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San Martín de Amacayacu, 12th of April2006

THE PAN AMAZON RAIN FOREST
BETWEEN CONSERVATION AND POVERTY ALLEVIATION:

PROPERTY RIGHTS REGIMES AT THE TRIPLE BORDER
IN THE SOUTHERN COLOMBIAN TRAPECIO AMAZONICO[1]

[1] This Paper has been prepared for the „11TH BIENNIAL CONFERENCE OF THE INTERNATIONAL ASSOCIATION FOR THE STUDY OF COMMON PROPERTY" in Indonesia/ Bali 19.-24.06.2006.
Special thanks to Prof. Dr. Manfred Nitsch for all his support during my research in the Colombian Amazon Trapeze.

Abstract

Sustainable development and the reduction of poverty and hunger are internationally agreed goals. Achieving them is crucial, but currently the world is falling behind on both - a circumstance that applies to the Amazon as well as many other forest regions in the so-called Third World. Though the Amazon Rainforest - being the largest remaining rainforest, covering six percent of the earth, and crossing nine countries - remains a mayor hotspot for successful natural resource management in the context of linking conservation and poverty alleviation. Currently, the Colombian legislature is about to approve a new forest law ("ley forestal 264/04") that envisages forest concessions allocated by government authorities. The *de jure* allocation of natural resources will be under state jurisdiction without participatory planning mechanisms, at the same time ignoring and undermining *de facto* existing local institutions which until now have, to a certain degree, been able to stem the pressures of deforestation. Peru has implemented a similar forest law, already fraught with enormous negative social and environmental consequences. Brazil has also taken steps toward forest concessions in hitherto inaccessible and relatively untouched forest areas.

In December 2005, relevant actors from the three countries gathered in the Colombian border town of Leticia to discuss their respective expectations and sketch a coherent collective approach for the Pan Amazon. The paper picks up this discussion process and focuses on the use and conservation patterns concerning common-pool resources (CPR) and regimes in the different action arenas at the local level in Colombian indigenous territory and at the triple border. In the different *de jure* variations of property rights, the strategies of legal, illegal and paralegal use of natural resources through the relevant actors – owners and non-owners (i.e. as possessors) – and their conflicts are presented. The specific objective is to contribute to a better understanding of the incentives set by competing action arenas and regimes in the triple border setting.

The general hypothesis can be formulated as follows: Sustainable development in the region can only be achieved through collaborative and participatory planning and by taking into account the incentives given through the competing property rights regimes in the different countries. It is the inefficiency of the policy-based allocation mechanism that supports the *de facto* open access regime with the consequence of unsustainable exploitation and overuse. Since resource-conflicts are embedded in the overall conflict environment of the region and its own institutions, this case is particularly interesting. While most research focuses on the structure of the bundles of rights held by different actors, this paper aims to understand the influence of the process of allocation of natural resources through local as well as national authorities and co-management organizations (*de jure* as well as *de facto*, legal as well as illegal ones) on the use and conservation strategies of the relevant actors and their conflicts.

1 Introduction: The Pan Amazon Rainforest between conservation and poverty

This vast and resource-full territory known as the Amazon Rainforest extends over seven million square kilometers; it is shared by a variety of communities and harbours an abundance of natural resources. For more than a decade, here, too, sustainability has been on the international as well as national and local agenda. Non-governmental organizations (NGOs) and scientists from all over the world have been calling for a sustainable use of nature, and in this context, the Amazon Rainforest is playing a prominent role, being of outstanding importance for the planet's climate and its biodiversity. At the same time, the region is affected by drug trafficking, population displacement caused by economic and political pressures, colonization programmes of past decades, illegal resource use and overuse, and the segregation of indigenous ethnic groups by national borders set without regard to the social and cultural realities of the region. Historically, the Amazon has captured the imagination of conquerors, dreamers, entrepreneurs, fortune-seekers and armchair philosophers of all times and nations: the Amazon as paradise or hell; the Amazon as "backyard", an area where the problems of other regions can be swept under the rug; or the Amazon as "El Dorado", a region full of wealth waiting to be exploited. Another vision, one offered by the native ancestral inhabitants, is that of the Amazon as "our place of living": the vision of the Amazon Native Communities. The future of the Amazon Region is still uncertain and undecided. All prospective scenarios are filled with major challenges, which can be met by the use of force or the construction of dialogue and exchange of information, by silent *de facto* interdependencies or the adoption of common technical cooperation policies in the use and conservation of natural resources and the execution of projects. On the discourse level, it is relatively easy to integrate conservation and sustainable use of natural resources protecting the tropical rainforest. However, up-to-now the Amazon has experienced many types of extractive economic booms (quinine, rubber, skins, wood, gold, petroleum, genetic resources et al.), but has experienced very little sustainable use of the primary forests. Research in the causes of environmental degradation shows that an understanding of institutions – defined as systems of norms and rules - is crucial in order to understand the dynamics of resource use and misuse (Ostrom 2005, Nitsch 2004). Key among the relevant institutions are property rights as they shape to a great extend the dynamics of use and access as well as the protection from exploitation (Bromley 1991). In other words, property rights in a broad sense refer to social institutions and not to any inherent natural or physical quality of the resource in question. Their sound political configuration and allocation is essential for a successful management in terms of sustainability.

The Pan Amazon region has seen several endeavours of well intended *de jure* limitations of property rights. Some of them have proved to be rather successful, such as Indian Reserves, whereas others have been flawed from the very beginning because of their inherently anti-conservationist

bias, such as “economic-ecological zoning” within the World Bank assisted PLANAFLORO programme of the early nineties in the Brazilian state of Rondônia (Nitsch 1993). Other approaches like community-based resource management, the recognition of common property with differing degrees of self governance, or the administration of protected areas by government agencies have also do not, by any means, guarantee an effective conservation or sustainable use. Nevertheless, the recognition and strengthening of common property regimes seem to be a promising point of departure to overcome Hardin’s famous “Tragedy of the Commons” (Ostrom 1990, 1998, 2005). In Colombia, the constitution of 1991 formally recognizes ancient indigenous territories as common property and stipulates the autonomy and self-governance of the indigenous peoples within those territories. As a result, Colombia’s estimated indigenous population of around 700.000 (which equals less than 2 percent of the national population) collectively owns about one quarter of the country’s territory; an area still increasing, mainly in the Amazonian and Pacific Coast region (MMADT 2004, Ochoa 1998: 307; Sandt 2003: 129). However, *de facto* their self-governance regarding natural resource use is limited and remains mainly under state jurisdiction and tutelage. The paper takes this into account and brings a focus on the use and conservation patterns regarding common-pool resources (CPR) in the Colombian *resguardo* “TiCoYa de Puerto Nariño” in the southern Amazon trapeze, the region of shared borders between Brazil and Peru. The search for an institutional setting that promotes a socially and ecologically desirable outcome is a challenging task for policy making, in particular for decentralization processes. This paper aims to be a contribution to a better understanding of the incentives set by a variety of institutions with overlapping reach.

2 Theoretical framework: Deforestation of the rainforest as a problem of “social dilemmas”

Forests are rightly classified as “Common-Pool Resources” (CPR). CPR have two characteristics: (1) a low feasibility of exclusion and (2) consumption is subtractive. Consequently, they cannot be classified neither as pure private goods, nor as pure public goods (Ostrom 1990), and therefore they have to be analyzed separately. Low feasibility of exclusion refers to a situation where it is difficult (and consequently costly) for anybody to exclude other users from access to the output or services they provide. Consumption is subtractive or rivalling, when one person consumes a good for a particular purpose, with the result that another person cannot use the same good (FAO 1997). One of the most important characteristics of this type of resource is the dilemma between the collective and the individual interests. As a result, users have private incentives to enjoy individual benefits while leaving the costs of their behaviour to the group or collective. So Hardin’s well known “Tragedy of

the Commons" can be called a social dilemma, a situation where individual and group objectives are in conflict. Social dilemmas usually involve a group externality that can, in principle, be dealt with in many cases by the group itself, through the construction of self-governance institutions (Cardenas 2000a). The market is not able of coping with this dilemma since it doesn't recognize sustainability as a relevant factor. The market mechanism does not honour or remunerate neither cultural diversity nor a functioning living ecosystem.[2] That is one reason why natural resource systems cannot be fully allocated through market mechanisms, making necessary a political institution. But central state authorities have in the majority of cases, especially in developing countries, a limited capacity to cope with this problem, lacking information and enforcement capacity for adequate institutions. However, local communities are often able to handle the CPR in an adequate way in many diverse cases, while in others overuse occurred in spite of community endeavours. Elinor Ostrom and her disciples have analyzed in depth the case of CPR in many common-use situations (Ostrom 1990, Ostrom Gardner and Walker 1994, Ostrom 2004).

A common-use situation is defined as a situation in which the benefits of usage are distributed among various individuals and in which the types of usage are mostly heterogeneous (Young 1992: 103). To analyze the social dilemmas related to common pool resources, I will use the approach of New Institutional Economics, which builds on methodological individualism implying that only individuals decide, not collectives, and that each individual can be modelled with a comparable utility function of preferences. Among these preferences, altruistic motives and ecological concerns may play an important role so that the use of that methodological approach does not exclude the "common good" or "ecological concerns". However it only recognises its importance, when individuals with those objectives in their utility function play a role in decision-making. In addition, some aspects from not-so-new Institutional Economics are to be included, in other words, collectives such as classes and interest groups, ministries, banks or indigenous groups with different backgrounds should be recognized as "players", even if their organisational objectives are hardly internalised by their representatives as individuals, since those collectives themselves are taken seriously as abstract partners in negotiations and as addressees of demands.

In order to structure the analysis of the different actors, arenas and situations, the "Institutional Analysis and Development" (IAD) framework will be applied (see Ostrom 2004: 47ff). The internal structure of a situation of resource appropriation – as many others – can thus be formalized by using

[2] In a monetary economy social and ecological value are outside the horizon of the economic actors. These only take the information from financial and labour markets into account: interests and wages. The social value has no significance for the market. The market applies an understanding of capital which only focuses on private values that are convertible into money.

a common set of variables: (1) the set of participants, (2) the positions to be filled by the participants, (3) the potential outcomes, (4) the set of allowable actions and the functions that transform actions into realized outcomes, (5) the type of control that an individual has in regard to this function, (6) the information available to participants about actions and outcomes and their linkages, and (7) the costs and benefits—which serve as incentives and deterrents—assigned to actions and outcomes. Such an action situation can be visualized as follows:

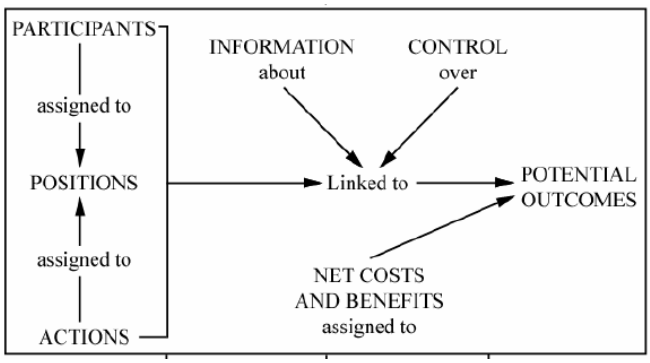

Abb. 1: Internal structure of an action situation (Ostrom 2004: 95)

This framework will be broadly used to structure a closer look on some action situations in the region of the Colombian Amazon in Chapter 4. Because of the complexity of the institutions, the evaluation of the current governance systems will take polycentricism into account (Ostrom, V. 1999; Ostrom/ Tiebout/ Warren 1961; Cardenas 2000b).

2.1 Decentralization, external regulation, and self-governance

Following the calls from the Rio Summit and scientific evidence, many countries have decentralized their management of natural resources. But decentralization can be designed in a variety of ways. Colombia has decentralized its natural resource management through the Law 99/1993, placing natural resource management under the authority of regional state entities. At the same time, as pointed out earlier, Colombian *resguardos indígenas* are legally recognized as national property endowing the rights of usage as a collective possession property to their indigenous inhabitants, given them autonomy and the right of self-governance within Colombia's legal framework. To be able to analyze the dynamics set free by those institutions, it is useful to take a short look at a series of field experiments, which were conducted by Cardenas, Stranlund, and Willis with rural villagers in the Pacific Coast region of Colombia in 2001 and 2002. The experiment was framed as a resource extraction problem which was well-known to the participants (Cardenas 2003). Particularly

interesting is that Cárdenas et al. showed in a series of experiments that badly enforced government regulations are often counter-productive, whereas non-binding communication can be quite effective in the management of environmentally sensitive resources at the local level (Cárdenas 2002, 2003). Moreover the results underlined once more that economic behaviour is often not only the consequence of a simple comparison of individual marginal costs and benefits. Social capital components such as trust, equity, and reciprocity can have an important impact on individuals' decisions (Cárdenas 2003: 1). Another important conclusion from the experiment is that externally imposed rules can crowd out group-oriented behaviour, and possibly worsen the environmental problem, or work against the solution for which the regulation was designed. When those regulations are enforced only partially, the net effect on behaviour is to induce more individual-oriented, selfish decisions (Cárdenas 2002: 2). At the same time, allowing local communities to solve the problem on their own through face-to-face communication can be very effective, even without any formal monitoring or sanction (Cárdenas 2003: 2). In contrast to the widely applied assumption of rational self-interested behaviour (which in theory will lead to over-exploitation of environmental resources), experimental and field evidence consistently demonstrates that individuals do not always behave as if they were purely self-interested, but that they often make decisions that balance self and group interests. However, taking into account the characteristics of CPR we must conclude that no regulating authority has a costless way of monitoring and enforcing them. In addition, there is always an opportunity for the violation of rules in order to gain some private rent which cannot be totally eliminated, - neither in the case of external formal regulations nor in the case of self-governed solutions or non-binding agreements. This becomes particularly significant, when the agents are outsiders that are not part of the agreements, as we will see in Chapter 4.

2.2 Structural heterogeneity in the context of CPR

Sanz de Santamaria (1992) once highlighted – after conducting his own research – the "crucial importance of the collective participation by academics and the 'investigated' communities in the processes of construction and use of economic knowledge that will affect the living conditions of these communities. Attaining this participation requires tremendous effort in the construction of communication channels between science (economists) and society (the 'investigated' communities). These communication channels can be constructed only if economists are willing to stop ignoring in their concrete research practices the cultural complexity of how the communities they 'investigate' perceive their own realities" (Sanz de Santamaria 1992: 19). This cannot be emphasized strongly enough. This cannot be emphasized strong enough. In the Amazon native populations are living under conditions, whose forms of cultural, social and political organization differ from the forms of western organizations (referring to the institutions of so-called modern societies). One

of the typicalcharacteristics that distinguish Amazon native populations´ cosmovision is the definition of humanity as being integrally part of nature, as opposed to being separate from it. Other traits include putting the common good over the individual good, giving preponderance to putting reciprocity and redistribution over accumulation; and placing strong spiritual and ethical values on the relationship between nature and the community.[3] In the past, the development of the rural communities in the Amazon was conceived without regard to identity and culture. Today, culture and development should be conceived as part of the same approach in which environmental sustainability and socio-cultural development go together. To achieve this goal, economists need to re-recognize the structural heterogeneity of social formations and the different logic of the various modes of production which make up a society in its concrete time and space (Nitsch 1999b). Indigenous economies constitute, in the light of this approach, a singular and unique way of organizing economic activities, since they follow a different logic than the typical capitalist monetary economies, in which the gained profit is distributed to the property holders and where the labour force is employed and viewed as a means to make profit, "human resources" being comparable to natural resources. By the way, a similar difference can be seen between the capitalist mode of production and the *economía familiar*, the "family economy" which is still dominant in Colombia's rural areas, and not only there, and in which the consumption needs of the family members prevail over capital returns. Looking at the organisational structures concomitant with indigenous or capitalist or family modes of production, a great difference becomes apparent and New Institutional Economics with its methodological individualism reaches its limits, bringing the collective approach from the Old Institutional Economics back into the analysis.

At the local level, indigenous communities and individuals are exposed to two competing logics: the indigenous economy versus the monetary economy. The indigenous economy is based to a great extent on "*mingas*", a collective labor activity for an individual, a family or the community. *Mingas* are periodical labor exchanges or collective work festivities spurred on relationships of reciprocity. They fulfill an important social role, as they contribute to a sense of community and the strengthening of ethnic identity. Everybody can make an invitation to a *minga* and can usually count on having a sufficient number of participants. *Mingas* are carried out to construct *malocas* (traditional house), houses, ceilings, burn land in preparation for planting, or to harvest the *chagra*, the traditional agricultural field, as well as to provide community services, such as cleaning community areas. Consequently, they are a very frequent occurrence. If one stayed within a community, little money was needed in the past, because the internal exchange and the division of labour were governed by the *minga*. In order to gain a quick monetary income for buying rice or school supply for the children, community members sold some goods from their *chagra*, the individual plot of agricultural land, or sold some of the fish they had caught or the animals they had hunted, so that production for subsistence and *minga* activities were strongly linked with the sale of products. But mostly it was the surplus, which was not needed at family level that was sold, if reasonable prices at

[3] As declared by indigenous groups in Leticia, at the "I. ENCUENTRO SOBRE GESTIÓN FORESTAL EN LA PAN AMAZONIA", December 13 2005

the local market could be reached. In fact, this logic is dominant up to today, though varying in degree from community to community.

However demand for money is growing, in particular among young people, and even more in the urban areas. At the same time, the increase of importance of income generation is by no means matched by job opportunities. Thus the only way to generate income is through resource appropriation. In a workshop being held during the course of this research in San Martín de Amacayacu, an indigenous community of approximately 400 inhabitants, located at the east bank of the river Amacayacu (a two-hour boat ride from urban areas), unemployment was a major concern of forest residents with an adequate food supply, practically without opportunities of generating monetary income. Comparing the various problems cited by the group taking part in the inquest, unemployment had a higher score of concern than forest degradation or the diminution of fish fauna. Any romanticism about indigenous peoples' harmonious relationship with nature can be quite inadequate, since a loss of indigenous identity and an almost irresistible attraction of so-called Modernity seriously disturbs this harmony. Nevertheless, it is important to distinguish the logic of traditional economies, which still serve as an important source of identity and non-monetary income and utility, and the logic of commercial extraction economics applied by the "others" from the "outside", namely the actors from the urban areas. This becomes particularly relevant when taking a closer look at the action situations.

3 Legal framework in and around the Amazon Trapeze of Colombia

3.1 De jure property rights governing the natural resources in Colombia and its indigenous territories

The legal recognition of indigenous territories – called *resguardos* – is not a new experience in Colombia. The *resguardo* institution was first introduced in the Andean region in the mid-16th century during the Spanish colonial administration. However, in the Amazon Rainforest, *resguardos* are of more recent origin. Local indigenous populations first began to articulate demands for recognition of their ancestral lands in the early 1960s, as a response to the advancing agricultural colonization in the region, which began in the late 1950s. (Sandt 2003: 128). The 1991 Constitution explicitly recognizes the territoriality and autonomy of *resguardos*, which received the status of special administrative-territorial entities. *Resguardos* have also been recognized as jurisdictional entities. Their authorities have been granted the power to judge and impose sanctions within their territories according to their own norms and procedures, as long as they are in compliance with the law of the land (Sandt 2003: 129 FN6). At the same time, the recognition of indigenous land rights became increasingly linked with ecological conservation policy and biodiversity protection (Sandt 2003: 129). The *resguardos* were recognized as autonomous territorial entities additional to the existing

structure of *departamentos* and *municipios*. The *resguardos* also receive transfer payments from the national government in order to enable them to provide basic services. Nevertheless, these resources are managed by the *municipio*, the resulting conflicts are evident. Regarding the *de jure* property rights on natural resources, the 1991 Constitution (Article 329) and more specifically a recent Constitutional Court ruling (T380 of 1993) grant *resguardo* communities full and exclusive ownership rights to the renewable natural resources within their territory (Sandt 2003: 139). However, their exploitation is subject to all the legal provisions concerning the sustainable management and preservation of natural resources and the environment.

The natural environment and its resources are alluded by the Constitution in more than 60 articles and aims at sustainable development (Bonilla 2004: 154). In this regard, the Constitution of 1991 was the basis for the Law 99 of 1993 through which the Ministry for the Environment, as well as 34 regional state authorities were found – the so called *Corporaciones Autónomas Regionales y de Desarrollo Sostenible* (CAR). The CARs are officially linked to the Ministry for the Environment and Territorial Development (*Ministerio de Ambiente, Vivienda y Desarollo Territorial*). In the *Departamento* Amazonas like in the neighbouring *Departamentos* Putumayo and Caquetá, the CAR in charge is called *Corporación para el Desarrollo Sostenible del Sur de la Amazonia* (CORPOAMAZONIA). The CARs are charged with looking after the sustainable management of natural resources, including those inside the *resguardos*, thereby severely limiting their authority in environmental matters. It is CORPOAMAZONIA that ensures the conformity of the resource use with the rules and regulations. CORPOAMAZONIA also establishes the rules and restrictions regarding the use of natural resources (CORPOAMAZONIA 2003: 16). Only the domestic use of resources within the *resguardo* can be managed by the authorities of the *resguardo* – the so called *Cabildo Mayor*. However, matters of concession for any commercial exploitation as well as monitoring the resource use are responsibility of CORPOAMAZONIA. Since CORPOAMAZONIA manages all natural resources of the region except the aquatic resources, things become more complicated. It is the *Instituto Colombiano de Desarrollo Rural* (INCODER, formally known as *Instituto Nacional de Pesca y Agricultura*, INPA, that is now integrated into INCODER) who is responsible for the aquatic resources. INCODER also is in charge of the amplification of *resguardos*. And on top of all that, INCODER is, different from the CARs, subordinated to the Ministry of Agriculture and Rural Development (*Ministerio de Agricultura y Desarrollo Rural*). While the CARs are regionally organized (each one is independent), INCODER is centrally organized, having its headquarters in Bogotá and maintains regional offices.

To understand the existing property rights regime, the distinction between resource units and resource systems is essential since both are linked to different social institutions.[4] Even though the territory is recognized as common property, and the indigenous communities are granted "full and exclusive ownership rights" on the renewable resources, the resource system formally remains under state jurisdiction under the authority of the CARs. And it is the CARs who have to decide how many flow resources may be extracted without harming the stock and its regeneration. However, the rights to use the resource system *in situ* (f.e. through tourism) are to be allocated by the resguardo. The rights to use components of the resource system *ex situ* (f.e. the biodiversity through bioprospecting) are subject to approval by CORPOAMAZONIA. At the same time the duties to monitor behaviour and sanction non-conformance regarding the use and protection of the resource system (enforcement of exclusion) are linked to CORPOAMAZONIA. But *de facto* these duties are expected to be fulfilled by the resguardo and its indigenous communities. Moreover, the responsibility for provision, such as the maintenance the resource system, is *de facto* left to the rural population. A good example is a case known as "Caso Cabimás" from 2002, where local people observed the illegal extraction of timber (worth about 150.000 USD) and where it was extremely difficult to convince state authorities with the exception of the National Park System Unit (Unidad Administrativa Especial del Sistema de Parques Nacionales Naturales, UAESPNN) to investigate. As we will discuss later, this involves a social dilemma of the second degree.

This refers to the dilemma of collective action to enforce the rules. It is worth to point out, that duties are generally linked to costs, including opportunity costs. And the duties of one actor are linked to benefits of one or more players. To maintain a forest resource system instead of clearing it for agriculture includes individual and/or group opportunity costs in the short run. Also the monitoring of behaviour involves mayor costs. In the current structure those costs occur mainly at the community levels and partly at the resguardo levels (a *resguardo* can consist of several communities, as will be outlines below). The benefits occur on all levels, but mainly at national and international levels. Remember that we were only focusing on the resource system. Now turning from stock and systems to the flows, the use of resource units, we once more have to distinguish two categories: domestic use and commercial use. Obviously the term "domestic" creates some difficulty as pointed out later.

The resguardo is sovereign within its territory therefore its Cabildo Council should be able to establish its own institutional regulations for resource management of the flows and there should not exist any legal resource appropriation without previous consultation of the *resguardo* authorities.

[4] Refering to resource systems and stock variables and the resource units as flow variables. The flow is the harvest from the stock that can be taken without harming the stock (Ostrom 1990: 30).

Nevertheless, the commercial use of resource units from the *resguardo* territory outside its limits remains subject of permission through CORPOAMAZONIA. Any appropriator of resources from the *resguardo* has to demonstrate (requiring complex management plans) that the resource appropriation will not harm the stock, and it is up to CORPOAMAZONIA to decide, if it does or not, allowing - or not - the extraction. As already mentioned, the use of aquatic resources is handled differently, namely by INCODER. For commercial fishing INCODER does not require management plans related to concessions, but has established general rules and *de jure,* it is its duty to monitor the behaviour of the concessionaries.

Thus only the domestic use of natural resource units within the *resguardo* is governed through institutions of the indigenous communities themselves. But inside the resguardo live an array of heterogeneous communities which often have their own institutions to administer natural resource unit appropriation. Cooperation between both levels is not necessarily a given. This is particularly relevant for the *Resguardo TiCoYa de Puerto Nariño* (consisting of 23 communities which were artificially put together to form one *resguardo*), where the communities are not consulted, if resource units are planned to be taken from their territory, even though they bear the short term opportunity costs (appropriation by community members), neither does the community receive any compensation. One source of conflict is the matter of defining domestic vs. commercial use. Timber for constructing the municipal government house, which is outside the resguardo, has been approved as domestic by the resguardo authorities and taken from the territory associated with the community of San Martín de Amacayacu. In other words, not only the *de facto*, but also the *de jure* property rights within the resguardo are unclear.

This puts the light on a crucial question: how local is “local”. First of all, the term “local” government refers to various governance structures, among them: ‘*community*’, ‘*resguardo*’, ‘*municipal*’, and ‘*departamental*’ government. In Colombia the municipal government is not necessarily the citizenry’s most local governance system, because the national and the departmental institutions often have their administrative “*delegacías*” with programmes and projects of their own in the towns and villages. The construction of *resguardos* as indigenous territorial entities inside *municipios* represent a parallel territorial layer, mostly without major concern with the geographical borders of the *municipios,* and both are generally overlapping and exercising State power and providing - or not - public services. Both are considered local governance, and hence at times their jurisprudence comes into a clash. As a result, due to their rational logic as political entities, competition to secure and expand their political power in various arenas is part of the overall dynamic. This characteristic is essential to keep in mind when analysing local institutions and collective action problems involving disperse-living rural populations. In some cases municipal government and *resguardo* authorities

are located at great distances from the local communities, making the indigenous local "*comunidade*" with its informal institutions the most important *de facto* local authority.

3.2 The new forest law: Opportunity for development or the end of the forest?

Colombian congress passed a new forest law in January 2006, but it has not been signed by the President. A revision is necessary because of contradictions with Constitutional Law. However, the aim of the government regarding the new forest law is the generation and consolidation of the timber industry – an industry that is expected to create thousands of jobs under the conception of "sustainable development". But critics, among which are development and environmental NGOs, as well as GOs, emphasize that the law might promote even faster deforestation. One of the arguments points to nations like Brazil, China and India, which could only develop a strong timber industry at the expense of serious degradation of their forests (Ámbito Jurídico 2006: 8).[5]

The generation of employment is an expected outcome, pushed by the expansion of the timber industry. To achieve this, the law sets various incentives. First of all, forestry areas – planted forests used for timber production – are meant to increase from 145.000 to 1.200.000 hectares up to the year 2019, and create an estimated number of 300.000 jobs. Secondly, state authorities can hand out long-term concessions for the extraction of timber in primary forests, as long as it complies with Colombia's legal framework (like the "Código de Recursos Naturales" - Code of Natural Resources). The Law emphasizes that the primary forest can have a production use and, additionally to concessions, creates authorizations and permits. Concessions enjoy a guarantied legal protection for 20 years, which becomes a delicate matter, since amplification of *resguardos* (due to demographic growth) is an ongoing process in the Amazon region. And trees inside a concession are eligible as guarantee in the acquisition of credit; consequently, concessions can be sold. CORPOAMAZONIA is already promoting timber production in its territory. All the outlined adjustments directly affect the property rights regime since they restructure the usage rights and their allocation. The effects on pattern of action will be discussed below.

In general, it has been riticized that the forest is recognized only as timber producer. rarely any attention is paid to its biodiversity, ecosystems or fauna – the articles of the Law that had addressed

[5] According to the "Visión Colombia II centenario 2019", the cause of deforestation depends to 73 percent on the expansion of the agrarian front, the settlements of colonos (people from other regions that have settled in forest areas, often as consequence of state programs) and the cultivation of illegal crops. Only 11 percent relate to timber extraction. In an international comparison, Colombia occupies currently the 56th place in production of timber and the 75th place in exporting timber.

those issues were eliminated in the political process.[6] It is the well known axiom that "nature has no voice" (Nitsch). There is a whole chapter on the industrial production of forests and none about conservation, and the interdependence of water resources and forests is entirely neglected. Also the law leaves open the important question of regulating the identification of legally transported timber, which allows an efficient monitoring of where timber has been extracted from.

Instead of empowering or at least recognizing the important rule of community management, the new law is fully oriented towards the allocation of use rights through the CARs. External regulations for resource appropriation on a local level and external regulators to allocate the concessions (the CARs) are the core mechanism of the forest law. In light of the lessons learned from experiments, the net effect on behaviour will be to induce more individual-oriented decisions, possibly exacerbating the environmental problems. The *de jure* allocation of natural resources under state jurisdiction without collaborative planning mechanisms ignores and undermines *de facto* local institutions protecting the forest.

3.3 Broad legal aspects of Peru and Brazil regarding forest management

In the case of Peru, the system of concessions has already been extensively utilized. The Peruvian legal framework was set forth by Forest Law 27308 which favours the large foreign and urban investors. At the same time, it is weak in its overseeing and monitoring aspects. A recent incident at the rivers Manzá and Tacshacuraray shows the dynamic: The government allowed timber extraction in an area of 4.644,761 has, ignoring the local population's adamant disapprovals. Local populations are rarely involved in the generation of policies dealing with the management of natural resources and are generally noncompliant with external rules established and policed by state organizations, such as the INRENA, the GOREL and the Department of Agriculture of Loreto, resulting in a situation of *de facto* open access.

The Brazilian Forest Law (Lei de Gestão de Florestas Públicas) No. 11.284/2006 is in principles and structure similar to the Colombian law, although, designed to impose somewhat stricter conditions to forest concessionaries. Nevertheless, it seems again very doubtful whether the state has the will and the capacity to oversee the real practices.

[6] Social system theory a la Luhmann can make a significant contribution to understand this dynamic. For details see Nitsch (1993).

4 Analyses of property rights regimes in the resguardo TiCoYa and at the triple boarder: The status quo and resulting patterns of interaction

4.1 The *Resguardo TiCoYa of Puerto Nariño*

The *Resguardo TiCoYa of Puerto Nariño* is a relatively large *resguardo* inhabited by members of Ticuna, Cocama and Yagua ethnic groups. It´s located in the extreme southeast of the Amazon department – the so-called *Trapecio Amazónico*. Constituted in 1990, it is a relatively a newly formed *resguardo*, and it overlaps the municipality of Puerto Nariño, which was established 28 years ago. The *resguardo* TiCoYa covers over 85,000 ha of dense tropical rainforest, where an estimated 5-6,000 people live in 22 settlements spread-out along the north bank of the Amazon River. Although nearly all of these villages have a multiethnic composition, in most locations the Ticuna constitute the majority, in total representing 85% of the *resguardo´*s population (Sandt: 137). The Ticuna represent one of the largest ethnic groups in the Amazon – their current number is estimated at 40,000. Traditionally, they have inhabited a large area in the middle course of the *Solimoes* basin (the upper Amazon), populating areas inside the borders of Brazil, Colombia, and Peru (Vieco and Pabón 2000: 111). Traditionally, all three ethnic groups, like many other native Amazon cultures, practice a form of slash and burn agriculture in so called *chagras*: *Chagras* are small horticultural fields (1-5 hectares) cultivated and harvested for periods of time ranging from three to five years, and then left to recover. Agricultural production is complemented by fishing and hunting (Sandt 2003: 137). In the past two decades, cultural influences, such as increasing contact with the national government, missionaries, as well as tourists and elements from the drug mafia have stimulated the desire for merchandise and products outside their traditional sphere of production, hence the need for money and the preoccupation with production for external markets. However, this is not a new phenomenon in the Amazon. Since more than a century ago, extractive activities have inspired the need for money.

4.2 What are the action arenas: Situations and actors at the Amacayacu River

In this section, in order to distinguish some of the dynamics, the focus will be mainly on timber with only a brief reference to fish and other resources. The usage situations of timber can be categorized into two types: *commercial use*, the selling the timber through a domestic or non-domestic market, and *subsistence use*, local use without selling it. In the following, the participant and their positions as well as their legal and illegal actions will be briefly presented, while pointing out which information and control is available, as well as some aspects of costs and benefits (as shown in the structure of an action situation presented in chapter 2).

Regarding subsistence use, for the local population wood is a good of daily use. In the urban part of the *resguardo* TiCoYa, 90 percent of the people build their houses with wood and 60 percent cook with wood. In the rural areas, it comes close to 100 percent. Additionally, wood is used for building canoes and furniture. The permits to transport timber for domestic use within the *resguardo* ("aprovechamiento doméstico" – up to 20 m^3 per person and year) are issued by the maximum authority of the *resguardo* – the *Cabildo Mayor*. Those permits are frequently abused for small commercial activities to satisfy the need/desire for currency. The permits are issued to permit the transport, since a control where the timber is extracted is absent. The process is still uncoordinated and forest management is also absent. However, the *Cabildo Mayor*, the indigenous authority of the resguardo, is currently conducting studies together with CORPOAMAZONIA – tough not necessarily in consultation with the communities affected – to elaborate a forest management plan for the northern part of the resguardo.

Commercial permits – within or outside the *resguardo* – have to be solicited from CORPOAMAZONIA (Ochoa 2001: 131). In order to get a permit technical, ecological and social impact studies have to be provided by the applicant. Consequently, technical assistance by forest engineers is unavoidable. Nevertheless, CORPOAMAZONIA usually does not provide applicants with the support of its staff forest engineers. One remarkable exception is the case of collaboration for a forest management plan ("*ordenamiento forestal*") in the northern *resguardo* as mentioned above. On average, the authorization process takes about three years (CORPOAMAZONIA 2003: 36). However, demand for timber usually occurs on short notice with the consequential informal and illegal use of the resource.

In general, the existing regulations from CORPOAMAZONIA are not accepted in the *resguardo*. This is due to two factors: abuse of power by CORPOAMAZONIA and alleged involvement in illegal practices. The illegal practices gained publicity in 1999, when community members from San Martín de Amacayacu reported large amounts of tree-trunks floating down the Amacayacu River. After investigating the matter, a legal advisor of the *resguardos* uncovered that the timber originated from three concessions located in the Amacayacu and Atacuari areas in the northwestern parts of the *resguardo* – the rest was illegally imported from Peru, a practice that is still common in the Colombian Amazonia (Hildebrand 1996, Sandt 2003). Moreover, the logging permits issued by CORPOAMAZONÍA had been signed by the local community leaders ("*curacas menores*") of three communities. They had been persuaded by a delegation of high government officials, including the director-general of CORPOAMAZONÍA. The local leaders have even received a cash payment for not informing their community (Sandt 2003: 138f). These events led to a confrontation between the *resguardos* and CORPOAMAZONÍA. However, CORPOAMAZONIA up-to-this-date claims to be the sole authority competent to control forest exploitation in the Colombian Amazon. As a consequence, the credibility of CORPOAMAZONIA among the *resguardo* inhabitants is quite ruined and their trust in the agency is close to zero.

The community of San Martín de Amacayacu managed to receive financial aid from the Dutch NGO 'Bossen Nood Fonds' (Emergency Fund for the Rainforest) to monitor activities at the community level. The project aims to monitor mainly the use of timber, sand, animals, and fish, and the information recently gathered provides insight into the inefficiency of current regulations and their incentives. (San Martín de Amacayacu 2006).

Important questions arise from the study: Do the resources appropriated from the region count with or without the required permission? Evidence shows, that some of the timber concessionaries frequently do not work where they should but elsewhere in protected areas, where it is much easier to find valuable species of timber. Another question arises: Are the species of timber being extracted covered by the permits? There have been several cases where the permits issued by the *resguardo* allowed extraction of one type of timber, and five different and more valuable species were extracted. Furthermore, it is a common occurrence that a timber permit holder will appropriate fish and animals as well, without having a permit for this activity. To complicate matters, it is widely unclear who in the community has the authority to sign permits. Since permission can come from the *resguardos*, the *municipios* and CORPOAMAZONIA; in some cases such as fish, INCODER or other national institutions are involved, too. Who is the maximum authority? To allow effective monitoring through different actors, it would be necessary to adhere to a unique protocol for the granting of permits and registration.

Permits issued by the *resguardos* don't specify a timeframe in which the extraction ought to take place or up to which date it is valid. Consequently, it is very difficult to verify if permits have already been used or not. The permits typically don't specify exactly where the timber should be extracted from, just stating "on the left side of the Amacayacu River" gives ample range for interpretation. Moreover, permits are issued without any studies about the state of the resources in that region.

The veracity of the destination use stated in the permits is also a questionable matter. For instance, it is well known that CORPOAMAZONIA, the municipal governments and the National Police have used permits specified for "domestic use" to construct a jail facility and a government building outside the *resguardo*.

The outlined dynamics demonstrate a serious insufficiency of the property rights regime. Notwithstanding the inadequate regulations, several structural problems are apparent and support the theories above. CORPOAMAZONIA as an external regulator, with limited manpower, and transport facilities and financial resources to monitor local behaviour in far away and difficult to reach forest locations, plus the bad-will, and mistrust of the resguardo, makes for a poor control of resource use.

The induced individual-oriented behaviour exacerbates the environmental problem, exactly as demonstrated in the economic experiments realized in the Pacific coast region. In contrast, the community could relatively easy monitor activities more efficiently and at much lower cost. The community only requires gasoline for their boats and local manpower. Thus far, those required funds are absent at the community level without external funding. Decentralization has only gone down to the CORPOAMAZONIA and the *municipio* level, leaving the *resguardo*, let alone the *comunidades* without authority and without funds. Regarding the management of the local natural resources, the creation of polycentric institutions with overlapping territories and power has turned out to be rather inefficient creating more problems than they solve and inducing typical horizontal problems on the local level, since the actors are lacking the competence to cooperate freely among themselves; furthermore, the structure implies serious vertical, principle-agent problems between the national ministries and their agents in the field, or forest, respectively, such as the tensions between the Environmental Ministry and CORPOAMAZONIA or the Ministry of Internal Affairs and the *resguardos*.

A “second degree” collective action problem occurs: The problem of provision of the service of monitoring. In the case of San Martín de Amacayacu, this problem is even more complex, since this community is part of the National Park Amacayacu (Parque Nacional Natural de Amacayacu). Hence, monitoring could and should be carried out by CORPOAMAZONIA, the park authorities (each National Park in Colombia is managed by local staff subordinated under the National Park System Unit, which is subordinated – like CORPOAMAZONIA – under the Environmental Ministry), the *resguardo* and the community. Currently CORPOAMAZONIA is trying to launch a monitoring project, pressing on the indigenous institutions another external project where they hire-out labour, instead of building competence and strengthening existing institutions at *resguardo* and community levels, which is why the activity is seen as rather unwelcome. So in this case a hierarchal organized project is pushed forth by external regulators, rather than building collaboration among different stakeholders. None of the lessons learned within the international literature seems to have reached the region.

4.3 Fish: Resource without border – Patterns of interaction at the triple border

Fish is one of the resources that strongly exhibits overuse symptoms. Colombia has jurisdiction over a relatively small span of the river (about 100km). It cannot be emphasized strongly enough, that any management in one country will be useless without harmonization and collective legal action amongst the three countries. The overuse symptoms are present particularly in the lake Ta-

rapoto, and the lake of Mocagua. A good indicator for this overuse is the ever shrinking size of the fish sold at the markets. According to the research institute SINCHI, more than 40 percent of the sold fish do not comply with the legal minimum size set by INCODER, endangered in particular, are the species Dorado, Lechero and Pirarucú (SINCHI 200: 209). Because of the decreasing resources and the difficulties to catch fish, the use of fishing nets is ever increasing and pervasive. Small nets with rather wide meths have traditionally been are in use for individual fishing for the domestic market, but large nets with finer meths have increasingly come into use for commercial fishing, even though in that region, commercial fishing with large nets is restricted by INCODER and forbidden by the *resguardos* in their respective territories.

At each border, the jurisprudence of the respective state institutions ends, unless bilateral or multilateral agreements exist. As already mentioned, in the case of the region of the Colombian Trapeze, the Amazon River is shared by Colombia, Peru and Brazil, and each country has its own legal institutions. Consequently, perpetrators can quickly change, just by navigating the boat to the other side of the Amazon River. Resource units are transported on the river, and since resource units don't have a tag of origin, minutes after being on the river, only the appropriators know their origin. Appropriators from three countries can enter each action arena without any border control. Both aspects make it particularly hard for institutions to be effective.

Aside from this material aspect of appropriation, one has to take into account that restrictions of fishing generally deal with the appropriation process, not to the commercialization of fish. For example, fish is only allowed to be caught when exceeding a certain size, which is set in accordance to the so-called "Maximun Sustainable Yield" principle, and those minimum sizes might differ in the three countries one can always pretend to have appropriated the resource units in the country with the lowest standard. Similar problems might arise for other products and resources.

Particularly problematic is the different handling given by each country to the fish sector. Peru and Brazil have very weak regulations and at the same time subsidize the sector. In Peru, fishermen received support under Fujimori for infrastructure investments (boats and nets), as gifts around elections. In Brazil registered fishermen receive an income subsidy from the government during the low-catch months. Consequently, Colombian fishermen see themselves as not having enough government support so that they feel entitled not to respect INCODER's regulations.

Furthermore, at the triple border, each entrepreneur has quick access to three different markets with different demand structures. Colombia for example has a high demand on certain types of Amazon fish, namely those without scales. In contrast, Brazil and Peru don't share that preference. Since Colombia controls only a relative short span of the river, it is quite attractive for Colombian firms to

invest their capital in Brazilian fishing companies. These fish in the Brazilian side of the Amazon River, a jurisdiction that is by far larger and has lower standards. The investors then commercialize the fish on Colombian territory, both at the fish market of Leticia and for export nationwide. It is worth reiterating that harmonized standards could help to lower this effect. However, fish is imported and exported between the three nations without control and registration.

4.4 Threats to self governance: Well organized outsiders are the worst free riders

Thanks to Ostrom and others, it es well known that in many cases the local communities know best, how to manage their resources in a sustainable way, and they do by far a better job than the market or the state. If the benefits from collective action are greater than their costs, and the community is allowed to build up its own community based institutions, the management of natural resources and the enforcement of the rules can pretty often be left to the local level without risking degradation. The potential "free rider" who is so famous in the literature, can mostly be held under control as long as he or she is a person or firm belonging to the community in question. But what if the pressure on the natural resources in a territory of a community comes from well organized outsiders - which is the typical case in the Amazon? Even if the community manages to cooperate beautifully within its own social structures, it is hopelessly stressed and overcharged, when the defect strategy is applied by the outsiders. If the outsider operates in illegality, in an atmosphere of conflict and distrust, options for cooperation between community members and illegal or paralegal appropriators are limited. However, when the state authorities are far away and often unwilling to enforce the law, the costs of rule enforcement exceed by far the possibilities of the local communities, and the recourse to violent means makes things worse. The eventual result is a *de facto* open access regime, even if the territory involved is common property of a community.

This has often been the case in the southern Trapeze of the Colombian Amazon. Collective action occurred once fish resources were seriously threatened. Around 2002, several communities organized themselves to set up a natural resource management (NRM) and control devices. But this action was not costless: Fixed costs of buying boats and variable costs of gasoline and labour. Securing a lake on an island where the fish is stolen at night time through outsiders means a 24 hour security service of armed volunteers. Those costs obviously exceed the benefits in the long run. The initial phase of the project named "managing the commons" (in Spanish "Manejando Bienes Comunes") was funded by an NGO named ECOFONDO. After a two year period the people of the region were convinced that the situation had improved. Nonetheless, the funding of the project was limited to two years. Subsequently, the community was not able to afford the gasoline for the mo-

tors, returning to a situation of *de facto* open access – in spite of a beautiful *de jure* NRM plan. Only one community, San Martín de Amacayacu, managed to get funds through social contacts of a community member to realize a monitoring project which could demonstrate once more the illegal strategies of outsiders. The lesson learned is that pressure on the resources through outsiders cannot be resolved through collective action by the community members alone. External financing of the institutions created to manage resources and at least a certain threat of police support are keys to guarantee their performance. Poor local communities that depend on resource use for survival and for a small amount of monetary income will not be able to raise those financial resources which are necessary for protecting the natural resource from exploitation by outsiders.

5 Consequences and implications

Colombia's environmental administration has been decentralised, creating regional entities called CARs who are in charge of managing the use and protection of natural resources. Moreover, the territories of *resguardos* have been recognized in the constitution as common property connected with the right to manage the natural resources for domestic use. However, the *de jure* property rights are split among the *resguardo* and the state acting through the CAR. *De facto*, the duties of monitoring and enforcement remain with the community, which cannot cope with them because of lack of monetary means. Thus effective decentralisation regarding natural resource management has not been achieved, and *de facto* open access conditions prevail. In this sense, the current territorial structure with its different institutions is ineffective and insufficient for conservation as well as sustainable use.

Recently Colombia had adopted a new forest law aiming at increasing employment and promoting development in order to reduce poverty. The new law has serious shortcomings in two aspects: Once more, it establishes external regulations instead of promoting institution-building for forest management at community level. In addition, it ignores the structural heterogeneity of economic activities in the region not taking into account traditional institutions and indigenous socio-economic structures, which will probably result in further non-acceptance of those rules from the side of the indigenous peoples. This is very unfortunate, since the recognition of an appropriate *de jure* property rights regime would help those communities immensely which have succeeded in establishing informal, *de facto* regimes protecting the rain forest and the fauna. The distribution of decision powers between the various entities on the ground is so confuse that the natural resources tend to be appropriated in the worst ways. Sometimes it looks as if those official rules and institu-

tions have been tailored according to the preferences of the perpetrators rather than the protectors of the forest and the well-intentioned sustainable-development propagators.

Implications for reform and action are obvious: Horizontal relations have to be constructed and strengthened. To achieve a sense of community, governance of the natural resource management, collaborative planning processes among equal regional partners have to be introduced. CORPOAMAZONIA should have power, the will and the resources to support and monitor the *resguardo* and *comunidad* authorities in their natural resource management and to allow self-governance within their territories. A role as promoter of collaborative and participatory processes and as institution of monitoring would be more useful in regard to sustainability than acting as external regulator who lacks acceptance by all actors. If community governance is to be sought in a country under severe conflicts and deep inequalities, it must be based on building trust and reciprocity through horizontal relations (collective action) and not with confrontational mechanisms (Cardenas 2002: 3). Horizontal cooperation is easily called for, but it is impossible, if the vertical structures between the ground level personnel and the centres are not equally put in order. That is not only true for the line relations between national ministries and their agents, but also for the indigenous peoples. In order to be able to effectively take control of the timber exploitation within their territories, several critical problems like enhancing institution-building and capacity-building within the *resguardo* have to be taken up, too. One of the vertical problems there is the authority and coordination between the *Cabildo Mayor* and the *Curacas Menores* of the various multiethnic sub-communities.

Since nature has no voice, it needs advocates. On the national level, there are NGOs and others to defend indigenous *resguardos*, national parks and other protective measures. The more one steps down to the local level, the less vociferous are the defenders of the forest so that nearly only the indigenous communities are left, because they know that the clearing of the forest means their disappearance as cultural entities and as human beings with special constitutional rights. In locations like the Colombian Amazonian Trapeze, the large tracts of forested land being under national protective legislation, and the rather vivid and active native communities provide a challenging chance for an intelligent institutional design for the implementation of sustainable forest use, taking into account horizontal as well as vertical cooperation patterns. For the time being, however, it can unfortunately only be taken as a further example for an institutional lose-lose constellation of degradation of nature and impoverishment of man.

6 Geographic Context: Regional Map

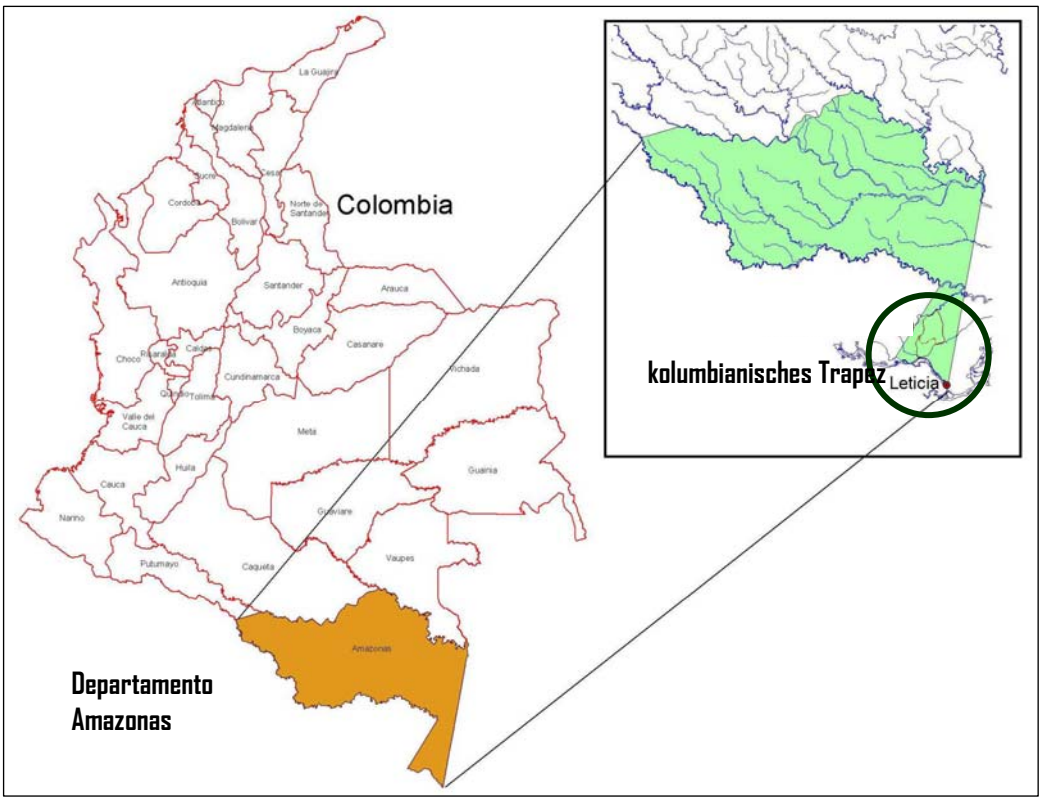

Abb.1: Geographische Lage des Untersuchungsgebiets (Quelle: SINCHI, modifiziert)

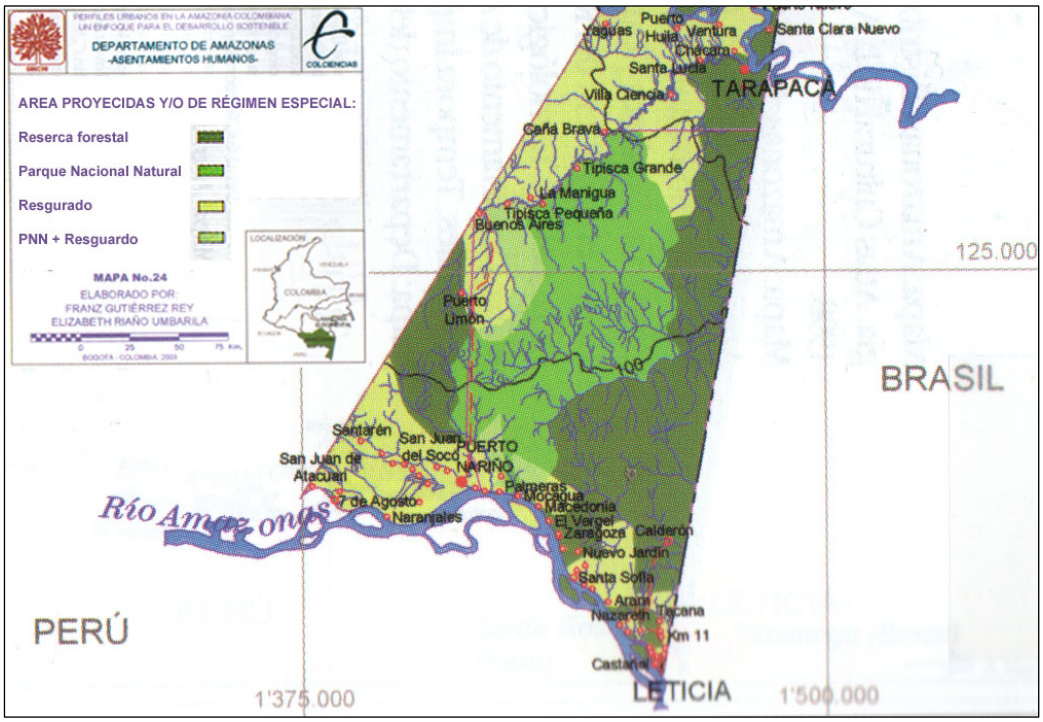

Abb.2: Territoriale Ordnung des Trapezio Amazóncio Colombiano (Quelle: SINCHI)

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