (while other major Reserves, established later on, have made significant innovations on economic and management issues).

4) Conservation and Resource Use and Tenure

Activities

There are three main focus of resource use in the hinterland areas of the Reserve (and the Juruá river itself is a fourth focus in the riverine zone).

The first focus is on extractive activity dominated by rubber tapping. Trails are accommodated to the height of a man and wind around bigger trees, having thus a small impact on the forest. In the Reserve Area, the total area covered by a single trail has been carefully measured by Dr. Laure Emperaire who obtained around over 300 ha. The techniques for tapping are very conservative. However, there are rubber trees at various degrees of overuse, reflected in the height of poles used to climb up in search of untapped surfaces. Using this indicator, riverine rubber trees are those with the highest rate of overuse and they also have the lowest productivity. It should be stressed that although rubber tappers know very well the customary rules of tapping (including letting the trails rest for at least three months each year, respecting the change of

leaves and flowering, and keeping a maximum of three tapping days per week, besides strict rules on the maximum width, maximum depth and proper direction of cuts), the role of supervisors (as the mateiro in old days) is seen as necessary. The motivation to make rubber is to be able to buy imported things. Rubber offers a means to produce almost immediately "cash" to pay itinerant traders (who often supply rubber tappers on their upriver journeys to collect their debts on their return, sometimes waiting for a couple of days for the making of 10 to 20 kgs rubber worth of (today) U\$5 to US\$10. It is also easy to stock for any period. Being able to produce much rubber used to be a reason for pride.

Hunting is a second main focus of the rubber-tapper's life. Game meat (alternatively, fish) is seen as an essential component of daily diet. In a typical working week, four days would be reserved for rubber tapping (monday, tuesday, thursday and friday), while wednesday and saturday could be employed in hunting trips. Rubber tappers hunt with shotguns, either tracking ("a curso" hunting) or using dogs. The local breed of dogs ("pé-duro") is opportunistic. They may go after small game or "embiara", including mammals such as paca, agouti, bigger monkeys, armadillos and squirrels as the most frequent, or even land turtles. Other, more expensive and rare dogs ("paulista") specialize in big game or "caça", which includes deer, tapir, and wild "pigs", requiring a team of at least two (one to "take out" the deer, and the other one to "await at the stream" which the chased animal will try to reach in order to make the dogs lose the scent).

There are naturally several other techniques for hunting, including the use of whistles to attract Tinamidae ("Nambus"), traps (made with old shot-guns, often set near the manioc plots frequented by pacas) and waiting at fruit trees by night. Anteaters are not eaten, nor sloths; the pacanara (paca-de-rabo, "tailed paca" is not eaten but it is killed as a plague to the manioc plots). Small monkeys are kept as pets, and a number of forest animals. Places where rubber tappers are numerous are associated with scarcity of game. This is a reason to move out. Thus, these places select those oriented for "making rubber" as against those who place more value in not "starving".

In a settlement, the hunting territory is the territory covered by the trails. The "heart" of the trails is an indisputed hunting territory of the trail owner. Problems arise when a deer is chased to another settlement's area, and is killed by a person living there who happens to see the animal swimming downriver. The presence of dog-hunting in one settlement, according to the residents, affects also the whole area, by scaring away the game and making it impossible to hunt without the best dogs. This effect exerts a bias against the households with little hunters (those of old men) or little money, and also against those who dislike dogs, but are forced to go after them.

Agriculture is the third indispensable feature of the hinterland's life. Thus, from August to September the rubber routine is completely cancelled by the manioc-plot routine. No self-respecting rubber-tapper lacks a manioc plantation big enough to provide the house's residents with manioc meal for the whole year, at every meal including breakfast, lunch and dinner. To fulfill this aim, a

household started a new manioc plot (averaging 0.3 ha) every year, so as to have simultaneously a newly-planted plot (the current year's) maturing over a one-year period; a productive plot (being harvested over one year's period); and a replanted plot (giving a second harvest). In their first year, manioc is associated with maize. Bananas, papaya and pineapples are almost universal crops in association with manioc (in many varieties) and maize.

Opinions are divided over the relative merits of planting in "*mata bruta*" (mature forest) land using the slash-and-burn method, or planting in *capoeira* land. The arguments involve the amount of work involved (mature forest planting requires the use of an ax, a heavy job for elder men, but takes less clearing effort, a job which uses the hoe) and proximity to the house, among other issues. Residents do not see agricultural land as scarce.

A typical "colocação" comprises not only manioc and maize plots, but also a small pasture for some cattle or pigs. Chicken and ducks are common, and roam freely from backyard to stream to forest together with pigs and cattle -- a common source of conflicts when cows or pigs find their way towards the manioc gardens.

Main resource zones

The Reserve may be sub-divided in two main zones: the Jurua banks, and the hinterland. Along the Jurua banks there is always access by 14 ton boats (during the rains) or 1-5 tons canoes (during the dry season). The Jurua banks are also endowed with a strip of sandy and clay soils ("beaches" and "cliffs"), followed by a seasonally flooded strip of rich soils ("várzea"), accommodated between the "terra firme" walls. The "beaches" and "cliffs" afford yearly and sustained crops, usually maize, beans and watermelons, while the rich "várzea" is used to grow tobacco, banana and other crops. These products are sold at the end of the dry season. The residents in this zone also use the terra firme platform to grow long-term maize and manioc plots. During the dry season they, the riverine dwellers, have access to abundant fish captured with seine nets, while during the rains hunting is considered as more productive. In other words, this zone affords a diversity of agricultural, fishing and hunting niches, and a relatively easy access to itinerant boat-traders. Although rubber trails exist, they are relatively unimportant along the Juruá margin.

The hinterland area, in contrast with the riverine zone, is more specialized. Fishing is relatively unimportant, there is no access to dry-season crops, and basic activities are extraction, terra firme (slash-and-burn) cultivation, and hunting. Cargo transportation is nearly impossible except during the heavy rains. In former days, rubber tappers stored tons of rubber balls until the floods arrived. Today, the end of the patron's monopoly has nearly extinguished the heavy and labor-demanding rubber balls in favor of light and easily processed "planks" which may be used as currency to pay for imported goods. Recently, with the continued drop in rubber price, some hinterland dwellers are clearly shifting from extraction towards cattle raising. To do this, it is enough to grow rice or manioc near the house (enclosed by barbed wire) and in the next year let the cattle in, increasing the open pasture. In at least one instance, two brothers plan grown together 30 hectares of pasture, saying that in so doing

they obey the Use Plan's upper limit of 15 ha of change on the forest cover per household. Changes in the prices of rubber have led many rubber tappers to migrate towards the Jurua banks, and others to turn to the production of sugar or to cattle ranching in the hinterlands.

Human Use Zones

From the point of view of human use, one should distinguish at least four distinct zones. First, the areas of very intense human impact, characterized for their residential or servicing goals, containing houses, storehouses, airstrips and football fields. Second, areas under intense human impact for cultivation purposes, including abandoned plots and pastureland, and agroforestry areas. Third, areas under low human use, typically the forest areas crossed by rubber trails and used for hunting and gathering. Fourth, areas under very low human use, typically the interfluvial forest areas not regularly visited for extractive or hunting purposes. It should be noted that projects involving the establishment of "vilas" (small towns), as well as agriculture, agroforestry or husbandry, should await a detailed zoning involving at least the above categories.

Resource tenure

As stated above, after the Reserve was created and rent-payment was extinct, the property of the Reserve as a whole passed from a private landowner to the Brazilian state. One should therefore distinguish three different levels of rights over the territory.

In a first level, there is the federal government through the IBAMA. At this level, the property right is legally established.

In a second level, there are the rights the Association claims in order to effectively manage the area. At this level, the property rights are not legally established yet. The Association has requested the Use Concession, and after the IBAMA approved a revised version of the Use Plan proposed by the Association, the Association awaits for the Use Concession.

In a third level, there are the (customary) rights of individual households. These rights are felt as being due to the residents since the creation of the Reserve, but they have as yet no legal existence. Under the Association's proposal (following in this the NRTC policy) the individual residents will receive use titles from the Association.

The task of defining and recording the rights of residents was far from simple, nor is finished yet, either empirically or conceptually.

The first thing to understand the problems of land tenure and the relationship between the Association's control and the household's rights is to understand the nature of the colocação or extractive settlement. The colocação is a territorial unit, although without its boundaries physically demarcated: It has a central clearing, occupied by a set of houses -- maybe surrounded by a small pasture --, from which six to nine trails irradiate in every direction. As a whole, the colocação may comprise a circular territory of over 1.200 ha. bounded by similar colocações (singular: colocação) Each colocação has its own name. In 1991, the houses per settlement average 2.3 at the hinterland area, and 4.6 at the riverine zone (where there is another pattern of resource use).

Normally, a "colocação" is occupied by two or three related families. In the

past; individual colocações went through developmental cycles of occupation by one, two, three and up to four families, to be abandoned altogether when hunting started to become scarce, or in search of better agricultural areas, or to escape from associations with disease and death. The households living in the same colocação used to have each its separate rights of individual trails -- for which their heads paid "rent". Although each household has also its own manioc plot, these often are placed at a single site -- the "colony" -- where a single manioc-processing facility (the *casa-de-farinha*, "manioc-house") powered by a gasoline motor is used by all houses. Settlement neighbours often go as a team in hunting trips at weekends; and "neighbouring the game" is custom of sharing in fixed proportions every piece of game obtained by any hunter, either hunting in teams or alone.

When the Association started to plan the first census, the initial problem was to decide at what level should rights be recorded. The Association chose to follow the old practice of recording each household's trails in a given settlement. (Note that in the Chico Mendes Extractive Reserve, where a similar inventory was also carried out later on, having the "colocação" as the ownership unit, for several years the absence rent payment had given rise to a "customary" definition of owners to individual colocações; in this case, other households have the status of dependent households, either by family arrangements, or by informal leasing schemes, or as hired labour). This decision, by placing the lowest level of landholding below that of the settlement management, for equality reasons (how to decide who would own a given settlement?) and for customary reasons (the Association merely followed the old rubber estate's practice of recording each resident's trails), increased considerably the managerial responsibility of the Association itself. It should follow up the actual occupation of settlements and help to solve the problems which are situated above the "household" and which local methods of conflict-resolution are unable to cope with, or to which traditional methods give unfair solutions.

The Association's directory of households recorded legal data on the household head (usually a man), demographic and resource-use data. The directory recorded in detail the number of trees, the name and the improvements for each "trails", as well as the number of idle trails in the colocação. The location of houses (i.e. of colocações) is shown in maps elaborated with the help of geographical information systems (with technical support from CED). Among the 854 households registered in 1991, a total of 521 put rubber trails into use, an average of 2 trails per household. The yearly rubber output declared per (active) household was 760 kg, each household using an average of 1.7 workers.

There is a potential conflict between the principle of ownership at the level of households and the fact that the real management unit is the colocação. This is already illustrated by the mere fact that the statements from the several households which occupy a given settlement often do not add up to the whole stock of resources in the settlement.

One source of conflict results from the high rate of intra-reserve migration.

Intra-reserve migration was a mechanism which allowed for the regeneration of over-exploited settlements under low demographic levels and a high proportion of non-used areas. Under the system of household rights, families kept moving: from 1991 to 1993, only 60% of the residents remained at the same settlement, while 14% stayed in the Reserve but moved to another settlement in the same river, and 10% moved to another river within the Reserve (note however that the rate of 12% of household heads leaving the reserve is below what one would expect on the basis of the nearly complete failure of the rubber market from 1992 to 1993).

Table 1. Intra-Reserve Migration: 1991-1993 (sample)

Changes from 1991-1993	Households	%	Cumulative %
Mesma Colocação	327	61	61
Outra Colocação, mesmo rio	76	14	75
Outro rio	55	10	85
Saiu da Resex	62	12	97
Falecido	11	2	99
Sem informação	7	1	100
Total Sample	538	100	100

Source: fieldwork, 1993.

Thus, there are many conflicting situations, typically when newcomers arrives. A given household may claim idle trees to be used by his sons in the future. A set of of trails is the source of arguments on who is the owner. Another source of conflict arises from the fact that often a group of households allocate jointly a territory to a combination of extractive, agricultural and husbandry activities. Thus, while a set of related households used to grow maize and manioc on one river bank, reserving the opposite bank to raise some cattle or pigs, a newcomer could think otherwise. Thus, the issue of tenure over natural resources, including forest trails, river banks and agricultural sites, involves not so much the isolated households, but the whole of a "colocação". Often the residents call the Association's members to help in the solution of these local conflicts, but it is felt by some that a stronger authority is necessary to put an end to the more acute problems.

The tenure issues are even more difficult along the Jurua banks, where there are no rubber trails to define forest areas as separate units. In these areas, aggressive ranchers increase deforestation to create a de facto ownership situation. Conservative small-scale cultivators may thus see themselves cut off access to forest and are forced to move out.

The Association plans to update its directory in January, 1995, an occasion to identify the existing problems. One of the proposed improvements is to introduce a separate sheet to record data for the settlement itself, after consultation with the current residents. Divergences should then be stated, and solved or recorded for future solution.

Conservation institutions

The Use Plan

The Utilization Plan states initially that it is concerned with "non-predatory actions incorporated into the resident's culture, as well as other actions required under the Brazilian environmental laws" (first paragraph). Although every resident is held as responsible for the enforcement of the Plan rules, the Association is charged with a direct responsibility. (paragraph 4). Serious and repeated violations of the Plan's rules results in loss of rights. The Plan describes in detail the extractive techniques allowed, drawing on the cultural tradition of the region. One should remember that in

the past such conservative practices were monitored by paid inspectors and severe maltreatment of rubber trees could cause the eviction from the rubber estate. A typical expression of the "customary" character of this Plan is that, excepted the in the case of the pataua, felling palm trees is an accepted practice if they "are abundant". One important feature are the rules which limit the expansion of agriculture: there is an upper limit of 15 ha to deforestation per household, including active crops, abandoned areas (less than five-year old), pasture and backyards. The use of timber is restricted to the resident's own use. Commercial fishing is forbidden, as well as the use of fish-poisons and the employment of other techniques seen as aggressive -- a particularly polemical issue. The Plan proposed originally by the Association put emphasis on the interdiction of commercial hunting, and on the interdiction of hunting with dogs -- another polemical issue. The Plan defines the "common use" areas of the Reserve, such as rivers, lakes, main paths, beaches. The Plan also provides for forest areas kept permanently idle, as game sanctuaries.

The conservation rules are accepted as part of common-sense in the area, although the case of dog-hunting and or of underwater fishing in "river pits" are polemical cases. They suppose the existence of a tenure system where each *colocação* holder is in principle responsible for the resources he/she uses; and also the existence of external instances of supervision and conflict resolution. In the past supervision and conflict resolution were controlled by patron's personnel. In the present, the Association is a democratic system of global management of the resources.

The Grass-root Committees

The Association has at the present only four hundred associates who pay their annuities. Its board of directors, formed by ten representatives coming from different areas, must cope both with bureaucratic and mediating tasks at the town of Cruzeiro do Sul, where the Association has an office, and with the difficult task of keeping the population informed, mobilizing the residents to press the government to grant them their rights, and settling the frequent conflicts which arise in the course of daily life.

To the directors it is a physical and financial impossibility to be present at every corner of the Reserve when they are needed. Therefore, a number (currently a dozen) "grass-root committees" were constituted, by the decision of a general meetings, to act a smaller unit for settling issues and also for issuing local demands and to control the acts of the board of directors. Such grass-root committees (*comissões de base*) are chosen by local vote and are now formed by two residents each, representing particular geographical areas within the Reserve. They should in the future be expanded in numer. They are to meet together twice in the year, forming then the "Deliberative Council" which should assess the activities of the Association's board of directors. This was a development dictated by the dispersed distribution of residents, which makes it almost impossible for the small group of active directors to represent and reach physically the whole of the Reserve. The seed for the Committees were the early created non-paid positions of "grass-root inspectors", now a function separate from that of Grass-root representative.

The Grass-root inspectors

In order to enforce the conservation rules the role of "grass-root inspectors" was introduced (modeled on the old-time "mateiros" or woodsmen). After a couple of years of tentative action without formal support from the government, the role of the "grass-root inspectors" was at least recognized by the IBAMA in 1989. There are now seven teams of (non-paid) three such - resident-inspectors. These inspectors have received a first IBAMA training course and it is expected that they will be credited, after the completion of the training program, with the authority to formally record infractions. In fact, the main complaint of these inspectors is the lack of formal authority to enforce the Use Plan rules.

Problems with conservation and tenure

Conflicts between Association and Municipal authority

One of the critical problems associated with long-term resource conservation within the Reserve is the relationship between the Association, on the one hand, and the municipal government on the other hand. Although at present the federal government (through IBAMA) adopts a policy of backing up the authority of the Association, there is also the possibility of political change at federal level. For this reason, the basic structure of property, power and management within the Reserve must be well delineated at the highest possible legal level if it is to work in the long term. I deal with such problems in more detail in a later section.

Economic policies for extractive products

Another source of uncertainty is the future of the current federal policy of supporting an internal market for natural rubber. Recently, the NRTC has managed to lobby the federal government into protective economic policies for extractivists. These protective policies will have to give place in the near future either to policies of direct payment for conservation services rendered by traditional populations living in conservation units, or to investment in new products, alternative marketing channels or in processing improvements which may put the extractive activity in a somewhat competitive position -- or to a combination of both.

As the protected market founders, residents may turn to agriculture along the river banks, or to cattle-raising or the sugar-cane raising in the hinterlands. Although at the present the effect of these trends is barely visible, in the future the trend could escalate. Thus, in one scenario the Reserve would cease to be "extractive" altogether to become downright "agricultural". Another way of expressing it is that, instead of an average density of 1 person per km² (and one to one-hundred of cultivation to forest), one would have 10 persons per km² (and a fifty to fifty ration of cultivated areas to forest). The first pattern is that of one thousand of households using 500 ha of forest each to multiple uses; the second is that ten thousand of households using each 50 hectares from which half are put into cultivation to provide for the total dietary needs of the family.

These different scenarios have of course very different effects for the conservation of the national heritage of natural resources and of biodiversity.

Thus, if it is recognized that the long-term conservation of this rich fund as a value, although it is not evaluated by current market mechanisms, it is necessary to compensate the market imperfections by establishing adequate mechanisms.

Cattle ranchers: logging and ranching

Generally speaking, the conservation rules are less obeyed in the Jurua banks than in the hinterland areas. One reason for this is that at the Jurua banks the influence of the Association's activity has been minimal, and also the current role of patron-client relationships is strongest. Cattle-ranchers (fazendeiros) were not indemnified for lacking valid titles and refuse to leave the area on this reason. On the other hand, they continue to expand the area of pasture. The same ranch-owners sometimes fell down timber to take out of the Reserve area. The Association has taken action against such ranchers on both accounts, and from some time has had IBAMA help.

Internal dissent: the issue of dog hunting.

The interdiction of dog hunting is held by many to have produced sensible results in the last two years, but it is resented by the minority who owns the relatively expensive dogs called "paulista", a new breed having traces of "foreign" dogs and marvellously specialized in chasing deer and wild pigs. This apparently minor issue points in fact to the larger issue of the effects of inequality in wealth and power and of its effects on the enforcement of conservation rules.

Influence of towns

Nearby the municipal capital, Vila Thaumaturgo -- itself outside the Reserve - the residents complain bitterly about commercial dog-hunting by professional hunters who "do nothing else for a living", and about the general disregard for the grass-root inspector's advice - all these with the major's support. A single purchaser of "terra firme" beans in the town has managed to escalate noticeably the deforestation of the Amonia river banks -- offering to rubber tappers an advance system similar to that used in rubber transactions and buying large quantities.

Conservation and its costs

In the patchy pattern of different densities of human occupation and of forest types including degraded forest, bamboo forests, and palm-tree-rich open forest and dense forest, at the overall scale of 5,000 km² surrounded indigenous areas and by another conservation unit (The Serra do Divisor National Park), there is probably a combination of local near-extinction with increased diversification. The maintenance in the future, under the strong role of the Association, of the current zoning pattern based on the combination of extractive use of the forest, of cultivated riverine zones, together with "idle" interfluvial now playing the role of sanctuaries, seems to be a necessary condition for the continuity of the current level of biodiversity in the area.

However, the high costs of supervision and organization, as well as of supporting research and development on extractive activities in the future, makes it unlikely that long-term conservative strategies may be sustainable without continued external input of resources. This external input should **not**

be seen as subsidies to backward populations, but rather as payment for conservation services to residents in biodiversity-rich areas.

5) Cultural change: gender and generation

The efforts of the rubber tappers' movement to democratize the access to resources and to power within the area have not exerted an impact on the traditional structure of gender relations.

Five per cent of households have women as heads, according to the cadastro. It is as yet unclear which rights will partners have over the settlement under the expected Use Concession contracts, particularly in the frequent case of husbands who leave their wives.

Rubber extraction is a male activity, although young girls help (13 cases of daughters, against 320 cases of sons helping their fathers in rubber activities) and some single or widowed adult women also engage in rubber-making. Hunting parallels this masculine bias. As for agriculture, women make up one third of the total number of persons involved, and fishing is also more equally allocated among genders. House care, raising pigs, chickens, ducks and turkeys, as well as small vegetable gardens, are dominantly female activities, although not recorded in statistics. The economic role of women in household economics, however, is not paralleled by authority to control the household budget.

Looking with some care one may find that inside a household, women and children may have their own separate property rights over backyard fowls and cattle; that they may provide for their own separate consumption of "luxury" items such as cooking oil or coffee; and that a child may inherit from her mother a cow, which the father may not dispose of even after the death of the mother and the remarriage of the father. Although these facts indicate that there are intra-household claims and conflicts, generally speaking the household head, a man, overrides the other member's rights. He has by tradition the final word over every issue and thus dictates the final decisions over issues of change of residence, choice of activities, distribution of domestic labor and decisions of consumption and investment.

Men also occupy almost every political or representative office in the Association's structure. There is only one woman among the ten members of the Board of Directors; no grass-root representative is a woman, and there is no female grass-root inspector. Former posts of cooperative managers were all held by male (although in many cases wives did all the accounting job). Maybe as a consequence, the planning done by the Association for investment purposes does not contemplate gender issues in separate. In a meeting held in January 1989 to plan the use of cooperative money, the cooperative managers set up an exhaustive list of household necessities. When an outsider asked the women if there was something missing they said -- Yes, we need butter. The reason is that the post-partum period (nearly one month of almost complete isolation and very strict diet), almost the only occasion a woman has to rest for any continued time, there are strong taboos against any other kind of fat. The women went on with other seemingly absurd demands.

The point is not only that women are not consulted often enough, but

instead that they are not given control over a budget or over a complete project. There is a single program which is making steps to change partly this situation. In the Health Program (funded by Health Unlimited, under an agreement with the Association), four out of thirteen health agents are women, and a indigenous woman has a position as a technical coordinator. A meeting of Reserve midwives (idealized by Alberta Piccolino) has shown the older women's motivation to participate in the Reserve's affairs. In contrast with these specific-purpose meetings, the usual general meetings are dominated by male discourse and issues.

One area of the Reserve's activities which came to be virtually monopolized by young women is that of school teacher. This important role, however, resulted in most cases from political favour by municipal authorities. As a consequence, most of these school teachers are aside from the Reserve's organizational framework and have minimal information on the reserve. There is no regular meetings or any other kind of discussion leading to educative policies specific to the Reserve as part of the state school system. On the other hand, as part of the activities of a new Educational Program coordinated by CEDIs Popular Education Program (under agreement with the Reserve), the Reserve teachers have gathered together to receiving a course on the Use Plan, together with refreshment on more traditional topics.

The elderly have in the Reserve a peculiar position as important cash-earners in the household economy. They benefit from a retirement law under which they are paid one or two minimum salaries (US\$70 to US\$140 monthly), if they are above 60 or unable to work, and have had either rural employment or have been employed since young as rubber tappers. Since they have to go to Cruzeiro do Sul to cash the money, a typical phenomenon is nowadays to see elderly persons proudly traveling down river ("There goes the old women to get her retirement"), or coming back with the money converted into commodities. This has earned a degree of respect for them.

Notwithstanding, elderly persons have no particular importance in the formal structure of power within the Reserve. This lack of political importance (with an important exception, that of the Association's Vice-president, a veteran in the Reserve) contrasts with the local role of elders (often women) as virtual heads of a group of households interlinked by kinship. These households of sons, sons-in-laws, brothers and brothers-in-law, great-sons and great-sons-in-laws often move in block and act politically as a unit. One should not be surprised to find that in the first phases of the Association most of the formal offices were absorbed by two of such household-blocks.

However the locally influent elders, male or female, find it difficult to compete with the young men for political office within the Reserve, or are not interested in doing so. The latter have more leisure, they love to travel, they have better reading skills, dress modern, and talk more fluently to the influent outsiders who often fail to identify the real structure of local leadership and influence associated with kinship and neighbourhood.

Thus, young men with no particular organizational ability nor acquired leadership may be fueled into the position of representatives, and tend to cling

to such positions which allow them to escape from manual work. It should be wise to map the local network of kinship, marriage and neighborhood, and its relation with the externally supported structure of paid jobs and administrative functions. In particular, the Association's personnel should have more inputs from both women and elders, however conflicting this is with the local division of labor in the case of women.

6) Institutions, policies, and politics: the effects on conservation

Local Institutions: Policies/Politics

It is highly improbable that the Extractive Reserve would ever exist without the alliance between a local movement (the trade-union movement) and national and international movements (the National Rubber Tappers' Council and the international support and pressure put on the federal government). In the past, the rubber estates were backed by almost every local institution endowed with power: judges ruled against rubber-tappers who could not employ lawyers nor reach the town in time for audiences, police was directly employed at the service of patrons in repressive expeditions, land laws were disregarded, and church in western acre was very conservative in dealing with social issues. The only policies for natural resource use were in fact those of the local elite of fazendeiros and rubber estate landlords. The latter were said in the distant past to adopt conservative policies regarding their rich natural stock of rubber trees; early in the eighties. After property titles were transferred to southern buyers, however, the patrons came to adopt short-term, predatory practices. Since they leased the rubber estates for short periods, it ceased to make sense to invest in long-term conservation. By 1987, the trade-union leader Chico Ginu (the nickname of Francisco Barbosa de Melo) complained that the patrons were now giving incentives to over-tapping rubber trees, besides planning for aggressive logging.

These patrons were also reacting to the change in federal policies toward the rubber market, initiated in 1986. Prices were declining and financial support was suspended, while inflation made it almost impossible to advance merchandise in long-term arrangements. Accordingly, the biggest patrons changed their plans toward logging the noblest trees that were abundant in the Reserve's hinterland, particularly mahogany. This move was blocked by the alliance of local mobilization and external support.

Externally, one important factor was the activity of Chico Mendes. By reporting on the predatory and socially unfair effects of multilateral bank's investments in Acre, Chico Mendes -- supported by a north-American ngo -- forced back home both federal and Acre State government to change their policies, in order to keep foreign resources flowing into the region in particular to pave the BR-364 highway. Thus, in January 1988, the Acre government announced a sudden and dramatic change of policy: it would from that moment stop all stimuli to agribusiness and cattle-ranching, and instead it would invest in agroforestry. The same government, in a public seminar to which BID representatives attended, announced the creation of a first extractive settlement, in an area formerly destined to agrarian reform. This artificially announced "extractive reserve" put the rubber-tapper's movement in a

quandary: should they support the government's initiative?

In the moment, same month of January 1988, a former functionary of the Indian Agency, Antonio Macedo, joined the National Rubber Tappers' Council by invitation of Chico Mendes, with the specific mission of supporting the rubber tapper's movement in western Acre. When Macedo returned to Rio Branco in July with a project outline to create the Alto Juruá Extractive Reserve along Tejo River, state government was eager to support the project. By the end of the year, an investment of US\$ 70,000 was approved by a federal development bank based (BNDES) in Rio de Janeiro -- helped again by Chico Mende's activity before his murder in the same year.

Thus, paradoxically the Tejo River rubber tappers had all of a sudden more capital than even their old patrons -- while these continued in complete power to impose trade monopoly and to behave as sole landowners. Next, the federal institution of "Procuradores da República" (the Republic Attorneys) played an important role to countervail the local justice system, while universities and research institutes gave solid evidence in support of local claims. The articulation of all these distinct institutions and persons demanded the charismatic characteristics and the ability to gather enthusiasm possessed by Macedo.

This short sketch illustrates the complex interaction of local, national and international institutions and their policies. One should add to this complexity the issue of politics and political parties.

As said above, there is a latent conflict between the political authority of the municipality's mayor, on the one hand, and the local authority of the Association. An example of such problems is the fact that the Municipality mayor has created two "vilas" (the smallest urban and administrative unit in Brazil) within the Reserve, nominating old patrons as "vice-mayors" in charge of each. The idea of the "vilas" is to concentrate the population around single localities, by means of the construction of houses, schools, TV posts (receiving satellite signals) and football fields. Old-time residents complain that the increased and parasitic population exerts a sharp impact on game since the "vilas" become consumers of game meat. Professional hunters clear the neighborhood preventing old residents from finding food. The "Vila" population is also a market for agricultural products, and this results in deforestation around them. The "vilas" have a clear political significance since they gather together persons paid by the major and represent support in election time.

In this year's elections, one of the two strongest political parties is formed by "patrons" from the upper Juruá. Some rubber tappers said that if the "patron's" party won, the old system of "paying the rubber trail rent" would be reinstated and that the Reserve would be extinct; the patrons-politicians announce a new age of abundant supplies of merchandise. However exaggerated these fears may be it is certainly the case that Orleir Cameli, the strongest incumbent to the office of state's governor, and former main boss in the Reserve, is far from sympathetic to conservation strategies. The other main party, although demanding the Association's support, clashed often with the Association over the issues of clientelism in the designation of teachers and

health agents, over the issue of the "vilas", and lately over the issue of logging inside the Reserve after the Association blocked timber which the Mayor wanted to take out the Reserve to build houses.

A clearly defined authority for the Association -- based on the Use Concession and on the authority to enforce it by means of the Grass-root Inspectors, with the support of democratic grass-root committees -- is a necessary condition to avoid the inherent instability deriving from the current political system.

7) Conservation NGOS and traditional peoples' organizations
NGOs, Trade-unions.

The role of non-governmental organizations and their relationships with traditional populations in Brazil increased considerably during the seventies, particularly in the area of economic activities -- the so-called community projects. One possible reason for this expansion was the military regime that coerced both political and trade-union organizations, forcing as it were a change of focus towards "new social movements" focused on non-labor issues. Such issues -- including cooperativism, health, sanitation, communication and education -- offered opportunities for young political activists and trade-union leaders, but also to young professionals and students who wanted to get into the real problems of their country. This was an important change from a previous decade of political activism that excluded practical action. In particular, the catholic Church had an extremely important role in spreading almost throughout the country a model of "community organization".

Already in the sixties, after political parties and trade-unions were again free, a culture of "non-governmental" organizations and a practice of direct action toward "local communities" was firmly established as part of a new political culture. Positions in such organizations, some of them as big as small corporations, competed in importance with the more traditional political and trade-union jobs, and offered the possibility of better professional performance, as such organizations became more technically qualified.

There was however a latent problem that plagued in some cases -- particularly in the case of the rubber-tapper's movement -- the relationships between such NGOs and local populations, and that was a problem of power, voice and representation. Both political parties and trade-unions could at least in theory have rubber tappers in a given County (or municipality) as members. Local personnel would then of course be under the ultimate control from the local population. Thus, a rural trade-union in a municipality of rubber tappers (in Acre, half the rural workers were rubber tappers until 1980) could benefit from the advice and support from a school-teacher or from an anthropologist, but both school-teacher and agronomist would remain under the control of trade-union votes.

However, when the school-teacher or the anthropologist belongs to their own autonomous NGOS, they are ultimately responsible not toward the local population, but to the agencies that fund them and to which they report. They

must think in a language of results and standards often foreign to the local culture, while the personnel linked to representative institutions must argue their daily issues in an idiom of personal commitments and of moral values. The fact that the NGO controls money, however, gives to them power. There is a strong temptation for the NGOs personnel, then, of mixing roles of activism -- taking up organizing actions, either directly or by "advising" -- with the role of technical advisors-consultants and of money-suppliers. Often, the NGO simply acts directly at the "traditional population" ignoring the issues of representation and legitimacy.

These issues are well illustrated by the case of the rubber tapper's social movement and organization. Rural trade-unions organized in the late seventies in Brasileia and then in Xapuri engaged in chronic conflict against land buyers and cattle-ranchers who annually burned forest areas to evict the population of rubber-tappers and Brazil-nut gatherers and to grow cattle. This movement was supported by the Eastern Acre (i.e. Purus Valley) archbishop, and was associated also in the 80s with the Worker's Party (PT) having possibly the influence of the Communist Party from Brazil (PC do B). Early in the 80s, a grass-root educational plan called the "Rubber Tapper Project" had an important role in the organizational activity within the forest area, exemplifying also the combined role of external and local NGOs, on the one hand, and the grass-root's organizations on the other hand. External NGO could provide financial support (such was the case of OXFAM, which hired the services of a British anthropologist) or technical support (such as that provided by the São Paulo-based CEDI, a top Brazilian NGO). Local NGO put in personnel and commitment, being part of a NGO culture that came to be characteristic of Rio Branco and involved those who were active on Indian issues, then in rubber tapper's issues and then in environmental issues. Note that the catholic church had its own personnel and strategies, which favored the rural population of agricultural zones and the urban poor.

NGOs town-based personnel had salaries and led a town-life interrupted by stints into the field. Trade-union people, while in close contact with them, had no means to press directly their issues, not to speak of leading a satisfactory life. In the trade-union structure, the obscure and new organizations in remote Acre were not a priority for funding, publicity or lobbying. The direct-action tactics of blocking the rancher's workers from felling down trees obtained only half-victories, and each year had to be repeated for lack of policy changes. In 1985, Chico Mendes made an appeal to anthropologist Mary Allegretti that resulted in a meeting gathering over one hundred trade-union representatives somehow associated with rubber estates in Amazonia. This meeting's final report including the proposal of creating "Extractive Reserves" where there would "no division of land in lots". The ideas of refusing the "division of land in lots" and of claiming larger land moduli than the maximum 100 ha allowed by the land agency had been discussed at preparatory meetings; the notion and the expression of "Extractive Reserves", with the obvious connotation of "Indian Reserves", was surprising. I wrote the final document, which consisted in the ordered presentation of the conclusions of several working groups, each

formed by rubber-tappers and one advisor. Chico Mendes read this document for the first time directly to the public and must have been surprised with the curious expression suggested in fact by an Amazonian anthropologist working at Rondonia at the time.

This meeting had many important consequences. One of them was the continued collaboration between a foreign NGO (EDF, a Washington-based NGO that chastised World Bank projects for their environmental and social consequences around the world), a Brazilian NGO (created by Mary Allegretti with the aim of doing research on, and of developing the Extractive Reserves). Another consequence was the non-planned foundation of the National Rubber Tapper's Council. The latter was nothing but a name in 1985. It was soon evident that the Council had important functions: it alone, by gathering together a manageable number of extractive-oriented representatives from all Amazonia, could formulate demands and express policies on extractive issues. The CNS board of directors could meet during the following year, together with a group of advisors (virtually the same involved in Acre's "Rubber Tapper's Project", with the addition of Rondonia social workers, a middle Jurua priest, Mary Allegretti, and myself as the upper Jurua anthropologist), thanks to resources fueled by OXFAM. Late in 1986, it became clear that there were serious conflicts of policy bearing directly on the issues of NGOs and rural workers.

First, OXFAM's local officer and anthropologist Tony Gross stated formally, when refusing to support the continuation of funding for CNS meetings (these were both director's meetings and grass-root's meetings to establish local representatives), that his agency would favor from that moment on only "ant-projects", based directly on local communities. He was skeptical about the CNS's pretentious policy of organizing an Amazonian network of "committees" to mobilizes extractive workers and to fight for the demands listed in the 1985 Meeting Declaration. As a result, early in 1987 the CNS director's and the two anthropologists-advisors prepared a separate funding plan to support the CNS for 1988. While I worked on the contents with the directors, Allegretti's organization IEA was to pass it round four foreign funding organizations.

Second, even among those who favored the strengthening of the CNS as an institution, there was an important difference in strategy. Anthropologist Mary Allegretti saw as more appropriate that NGO formed by town-based and specialized people managed financial, administrative and legal issues together with giving technical support to make the rubber tapper's projects into a reality. She saw as the CNS's true role that of grass-root organization, although on a wide scale and not only at the level of "ant-projects". She definitely supported the idea of national strategies as having the role of change official policies -- a job that could be performed by the joint work of her NGO and CNS.

Among some of the directors, there was the feeling the CNS should have authority and autonomy vis-a-vis the NGOs. Early in 1987 Osmarino Rodrigues, Raimundo Barbosa and I spent a week discussing a project sent in manuscript form (we worked in a backyard) in Osmarino's handwriting to several Brazilian NGOs. In this case, the recipient of funds would be the CNS itself. This small project succeeded. In January 1988 the CEBEMO, a dutch NGO, approved the

request for one-year support to the CNS implantation. The CNS had now a considerable budget and no legal existence. The new responsibility forced the CNS (now virtually with its support reduced to Rio Branco "Rubber Tapper's Project" personnel and myself) to acquire legal reality, to procure a physical address, and to understand matters of management and accountancy.

What can be said today on these issues? It is a fact that the CNS developed itself into one very influential NGO. The CNS has a seat both in federal agencies at Brasilia and at multilateral bank's meetings. Thus, in the first place it is today easier to realize (as I stated at the II Congress of Rubber Tappers in a manuscript "Seven Theses on the National Rubber Tapper's Council") that the CNS is not a grass-root organization, but rather a NGO. This peculiar NGO recruits not among middle class professions, but rather among trade-union officers and cooperative leaders. Thus, CNS it is not a redundant trade-union structure: it has no membership (the CNS is formed by its board of directors) and gets no fees from rubber tappers, nor is it part of the trade-union federate scheme. In contrast, it acts in the formulation of policies, in the lobby on federal government, and in channeling funds into local organizations. Thus, instead of being exclusive, the strategies of "ant-projects", of national-wide "technical organizations", and of financially autonomous "umbrella organization" may have parallel roles.

The Role of the Association.

The Association of the Rubber Tappers and Cultivators from the Upper Juruá was created in 1989 as the main organizational step to implement the first project in the area, funded by National Bank for Economic and Social Development. The existence of such an Association was not required, but it was a strategy inspired to Macedo (the CNS-Regional Branch coordinator) by his previous work with indigenous cooperatives in the region. This previous work had suggested that indigenous cooperatives, even when not economic successful in the first years, could be most effective to carry out the political tasks of assuring the local resident's control over the territory.

The Association, having its own legal existence, and being a representative character, tried to answer the issue of legitimacy involved in the project. Thus, although several NGOs -- and foremost among them the CNS-Regional Branch itself, according my point of view -- were involved in the process of establishing the Reserve, there was from the start a local agency having its own people, its own voice and its own demands. The Association was intimately tied to the CNS-regional, until recently, and first of all because the two organizations shared the same offices and pooled the same resources. Only in 1993 did the Association established itself in its own office, having its own human and material resources.

The relationship between the Association, on the one hand, and NGOs must then distinguish the case of the CNS Regional Branch and that of the foreign NGOs. The CNS Regional Branch, besides stimulating the creation of the Association based on existing trade-union leaders (but also attracting ambitious young men without organization abilities, as mentioned above), gave evidence of its willingness to give power to the Association. Thus, funds coming from

BNDES were signed both by the CNS Regional Branch's coordinator and by the Association's president. Specific-purpose projects such as those for doing the first Reserve's Census and the first Reserve's Map of Residents were proposed as Association's projects, not as CNS Regional Branch's projects. There were reasons for attrition, however. The Association's accounts and the CNS Regional Branch's accounts were mixed together and the latter had a much wider field of operations than the Reserve. At the town, the CNS Regional Branch's office tended to spend above its irregular budget, in personnel (hiring too much among same indigenous group, in this case the Poyanawa) and in expensive in equipment such as boats and cars. At the Reserve, the cooperative managers and the local coordinators, all of them rubber tappers, had almost no monitoring and advising in the field (although it should be assisted technically by the State of Acre's FUNTAC, according to the BNDES contract). In the meanwhile, the rubber market was amidst a severe crises. The result was a financial crisis that ended the Association's cooperative program for a time, until it will be restructured from the ground.

The point learned by all involved is that the Association should have had its own areas of authority and decision, matched by its own responsibility over the respective issues. This is illustrated by the relationship established between the Association and other governmental and non-governmental bodies. It was considered as being perfectly normal that either a government agency or a non-government entity invested resources in local projects. Components of such projects included often activities related to "community involvement". This practice was replaced in the Reserve Area by the practice of establishing formal Agreements (Convênios) between the Association and the other part. The first agreement of this kind, aiming to provide "technical support" to create the Upper Jurua Extractive Reserve, was that signed (see above) between the State University of Campinas and the National Rubber Tapper's Council in 1989, in which I acted as a technical coordinator together with Professor Keith S. Brown. The Association itself signed two agreements with the IBAMA in 1991. The first carried out the Reserve's census, the socioeconomic survey, the Use Plan and the related community mobilization. The second carried out the Reserve's residential map. Next, the Association signed up a similar formal agreement with Health Unlimited to start a Health Program: in this way, instead of a "foreign" health team working in the area, the Association is proud of having its own health program, with a Reserve's coordinator. Under the agreements, issues of evaluation, continuity and more remote although important issues of royalties and publication's rights are contemplated. Yet another cooperation agreement was that between the Association and the Universities of São Paulo and of Campinas to carry out environmental and social monitoring, studies on biodiversity, zoning and to produce a Forest Encyclopedia.

Formalizing the relationships has the important effect of making clear each party's duties and rights towards the other party. Thus, in principle although not always in practice, the written contract or "agreement" may be activated by any of the parts to call the other back to the agreed task. This is particularly

important in the case of non-governmental organizations that may employ paternalistic or protective approaches towards grass-root organizations. Such approaches, although may in the short-term favor the grass-root organizations handicapped for the lack of familiarity with the impersonal language of rationalized organizations -- preventing them from using other channels to obtain resources and support -- , in the long-term have the negative outcome of frustrating both parties. Grass-root representatives should go the bitter end of tax and labor responsibilities when they deal with their own resources, for instance, as well as understand the laws, or, put more succinctly, they should be treated as equal citizens, and learn to demand to be respected as such. This last point implies that if a grass-root organization is to assume managerial responsibilities, as it is the case with the Reserve's Association, a great weight must be given to the investment in its human resources, covering the whole Reserve's educational system and not only the current Board of Directors of employed personnel.

8) Conservation Goals and Traditional People's Goals

Convergence of goals

Is there a deep and long-term convergence between conservation goals and those of indigenous-traditional people? The main example of between conservation goals and those of indigenous-traditional people was illustrated above in the discussion of the Extractive Reserve Concept, seen as concept of resource tenure and property (Section 3, "Changes in the Legal Status of the Local Population "). I have discussed also an example of convergence when dealing with the implementation of the Reserve Concept in the present section, when dealing with the Use Plan, and the grass-root structures of representation and rule-enforcement.

False dilemmas

However, the economic issues illustrated also how the resident's interest's may be maneuvered, either by unwise economic policies or by political cunning, to clash with the conservation goals. A point to be made on this latter possibility is that conservation goals are often opposed to human goals in backward countries where poverty is an overriding problem and where there are rich, untapped natural resources that are apparently blocked from immediate use by foreign "conservation" agencies. I am myself an Acre-born anthropologist, and I became involved with the rubber-tappers' movement on social, not environmental grounds. Notwithstanding that, I can say that the real conflict lies elsewhere: it is the latent and often invisible conflict between local, "traditional" populations subject to a clientelistic political system (where votes are verticalized transactions of personal and material favors, at every step of the pyramid, with no occasion for horizontal discussion and policy formulation which come from above already in final form), and local elites forming regionally powerful political and economic alliances.

Conserving one's own wealth

The conservation of the rich stock of natural resources of which the Upper Juruá Reserve, the Jordão River Caxinawa Territory, the Amonia River Ashaninka Territory, and the Serra do Divisor National Park - a continuous belt

of enormous natural and cultural variety and richness -- should be approached as a task in the interest of the Brazilian people. The regional population should be proud of it. And the local inhabitants should realize that the conservation of such resources is not only the basis for a good living, but in the long term an effective basis for obtaining an adequate payment for their ability to conserve them while using them. Migrants from poverty-stricken, resource-poor Brazilian areas such as the Northeast do not need to occupy places like the Upper Jurua Reserve in order to have cultivable land. Therefore, the only party which loses with the combination of conservation and improvement of living conditions for local residents are the local landowners, loggers and politicians who lose power on such areas.

9) Conservation Community and Traditional peoples

Non-governmental organizations have in common with grass-root organizations the fact that they are not subject to political fluctuation and are in principle able to act along long-term programs. Both value the rich stock of natural resources in relatively untouched areas. Both traditional population and conservation community have important bodies of knowledge on diversity of natural systems, and of animal and vegetable life. However, in each of these two areas of agreement, which could be amply extended, there is not identity, but instead complementary and diverse points of view. Notions of time for the traditional population of the Upper Jurua may be marked by generational considerations, as well by the dominant cycles of world market that affected their lives since the last century, and future may be uncertain because there is no previous guarantee for one's own children's future, or for the current resources. For the conservationist time's cycles have a different, larger scale. Hunters and extractors may feel that natural resources are infinite, that their fathers and forefathers did as they do and that forest will never run out of game or palm trees; and their classificatory systems will reflect sometimes an utilitarian emphasis in contrast with that of scientific taxonomists -- however, precisely these features make the rubber tappers more apt to translate the conservation goals into a language easily acceptable for the larger public because it appeals to practical human interests. The ongoing production of a "Forest Encyclopedia" under the coordination of anthropologist Carneiro da Cunha, exemplifies these issues and at the same time suggests possible attitudes and ways to cope with them. In this case, local researchers-authors collaborate with scientists on a joint work.

This example of cooperation brings also the points of intellectual property. A task such as that of producing a "Forest Encyclopedia" dealing both with Indigenous and Rubber Tappers was only possible after a long time of intimate collaboration between anthropologists and the local population. But personal trust is not enough. The existence of legitimate associations both at the Rubber Tappers' Reserve and at the indigenous' areas was necessary to establish in formal agreements the necessary guarantees for the traditional populations.

On a more general level, the point suggests that traditional populations must have their own non-governmental organizations in order to be able to directly express their demands and assert their rights, and also in order to obtain

support and cooperation. It is argued also that they must have local, territorially-based institutions for dealing with land tenure, management and planning issues. Political strengthening exemplified by such organizations, requiring funding and external personnel, but also demanding training and gradual gain in maturity, is a condition for balanced and respectful relationships between external agencies, either governmental or non-governmental, and traditional populations.

10) Conclusions

The successful management of conservation areas with the involvement of traditional communities requires in the first place clearly defined and sound institutions of land tenure and of law-enforcement giving a strong role to the traditional communities. It is important that there are strong, democratic organizations formally established at the level of the traditional communities, respected by the local government. Long-term policies should be inscribed at the highest possible legal level so as to ensure a continued commitment to conservation strategies. In particular, social and economic policies should make worthwhile the conservation strategy for traditional community development. Zoning and management strategies should be firmly based on traditional practices that have worked well in the past. The interaction between local population and external, non-governmental organizations should of course respect the laws of the country. It should also evolve towards written agreements, addressing the existing local institutions. Such interaction should not create an artificial leadership, but efforts towards more equality and representativeness should be stimulated to compensate for the existing gender/generation bias. Experts and organizer should learn to work together with local residents by living extensive periods in the area. Local residents should participate as trainees in research and planning actions, which might generate manuals and also material for general reading. Management systems, zoning and other products should be set up in cooperation with local, interested residents.

Acronyms

ASAREAJ - Associação dos Seringueiros e Agricultores da Reserva Extrativista do Alto Juruá. Upper Jurua Extractive Reserve's Association of Rubber-Tappers and Agriculturists.

CNS - Conselho Nacional dos Seringueiros. National Rubber Tapper's Council.

IBAMA. Instituto Brasileiro do Meio Ambiente e Recursos Naturais Renovaveis. Brazilian Instituto for the Environment and Renewable Natural Resources

INCRA - Instituto Nacional de Colonização e Reforma Agrária. National Institute for Land Settlement and Agrarian Reform.

References**Acknowledgements**