Forest Management in Brazil: Barriers and Bridges to Decentralization in a Federal System

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Introduction

An analysis of the balance of power among the three levels of government – municipal, state and federal – regarding forest governance in the Brazilian Amazon is presented here. The forestry sector plays an important role in this region's economy, as well as in the livelihood of a large part of its rural population. Thus, public policy regulating access, use and control of forest resources must not only target their rational use, but also attend to the needs of the population that depends on them. In other words, forest management must be efficient and democratic. Those who do research on democratic theory, public policy in general, and natural resource management argue that decentralization can be an important tool for making decisions more democratic and for increasing the efficiency of government initiatives (Binswanger, Shah and Parker, 1994; Carney 1995; Borja, 1988).

Theoretically, Brazil is fortunate to have conditions quite favorable to the decentralization of policies and natural resource management. The first of these conditions is relative fiscal and financial autonomy of states and municipalities within the Brazilian federative system. Another favorable condition is the constitutional and legal norms regarding natural resource management, which give the Union, states and municipalities intersecting jurisdiction on the subject, i.e. all government levels can work with environment and forests. A third condition is the various precedents for decentralization of public policy and public administration in the country, particularly health care and education, which, despite all their problems, are currently in an advanced state of decentralization. Finally, a fourth favorable factor is the wealth of natural resources in the country, which, as potential generators of income, may encourage more involvement of state and municipal governments in their management.

Despite these favorable conditions, the country still lacks policies for shifting power and responsibility over forest management from the central to the municipal level. This does not mean, however, that forest governance is entirely centralized. Peculiarities in the Brazilian federative system allow the development of a decentralized system without the need for explicit public policies to that end – although the existence of such public policies could expedite the process and make it more efficient. In other words, it is possible to have a system that is not centralized, without the need for a decentralization process (see Gregersen et al., 2005).

It is worthy of note that state governments have considerable power in the federative system. They have been protagonists in increasingly consistent decentralization policies, receiving more and more privileges that were previously the exclusive domain of the federal government, despite the enormous differences in the level of involvement of each state in various areas. These differences are due both to the interest of the government authorities in making state forest policy a priority and to the mobilization of interested parties directly or indirectly affected by such policies. Similarly, decentralization reaching the municipal level depends on how these factors are expressed at the local level. In addition, it is also conditioned by the existing state government jurisdictions and their willingness to share part of this jurisdiction with municipalities. This combination of factors results in a very diverse forest governance experience among the states and among the municipalities in each state.

This study focuses on the gradual division of jurisdictions and responsibilities among the three levels of government in the Amazon. The federal government still centralizes much

power over forest governance, namely the responsibility to regulate, authorize, and oversee forest use and conversion. However, state participation in these activities is increasing. States and Union are also responsible for the implementation of Conservation Units, though the latter plays a more important role. Furthermore, the Union is responsible for the establishment of indigenous areas, which, in actual practice are the best-protected areas in the Amazon. States have also taken on growing responsibilities for fostering forest activities, particularly by means of technical assistance to timber and non-timber activities.

Municipalities lack resources and infrastructure, which would enable a more incisive participation in the sector, yet there are still countless local experiences with activities directly or indirectly affecting it. Among these, wood processing initiatives stand out, as well as wild collection and agroforestry technical assistance, formation of inter-municipal consortia and establishment of partnerships with public and private organizations to strengthen local management, recovery of degraded areas and even the creation of Conservation Units.

As for access to forestry resources by marginalized rural groups, the important role played by federal government can easily be seen, since it is the actor which best addresses the interests of the indigenous population – certainly the most vulnerable in the Amazon. Decentralization can benefit small farmers and wild collectors, particularly through the creation of simplified and efficient management systems, which will facilitate access to clearing and forest use permits for smallholders who cannot afford to prepare sophisticated management plans. This does not mean that aggressive conversion of the forest should be allowed to the poor, but rather that conditions should be created to bring these groups into legality. Less intensive conversion could be the compensation, ensuring conservation of forest resources. Decentralization at the state level, as will be shown here, seems to be contributing, albeit in a modest fashion, to this end. Municipalities, in turn, still have a limited role in this process, although there is a large number of intervention experiences at the local level in the forestry sector.

This study is divided into four parts. In the first, a general characterization of the Amazon is presented, with special attention to territorial occupation and the forestry sector. In section two, some obstacles and incentives to decentralization are discussed, focusing on the fiscal and political situation of the municipalities. In the following section, the roles of state and municipal governments in Amazon forest governance are analyzed. In addition to presenting a general picture of state activity, the states of Acre, Amazonas and Pará are used as examples to enrich the discussion. Next, some areas in which municipal governments have increased participation are discussed, with occasional examples. Lastly, final comments about the opportunities and obstacles for decentralization are presented.

1) Context

a) Amazon: Territorial Occupation

The Brazilian Amazon fully or partly occupies nine Brazilian states and covers about 4.87 million square kilometers, 17% of which have been cleared.[1] Of approximately 20

[1] Numbers relating to wood cover, total deforestation and annual rates of deforestation are controversial and vary according to the methodologies employed by different authors and studies, particularly due to the approach

million inhabitants, 60% live in urban areas. Poverty-stricken layers of the population – a group of about 6 million wild collectors, small farmers and indigenous groups – are estimated to occupy about a third of this land (Lima et al., 2003). Approximately 75% of the Amazon region is made up of public land, including Integral Protection Conservation Units, Sustainable Use Conservation Units[2] and Indigenous Lands, with 4.9%, 9.1% and 20.4% of the Amazon territory, respectively (Ferreira and Almeida, 2005). The remaining 40.8% of public land is either vacant or the title cannot be determined. Private lands are divided into private forests, cattle ranches and colonization and agrarian reform settlements. A summary of this information is presented in table 1.

Table 1: Land Distribution in Amazonia

	Public lands				Private lands
	Indigenous lands	Protected areas		Vacant	
		Sustainable use	Conservation		
Área ($km^{2)}$	993.480	443.170	238.630	1.986.960	1.217.500
% of Amazonia	20,4	9,1	4,9	40,8	25,0

Source: Adapted from Ferreira and Almeida (2005) and Lima et al. (2003)

In all, there are 377 Indigenous lands in the Amazon, which are home to 160,000 individuals belonging to 160 ethnic groups.[3] Of these lands, 76% are legally acknowledged, i.e. have usufruct guaranteed to the Indigenous populations (Instituto Socioambiental, 2005). Brazilian Federal Government uses a specific organization – the National Indian Foundation (FUNAI) – to defend the interests of the indigenous population, particularly regarding land demarcation and monitoring. There is also an important private organization, connected to the Catholic Church – the Missionary Indigenist Council (CIMI), which plays an important role in the struggle for the rights of these populations and maintenance of their culture. Furthermore, there is a large number of small indigenous associations in the Amazon with distinct characteristics (local, regional, for specific ethnic groups, women, students, etc.) which mainly work with fund-raising and small projects.[4]

chosen for Cerrado areas and transition between Cerrado and rain forest. See Margulis (2003) for more on the subject.

[2] Law 9,985, of July 18, 2000, instituted the National System of Nature Conservation Units (SNUC), setting criteria and regulations for the creation, implementation and management of the conservation units in the country. SNUC establishes two types of conservation unit: Integral Protection and Sustainable Use. Economic use of natural resources is allowed in sustainable use units, while preservation of the biodiversity and other natural characteristics of the territory is the main focus of integral protection.

[3] IBGE estimates the indigenous population at 154,004, while the National Indian Foundation (FUNAI) estimates them at 175,571. Data variation is due to methodological differences. More in-depth discussions can be found in the Indigenous Peoples of Brazil project, by the NGO Instituto Socioambiental (http://www.socioambiental.org/pib/portugues/quonqua/quantossao/difest.shtm)

[4] The number of associations grew rapidly after the Constitution of 1988, Article 232 of which enabled the creation of these associations as juridical persons. In addition, since the early 1990s, the project "market" for

The dimensions of their lands, FUNAI protection and a wide network of social organizations notwithstanding, the indigenous groups are very vulnerable. Supervision of their lands is deficient, and conflicts are ubiquitous – and usually violent – with farmers, cattle ranchers, gold prospectors, loggers and large private and state-owned companies. Income generated in indigenous lands is low and limited, especially regarding logging, since there is no regulation for this type of activity in their lands, i.e. timber extraction in indigenous lands is not prohibited, but neither can it be done legally.

Trustworthy figures cannot be found for private land ownership in the region, given the disorderly land tenure situation and fraudulent practices for appropriation of public land. However, it is known that most of the private land belongs to loggers (private forests) and small and medium-scale cattle ranchers. A World Bank study points out that these stakeholders are responsible for 75% of the deforestation in the region (Margulis, 2003). Agricultural Census data for 1995/1996 from the Brazilian Institute of Geography and Statistics (IBGE) show a high degree of land concentration. While properties with more than 10,000 ha accounted for only 0.1% of the region's rural establishments, they occupied 27.7% of the entire private area. Small properties (with up to 100 ha), on the other hand, made up 81.8% of the total number of rural properties and only 11.3% of the area under private domain in the region. The existence of large private forest areas does not necessarily mean large-scale forest conversion. A significant part of these areas is bought or grabbed for different reasons, which may involve future logging, clearing for pastures, grain planting or mere real-estate speculation.

A large number of small rural landowners settled by the National Institute of Colonization and Agrarian Reform (INCRA) is also present in the region. INCRA has been distributing land in the region since the 1970s. According to 1996 Agricultural Census data, over 750 thousand families lived in the Amazon in lots of up to 100 ha, in colonization projects and settlements, which made up approximately 70% of the region's rural population (Vosti et al., 2002). These figures have risen sharply since then, because the region has become a priority for agrarian reform, given the large area of the public lands which do not need to be expropriated. The number of families in agrarian reform settlements in the Legal Amazon has more than tripled between 1994 and 2002 – from 161,500 to 528,571, accounting for occupation of nearly 4.9% of the biome (Barreto et al. 2005).[5]

b) The Forestry Sector in the Amazon

The lumber industry extracted 24.5 million cubic meters of logs from the Amazon in 2004, yielding 10.5 million cubic meters of processed wood. Between 1998 and 2004, the value of Amazon timber exports increased considerably, from US$381 million to US$942 million. Also worthy of note is the fact that 64% of the wood processed in 2003 was for the

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civil society organizations increased considerably, in step with the reduction in government resources. The Indigenous Peoples of Brazil project (see previous note) further analyzes this proliferation of associations.

[5] There are four types of settlement in the region: settlement projects (PA), agroextractivist settlement projects (PAE), forest settlement projects (PAF) and sustainable development projects (PDS). PADs and PAs are traditional projects of individual land concessions to small farmers. PAEs are aimed at wild collector communities, mainly rubber-tappers and Brazil-nut collectors. PDSs are similar, but aimed at communities which do not traditionally make a living from wild collection and can undertake it. Land is conceded for 30 years under PAFs, with the possibility of renewal for 30 years more, to wild collectors and farmers who can sustainably manage the resources and convert 5% of the total area for construction of houses, community centers and subsistence farming.

domestic market (Lentini et al., 2005). The number of direct and indirect jobs in the sector only grew from 353 thousand to 379 thousand (Lentini et al., 2005). Unfortunately, there is no disaggregated data for employment generation according to the area of the forest exploited by each company.

In 2004, the state of Pará was responsible for approximately 45% of the total log production from extracted Amazon wood, followed by Mato Grosso, with 33%, and Rondônia, with15% (Lentini, 2005). These three states also have the largest pasture areas and the largest cattle herds in the region, which is not a coincidence, since wood extraction in the Amazon is closely linked to expansion of cattle ranching and large-scale grain production.

Much of the wood extracted in the Amazon currently comes from cleared areas. According to data by the NGO Friends of the Earth, in 2002 approximately 75% of the wood from the Amazon was of legal origin backed by clearing permits, while 5% of it was obtained from approved management plans. The remaining 20% came from illegal sources, 75% of which was extracted from conservation units and 25% from irregular management plans (Smeraldi 2002).

Using timber from cleared areas makes small farmers an important link in the wood production chain, considering they are allowed to convert up to 3 ha, which in theory allows them to extract up to 60 cubic meters of timber legally every year, with no need for a forest inventory.[6] Considering that there are more than 500 thousand settled families in the region, and that another 50 thousand are settled annually, timber production from small clearings alone could supply the national industry demand. For farmers, sales of this timber can be an important source of income. Since the price of a cubic meter of timber varies from R$60 to R$200, depending on the species and quality, the producer can have gross income between R$3,600 and R$12,000. Even after deducing the high costs of production and transportation, which can reach 70% of the gross value, timber can contribute significantly to the income of small farmers. Estimates for 1995 show that the rural per capita income in the Amazon was US$1,411 per year. Income generated from sales of timber is particularly important for newly settled individuals, who have a higher need for capital to finance conversion of new areas, planting their crops and building their houses.

The Amazon forestry sector faces serious structural problems, among which the following stand out: 1) institutional problems, especially the gap between the existing normative framework and the State's operational capacity; 2) the chaotic land-tenure situation in the Amazon; and 3) deficient infrastructure, credit and technical assistance. These problems occur with differing intensity in the different groups which make use of forest resources.

Norms regarding deforestation and forest use in Brazil are detailed and rigorous, especially regarding forest management, which makes preparation and approval of projects lengthy and expensive. The long delays are partly due to the State's shortage of technical capacity to analyze the projects it receives. Despite the fact that a large part of the command and control responsibilities of the wood extraction activity have been taken over by the States, such activities are still centralized by IBAMA in most of the Amazon, in order to stimulate growth in the sector, which contributes to the slowness of approvals.

[6] Legally, this value can be higher, but it would be necessary to prepare an inventory, which is not economically feasible for small farmers.

One of the greatest obstacles to approval of forest management plans and issue of clearing permits is the lack of documentation proving land ownership. Land-grabbing and fraudulent land deeds are frequent in the Amazon. Obviously, the lack of security over land tenure discourages timber companies willing to invest seriously in forest management to purchase forest areas. The land tenure problem also affects small farmers, since many are squatters and do not have any documentation to corroborate requests for clearing permits or forest management authorizations. Even small farmers settled by INCRA have difficulty proving legal ownership of the land, because only a small percentage has received definitive titles to their areas or some other valid document that can serve as proof of ownership.

In addition to not being able to prove land ownership, small farmers cannot afford to foot the bill for the preparation of forest management plans and the bureaucratic processes involved. Even in lands where producers are allowed to prepare collective management plans, e.g. Extractive Reserves and PAEs, costs are still too high – and the benefits are questionable. This problem is aggravated by the lack of credit and technical assistance.

The indigenous population is even farther away from the forestry sector. In addition to facing the same problems of lack of resources for preparation of management plans, they live in an institutional vacuum, since timber exploitation in their areas is not regulated. Given the extension of their lands and the wealth of timber species in many of them, indigenous peoples become victims of, and at times connive with, illegal use of their forests. In the 1990s, for example, news of dirt-cheap mahogany sales in Kayapó lands were frequent (see Greenpeace, 2001).

2) Obstacles and Incentives to Decentralization

a) Balance of power among government levels

The Brazilian legal framework confers ample powers on municipal governments to design and execute environmental policies in their territories. Complementary laws and norms better define the balance of power and the allocation of some responsibilities among the government levels. Resolution 237/1998 of the National Environment Council (CONAMA), for example, establishes the allocation of responsibilities regarding environmental licensing of activities which pollute and consume natural resources (forest conversion projects and timber industries are included here) according to the potential magnitude of these activities. IBAMA (federal government) is therefore responsible for licensing activities with nation-wide impacts; states and municipalities license activities with impacts restricted to their territories. In practice, there is a struggle among municipal, state and national environment organizations over the licensing of large endeavors, independently of the geographic scale of their impacts. Activities which generate more resources for environmental agencies, for obvious reasons, are always a reason for disputes.

In the struggles between states and Union, the poorer and less powerful states tend to be at a disadvantage, a problem which is extended to the struggles between municipalities and state governments. Licensing responsibilities involving high operational costs, little revenue and political burdens for municipal administrators are commonly left to the municipalities. This hinders the creation or strengthening of municipal environmental agencies (see Toni and Pacheco, 2005).

In spite of these struggles, the law also permits clearly delimited prerogatives to be delegated top-down, via contracts and agreements and cooperation partnerships. Although such deals are difficult and require much political effort, they are increasingly frequent. Such is the case of forest governance. Legislation states that forest conversion and secondary growth, in both public and private lands, depend on previous approval by IBAMA and it is up to the Union to directly oversee the application of norms in the Forest Code (articles 19 and 22) , through the specific executive agency or in partnership with the states and municipalities. Section 5 shows that some states have already taken on responsibility for these activities.

b) Fiscal situation of Municipalities

The financial fragility of small municipalities is a considerable obstacle to decentralization of environmental and forestry policy. With difficulties in providing essential services, such as education and health care, municipal adminstrations find themselves in even worse difficulties in building technical capacity in the environmental/forestry area, which requires investments in human resources and equipment. This difficulty is often mentioned – and exaggerated – by those who resist decentralization, particularly federal and state government environmental agencies. It is necessary to keep in mind, however, that this situation is made worse by higher levels of government, which have decreased tax revenue transfers to Municipalities, make little effort to implement capacity-building programs for municipal governments and do not delegate tasks that may generate income for their own environmental agencies.

Brazilian municipalities have two main sources of income: their own tax revenues and the transfers made by state and federal governments.[7] There is a sharp imbalance between local income and the transfers, which causes heavy dependence of the municipalities on states and the federal government.[8] Approximately 81% of the Municipalities have the FPM as the main source of income, and FPM accounts for more than half of the municipal revenue in 28% of the municipalities (Bremaeker, 2004). Due to disparities in development, this problem is worse in small municipalities: almost 90% of those with less than 10,000 inhabitants could not generate 10% of their income in 1992. Such dependence is very serious among Amazon municipalities, which are mostly small and medium-sized, with the primary sector as the pillar of the economy. State monitoring structures are weak there, increasing tax evasion and consequently causing a reduction in collection and a cut in the ICMS transfers. To make matters worse, some of these municipalities have seats located in colonization areas whose lands formally belong to the Union, under the tutelage of the National Colonization and Agrarian Reform Institute (INCRA); hence they cannot collect IPTU, which would be one of the surest means of generating their own income.

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[7] The following taxes account for local income: Urban Building and Territorial Tax (IPTU); Tax on Services of Any Nature (ISS); Tax on Transmission of Real Estate (ITBI); Tax over Retail Sales of Liquid and Gaseous Fuels, except diesel oil (IVVC); Fees and Contributions for Improvements. Income from federal transfers is made up of: 22.5% of the Union income tax collection, 22.5% of the Union tax on industrial products (these two figures make up the Municipal Participation Fund – FPM) and 70% of the Union tax on gold (IOF-ouro). Income from state transfers is made up of 25% of the collected State Tax on Merchandise Circulation (ICMS) and 50% of the state tax on ownership of motor vehicles (IPVA).

8 In 1992, about 35% of the municipalities had the FPM as the source of over half their resources. Around half of the small municipalities had 40% to 60% of their resources originating in FPM. The second most important source of transfers to municipalities is the ICMS. However, due to its nature and means of transference, this tax transfer is far more significant in large municipalities (over 50,000 inhabitants) which have more developed economies (Bremaeker, 1994).

Another negative influence on the fiscal situation of the municipalities is the growing need to take over the federal and state governments' responsibilities. Although this type of decentralization is in some cases accompanied by tax transfers, the values paid pale in comparison to the costs of the services. In addition, in some cases there is a default decentralization, in which a municipality is obliged to take on the responsibilities of other levels of government due to neglect. According to Brazilian Municipal Administration Institute (IBAM) data, Brazilian municipalities use 4.52% of their budget performing functions that should be the exclusive responsibility of state and federal governments. Worse yet, this figure tends to be higher in the poorer municipalities, which are less able to generate revenues from tax collection (Bremaeker, 2003).

c) Political situation and local power

The fact that economic elites have strong influence on local power is another serious challenge to the decentralization of forestry policies. It is commonly argued that local power in municipalities in the interior can easily be captured by elites with direct interests in the predatory use of natural resources. Indeed, many municipalities in the Amazon are directly or indirectly controlled by loggers involved in illegal activities, livestock ranchers responsible for large areas of illegal deforestation and land grabbers. Directly transferring decision-making powers over forest resource use to the municipalities may incur severe damage to the forest, and especially harm smallholders, small farmers, riparian and indigenous populations. There are very clear and recent examples of this: the attacks of rice producers against the demarcation of the Raposa-Serra do Sol Indigenous Reservation in the state of Roraima; conflicts between loggers/land grabbers and traditional populations in Porto de Moz, in the state of Pará; and the voracious grabbing of lands along the BR-163 highway, which started around the time of the announcement of the road's paving.

Risks are higher in certain regions, such as agricultural frontier areas, those in which land tenure concentration is high or those in which logging is very intense. In contrast, municipalities with stronger and more organized social sectors manage, to a certain extent, to counter-balance this tendency for local economic elites to capture power. In the entire Amazon there are numerous rural workers' unions, producers' associations and grassroots movements. Many of these organizations have leaders who are active in political parties and who are elected from time to time as town councilmen or even mayors of their municipalities. This is clear in the Trans-Amazon region, Pará and Upper Acre River, for example, where social movements have had success in forming coalitions with political parties or electing their own representatives as mayors, particularly through the Workers' Party (PT).

Indigenous peoples are generally the most vulnerable of forest-dependent groups. In addition to facing threats from big business in the agriculture, cattle-ranching and timber sectors, their interests often collide with those of small farmers and prospectors, who are not pleased by the policy of demarcation of large extensions of land for the indigenous groups. One indicator of this group's political debilitation is the fact that in the municipal elections of 2004, only 48 indigenous town councilmen were elected in the 5,560 Brazilian municipalities, among 182 candidates. Only nine indigenous leaders were candidates for the mayor; four were elected: one in the state of Minas Gerais (São João das Missões), one in Amazonas (Barreirinha), one in Paraíba (Marcação) and another in Roraima (Normandia) (CIMI, 2004).

Municipal environment councils were created in order to increase popular participation in municipal decisions with regard to different areas of public policy – education, health care,

social aid, environment, children and teenagers and others. Table 2 contains information about the existence of environment councils in the nine Amazon states, based on data from IBGE (2000). On average, 22.11% of the municipalities have a formally constituted council. Even fewer municipalities have councils that actually meet periodically (17.39% met at least twice in the year before collection of the data). Less than half of the existing councils (46.07%) have decision-making powers.

This discouraging picture is alleviated by the fact that the municipal environment council is not necessarily the only discussion forum for matters related to forests. Many municipalities have rural development municipal councils, in which matters connected to transportation infrastructure, agriculture and, less frequently, wild collection and forests are discussed. Unfortunately, there are no figures available for such councils. To aggravate matters, however, even the councils with decision-making powers which gather frequently have very limited power compared to mayors and municipal secretaries. Accusations of mayors and secretaries manipulating the composition of the councils to suit their needs and desires are common. In other cases, the executive branch simply ignores the decisions made by the councils if they so wish. This happens because there are no efficient mechanisms to insure that the decisions are carried out, or to punish mayors or secretaries who fail to obey them.

Civil society sectors which accuse the executive branch of misconduct in the Amazon's interior in general have difficulties hiring lawyers or getting one appointed by the Public Ministry to go to court and put a stop to the abuse. Another serious limitation to the proper operation of the councils is the lack of qualified personnel to participate in the discussions and decision-making. The leaders of some grassroots organizations are frequently nearly roped into participating in certain councils due to the mere lack of others who are either interested or minimally qualified to take part.

Table 2: Municipalities with Environmental Councils in Amazonian States

State	Number of Municipalities (Total).	Municipalities with Environmental Councils			
		Total	Councils with decision-making powers	Councils that met at least twice during the previous year	Councils that met at least once during the previous year
RO	52	13	7	4	9
AC	22	6	6	4	4
AM	62	15	8	6	12
RR	15	4	2	2	2
PA	143	40	19	22	34
AP	16	5	2	2	4
TO	139	14	5	10	10
MA	217	35	15	15	25
MT	139	46	18	27	40
Total	**805**	**178**	**82**	**142**	**140**

Source: IBGE, Perfil dos Municípios Brasileiros, 2002.

d) Inducing policies

Despite the current lack of regulations determining the transfer of resources and responsibilities between the federal government and the municipal governments, there are some federal programs encouraging town halls and civil society groups to participate in territorial and forestry management. The Ministry of Environment coordinates these programs. The most important of these programs, PPG7 (Pilot Program to Conserve the Brazilian Rain Forest) is an international cooperation program including Brazil, G-7 countries and the Netherlands government, with Brazilian tropical rainforest conservation as its goal.

The PPG7 component with greatest direct impact on decentralization of forestry policies is the Natural Resource Policy Sub-program (SPRN), the objective of which is to help states and selected municipalities in the Amazon to become qualified for management of their natural resources. SPRN activities involve policy development, strengthening public institutions and institutional problem-solving. The main activity of the sub-program has been implementation of the Integrated Environmental Management Project in the States (PGAI). Each participating unit implements PGAI based on its environmental, which determines its priorities. PGAI transfers resources to the states, which invest in capacity-building of technicians and environmental agency infrastructure. The strategy to carry out these tasks is for the States to decide. At the municipal level, the program has had very little impact in rural areas, which obviously includes forest resource management (Toni and Pacheco, 2005).

Some states have created a fiscal compensation mechanism to stimulate the creation of conservation units by municipalities, or simply to compensate them for the loss of income and revenues that the existence of such areas can cause. Known as Ecological ICMS, or Green ICMS, the mechanism is a new formula for distribution of the share of the state tax on consumption (i.e. Tax on Circulation of Merchandise and Services - ICMS) due the municipalities.

Paraná and Minas Gerais states, pioneers in the adoption of the Ecological ICMS, have reaped good results from this policy.[9] In Paraná there was an increase of 165% in the total area under protection since 1991. In Minas Gerais, the increase between 1995 and 2000 was 62%. Recently, São Paulo, Rio Grande do Sul, Rondônia, Mato Grosso and Mato Grosso do Sul states have adopted similar mechanisms. In practice, this has meant especially the regularization of municipal conservation areas, particularly Environmental Protection Areas (APAs), which are easily legalized and not overly restrictive concerning soil use. An expressive increase was also seen in the number of Natural Heritage Private Reserves (RPPNs). For obvious reasons, it is in the interest of municipal governments to create and regularize existing protected areas in order to gain access into the Ecological-ICMS. With the same objective, municipal governments offer incentives to private landowners to create RPPNs. These incentives often translate into building infrastructure to improve access to the properties where the reserves are located (May, 2002).

[9] For a more in-depth discussion of Ecological ICMS values and allocation criteria, see May (2002).

3) Decentralized Management

a) State Governments and Forestry Policy

As mentioned earlier, the Brazilian legal framework in the environmental and forestry areas is not well defined and leaves considerable room for overlaps, gaps and power disputes. The best example of this may be the balance of power between states and the federal government in the forestry area. Some states take on the responsibilities over the sector, while others continue with centralized management in the hands of the federal government. Between these extremes, other states seek to secure partnerships to put a pact of decentralization into effect. São Paulo, Minas Gerais, Paraná, Rio Grande do Sul and Goiás are examples of states which have autonomy in forest management. Bahia, Ceará and Mato Grosso do Sul, in turn, are states in which there is overlapping jurisdiction and disputes between the state environment agencies (OEMAs) and IBAMA. In the Amazon states, establishment of shared or decentralized management deals are becoming increasingly common.

Minas Gerais is known for having solid competence in the area and an institution, the State Forest Institute (IEF), employing over 500 forest engineers dedicated to execution of the state forestry policy. This policy includes, for example, monitoring and issuing of forest management authorizations and administration of conservation units, as well as research on forestry.

The reason that forestry management in Minas Gerais and other states is carried out by OEMAs instead of IBAMA, without the need for establishment of partnerships, or disagreements, is that these states established their forest policy long ago, before the creation of IBAMA. In the case of Minas Gerais, for example, IEF was created in 1962, before the Forest Code was issued in 1965. In other words, they filled a political-administrative gap which needed to be filled, considering the importance of the forestry sector for their economies and the need for encouragement, regulation and command and control activities.

Interestingly, the states with the most advanced initiatives and the greatest autonomy in their forestry policies are the very ones with the least forest cover. It may be that policy for this sector arose to ensure the supply of raw materials in a context of increasing scarcity and perceived environmental damage resulting from deforestation. States in the Amazon, however, operated according to the logic of nearly unlimited availability of raw materials for the timber industry and land for agriculture, until recently. In fact, in the 1970s, the military government encouraged occupation of the Amazon “vacuum” through cutting down the forest and planting pastures. Only after the beginning of the 1990s did concern with the fate of the forest and its traditional populations begin to appear. This concern reached the state governments more recently and is now strengthened by empowered OEMAs and decentralization of federal government policies to the states.

Among the factors affecting the shift of power to the states are various political and corporative components, which must not be forgotten. IBAMA is obviously reluctant to grant power to the states, but this is not necessarily a formal decision made by the institution. There are no doubt concerns with possible negative consequences of decentralization in the decision-making instances of the organization, which are certainly legitimate. On the other hand, there is the perception that centralization is inefficient, and that the organization need not be behind each and every decision – be it technical, political, or administrative – which

affects forest use. Despite the perceptions of the organization's directors, its relations with the states and, consequently, the results of negotiations or disputes between them are profoundly affected by the political relations between employees at the executive management level of IBAMA in the States and the OEMA directors. Disagreements at the hierarchically lower administration levels, motivated by politics or conflicts of corporative interest, contribute to the delay in establishment of partnerships and hinder their implementation.

Table 3 shows the stage of decentralization of forestry policies in the Amazon states. For purposes of this study, the following essential procedures in the region's forestry sector are considered: 1) issuing clearing permits; 2) issuing forestry management permits, which involves the evaluation of sustainable management plans, issuing the clearing and use permit and issuing the forest product transportation permit; and 3) inspection of clearing and forest conversion operations.

The states of Acre and Mato Grosso stand out for having taken over all tasks previously assigned to IBAMA. Amazonas has also claimed prerogatives to control forest use, but decided not to take on responsibility over clearing. Rondônia, despite a lack of any kind of agreement, has taken over responsibility for both areas. Pará has been negotiating a broad partnership with the Ministry of Environment to take on many responsibilities that are currently centralized, but does not yet have activities in either area. Tocantins already licenses clearing in areas of up to 500 ha and, starting in 2006, will be able to authorize clearings at any scale. In other states, these activities under still under IBAMA's control.

Decentralization came about as a result of demands made by the Acre and Amazonas state governments, which saw it as a fundamental prerequisite for implementation of forestry policies which are wider in scope, including generation of income and employment through encouraging timber and non-timber activities.

Table 3: Forest Management in Amazonian States

State	Deforestation	Forest management
Acre	State Government	State Government
Amapá	IBAMA	IBAMA
Amazonas	IBAMA	State Government
Maranhão	IBAMA	IBAMA
Mato Grosso	State Government	State Government
Pará	IBAMA (agreement under negotiation)	IBAMA (agreement under negotiation)
Rondônia	State Government, no agreement	State Government, No agreement
Roraima	IBAMA	IBAMA
Tocantins	Up to 500 Ha, State Government Above 500 HA, IBAMA; after 2006, State Government will be in charge	IBAMA

Source: IBAMA, Forestry Division

i) Forestry policy in Acre

The land surface in Acre is 153,149.9 km², which corresponds to 3.9% of the Brazilian Amazon, and 1.8% of the national territory (IBGE, 1995). Approximately 10% of the original forest cover has been removed by human activity, ranking the state at the bottom of the deforestation list for the Brazilian Amazon. The population in Acre was a little over 557 thousand in 2000, 45% of whom lived in the capital city of Rio Branco (IBGE, 2000).

State government has been seeking to re-organize Acre's economic structure to make forestry the basis of its economy without increasing damage to the forests. Executive agencies promoting the activity and using command and control instruments have been charged with this mission. In order to implement its forestry policies, government has created an administrative structure made up of a wild collection and small farming secretariat (SEPROF), a forestry secretariat and a technical assistance and rural extension secretariat (SEATER). Territorial regulation and command and control activities are the responsibility of the Environment and Natural Resource Secretariat and an autarchy connected to it – the Acre State Environment Institute (IMAC).

The Acre government has attempted to bring some of IBAMA's attributions stateside through a pact of transfer of power to IMAC and the State Forestry Secretariat. This transfer has been gradual. In 1999, IMAC was granted responsibility for clearing permits of areas up to 3 ha. This limit was extended in 2001 to 20 ha; 60 ha in 2002; and any size in 2003. In 2004, IMAC also took over responsibility for issuance of forestry management permits and monitoring transportation of forestry products.

IMAC currently strives to de-concentrate its permit issuance activities. There is a proposal for decentralization of environmental permit issuance, but only for the Rio Branco Municipality, which has a relatively well-structured environment secretariat and the municipal government is politically aligned with the State government.[10]

The State has also succeeded in collecting and using the Forest Reposition Tax, which is generally centralized by IBAMA.[11] In some states, administration of this tax is decentralized, or even privatized to accredited non-profit organizations considered qualified to collect fees and implement reforestation projects. In these states, decentralization came about as a demand by the users, who did not get anything back in return for paying fees, yet needed to ensure continuity in the supply of wood. Inefficient centralized administration of the fee is a barrier that the Acre state government hopes to overcome in order to increase investments in the sector.

An important component of state policy was the development of the State Economic-Ecologic Zoning. A first draft was prepared between 1999 and 2000, at the scale of 1:1,000,000, and provided thematic maps used, among other tools, for the establishment of several state Conservation Units. At a second stage, a refinement to a scale of 1:250,000 is

10 The Rio Branco Municipal Environment Secretariat was a PGAI grantee in its first stage. Its strengthening allowed the secretariat to begin issuing environmental permits, but political changes interrupted this process.

11 The R$1.10 per tree fee, which amounts to about R$6.60 per sterile meter, or R$8.80 per cubic meter of extracted timber, is intended to finance native wood re-stocking, as the name suggests. Nevertheless, the actual use of these resources for reforestation is minimal, with myriad complaints on the part of potential grantees of these revenues about the inefficiency of the centralized institutional arrangement coordinating the activity.

being carried out, and the state has worked closely with Brasiléia and Epitaciolândia municipal governments to undertake zoning in these municipalities.

Nearly 5 million ha of Acre are in Conservation Units. If added to Indigenous Lands, areas under protection cover nearly half (48.32%) of the state's territory. Indeed, implementation of Conservation Units remains to be consolidated, which is not a simple task, due to the volume of human and financial resources required. Furthermore, state forestry policy, in particular implementation of protected areas, is contested by influential political and economic groups opposing the government. The 2006 elections, which open up the possibility of a governor from this group taking office, can seriously weaken this policy.

In the non-timber sector, the main activities undertaken aimed at structuring of the Brazil nut and rubber productive sector. Regarding Brazil nuts, processing units are being assembled. Latex production was encouraged by concession of a direct subsidy for producers (initially R$0.40 per Kg; currently R$0.70) which caused a sharp increase in the price of the product.[12]

Government seeks to encourage private and community forestry management in the timber sector, as well as certification and verticalization of the industry. Community management is encouraged by the formation of cooperatives and technical assistance offered by government extensionists. Verticalization was mainly sought through implementation of a timber pole in Rio Branco, in partnership with SEBRAE and SENAI and with funding from SUFRAMA.[13] A small furniture pole was also installed in Xapuri, where a high-standard furniture factory is already in operation with full certification, as well as small furniture makers to meet the local demand.

Further decentralization efforts were made, namely a partnership secured in 2004 among IBAMA, IMAC and the Forestry Secretariat for the creation of the Office for Forestry Management, responsible for licensing, monitoring and supervision of management plans, administration of the Forest Replacement Fund and issuance of transportation permits – ATPFs. As a result of the forestry management projects, management of 206 thousand hectares of forests was authorized up to 2005. Despite these advances, the office is still understaffed, with 15 employees, sub-divided into forestry engineers, biologists, agronomists and administrative technicians. Considering the state's forestry potential and state government's ambitions, this is far from enough.

ii) Forestry policy in Amazonas

Amazonas is the largest Brazilian state, with an area of 1.5 million km². Its population in 2000 was 2,817,252, of which 50.8% lived in the capital city of Manaus. The remainder of the population was distributed among the 61 other municipalities. Approximately 75% of the

12 Rubber production, at 900 tons in 1999, reached 1,600 tons six months into the program, and 3,500 tons in 2004. Nevertheless, government technicians recognize the operation's lack of economic sustainability for wild collectors at the current prices (R$1.50 to R$1.60 per kg + R$0.70 subsidy). Wild collectors, for the most part, concentrate their work on Brazil nut collection whenever possible, due to the high prices reached in the past few years, close to R$20.00 per can.

13 SEBRAE: Brazilian Service for Support to Micro and Small Business, organization aimed at sustainable development of small-scale businesses; SENAI: National Service for Industrial Apprenticeship; SUFRAMA: Manaus Free-port Zone Superintendency.

population lived in urban areas. The state economy is concentrated in the capital, where job opportunities are more abundant due to industrialization and income generated by gas production royalties.

Amazonas has the lowest percentage of deforestation among the Brazilian Amazon states – 2%. Albeit low, deforestation is a growing concern in the southern region of the state, which grew 16% between 2003 and 2004 due to the expanding agricultural and forestry frontier. There are several reasons for the state's level of preservation. Firstly, there are many extremely humid areas not suitable for agriculture or livestock ranching. Secondly, part of the state is still relatively isolated from the country's farming and livestock ranching product and consumer markets due to its limited network of highways. Thirdly, the development model adopted by Amazonas since the 1960s, when the military government encouraged the region's occupation, was different from that of other states. While Pará, Rondônia and Mato Grosso granted priority to the installation of large agricultural and livestock ranching and colonization projects, a technology-based industrial sector was fostered in Amazonas through fiscal incentives of the Manaus Free-port Zone.

In this context of rural poverty, concentration of the economy in industries in the capital and enormous native forest cover, the forestry sector could be decisive in alleviating inequalities. In fact, similarly to Acre in 1998, the Amazonas government decided in 2003 to give priority to forestry development in the State. Coordination of this policy is the responsibility of the State Environment and Sustainable Development Secretariat (SDS), created in 2003. The secretariat has three autarchic organizations to execute its policies: the Amazonas State Environmental Protection Institute (IPAAM), the Indigenist Policy State Foundation (FEPI) and the Amazonas State Forestry and Sustainable Business Agency.

Amazonas state government was trenchant in establishing negotiations with IBAMA to decentralize forestry management, which took place progressively, albeit quickly, between 2003 and 2005. In 2003 an agreement was signed giving SDS jurisdiction over forestry management (establishment of norms, licensing management and control and monitoring of forestry product transportation and industrialization) in the Upper Solimões and Juruá meso-regions and in the municipalities of Maués and Boa Vista do Ramos. The agreement was complemented in 2004 and 2005 with terms extending these powers to the entire state.

The limited initial geographic scope of the agreement is explained by the priority given to these areas at the start of a state-wide income and employment generation program in the rural areas, named Green Free Zone. Since the program has a strong natural resource use component, particularly as regards forestry and fishing, streamlining administrative processes was paramount, and the government readily took up preaching decentralization as the means to this end.

Within the institutional framework established in 2003, and with the agreements put into effect, SDS establishes forestry norms, while IPAAM works hand-in-hand with IBAMA in the analysis of forestry management proposals and monitoring the sector. Paradoxically, the Amazonas state government has not claimed responsibility to license clearing, despite the permission and even encouragement of the agreement with IBAMA of this next step in decentralization. This may be due to the priority given by the state government to managed forestry, thus avoiding the burden of licensing and control of clearing for agricultural activities.

An important innovation introduced by the government was the regulation of the Sustainable Forestry Management Plan with Simplified Procedures, which is beneficial to producers who wish to manage areas of up to 500 ha. This norm eliminates the requirement for establishment of permanent plots and clearing shares of the area to be managed. As a precaution against predatory wood extraction, a limit is also set for the maximum annual clearing of 1 cubic meter per hectare.

In addition to simplified regulations, the Forest Agency assists producers in preparation of the management plans. As a result, 288 plans had been developed by the end of 2004, which meant an area of 79,514 ha under management. 2005 figures have not yet been computed, but secretariat technicians claim that up to October over 400 plans had been prepared. Despite these advances, the process is limited by IPAAM's relative slowness and limited capacity to analyze the plans developed by the agency and private parties and submitted to it.

The agency's staff is relatively small, with technicians present in only 15 of the state's 62 municipalities. Considering the size of Amazonas and the difficulties with transportation, it is easy to conclude that this structure has yet to be expanded and de-concentrated. Furthermore, the land tenure problem is still a limitation, since it is difficult for many rural area inhabitants to prove ownership of their lands. To optimize the process, the agency gives priority to those who hold titles to their land, a procedure that favors producers with better socio-economic conditions.

Government has also been using subsidies and fiscal incentives for the sector. One such incentive is ICMS exemption for circulation of forestry products within the state. Another more specific example for wild collectors was the creation of a R$0.70 per kg subsidy for rubber, which, according to SDS data, benefited 984 families in 2004 and brought about an increase in rubber production of 79% between 2003 and 2004. Wild collectors also gained from installation of a Brazil nut plant in the Municipality of Lábrea, and have undertaken diffusion activities of good wild collection management practices for both Brazil nuts and rubber, as well as assai and plant oils.

A major advance in forestry and environmental policy since 2003 is the demarcation of Conservation Units. In 2002 there were 12 State Conservation Units, for a total area of 7.4 million hectares. In 2004, after creation of another 17 units, this area had nearly doubled in size, to 14.4 million hectares. Nine such units were created in the southern part of the state, with composition of a Conservation Unit mosaic as the objective, in order to deter the expansion of deforestation and land-grabbing. According to the Ministry of Environment's National Conservation Unit Roster,[14] the State has a further 37 federal Conservation Units, covering 18.9 million hectares. Added to the 45.7 million hectares occupied by the 178 Indigenous Lands, this reaches an impressive figure of 790 thousand square kilometers of protected areas, which is theoretically highly favorable for conservation of natural resources, although it is also a difficult challenge from the viewpoint of management and monitoring.

14 http://www.mma.gov.br/index.cfm?id_estrutura=66&id_menu=2074&id_conteudo=269. Accessed on 11/20/2005.

iii) Forestry policy in Pará

Pará is the second largest Brazilian state, with 1.25 million km², and leads the deforestation ranking in the Amazon, with a loss of 10.1% of its forest cover. Expanding cattle ranching, settlement projects and, more recently, mechanized agriculture are the main driving powers behind this deforestation.

Differently from Acre and Amazonas, rational forestry was not considered a priority, despite the fact that the wild collection forestry economy in the State is the largest in the country. On the contrary, state government has given priority to modernization of agriculture since 1995, with the motto "development without clearing", consolidating the agricultural frontier. Its policy has always been aligned with some of the goals of the Federal Government's Advance Brazil Program (between 1995 and 2002), particularly the introduction of soya and development of transportation and cargo infrastructure in the state.[15]

Pará has the largest participation in licensing activities and even competes with municipalities and the federal government for prerogatives over licensing a wide range of activities. This strategy is due largely to the income generation potential presented by licensing of some activities, particularly in the case of Pará, where numerous large-scale business endeavors are concentrated, with a high pollutant and environmental impact potential, such as hydroelectric power plants, mines, metal industries, paper and cellulose industries, slaughterhouses, packing plants and others.

Pará state government intensified its activities in environmental management in 1998, starting with the implementation of PGAI. During the first year in execution, planning workshops were held for execution of environmental activities in nine municipalities of two areas under the scope of the project, enabling some progress in the decentralization of environmental management. The state acquired nearly all of the equipment to establish its State Environmental Information System, carried out public forums and thematic seminars and courses about the administrative and legal bases for environmental management in the municipalities covered by PGAI/PA.

The State government started in 2005 to negotiate cooperation agreements for decentralization directly with the Ministry of Environment, but up to the end of 2005, there was only a broad protocol of intentions, with no conclusive definition of division of responsibilities. Hence, despite the large territorial dimension and complex environmental problems, forestry management in Pará is still centralized, under the responsibility of IBAMA.

[15] Three soya production poles were developed in Pará, located in the southern part of the state and in the municipalities of Santarém and Paragominas. Despite being the main crop introduced in these areas, soya is accompanied by other grains, e.g. corn and rice, in crop rotation systems. The second pillar of the state's development strategy – modernization and expansion of transportation infrastructure- is directly linked to grain production. During this period, the federal government started construction for expansion of the Santarém Harbor and construction of a grain storage and loading terminal. Furthermore, pavement of the Cuiabá-Santarém highway has begun to facilitate transportation of soya from Mato Grosso and even from Pará itself, in the future. In the Pargominas region, the government has started construction of the Capim waterway, which will connect the municipality to the Barcarena port. This route will move soya and timber production out, bringing raw materials back in to the municipality.

According to Science, Technology and Environment Secretariat (SECTAM)[16] data, Pará has a total of 18,625,185 hectares of Conservation Units, which corresponds to 14.9% of its territory. Among these areas, there are 34 federal (12,353,255 hectares), 12 state (6,196,252 hectares), 12 municipal (75,891 hectares) and four private CUs (2,806 hectares). Of the 41 identified Indigenous Lands, only 33 have a defined area, and add up to 47,321,358 hectares, i.e. 37.8% of the State's surface. As in other states, great difficulty is found in implementation of effective management of the Conservation Units and there are many invasions and cases of conversion, especially in the state areas, which are mostly Environmental Protection Areas (APAs).

The State gives high priority to its Ecologic-Economic Zoning, which began in 2002. In the first stage, macro-zoning was carried out, at the scale of 1:2,000,000, later sanctioned by law (Law number 6,745, of May 6, 2005). The zoning establishes four territorial management zones, defined by current data related to the degree of degradation or preservation of the environmental quality and to the intensity of natural resource use and exploitation. The zones are as follows:

I – 65% (sixty-five percent), at least, destined to specially protected areas, distributed as follows:

a) 28% (twenty-eight percent), at least, to Indigenous Lands and Lands of Descendants of Former Slaves;

b) 27% (twenty-seven percent), at least, destined to Sustainable Use Conservation Units; and

c) 10% (ten percent), at least, destined to Integral Protection Conservation Units;

II – 35% (thirty-five percent), at most, for consolidation and expansion of productive activities, recovery areas and altered areas.

Despite the establishment of a large extension of protected areas, critics fear that the government's ulterior motive is to insure occupation of the 35% of its territory destined to productive activities, without protecting the remaining 65%.

iv) Foresty Policy in the States: A critical summary

Policies in Acre and Amazonas are quite similar and both differ profoundly from those of Pará. The former two states prioritize the forestry sector and have sought to take on IBAMA responsibilities to manage this sector. In addition to decentralization, these states have invested in forestry management capacity-building, which included new administrative structures and contracting and qualifying technical personnel. As part of this forestry policy, in recent years these states have created numerous Conservation Units, which aim at controlling expansion of the agricultural frontier, while generating income and employment through forestry.

The government of Pará, on the other hand, bets on development through cattle ranching, mechanized agriculture and large-scale mining, energy and raw material transformation projects. SECTAM's structure and responsibilities reflect these priorities.

[16] http://www.sectam.pa.gov.br/uc.htm. Accessed on 10/23/2005.

Instead of capacity-building in the forestry area and pressure placed on IBAMA to transfer powers to the State, the secretariat has invested in environmental licensing and monitoring, as well as developing an environmental information system, with the aid of PGAI. Nor did the Pará government invest in the creation of new Conservaiton Units in the past years, in contrast to the Acre and Amazonas governments.

The three states have a centralized environmental and forestry policy in common, with few incentives for municipal participation. Pará is the state which has advanced a little more in decentralization, by making the structuring and strengthening of environmental organizations in 12 municipalities a PGAI priority. Seven of these municipalities are in the Moju-Capim region – Moju, Tomé-Açu, Paragominas, Irituia, Tucuruí, Breu Branco, Jacundá – and five in the Tapajós area – Itaituba, Santarém, Belterra, Novo Progresso and Jacareacanga. Institutional strengthening of environmental organizations in these municipalities was not necessarily accompanied by a significant transfer of powers and responsibilities. In general, the municipalities were charged with licensing and monitoring a few low-impact activities, which were formally already in their jurisdiction.

Despite this timid step toward decentralization, Pará has a highly concentrated structure, which causes great frustration among the entrepreneurs in need of environmental permits to operate their businesses. Since most SECTAM technicians are in Belém, and trips to the countryside are costly and time-consuming, visits are expensive, which limits licensing and monitoring of activities with potential environmental impacts. Although businessmen in need of licensing dislike monitoring activities, they support the demands for decentralization, since they hope to get more efficient service. Environmental organizations in Acre and Amazonas are not so concentrated, which is a reflection of the policies adopted in these states, which focus on wild collection and small farming production.

b) Municipal forestry management

The municipalities in the Amazon, particularly those that are smaller and poorer, have greater difficulties than the states in structuring their environmental agencies and taking over forestry area responsibilities. According to an IBGE assessment, 33% of the 9 Amazon states had no environmental political-administrative structure in 2002. A much smaller portion of municipalities have an exclusive environment secretariat – only 60, or 10.73% of all municipalities in the region. Overall, municipalities have mixed secretariats, bringing together more than one administrative area (47.94% of the municipalities which have an environmental structure), or an environment department or advisory board within another secretariat (41.32%). In most of these cases (52.77%), this other secretariat is the municipal agriculture secretariat.

These numbers require careful interpretation, however. The small number of municipalities with autonomous environmental structures is not surprising, neither is it a clear indicator of all the difficulties with local environmental management. On the whole, the larger municipalities are the ones which have these structures, since they can afford them and because there is enough local demand for their services. This does not mean that these municipalities are necessarily more active in forestry management. On the contrary, justified demands which sustain the environment secretariats are essentially urban and involve activities such as collection and treatment of solid waste, landscaping and gardening and licensing of urban activities.

The frequent association of environment agencies with those of agriculture shows the difficulties small municipalities face in creating autonomous organizations. It is also a reason for concern, since it may indicate subordination of environmental policies to agricultural and livestock policies, with are often clearly incompatible. Nonetheless, there is a positive side to this association: the concern with generation of income through natural resource use in many municipalities.

i) Municipal experiences

Be the objective income generation or conservation, the fact is that local governments undertake concrete initiatives which directly and indirectly affect the forestry sector. Among such initiatives, the most noteworthy are laws and administrative actions to protect the sector stand out, but there is also promotion of agroforestry systems through technical assistance, institutional coordination with government agencies involved in forestry resource use, creation of protected areas and recovery of degraded areas, among others. Some examples of such types of action are quoted and discussed below.

Legislation and monitoring: Many local governments seek to pass municipal laws barring logs from leaving the municipality, thus avoiding value added to the activity and appropriate corresponding tax collection in neighboring municipalities where the logs are sawed and processed. Itaituba, in Pará, has passed such a law. In Porto de Moz, Pará, a similar law was proposed but vetoed, since it would create a monopoly in the timber market. Municipalities such as Juína, in Mato Grosso, control all movement into and out of their territory, thus monitoring the Tax on Circulation of Merchandise and Services (ICMS) transfer from the state government, avoiding loss of tax revenue generated by the timber processing sector.

Land use planning: Brasiléia and Epitaciolândia, in Acre, began their municipal ZEEs with assistance from the state government and the German cooperation agency (GTZ). In Itaituba, the municipal environment secretariat managed to assemble a small geoprocessing laboratory with PGAI funds, and trained technicians in map production, which can provide valuable contributions to natural resource planning and policy.

Forestry resource use optimization and timber industry residue use: In Paragominas, Pará, for example, the town hall executes a sawdust use project – abundant material in this prominent timber pole – for manufacturing briquets (Maia, 2005). In Marabá, the Municipal Environment Secretariat sought the support of the Federal University of Pará to find a technological solution to reduce firewood consumption in the local ceramic sector. After identifying an appropriate solution – burning sawdust – technical assistance was offered to help industries convert their furnaces for use of this fuel.

Inter-institutional coalition: In many cases, municipal governors wish to implement more vigorous actions in the forestry area, but due to a lack of formal authority, they attempt to get the state and federal agencies to facilitate their work. Such is the case in Fonte Boa, in Amazonas, where the town hall built and granted installations to house the local Forestry Agency, IPAAM and IBAMA offices, thus getting closer to these organizations and promoting dialog among them to benefit forestry in the municipality. In Apuí, also in Amazonas, the town hall's

Environment Department assists IBAMA in registration of producers wishing to request clearing permits and supports IPAAM in its environmental control activities in the municipality. In Itaituba, the town hall has entered into agreements with the Amazon Vigilance System (SIVAM) and the Brazilian Agricultural and Livestock Research Company (EMBRAPA) to consolidate the municipality's cartography and mapping of its soils. These products will be the basis for land use planning in the municipality.

Conservation Units: In the Municipality of Marabá there is an interesting partnership experience among the municipal government, NGOs and a private company, which resulted in the establishment of the "Nordisk Reservation" Area of Relevant Ecological Interest. There are 2,999 hectares of primary forest amidst an immense cleared area. The land was conceded by commodatum by the Nordisk timber company to a local NGO – the Zoobotânica Foundation – for study and preservation. The NGO's technicians assessed the area as one of the few remnants of the so-called Brazil nut tree polygon, which once covered the region, and its directors started a dialog with the Municipal Environment Secretariat and took the discussion about preservation of the area to the Municipal Environment Council. After securing an agreement with the company, which was willing to transfer ownership of the land to the town hall, the Council passed a resolution creating the area. A municipal decree later ratified the decision.

In Juína, the town hall created a municipal park of approximately 40 ha, which covers part of the municipal seat and its surroundings. This was an extremely degraded area which is being recovered by the local government and which, apart from the urban green area, will serve as a pilot experience for recovery of other degraded areas in the municipality.

Formation of consortia: Neighboring municipalities have formed consortia as a means to optimize resource mobilization and approach environmental problems crossing their borders. One example is the Intermunicipal Development Consortium of the Upper Acre River and Capixaba (CONDIAC), made up of the Assis Brasil, Brasiléia, Epitaciolândia, Xapuri and Capixaba municipalities. Officially created in 2003, the consortium has some staff of its own, and, among other activities, participates in an Acre River riparian woods recovery project. The project was submitted to the National Environment Fund (FNMA) in 2005 and has the objectives of recovering the woods and increasing the population of species with economic value and bringing the producers who illegally cleared these permanent preservation areas into legality.

In other cases, the formation of consortia is induced by federal government actions, such as the 2003 FNMA call for proposals (Edital FNMA 05/2003) for strengthening environmental management in the Amazon municipalities. The rules of the call for proposals favored municipalities which associated with others to share human resources and materials.

Agroforestry Systems: A large number of implemented forestry systems can be found throughout the Amazon, supported by a wide variety of organizations: federal government, state governments, town halls, universities and international research

organizations. Many town halls foster this activity through the search for partnerships, the provision of technical assistance, pressure placed on state-owned banks to approve credit and also producing seedlings for distribution to farmers, as in the case of Juína, Mato Grosso and Moju, Pará. Other municipalities, e.g. Rio Branco and Xapuri, fostered the establishment of agroforestry poles in the surroundings of their municipal seats, with the goal of creating alternative sources of income for the rural population and increasing the local supply of fruit and vegetables.

Subsidies and fiscal incentives: municipal governments have little firepower when dealing with subsidies and incentives, since the lion's share of taxes and fees is collected by the States and Union. Nonetheless, there are examples of town halls attracting industry through concession of IPTU and ISS (Tax on Services) exemptions, or through donation of lands and investments in transportation and energy infrastructure, for example. In Xapuri, the town hall granted the land and ISS and operational permit exemptions to the industries that settled into the Forestry Product Pole installed in the Municipality with SUFRAMA resources and state government support, which also granted tax exemptions. In Paragominas, the town hall did something similar to attract industries from numerous sectors, including timber processing and furniture manufacturing.

Recovery of degraded areas: In addition to the aforementioned example, i.e. the Condiac project, there are several municipalities that have worked in this area. In Juína, Mato Grosso, the Agriculture, Mining and Environment Secretariat established a large forest plant nursery with annual capacity of 120 thousand seedlings. These seedlings are used in reforestation of riparian woods in public and private areas. In Moju, Pará, the town hall also invested in recovery of converted areas, especially on the banks of the Ubá River. Several stakeholders collaborated with this initiative, including a company from the timber sector that provides forestry seedlings produced in its nursery to the town hall.

If on the one hand town halls enter into potentially positive activities for sustainable use of the forestry sector, on the other they also become involved in numerous activities that could have severely negative impacts. Some such activities are presented next.

Construction of roads: Roads are undoubtedly one of the most important services for the rural population, since they determine access to markets, health care and education, among other services. Nevertheless, construction of roads is one of he main causes for expansion of the agricultural and forestry frontier, as well as deforestation. Some local governments build roads to improve conditions of life for small farmers, but many others build roads with the intention of facilitating logger penetration into the forest. This is particularly important in areas of intense timber activity. Informal partnerships between loggers and mayors to expand the network of roads in the municipality are common in these regions. In these situations, the town hall often foots the fuel bill for the companies' tractors which open up the roads.

Programs to combat hoof-and-mouth disease: The best success story of coordination of activities among the three levels of government in Brazil may well

be the program against hoof-and-mouth disease, which has expanded the beef market in Amazon states by means of eliminating sanitation barriers. While some States gain access to the international beef market, others become suppliers for the internal market. Demand for domestically produced beef has risen sharply, causing rapid cattle ranching expansion. Between 1990 and 2005, the herds in the Amazon States grew by 148%, a figure far above the national average (32%). State and municipal agriculture secretariats have been decisive federal government partners in the National Program for Eradication of the Hoof-and-Mouth Disease, carrying out dissemination, distribution of vaccines and monitoring.

Rural credit: Mainly in the 1990s, many municipal governments became engaged in lobbying at the Bank of Amazônia to facilitate granting of rural credit to small farmers. Most of this capital (from the Constitutional Fund for Development of Northern Brazil – FNO) should initially have been used to finance implementation of agroforestry systems and dairy cattle ranching. It ended up subsidizing beef cattle raising, however, among small farmers, with heavy damage to the forest due to expansion of pasture areas.

ii) Strengthening local capacity

To give examples of the various activities of the municipalities in the forestry area, a small number of municipalities was surveyed. In a universe of 850 Amazon municipalities, there is no doubt numerous other innovative experiences. It must be noted that the previously mentioned examples almost invariably involve municipalities working hand in hand with an external partner, such as an NGO, cooperation organization, government agency at a different government level or research center.

Partnerships help municipal governments compensate for the lack of technical and financial capacity. They are frequently informal, but they are sometimes backed by official agreements. Table 4 shows that these tools have been in use by no more than a few municipalities in the Amazon states. In 2002, approximately 36% of these municipalities had established some kind of partnership, which is by no means a large number.

Data suggests that these municipalities have multiple partnerships (the sum of the different partnership categories surpasses the total number of municipalities with partnerships). A possible explanation for this is that some municipalities have very particular attractions that create a demand for cooperation, such as, for example, parks and reservations, or even serious socio-environmental problems. An exemplary case is Xapuri, with its mystic history of the rubber-tappers' struggle and the life and death of Chico Mendes. There are numerous federal and state government programs in the municipality, as well as NGOs, international organizations and private company programs. It is convenient for many of these stakeholders to have their names associated with Xapuri, thus achieving a more positive public image. Another explanation, complementary to and not excluding the first, is that some municipalities do in fact seek more external support, driven by their mayors' and secretaries' political preferences, and often helped by their own good political relations in the capital and the competence of their technical staff. This makes the task of strengthening the municipal environment agencies even more important.

Table 4: Agreements between Municipal Governments and Other Actors in Amazonian States

	State									
	RO	**AC**	**AM**	**RR**	**PA**	**AP**	**TO**	**MA**	**MT**	**Total**
Municipalities (total)	52	22	62	15	143	16	139	217	139	805
With some agreement	18	8	33	8	54	13	35	61	59	289
Municipal agency	2	-	3	1	3	-	1	-	5	15
State agency	7	5	14	2	39	12	26	13	26	144
Federal agency	11	3	22	4	21	5	16	36	18	136
State-owned company	1	-	2	-	4	-	-	2	5	14
Private organization	3	-	4	3	7	5	3	8	8	41
International org.	1	2	1	2	5	4	-	1	1	17
NGO	4	2	8	1	7	3	7	13	8	53
University/Reserarch org.	3	2	7	-	13	2	7	4	7	45
Others	1	-	2	-	-	-	1	5	5	14

Source: IBGE – Perfil dos Municípios Brasileiros –2002

Strengthening municipal environment organizations requires investments in capacity-building and infrastructure, which can be done by state and federal governments and even by municipalities. An important discussion in need of encouragement in municipalities concerns financial sustainability of the environmental structures. No doubt, mayors respond to stimuli directly affecting the municipal budget. A secretariat with deficits competing with other municipal government administrative agencies for budget allocations is not attractive to a public administrator. However, even licensing small-scale activities can generate income for the municipality, and in some cases it can fully support the environmental agency. The experience of the Municipality of Marabá illustrates this point well. Despite failing to remove the responsibility over licensing large endeavors (many of which clearly at the municipal scale) from the hands of SECTAM, the environment secretariat still manages to raise enough revenues to cover their operational costs and efficiently perform a number of environmental management services (Toni and Pacheco, 2005).

4) Conclusions

It is clear that although no formal process of decentralization of forestry management is currently under way, in practice the three administrative levels are directly involved in an ongoing process and each brings distinct contributions and problems for more equitable natural resource management. Experiences discussed in this paper and the history of occupation of the Amazon and Brazil itself show that however desirable decentralization may be, the presence of the federal government is still indispensable in order to protect the interests of the indigenous peoples. These groups have become involved in conflicts with nearly all other stakeholders inhabiting the region: loggers, cattle ranchers, prospectors, large mining companies and even small farmers. Their political power at the local level is minimal, and they could be under severe threat if the power to establish Indigenous Lands were in the hands of municipalities or even states.

The root of these conflicts is the need of Indigenous peoples to keep access to vast areas of forest, which is often contested by other groups. Federal government has been paramount in insuring this access via creation of Indigenous Lands. Demarcation of these lands and their effective protection are still wanting, but these are, in fact, the best protected Amazon areas. Considering strong local pressure, it is questionable that other levels of government could take over responsibility for creation and demarcation of Indigenous Lands. Another important point is the difficulty indigenous populations face to exploit timber in their lands. In order for this to be done legally, development of an appropriate legal framework is necessary, which is, in principle, within federal jurisdiction.

Decentralization at the state level, despite being relatively recent – 7 years in Acre, 3 years in Amazonas – seems very promising in turning the forestry sector into an effective source of income for smallholders. Governments in these states have created subsidies which directly benefit wild collectors, which becomes evident in increased rubber production, for example. The most important innovation, however, was making it easier for small farmers to get access to legal timber activities. Decentralization had a crucial role in this, since these states created simplified regulations and administrative procedures which facilitate obtaining clearing permits and carrying out timber extraction.

Also fundamental in these two states was the installation of mechanisms and structures to promote development of the timber and non-timber sectors. Technical assistance in forestry has a very important role, because local producers are not familiar with forestry management and need constant capacity-building. Creation of the Forestry Agency in Acre is very significant, although it is still operating at a very limited scale.

Both Acre and Amazonas, even after decentralization, have bottlenecks in the process of management planning and filing of requests for clearing permit analysis at the respective agencies (IMAC and IPAAM). These states still need to strengthen their environmental agencies to expedite this process, but it is not clear that funds will be available to do this and increase investments in promotion. However, the states have shown little determination to extend decentralization to the municipal level.

Municipalities still suffer from low institutional capacity, but the good news is that this is not a hard and fast rule. Several municipal governments have been adopting innovative initiatives in the forestry area, in spite of there not being any decentralization program with clear objectives and defined goals. Fiscal feasibility of municipal environment agencies is imperative and in order for a desirable standard of income generation to be reached, more aggressive decentralization of licensing activities is certainly necessary, along with local capacity-building. With income generation, municipal agencies will decidedly have greater ease in contracting technical personnel and forest engineers capable of assisting small rural producers wishing to legally make use of their forest resources. This direct action of the municipal authorities obviously depends on a more favorable institutional framework, similar to what is happening in the State of Amazonas with regulation of the simplified forestry management. Within this framework, technicians can develop a greater number of management plans, which will surely also demand higher capacity of government agencies to analyze the respective plans and monitor their implementation.

5) References

Barreto, P.; C. Souza Jr., A.. Anderson; R. Salomão & J. Wiles (2005) Pressão Humana no Bioma Amazônia. *O Estado da Amazônia, Nº5*. Belém, Imazon.

Benatti, J.; S. Chaves; A. Maués; I. Rodríguez (2000). Derecho, Institucionalidad y Ordenamiento Territorial en Brasil y Costa Rica. *Ciencias Ambientales, Vol. 19: 36-44*.

Binswanger, H.; Shah A.; Parker A. N. - Eds (1994*). Decentralization, Fiscal Systems* and Rural Development, Revised Proposal/Request for Research Support Budget Funding. Washington, D.C. World Bank.

Borja, Jordi (1988**)** *Democracia Local: descentralización de estado, políticas económico-sociales en la ciudad y partcipación popular.* Barcelona, Ayuntamento de Barcelona.

Bremaeker.F.E.J. (2004) O Município Como Ente Governamental Autônomo. Rio de Janeiro, IBAM, *Série Estudos Especiais nº 72*.

Bremaeker.F.E.J. (2003) Despesas Municipais com as Funções de Competência da União e dos Estados em 2002. Rio de Janeiro, IBAM, *Série Estudos Especiais nº 5*6.

Bremaeker F.E.J. (1994). Perfil das Receitas Municipais. *Revista de Administração Municipal.* Vol. 41 (213): 75-88.

Carney, D. (1995). Management and Supply in Agriculture and Natural Resources: Is Decentralization the Answer? *Overseas Development Institute Natural Resources Perspective n. 4*. London: Overseas Development Institute.

CIMI (2004) *Informe nº 634, 08/10/2004*. http://www.cimi.org.br/?system=news&action=read&id=616&eid=274

Ferreira, L.V; S. Almeida (2005) O Desmatamento na Amazônia e a Importância das áreas protegidas. ESTUDOS AVANÇADOS 19 (53).

Greenpeace (2001) *Parceiros no Crime: A Extração Ilegal do Mogno – "A Amazônia a Mercê de um Acordo de Cavalheiros*" http://www.greenpeace.org.br/amazonia/pdf/report_parceiros_no_crime.pdf

Gregersen, H.M; A. Contreras-Hermosilla; A. White; L. Phillips (2005) Forest Governance in Federal Systems: Na Overview of Experiences and Implications for Decentralization. In Colfer, C.J.P and D. Capistrano (Eds) *The Politics of Decentralization: Forests, People and Power*. London and Sterling, VA, Earthscan.

Lentini, M.; A. Veríssimo e D. Pereira (2005) A Expansão Madeireira na Amazônia. *O Estado da Amazônia, maio 2005*. Belém, Instituto do Homem e Meio Ambiente da Amazônia.

Lima, E., Leite, A., Nepstad, D., Kalif, K., Azevedo-Ramos, C., Pereira, C., Alencar, A., Lopes, U. e Merry, F. (2003). *Florestas Familiares: Um Pacto Sócio-ambiental entre a Indústria Madeireira e a População Rural Carente da Amazônia*. Belém, Instituto de Pesquisa Ambiental da Amazônia (IPAM)

Lima, A. (2005) Desmatamento na Amazônia: a Impunidade é Regra. *ComCiência: Revista Brasileira de Jornalismo Científico.* Sociedade Brasileira para o Progresso da Ciência. http://www.comciencia.br/reportagens/2005/08/08_impr.shtml

Maia, H. (no prelo) *Experiências de Descentralização da Gestão Ambiental nos Estados do Acre, Amazonas e Pará.* Brasília, GTZ.

Margulis, S. (2003) *Causas do Desmatamento na Amazônia Brasileira*. Brasília, Banco Mundial.

Nickson Ra. (1995) *Local government in Latin America*. Boulder, London, Lynne Rienner Publishers.

Smeraldi, R., Verissimo (1999). Acertando o Alvo: Consumo Interno de Madeira no Mercado Brasileiro e Promoção de Certificação Florestal. Belém., Amigos da Terra, IMAZON, IMAFLORA.

Smeraldi, R. (2002). *Legalidade Predatória: o Novo Quadro da Exploração Madeireira na Amazônia.* São Paulo, Amigos da Terra – Amazônia Brasileira.

Toni, F, e P. Pacheco (2005) *Experiências Inovadoras de Gestão Ambiental Descentralizada: Um Estudo Comparativo de Três Municípios da Amazônia Brasileira*. Brasília, Ministério do Meio Ambiente, Secretaria de Coordenação da Amazônia;

Vosti, S.A., J. Witcover, and C.L. Carpentier. (2002) Agricultural intensification by smallholders in the western Brazilian Amazon: From deforestation to sustainable land use. *Research. Report 130*. IFPRI, Washington, DC.