

Payment for Environmental Services: Brazil

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SUMMARY

1) CREDITS	4
2) PREFACE	6
3) INTRODUCTION	8
3.1 CONCEPTUAL FRAMEWORK	10
4) METHODOLOGY	12
4.1) PARTNERSHIPS	12
4.2) NATIONAL COORDINATION	14
5) CASE STUDIES IN BRAZIL	15
5.1) SUBSIDY TO RUBBER-TAPPERS IN THE STATE OF ACRE (AC) – IMAZON STUDY	17
Actors	20
Territory	21
CES Processes in Acre: Opportunities and Risks	22
Analysis and perceptions of social actors	27
Analysis of the case from the perspective of IMAZON	28
Conclusions	29
5.2) ACTORS AND DEVELOPMENT IN THE MUNICIPALITY OF GURUPÁ AND THE CHALLENGES OF CES – FASE STUDY	30
5.3) POPULATIONS AND ENVIRONMENTAL SERVICES IN FULLY PROTECTED CONSERVATION AREAS: THE CASE OF JAÚ NATIONAL PARK – FVA STUDY	39
5.4) CONSERVATION, DEVELOPMENT AND ENVIRONMENTAL SERVICES IN THE AREA OF THE MATA ATLÂNTICA: THE CASE OF VALE DO RIBEIRA, SP – VI TAE CIVILIS STUDY	49
6) ANALYSIS OF CASE STUDIES	64
6.1) ACTORS/COMMUNITIES	64
6.1.1) Formal Education	64
6.1.2) Social organization	65
6.1.3) Relations with the market	65
6.2) TERRITORIES	66
6.2.1) Institutional units, territorial scale and population density.	66

6.2.2) Scarcity and abundance	67
6.2.3) Land ownership issues	67
6.2.4) Conservation units and restrictions	68
6.3) PROCESSES	69
6.3.1) Institutional arrangements and systems (governance and participation)	69
6.3.2) Legal framework	70
6.3.3) Partnerships	71
6.3.4) Phases of the process	72
7) PROSPECTS FOR CES IN BRAZIL	74
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7.1) RISKS AND POTENTIAL	74
7.1.1) Equity and perverse effects	74
7.1.2) CES, basic rights and state obligations	74
7.1.3) Scale and interregional competition	75
7.1.4) Relation with researchers, ethics and transparency	75
7.2) CONCLUSIONS AND RECOMMENDATIONS	76
7.2.1) The perspective of community members	76
7.2.2) Perspectives and recommendations of entities carrying out this study	76
7.2.3) Actions and measures to improve participation of rural communities in CES	77
8) REFERENCES	79
9) ANNEXES	82
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2) PREFACE

This report presents the findings of the second stage of Compensation for Environmental Services Project (CES)¹, carried out in Brazil from May to September of 2001. The principal objective of the project was to assess to what extent and under what conditions rural communities could benefit from environmental services provided by their territories.

The first stage of this project, carried out in 2000, had the objective of offering an overview of recent discussions and experiences involving compensation for environmental services (CES) in Brazil and in four Latin American countries (Mexico, El Salvador, Costa Rica and Colombia), as well as providing a preliminary analysis of these processes from the perspective of their environmental benefits and impacts on rural and indigenous communities. Vitae Civilis carried out its study of PES in Brazil, examining it in the context of the historical framework of Brazilian environmental policy, identifying the most characteristic institutional aspects. To illustrate the assessment, four policy processes were identified which could illustrate the Brazilian experience with CES and which would appear most appropriate for further study at a later stage. These processes were charges for water use, the Reforestation Rate, the Ecological ICMS tax, and the Clean Development Mechanism (CDM).

The second stage of this project, which is the subject of this report, was coordinated by Vitae Civilis and carried out with partners FVA, FASE and IMAZON, with the objective of conducting case studies in the respective regions of the Jaú National Park, the municipality of Gurupá (PA), the region of Vale do Ribeira (SP) and the State of Acre.

The partners were selected to work in different **territories**, with different **social actors**, and with the possibility for having different **processes** of compensation for environmental services. To achieve the objective of this work, we held two working meetings with the partners. The first was to present the proposal and develop operational planning for the project. The second was for presentation and discussion of the case studies and to obtain the basic material needed to prepare this report.

This report presents a brief review of the first stage of this project, the conceptual basis which guided this work, the methodology used, the case studies, and the analysis.

Finally, the conclusions and recommendation provided in the final section reflect both the perspective of local actors and the "common" point of view of the institutions involved in studying the potential and conditions in which compensation for environmental services can in fact be an instrument to bring benefits to rural communities, while at the same time pursuing environmental benefits.

As the principal result, we would emphasize that despite the high level of awareness of

¹ At first, this project was called Payment for Environmental Services (PES) but in the process of carrying out the second stage, it was decided to use the term Compensation instead of Payment.

communities of the role of their activities and their territories in provision of environmental services, it is still early in terms of the possibility of effective and active participation in negotiation and compliance with the existing instruments of compensation for environmental services. A range of actions and measures are necessary to change this situation, especially in terms of the organization of communities, technical capacity, provision of public services and infrastructure, and regularization of land title issues.

3) INTRODUCTION

Brazil has a great variety and abundance of ecosystems and natural resources dispersed at many sites throughout its territory. In these areas, however, there are frequently populations with serious socioeconomic restrictions, especially in the areas of education, health, income and infrastructure. There are also, as revealed in this study, restrictions of a political nature and in terms of the exercise of citizenship rights, such as participation, access and even basic aspects such as personal documentation. Also, the relation of these populations with the environment they live in, is in general associated with environmental degradation and the indiscriminate use of resources.

This image of degradation has led regulatory bodies and governments to use environmental policy instruments that seek to control economic activities and land use. The result has often been detrimental to permanence on the land, as well as to traditional ways of life and production of populations who live in these areas.

Environmental policies should focus on enabling a better adaptation of such individuals in the environment where they are located, in order to improve their quality of life and encourage greater equity and social justice. Thus new policies more oriented to these objectives have been proposed and implemented elsewhere in the world as well as in Brazil.

The principal measures adopted seek to bring local actors together with regulatory bodies and decision-makers, expand the number and flexibility of categories of conservation units, and promote use of economic instruments that promote preservation and conservation of resources.

The environment is no longer seen simply as a supplier of natural resources and economic goods associated with its direct use, but rather is understood also for its indirect use as a source of flows of environmental services.

In this project, our concern is not limited to the strict notion of environmental resource, but rather includes the possibility of environmental policies incorporating the concept of environmental services, which we understand to be a broader vision of the relations between individuals, institutions and nature. Along with this, we analyze the possibility that these policies can also be effective in terms of other requirements of sustainable development, such as equity and the social inclusion of communities or actors traditionally maintained at the periphery of the benefits of development.

This project began in 2000, when the first stage was completed under coordination of PRISMA, and its objective was, as stated above, to provide an overview of recent developments in the discussion and experiences involving payment for environmental services in Brazil and in four other Latin American countries (Mexico, El Salvador, Costa Rica and Colombia) and to carry out a preliminary analysis of these processes in terms of their environmental benefits and impacts on rural and indigenous communities. In Brazil, *Vitae Civilis*

identified as principal experiences, and as having potential for PES, charges for water use, a minimum rate of reforestation, the Ecological ICMS, and the Clean Development Mechanism (CDM).

In 2000, during the presentation and discussion of this study in a seminar held in El Salvador, the idea emerged of extending this work, studying and systematizing knowledge about the participation of rural and indigenous communities and traditional populations in benefits associated with instruments involving payment for environmental services in Latin America. The idea was to study the prospects and demands for and risks of instruments involving compensation for environmental services to communities, as well as directions for public policies.

To this end, groups from four Latin American countries (Mexico, Costa Rica, El Salvador and Brazil) were involved in carrying out case studies in the respective partner countries. In Brazil, as will be described below, the organizations FASE, FVA and AMAZON were involved. International coordination was carried out by PRI SMA (El Salvador Program for Research in Development and Environment, an NGO in El Salvador, and Vitae Civilis coordinated the work in Brazil.

Our study seeks to confirm whether existing or potential CES instruments in representative regions of Brazil covered by the case studies in this report can be effective in pursuing sustainable development objectives. To be successful, such instruments would need to balance environmental restrictions and social and economic demands of actors living in these territories. In general terms, the actors considered were rural communities, residents of quilombos, subsistence river bank dwellers, traditional communities, farmers and extractivists.

We analyze the risks and opportunities of introducing CES mechanisms for these actors and their respective land base. The study also aims to assess the conditions necessary for CES to be not merely another instrument or process of social exclusion that benefits only large corporations and hegemonic sectors of society.

Finally, we propose recommendations and suggestions covering both our own interpretations and perspectives of the actors mentioned above. Our efforts in carrying out this project were always oriented by the following questions:

Question 1) Can payment for environmental services (PES) be an instrument to benefit farmers, rural communities and indigenous communities that practice environmental conservation and/or sustainable development?

Question 2) If yes, what conditions should exist and what opportunities and conditions already exist for these actors to participate in the management and share the benefits of resources deriving from CES?

3.1 CONCEPTUAL FRAMEWORK

The term environmental services is intended here as those indirect benefits generated by natural resources or ecosystemic properties of the interrelations between these resources in nature. That is, the entire flow of services that are indirectly generated by an environmental resource and by ecosystems through their natural cycles of existence. These environmental services can be considered positive externalities generated by maintaining or increasing the quality or quantity of environmental resources and ecosystem services.

Some examples of environmental services are:

- ☒ Production and availability of potable water;
- ☒ Regulation of climate;
- ☒ Biodiversity (current or future potential);
- ☒ Landscape;
- ☒ Soil fertility.

Some economic activities that involve natural resources are carried out in an unbalanced manner resulting in the reduction of the quantity or quality of the flow of environmental services. Economic activities that respect nature's biological properties and ecological cycles can increase the availability of these services and thereby generate benefits for society as a whole. Payment for environmental services would be a form of compensation paid by those who appropriate the benefits generated to those that preserve or conserve resources, ecosystems and environmental services related to the benefits. The principle guiding this relation is known as "**protector - recipient**".

The concept of payment for environmental services is based on the utilitarian approach in economics, specifically in the concept of "**externality**". Externalities are positive or negative effects of an activity of an agent upon others or upon the activities of others, which are not factored into market prices. The idea of "internalizing externalities" is an attempt in economics to reduce such distortions in the price system. To this end, a range of forms of assessing externalities have been proposed, including economic assessment of environmental services.

In this context, PES is seen as a way to achieve environmental policy objectives by according monetary value to the environmental services involved, in other words, by making a "market evaluation". However, in this study we believe that the assessments of environmental services made only by the market or by means of economic assessment methodology does not always sufficiently take into account ecological restrictions, political aspects and values such as respect for future generations.

Also, we observe that many of the demands related to environmental services are not necessarily expressed in monetary or price terms, or by "buyer and seller" relations, but rather in terms of the potential for compensation through the transfer of different kinds of benefits or assets between agents.

Such compensation could take a range of forms, such as:

- ~~///~~ Direct transfer of financial resources;
- ~~///~~ Support in obtaining credit;
- ~~///~~ Tax and fee exemptions;
- ~~///~~ Preference in obtaining public services;
- ~~///~~ Access to technology and technical training;
- ~~///~~ Subsidies to products.

We agree that society should create means to compensate agents who contribute to the provision of environmental services, but we do not agree that this compensation must be exclusively based on a determination of prices for these services or only through the direct transfer of monetary resources or payments.

Based on these observations and on proposals that have emerged over the period in which case studies were carried out, and in the meeting for preparation of this report, we propose the change of the term Payment for Environmental Services (PES) to Compensation for Environmental Services (CES). From this point on CES will be the concept being developed in this project.

4) METHODOLOGY

4.1) PARTNERSHIPS

The projects carried out and described in this report were developed based on terms of reference (Annex X), which provided guidelines for carrying out this work. The discussions which occurred in a seminar held in El Salvador with the partners and coordinators of the case studies in Mexico, El Salvador, Brazil, Costa Rica and Colombia provided the basis for formulating the following general observations and guidelines for consideration and application, whenever possible, in the second stage of the project:

- 1) CES as a "**process**" in which it is necessary to identify the actors and their respective interests and positions: the relative weight of external actors and the participation of less organized sectors of local society, especially involving rural and indigenous populations; the capacity of each actor to understand the issues in CES and influence the process, in any one of its stages (negotiation, implementation, monitoring, etc.);
- 2) The **territorial base**, incorporating, if possible the idea of **multiple use** of territory, which would allow the "integration" of a range of environmental services, such as scenic beauty, conservation of biodiversity, production of water, erosion control, and capture of atmospheric carbon. Taking the territory as the unit of reference, it would be possible to identify what social actors and what endogenous or exogenous processes exist, resulting from innovation or implementation of environmental policies and practices, and whether CES currently exists or has potential;
- 3) The use of CES or other economic instruments for environmental management as **opportunities to involve local communities** in the process, in accordance with their own prospects and values, and not exclusively according to the interests and rules established by other external actors. Thus, the goal is to find out in what manner and under what conditions local communities can participate in the implementation of mechanisms (such as, for example, the Clean Development Mechanism or CDM; charges for water use; compensation for preservation) and, especially, how they can influence the use and improvement of these mechanisms based on their own perceptions about their effects on their quality of life and their rights.

Thus, the participants identified three key words for the second stage of the study: **process** (dynamic), **actors** and **territories**. The hypothesis is that the greatest opportunities for the application of CES could emerge to the extent that particular actors, in a given territory, taking into account their environmental and social potential and characteristics and within a logic of multiple use, are able to influence the processes that assign value to this space and its

environmental services, while also taking advantage of the opportunities offered by a range of global and national mechanisms and regimes.

After contacts with institutions in Brazil, and keeping in mind prior understandings and the methodological aspects of the study, Vitae Civilis invited the institutions listed in Table 1 to become partners in carrying out the present study. Each institution carried out a case study that covered a representative sample of actors, territories and processes involving CES in Brazil:

TABLE 1: BRAZILIAN PARTNER INSTITUTIONS, THE KEY ACTORS, TERRITORY AND LOCATION

Institution	Key Actors	Territorial Units	Area	State
IMAZON	Rubber-tappers	State	Acre	Acre
FASE	Riverside Extractivists	Municipality	Gurupá	Pará
FVA	Riverside Extractivists	Conservation area	Jaú National Park	Amazonas
Vitae Civilis	Rural Producers Extractivists Quilombo residents	Watershed	Vale do Ribeira	São Paulo

An agreement for cooperation was signed between these Brazilian partners (Annex XI), which spelled out the specific objectives and responsibilities for conducting the case studies, as well as their presentation and discussion with the group. The principal responsibilities of each partner, as well as of Vitae Civilis, were to prepare a case study following guidelines contained in the agreement described above, and participate in two working meetings, the first being for planning of the work and the second for presentation and discussion of the case studies individually and jointly. The second meeting provided the basic material for preparation of this report.

These partners, along with covering territorial units and actors relevant to the objectives of the project, were established because of the proven experience of each entity involved with the regions of their studies and also because they are actively working in biomes (Mata Atlântica and Amazônia) whose conservation is fundamental to both Brazil and the rest of the world. In addition, the regions studied are subject to important elements of environmental legislation and a range of types of conservation areas that exist in Brazil, as presented in an attached document (Annex XII).

4.2) NATIONAL COORDINATION

The principle role of the national coordinator is to supervise and direct the partners so that they carry out their case studies following the guidelines in the agreement cited above. To do this, Vitae Civilis held a meeting for planning of the study, including the identification of methodological guidelines. This meeting was held in Rio de Janeiro on May 4th, 2001 and participants included representatives of FASE (Jean Pierre Leroy), FVA (Muriel Saragoussi), Vitae Civilis (Rubens Harry Born and Sergio Talocchi) and the Ford Foundation (Jose Gabriel Lopez). It was agreed that each case study should try to cover different territorial or institutional units, different actors and different sociopolitical contexts.

Also, the national coordinator prepared relevant questions and organized secondary data about Compensation for Environmental Services in the form of tables and texts to facilitate the understanding of the focus of this work, as presented in the document called Orientation Guide for Case Studies (Annex XIII).

In preparing this document, Vitae Civilis held a working meeting with representatives of all the national partners with the principal objective of finding points of agreement and disagreement in the case studies that could facilitate bringing together the assessment of the general situation of CES in Brazil. This meeting was held on August 8-10, 2001, in Itapetica da Serra, in the state of São Paulo, with a pre-established agenda, as presented in Annex XIV), and included participation of the following individuals and institutions:

- /// Adalberto Verissimo, Imazon
- /// Yann Le Boulluec Alves - IPEA/RJ
- /// Manoel Pantoja da Costa, FASE
- /// Clarissa Riccio de Carvalho, FVA
- /// Rubens Harry Born, Sergio Talocchi, Cristina Orphêo, Simone Jardim and Simone Conte, Vitae Civilis

The discussions during this meeting were based on the case studies and program presented, which enabled carrying out of the activities listed below and preparation of the key guidelines for preparation of this report.

- /// Presentation and discussion of the four case studies;
- /// Suggestions for improvement and reformulation of the case studies;
- /// Comment and divergent points raised;
- /// Discussion about structure of the final report;
- /// Writing of part of this report by working groups;
- /// Discussion and revision, in plenary, of what was written.

The national coordinator, Vitae Civilis, was responsible for preparation of this report, and of a book to be published about the study.

5) CASE STUDIES IN BRAZIL

We present a summary of the four case studies carried out in Brazil, addressing the issues of actors, territories, processes, methodology and results. The full versions of the studies are annexed to this report (Annexes II, III, IV and V). The studies sought to cover different territorial scales, in order to discover the possible characteristics and factors of the CSA in each of them, such as: conservation area, municipality, drainage basin and state. The bibliographic references for the information in these summaries are in the respective annexes cited above.

Following, by way of introduction and to facilitate understanding, is a brief presentation of the case studies:

The first case deals with a mechanism, already implemented through a state law (the Chico Mendes Law), to remunerate associations of rubber-tappers in the State of Acre as a form of support to sustainable rubber production and extractivism. The state of Acre has a long history of organization by the rubber-tappers' movement to protect their access to forest resources. In this process, in the 1990s « extractivist reserves » were established, supported in federal legislation, to permit settlement by rubber-tappers communities in public areas, where responsibility for use and conservation are conceded to its representative associations. Although focused on rubber production, the subsidy could be considered a form of compensation of environmental service, since it reinforces the income of actors who help to conserve forests. The case of Acre is also peculiar because there is a political and institutional context that is favorable to social movements, given the strong link that the state government and other political leaders have with them. The study of the Chico Mendes Law was prepared by Imazon (Annex VI).

The second case analyzed, through the study carried out by FASE, involves the Municipality of Gurupá, in the State of Pará (PA), a region in which they have been active for 6 years, about the potential for implementing CES instruments in the region, which does not have conservation areas and is home to activities such as extraction and the sustainable management of wood and a range of non-wood forest products. There are distinct social groupings organized around different economic activities, and in Acre these actors are very fragmented and face a political context that still resists the consolidation of processes of social organization, partnerships and environmental protection. Thus, there is a diversity of actors and activities that can have a positive or negative impact on environmental services, while at the same time social fragmentation and the institutional reality creates obstacles and risks to the introduction of CSA mechanisms.

The third case study involves a specially protected territorial space, defined in the Brazilian Constitution as a conservation unit (among other types of spaces). According to Brazilian law, in the fully protected conservation units, human settlements are not allowed. However, the reality is very different, since in many territorial spaces that were transformed into national or state parks or ecological stations, there are human groups ranging from traditional populations, fisherfolk and farmers to indigenous peoples. Thus, the study carried out by **FVA**

(Fundação Vitória Amazônica) on the region of Jaú National Park, in the state of Amazonas (AM), where FVA has been working directly with the communities since 1992, is emblematic, because the same situation also exists in other conservation areas in Brazil. Jaú National Park contains many human settlements, whose members should be removed according to the legislation, but have sought ways to remain in the region. They contribute to the conservation of the park, and pursue economic activities for their subsistence that are compatible with the park's objectives. This situation is obviously not free of conflicts, which also affect those who seek to contribute to the management of these areas. CES could be a way to support the groups that maintain and assist in the conservation of these spaces, but the obstacles and risks to their implementation are related to existing legal and institutional limitations, as well as the difficulties of organization and representation found in the communities. Jaú National Park is the largest park in Brazil and is located in the Amazon region, which makes it important in terms of environmental services.

The fourth case study covers the part of the Ribeira de Iguape river watershed located in the state of São Paulo, containing 23 municipalities, with uneven topography, in which are found around 20% of the remaining Mata Atlântica in Brazil. The primary forest cover of the Mata Atlântica has been reduced to around 7% of its original area in Brazil. Because of this situation, over the last 40 years several conservation areas were created in the region, currently covering around 50% of the territory of the Vale do Ribeira (as the region is also referred to). This is the poorest region in the State of São Paulo, where agricultural activity, especially growing of bananas, is the foundation of local economic output. As a result, there is continuous conflict between those who seek to consolidate the conservation of the ecosystems and those working towards the «economic development» of the region. Actions based on ideas and principles of environmental sustainability of development are still in their early stages, but NGOs (Brazilian and international), community associations, and more recently, especially over the last 10 years, government leaders, have been supporting projects for the sustainable management of natural resources. There are a large number of community associations, rural producers, traditional communities, quilombolas (descendants of escaped slaves) and NGOs involved in a wide range of institutional contexts, such as watershed committees, municipal councils, the regional development forum, etc. Along with this diversity of social and political activity in the Vale do Ribeira, there are processes linked to CES mechanisms which are already operating or with the implementation currently being negotiated politically. Two examples are the distribution of a greater percentage of the allocation of the State tax on the circulation of goods and services (ICMS) to municipalities that have areas specially protected by the State (already functioning), and charges for water use (currently under negotiation). The case is emblematic also because it shows the relative independence of institutional and political processes of different CES mechanisms applied to the same territory, where there is a reasonable social fabric able to present demands for development and conservation. Vitae Civilis, which has been working in the Vale do Ribeira since 1989 in support of the sustainable development of traditional and rural communities, and working on environmental policies, prepared this case study.

The results and recommendations, in all cases except Acre, because of the specific conditions under which the study was carried out, take into account both the point of view of the communities and other actors involved in the area of CES.

5.1) SUBSIDY TO RUBBER-TAPPERS IN THE STATE OF ACRE (AC) - AMAZON STUDY

Introduction and Objectives

The objective of this case study was to identify and evaluate the potential for Compensation for Environmental Services (CES) in the State of Acre, in the western Amazon. We start with a description of the concept of CES and the opportunities that this concept represents for Acre. The study focuses on the mechanism of the Chico Mendes Law at the state level (subsidizing rubber production), which represents an innovative case of payment to extractivist populations for the social and environmental services they provide to the Acre, Brazilian and global society.

The state of Acre is home to one of the most dynamic and strong socio-environmental movements in Brazil. In 1998, the people of Acre elected with almost 70% of the votes the forestry engineer Jorge Viana, a follower of the ideas of Chico Mendes and of the extractivist movement. The government of Acre has prioritized the sustainable use and conservation of forest resources.

The state of Acre has an area of 153,150 km², approximately 3% of the Brazilian Legal Amazon², and is largely covered with forests (92%), with deforested areas covering approximately 8%. In general, Acre's forests are dominated by bamboo and palms, which make them poor in timber resources. However, the non-wood products (rubber, oils, pharmaceuticals, fruits, etc.) have a relatively greater density.

The extractivist populations have an economy based on forest products, including rubber, Brazil nuts, copaíba, andiroba, buriti, açaí, patuá, murmurú, unha de gato, etc. Also, these populations carry out small scale complementary activities such as slash and burn agriculture, hunting and fishing, and occasionally timber extraction.

The rural producers form a diverse group that includes small farmers (less than 500 hectares) to large ranchers (greater than 5000 hectares). The economic activities responsible for removal of forest cover are agriculture (especially slash and burn by small and medium-sized producers) and large-scale cattle ranching.

For the analysis of the instrument and process of supporting rubber-tappers through the Chico Mendes Law, we reviewed the statistics on extractivists available from the Executive Secretary of Forests and Extractivism (SEFE). We interviewed the Executive Secretary and the staff of SEFE responsible for the conception and implementation of the Chico Mendes Law. Finally, we talked with the extractivist leaders, including the representatives of the National Rubber-tappers Council (CNS) and the leaders of the extractivist communities of Alto Acre and Juruá.

² The Brazilian Legal Amazon consists of nine Brazilian states with different forest and geological formations of the Amazon biome.

History of Settlement of the Territory and Organization of Social Movements

Acre is a former Bolivian territory incorporated into Brazil at the end of the 19th Century. This annexation was motivated by the extraction of rubber (*Hevea brasiliensis*) by Brazilian immigrants (especially from Ceará) in the boom period of this activity. The incorporation of Acre as part of Brazilian territory occurred through migration and the struggle of the Cearenses (Acre revolution), who occupied the region, followed by a diplomatic accord with Bolivia.

For almost one hundred years, the living conditions of the rubber-tappers was extremely hard and uncertain because of the low prices paid by the rubber merchants, especially after the post-boom decline at the beginning of the 20th century. During this period, the regional economy was restricted to non-wood extractivism, mainly rubber and Brazil nuts. Commercial relations were conducted through the "aviamento" system, which was characterized by unequal exchanges of forest products (extracted by the rubber-tappers) and outside goods such as grains, salt, fuel and cloths provided by the traders.

The land ownership situation, with serious conflicts resulting from the concentration of lands in the hands of some large landowners and land-grabbers, pressure for colonization of new areas, deforestation as a form of land occupation, and other factors, generated rubber-tapper resistance movement. They held many "empates" -- confrontations and occupations of forest areas -- to block deforestation and ensure spaces for extractivist activities. In the 1970s and 80s, with government projects, and others supported by multilateral projects, the occupation of vast areas of the Brazilian Amazon was intensified, creating new frontiers for large landholders and companies, as well as for workers and small rural landowners who were « dislocated » from other regions of Brazil. These dislocations were the result of both the effects of conservative modernization of agriculture in the south and southeast of Brazil at the time of the green revolution, which generated more concentration of land ownership and rural unemployment, as well as the migration of dislocated populations, especially to the states of Rondônia, Mato Grosso and Pará, because of the occupation of their former lands for the construction of large hydroelectric reservoirs in the South and Southeast regions.

In the 1980s, the rubber-tappers movement achieved a higher public profile, including internationally, both through the increased frequency of "empates", and through the alliances that the extractivists established with Brazilian and foreign organizations. During the process of developing a new national constitution (1987-88), large landowners and landgrabbers intensified their activities of deforestation and burning of forested areas because of a fear of agrarian reform and expropriation of their lands. The concept that forested lands were « unproductive » prevailed at the time, and the social movements and political parties defending agrarian reform demanded the expropriation of unproductive land. In this context, the struggle of rubber-tappers to maintain the forest ecosystems as the base for their productive and community activities achieved a high profile among the struggles of the diverse social movements, and gained support from the environmental movement. However, the

conflicts were real and cruel. In December of 1988, Chico Mendes, the most prominent leader of the rubber-tappers of Acre, was killed by large landowners, which had a great national and international impact.

This episode contributed to the institutionalization of extractivist reserves through Law 7804 from July of 1989, which introduced this new type of territorial space especially protected under national environmental legislation (Law 6938/81). Through Presidential Decree # 98,897, from January of 1990, extractivist reserves were established in regulations as territorial spaces destined *for sustainable exploitation of renewable natural resources by extractivist populations*. These are areas under the dominion of the Government, whose use by community associations of extractivists is regulated by a contract of concession of use, with a revocation clause to be invoked when there is any damage to the environment or the transference of use to unauthorized third parties. This provision contributes to the efforts of extractivist communities in the conservation of reserve areas, and therefore to pursuing activities that contribute to the maintenance of environmental services.

After the regulations were created for extractivist reserves, during the 1990s several units were established in Acre and in other regions, including beyond Amazon. Because of this, the rubber-tapper's movement has made an important and nationally relevant contribution. Many non-governmental organizations, from both within and outside of Brazil, established support services for projects that consolidate the activities of extractivists on their reserves. However, with the reduction in the price of their principal product - rubber - the rubber-tappers continued to face economic difficulties.

In the 1990s, the allies of Chico Mendes obtained a series of political victories in Acre. The first was the election of Marina Silva, who worked as a rubber-tapper and only learned to read and write as an adolescent, as a federal Senator in 1994. Later, with the election of Jorge Viana as State Governor in 1998, in what was known as the « Government of the Forest », the situation began to change. With a broad base in social movements, especially with extractivists, this government has sought to implement instruments and activities compatible with environmental and social sustainability of development in the State. The creation of the Chico Mendes Law - which involves payment of R\$0.40 per kg of rubber - represents a concrete case of compensation for environmental services (CES).

The government of Jorge Viana (1998-2002) has the goal of changing the pattern of use of non-wood resources, characterized by low income generation, unmanaged use and social dependency. To do this, the Government of Acre intends to protect 85% of the forest cover of the State, of which 25% of the territory (3.7 million hectares) would be administered under a sustainable management regime (wood and non-wood products). The commitment of the Government of Acre is to certify these forests under the international standards of the Forest Stewardship Council (FSC).

Actors

In 2000, the population of Acre was estimated to be 546,000 people, of which only 32% lived in rural areas, while 68% lived in urban areas. Rubber-tappers account for more than half of the rural population of Acre.

The Acre government agency SEFE estimates that 4 000 families of rubber-tappers (approximately 20,000 people) benefit from the Chico Mendes Law. This is around 20% of the population of extractivists in the state.

All the families subsidized by the Chico Mendes Law are organized in associations, because this is a requirement to receive benefits. Each association needs to registrar members in order to then create an agreement with the Executive Secretary of Forests and Extractivism (SEFE) of the State Government.

These associations are, in turn, affiliated with extractivist cooperatives. Finally, at the top of the organizational pyramid, there is the National Council of Rubber-Tappers, whose function is political representation of the movement and interaction/lobbying with the larger political structures. An example is PRODEX (Extractivist Development Program), which includes facilitation of credit for extractivists. The pyramid of the rubber-tappers, therefore, has the following structure : rubber-tappers at the base, with the associations at the next level, above these the extractivist cooperatives, and CNS (National Council of Rubber-Tappers) at the top.

The Chico Mendes Law has catalyzed the strengthening of the organization of rubber-tappers, because of the demand for membership in the associations, and the increase in income. However, there are still no statistics comparing the current situation with the period prior to the Chico Mendes Law.

In terms of the role in international actors and those from Acre in working with rubber-tappers and the environmental services they provide, we would recognize, for example, NGOs that criticized World Bank projects in Roraima and Acre, and which supported the rubber-tapper movement and CNS, including:

✂ The Ford Foundation and WWF, which have indirectly supported (i) strengthening the capacity of associations, (ii) technical assistance, and (iii) generation of information and management practices. WWF is supporting efforts towards adoption of « Islands of high rubber productivity », which could significantly increase rubber productivity without affecting biodiversity.

✂ Pirelli (a private company), which has purchased rubber from the associations for production of the Xapuri tire. In addition, Pirelli is supporting the installation of a rubber technology laboratory.

✂ SUFRAMA (a Federal Government body), which is supporting the infrastructure of centers for distribution of rubber.

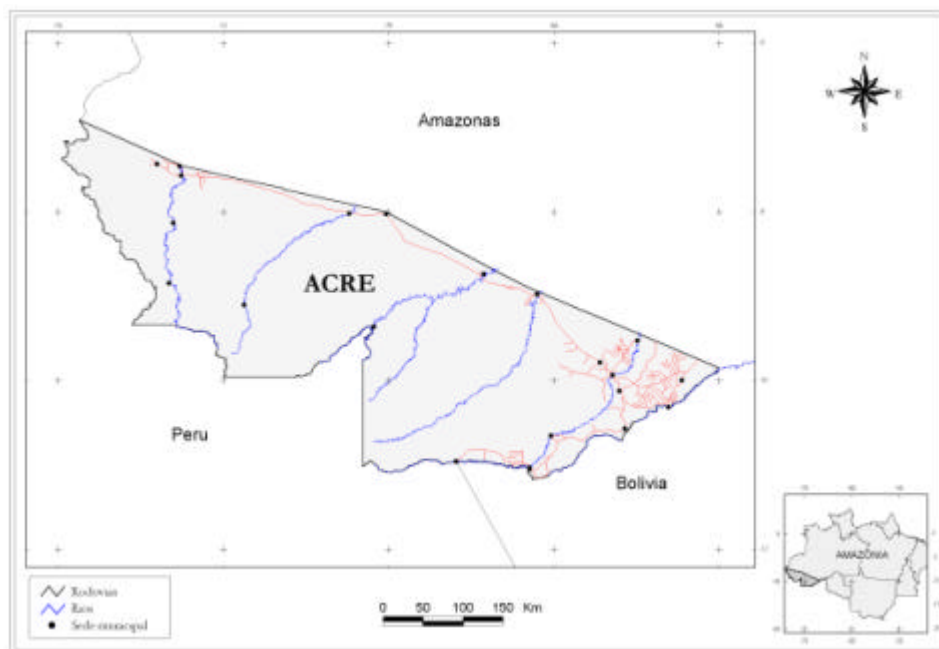
✍ The Ministry of Environment (MMA), which has offered support for the infrastructure of cooperatives as well as working capital for these organizations.

✍ BASA (Bank of Amazon), which provides lines of financing for the extractivist sector through PRODEX.

Territory

The State of Acre is divided into five micro-regions (Upper Acre, Lower Acre, Purus, Tarauacá-Envira and Juruá) and 22 municipalities. The State is served by Highway BR 364 (mostly unpaved) which crosses the state from north to south with a length of around 750 km. Acre is also crossed by BR 317 which runs to Assis Brasil, at the border of Brazil with Peru (Map 1).

MAP 1: THE STATE OF ACRE



The principal rivers such as Purus, Iaco, Envira, Tarauacá and Juruá cross the state from west to east. The annual precipitation ranges from 1800 mm in the south of the state to 2200 mm in the center-north. The soils are generally chemically poor and the terrain is undulating over much of the territory, with higher elevations in the region of Juruá (Serra do Divisor). These conditions increase costs of production and reduce opportunities for large scale agriculture and ranching in most of Acre.

Acre has 40% of its territory protected in the form of Conservation Units and Indigenous Lands. The *Areas of Full Protection* and *Indigenous Lands* are mainly located in the most remote areas of the state, while the *Areas of Sustainable Use* are located along the principal rivers and roads.

The Extractivist Reserves (RESEXs) are the most original and well-adapted forms of Conservation Units for the social conditions of Acre. In this type of area, the extractivists can remain in the area and have autonomy over the use and management of natural resources. In Acre, the RESEXs cover a total of 1.4 million hectares or almost 10% of the territory of the State.

Thus extractivist reserves play an important role in some environmental services. Among the most important are:

- conservation of biodiversity;
- conservation of the forest canopy;
- maintenance of the micro-climate;
- balance of the hydrological cycle in the region;
- preservation of the landscape.

The Amazon region is still a largely unknown universe. Indigenous knowledge about their ecosystems and resources has still not been completely assimilated and valued by western culture and science. Although there are scientific studies and a growing body of research, academic institutions and scientists in the region, what is known is continues to be very little in relation to what the Brazilian Amazon is thought to contain. A deeper knowledge of the extent of environmental services, with an assessment of their local, national and global effects and benefits, is still a challenge, which is being addressed by a range of social actors.

In Acre, the government is monitoring the forest cover at a scale of 1:50,000. These data can be used to monitor the impact of the Chico Mendes Law in areas where there are activities. There is no other scientific documentation on a large scale about the benefits of environmental services provided by the Chico Mendes Law. However, the basic precept of the Law is maintenance of the Forest through rubber production.

CES Processes in Acre: Opportunities and Risks

The processes of compensation for environmental services, such as payment for water, the Ecological ICMS Tax, conservation of biodiversity and avoided emissions³ have been discussed, but there have been no concrete advances. For Amazon, the innovative experience of the state of Acre has been the implementation of the Chico Mendes Law, which provides for a subsidy to rubber producers of the state who are organized in associations and cooperatives. The state is thereby avoiding deforestation and therefore emissions of carbon to the atmosphere. However, there are still those who do not recognize a direct and real link between the subsidy

³ "Avoided Emissions" of carbon dioxide (CO₂) is the difference between an historic rate of emissions from burning and deforestation and the rate observed with the implementation of some project or policy to reduce these emissions.

paid and carbon emissions, since there is no way to infer that the absence of this financial support would necessarily imply the removal of the forest cover. Others see the measure as being important because of the social contribution it represents in terms of ensuring income for the extractivists.

Regional development practices in Acre and elsewhere in the Amazon faces the dilemma of choosing between a pattern of destructive exploitation of natural resources (short-term gains) and a model of development based on sustainable management of forest resources (long-term gains).

The predatory model is based on a large-scale exploitation of natural resources. This exploitation is based principally on slash and burn agriculture, large-scale cattle ranching and destructive logging practices. Over the last two decades, Acre experienced a boom and a subsequent bust in this destructive model of occupation. The depletion of natural resources in the south of the State generated a crisis of legitimacy for the model of development implemented in Acre based on expansion of agriculture and ranching. In fact, the consequences of this model for the local economy were unemployment, loss of the economic base and worsening of social indicators.

In contrast, the sustainable model is based on sustainable forest exploitation, with emphasis on the concept of neo-extractivism (extractivism with high value-added) and managed timber harvesting, which is in its beginning phase, but has shown a high economic potential.

A study published by Imazon and the World Bank (2000) shows that in most of the Amazon region over the long term (more than 20 years) the sustainable option generates more income, jobs and tax revenue. In areas with high rainfall such as in Acre, an economy based on agriculture and ranching is subject to severe climatic and economic limitations. However, in the short term (less than 8-12 years), destructive practices can generate an economic boom in income and employment, as timber is extracted and grazing land created. However, the economic begins to decline after this period with the depletion of high-value wood and soil nutrients. Some years later the local economy tends to collapse. The result is a landscape dominated by degraded areas, and extensive cattle ranching with low productivity.

We highlight two principal areas where environmental services could become the object of compensation:

Avoided Emissions of CO₂. The remote location of Acre and the weak infrastructure (especially roads) are some of the serious obstacles to its development. However, the history of road building in the Amazon is strongly linked to uncontrolled deforestation. In fact, around 70% of the deforestation in the region is concentrated along the roads.

Is it possible to build roads without this leading to destruction of forests? The Government of Acre thinks that it is possible to resolve this question. To this end, it has proposed a plan with the following elements. First, it is necessary to organize the territory before the road is built. This would mean creating Conservation Areas in public property lands and regulating land use in privately owned areas. Later, it is important to offer options for sustainable land use.

This could be done through strengthening the socio-economic organization of extractivists (through associations and cooperatives), attraction of private investors interested in sustainable activities, pre-investments in infrastructure and establishment of sustainable development policies for the state (for example, zoning and regularization of land title). Finally, it is essential to obtain compensation or payment for environmental services provided. This is because there would be a dramatic reduction in the potential for carbon emissions from avoided deforestation.

Biodiversity Senator Marina Silva, who has roots in the rubber-tappers movement and is from the same party (Workers' Party) as the State Governor, has created an initiative for the establishment of compensation by the Federal Government for States that have Conservation Areas created by the Federal Government. Compensation would be calculated according to the size of these areas in proportion to the area of the State. The resources would come from the a specific fund to be distributed for the States. This initiative is similar to what exists in some states, where municipalities receive compensation for state conservation areas within their territory, coming from the Tax on the Circulation of Goods and Services (ICMS).

Sources of Financial Resources for CES

There are three possible sources of resources for CES: the international sphere (multilateral, bilateral); the national sphere (federal and state governments), and the private sector (market). The initiatives relevant to Acre that are most advanced involve sources in the national sphere. In the federal sphere, Senator Marina Silva took the initiative of involving the Executive branch in this discussion. Consideration was given to payment of an "environmental cost" that would remunerate extractivists for the fact that they live in and preserve the forest. This proposal was interpreted as a version of the minimum income program, directed only to forest dwellers. Unfortunately, the proposal did not obtain political support in the Congress.

Chico Mendes Law: A Case of CES?

The specific objectives of the Chico Mendes Law are: (i) establish the rubber-tappers as the stimulus to multiple use of forests (forest products, ecotourism and environmental services); (ii) improve the income level of actors involved in the forest production chain; (iii) support adding of value to forest products; (iv) train local labour in handling, processing and marketing activities; and (v) strengthen social organization. For the drafters of the Law this was in fact a payment for environmental (forest conservation) and social services that the extractivists provide to Acre.

We analyze this Law in terms of its effectiveness as a system of payment for environmental services through the assessment of three factors: the environmental benefits, the social benefits and the effects on rubber production.

Environmental Benefits: The permanence of extractivist families in the forest ensures the conservation of natural resources. The extraction of latex rubber removes an infinitesimal portion of the biomass, maintains practically intact the structure of the forest and makes it possible for all the environmental services identified, even if diffuse and still unquantified, to be offered. Each rubber-tapper family uses and conserves an average of 300 hectares of forest. Therefore, if we assume the involvement of 4000 families (estimate for 2001), the forest area directly benefiting would be around 1.2 million hectares (4000 x 300 hectares) or 12,000 km². Thus, this subsidy, designed to encourage extractivist activities, indirectly supports the maintenance of biodiversity and carbon stocks.

Therefore, for IMAZON, the Chico Mendes Law is an efficient mechanism for compensation for environmental services (CES). Expressed in terms of unit area, the annual cost of maintaining a hectare of forest under management for rubber production is less than R\$1 (one real).

Social Benefits: The addition of R\$ 0.40 per kilogram to the price obtained by the rubber-tapper for sale of rubber caused a mini-revolution in the extractivist activity. It ensured permanence of families in the forest, revitalized the activity and is even causing a surprising "urban exodus", with approximately 1000 families abandoning the periphery of cities like Rio Branco and others in the State, where they lived under miserable conditions, to return to the forest.

The payment of the subsidy for rubber proved favorable in terms of the distribution of resources and social equity. First, the payment is related to a good (rubber) that functions as a proxy for the environmental service. Then, the funds are passed on to the beneficiary through associations and cooperatives. This has ensured the strengthening of social organizations, since the rubber-tapper must be affiliated to an association or cooperative in order to receive the benefit. And, finally, the fact that extractivist production is based on family labour creates reasonable conditions for equality of economic opportunity. In fact, the income obtained by different families is significantly different

Other forms of compensation, such as for example the provision of public services (education and health care are the most commonly cited) and training to improve the extractivist productivity, are also valid forms of payment that help to ensure that the rubber-tapper remains in the forest. Cash payments directly to each family (without the mediation of the community organization) is not advised in any circumstances. There is a danger of weakening and destabilizing the associations and social movements.

There are other indirect benefits from the adoption of the CES (Chico Mendes Law) in the State of Acre. First, the strengthening of associations and social movements tends to increase social capital⁴ (as well as the purchasing power of associations and cooperatives). Second, the law has contributed to legalizing the sale of rubber, which in turn has allowed an increase in tax revenue. Third, this law has facilitated the registration and documentation of

⁴ Social capital is made up of a network of social relations, codes of conduct, trust and respect. This allows the rubber-tappers to act together in the most effective manner in pursuing solutions to common problems.

extractivist populations (emission of birth certificates, identity cards and social insurance number (CPF). And finally, implementation of the law has brought about an improvement in the management system and greater access to market information.

Effects of the subsidy on rubber production: The Chico Mendes Law and its effects on the community and the environment could be characterized as a concrete example of Compensation for Environmental Services (CES). This is because the rubber-tapper conserves the forests, which maintains environmental services, even through diffuse and unquantified, can be provided. Thus rubber production can be interpreted as a reasonably precise indicator of the extension and the intensity of the environmental service provided.

The activity of rubber extraction faced a severe economic crisis in the 1990s. The causes of this crisis include the lack of public policies for the sector, the low quality of the rubber and the drop in prices for the product. In 1998, rubber production in Acre was only 962 tonnes. Since the beginning of the subsidy in 1999, the situation has changed significantly. In 1999, production rose by around 30% to 1252 tonnes. In 2000, production more than doubled, reaching 2830 tonnes. In 2001, production reached the 3000 tonne mark, and the forecast for 2002 is that the Acre rubber-tappers could produce around 4000 tonnes (Table 1).

TABLE 1.
RUBBER PRODUCTION IN THE STATE OF ACRE

Year	Rubber Production (Tonnes)	Observations
1998	1,600	
1999	2,100	
2000	2,830	
2001	3,000	
2002	4,000	Forecast

Source: Unpublished SEFE data

Form of Payment of CES

The state government passes on the subsidies to the Extractivist Associations based on the amount of rubber produced and sold. These resources are passed on to the rubber-tappers in the form of money or goods. In many cases, the rubber-tappers prefer to receive the goods. SEFE estimates that the purchasing power of the rubber-tappers doubled and in some cases even tripled. This occurred because of the greater negotiating power of the cooperatives that act not only in selling their product, but also in purchasing consumer goods. The rubber-tappers acquire a broad range of products (sugar, milk, coffee, oil, hygiene products, etc.) "imported" for their use.

One indicator of the importance of the Chico Mendes law is the number of families supported by the program. In 1998, only 1600 families were involved in production of rubber. In 2001, around 4000 families were supported through the compensation for socio-environmental

service and the forecast for 2002 is that it will reach 6600 families (Table 2). Data from SEFE reveal that a minimum of two persons per family work directly in the production of rubber. Therefore, the estimate for 2001 is for 8000 jobs, which represents around 30% of the economically active population in the extractivist sector.

TABLE 2
FAMILIES INVOLVED IN PRODUCTION OF RUBBER.
IN THE STATE OF ACRE

Year	Number of Families Benefiting	Observations
1998	1,600	Prior to Chico Mendes Law
1999	2,100	
2000	3,500	
2001	4,000	
2002	6,600	Forecast

Source: Unpublished SEFE data

The total value of the subsidy paid to the rubber-tappers grew from R\$ 305,000 (three hundred and five thousand Reais) in 1999 to around R\$ 559,000 (five hundred and fifty nine thousand Reais) in 2000. The forecast for 2001 is for approximately R\$ 1.2 million Reais (Table 3). The State Government estimates that around 70% of the subsidy paid returns to the public coffers through the increased collection of the ICMS (tax on circulation of goods and services).

TABLE 3
AMOUNT PAID IN SUBSIDIES TO RUBBER PRODUCERS

Year	Amount Paid (in R\$)	Observations
1999	305,000	First year of Chico Mendes Law
2000	559,000	
2001	1,200,000	
2002	1,600,000	Forecast

Source: Unpublished SEFE data

Analysis and perceptions of social actors

The principal actors benefiting (the rubber-tappers) recognize and value the effectiveness of the Chico Mendes Law. For these actors, the Law has brought an improvement in the income of extractivists and the conservation of forest resources. In addition, the law has strengthened social organization. This is because the payment must be made to the associations and

cooperatives. Thus, the rubber-tappers need to be organized to take advantage of the benefits offered by this law.

The principal **obstacles** and **risks** are:

- (i) poorly organized rubber-tappers' communities are marginalized: to avoid this the government has supported the formation of local associations and cooperatives;
- (ii) use of financial resources coming from the subsidy to support agricultural and ranching activities - this has been avoided by the demand that the compensation for environmental service be linked to rubber production, which ensures maintenance of the forest resource;
- (iii) political discontinuity, in the event that the current government is not reelected in 2002. To minimize this risk, the Chico Mendes Law was approved by the Acre Legislative Assembly. However, the law could be changed depending on the political context, on the one hand, and the organization of rubber-tappers, on the other. Therefore, the strengthening of this CES mechanism depends of the consolidation of social capital and its participatory application.

Analysis of the case from the perspective of AMAZON

The subsidy can be received and managed by the associations themselves, but not all the social movements in Acre are sufficiently organized and representative to handle this responsibility effectively. In the case of insufficiently developed organizations, there are two possibilities. First, governments (municipalities and the State) can play a greater role in training and strengthening of these organizations. The weakness of this approach is the lack of institutional capacity of public agencies in the Amazon and the risks of political cooptation. The risks of deviation from their proper functions could be reduced by conditional payments to projects, with goals and commitments to results.

Another alternative being used is the involvement of NGOs. Here, these organizations help the Associations with technical, management and accounting processes. The NGOs can work in partnership with the government, as is the case in Acre.

The principal **risks** and **obstacles** to the Chico Mendes Law are:

- (i) Competition of latex rubber extraction with other land uses, such as ranching;
- (ii) Risk of political co-optation of leaders of associations by possible future governments with a "developmentalist" agenda (in the event that the current government is not reelected);
- (iii) Low management capacity of associations and cooperatives.

For Amazon, The Chico Mendes Law is an extremely effective way to compensate the people of the forest for environmental services that they provide to humanity. The essential aspects of this law are the facility of passing on the funds, the low transaction costs between the government (administrator) and the associations/cooperatives, and finally the equitable

character, since the payment is made based on a measurable good (kg of rubber), which functions as a "proxy" of the environmental service.

Conclusions

Extractivists, according to statements of their leaders, are environmentalists by choice and also because of a lack of choice. The ecological conditions of Acre (excess of rain, poor soils and rough terrain) create almost insuperable difficulties for development of profitable agriculture. However, these same natural attributes are a comparative advantage for an economy based on management of forest resources.

The experience of rubber subsidies (Chico Mendes Law) has proven an effective program of compensation for environmental services. By taking advantage of the existing social organization, the Government of Acre has managed to implement an efficient CES mechanism with an excellent cost-benefit relation. The key factor is that the resources from the CES have reached those responsible for providing the service.

The Chico Mendes Law is a method of providing compensation for an environmental service in an extremely cost-effective manner. With a total estimated cost for 2001 of R\$ 1.2 million, the government of Acre expects to receive around 70% of this back in taxes with the legalization of the rubber trade. This investment will benefit approximately 20,000 people, around 20% of the extractivist population of the state. The forest area used for rubber extraction (conserved forest) is calculated at around 12,000 km².

5.2) ACTORS AND DEVELOPMENT IN THE MUNICIPALITY OF GURUPÁ AND THE CHALLENGES OF CES - FASE STUDY

Introduction and Objectives

The municipality of Gurupá, founded in 1639, is located on the banks of the Amazon River between Santarém and Macapá, in the "islands region" of the state of Pará.

The objective of this study was to identify possibilities and prospects for implementation of instruments for compensation for environmental services in the municipality. We believe that some type of compensation for environmental services, if implemented, could encourage the appropriate management of existing natural resources, through increasing revenue from sustainable activities as alternatives to unsustainable options.

Data were obtained through field research carried out between June 28 and July 2, 2001, with visits to various local communities using FASE (Federation of Social and Educational Assistance Organizations) boats "*Comandante Souza*" and "*Voadeira*". At this time we talked with several people about their economic activities and ways of life. We also presented the reason for our visit, with a brief explanation of the concept of compensation for environmental services, and its principal instruments for implementation - the Clean Development Mechanism, green ICMS tax, charges for water use, and certification.

Several reports prepared previously by FASE-Gurupá were also consulted in obtaining the socio-economic data related to the population and social organization of the municipality.

Actors

The population of Gurupá in 2000 was 23,084 inhabitants, in both urban (6585) and rural (16,499) areas. Of these 23,084 inhabitants, 12,170 are men and 10,914 are women.

In the health area, two doctors living in the municipality's urban center and community agents are responsible for serving the communities. In terms of education, the population has a low educational level, with a very high level (57%) of residents with no formal schooling or with less than one year. According to some informal estimates by residents of Gurupá, the municipality has a 30% illiteracy rate.

Recognition should be given to an initiative aimed at increasing the appreciation of local customs and keeping youth in their rural communities through improving their living conditions. The project "*Casa Familiar Rural*" (Rural Family House) has operated since 2000 with two groups (26 and 33 students) and a record of dropouts of only four students, which an excellent rate by local standards. The methodology of "alternating education", along the first year, focuses on transmitting motivation, culture, and agricultural and extractivist practices. The second year is devoted to professional development, teaching agricultural production

techniques, and the third year covers and encourages the idea of social organization and collectivization. In order to enroll in the Rural Family House program, the student must have completed fourth grade, and upon graduation the student receives recognition for completion of primary school by the Pará State Education Council. The teaching team consists of three teachers – an agricultural technician, forestry technical and forestry engineer – who are financed in part by an association of evangelical churches from Holland. The remaining expenses are divided between the municipality, the association of “Rural Family Houses” of Pará and the students themselves.

Another important factor is the absence of any financial institution in the municipality, including banks. This is extremely important to the economy of the municipality, since there is no credit or other forms of financing for production. There is an effort on the part of the current mayor to bring to the municipality at least one lottery house, which also functions as an agency of the Caixa Econômica Federal, and the implementation of a “Peoples Bank”, with lines of credit for small-scale producers. The municipality has a very small number of legally registered companies (33), most of which are palm heart producers or sawmills.

Average family income is very low -- R\$ 2000.00 annually, or R\$ 166.66 per month. In comparison, the annual family income of a sample of 29 families from a community from the Marajoí river is R\$ 3519.75, or R\$ 293.31 per month. The principal economic activities on the Marajoí river are açaí and palm heart production.

An important social factor that poses a serious obstacle to the socio-economic development of the region is the lack of personal documents for the population of Gurupá, where a high percentage of citizens are not registered. Often when children are born they are not registered because of the lack of documents on the part of the parents. For example, in the community of Livramento, where approximately 750 people live, there are around 250 people who lack complete personal documents. In all communities visited the problem was mentioned, without precise numbers being provided, but with between 10% and 30% of the residents without registration documents. One laudable exception was the community of São Miguel Arcanjo, in the Itatupã sector, where because of the efforts of one local resident and missionary – Armando – there were no people without registration.

The principal economic activities carried out by the local families are extractivism (wood, açaí, açaí palm hearts, and other non-wood products) and agriculture (principally subsistence).

Organization of Local Social Movements

Organized social movements in Gurupá are relatively well established. Approximately 70% of rural society belongs to some association, union, cooperative or church. Gurupá today is home to 16 producers’ associations and 53 union locals. FASE works on strengthening citizenship rights, land ownership issues, environmental monitoring and on access to forest resources, along with working on issues directly linked to living conditions, such as health, education and housing.

The associations of producing families are the basic community structure, responsible for social, economic and environmental management of their territory. The associations hold land title, are responsible for implementation of plans for use of natural resource and forest management, for organizing community production, for conflict management and resolution, and for management and allocation of benefits (FASE-Gurupá). The Gurupá producers' cooperative (COOMAG) which plays a coordinating role for the associations and is responsible for financing and marketing of goods produced and also for management of the processing facilities. The rural workers union of Gurupá is the political representative of the producer's families. Other social organizations in Gurupá are the Gurupá Fisherfolk Organization, the Gurupá-Mirim Womens' Movement, Youth Groups, Women's Groups and the Catholic and evangelical churches, which have a strong influence on the communities.

There is not universal membership in producers' associations and cooperatives, despite the important work in the area of social organization implemented by FASE-Gurupá. In several communities it was reported that some of the producers preferred not to be affiliated, but to pursue individual solutions to their issues of production and marketing. However, it was not possible to obtain the exact current number of members of associations and unions. The cooperative today has 42 producers registered.

In the community of São João do Alto Jaburu, as in several other communities, the lack of personal documents places restrictions on community projects through association. Of the 200 community members, only around 50 have complete personal documents, and around 60 don't even have a birth certificate. Thus, the lack of minimal personal documentation is an obstacle to the movement of social organization and formation of associations in Gurupá.

History of Movements for Conservation of Environmental Services

Even through the specific term "environmental services" was only used for the first time in this research, terms such as "conservation" or "preservation" of natural resources (forests and water) are integral parts of the social movement of Gurupá, especially with the emergence and development of localized struggles (communities or "rivers") against the "aviamento" system and the invasion of logging or palm heart extraction companies in areas destined to common use or claimed by squatters. Presented in the mid-1970s as "land ownership conflicts" they in fact emerged as conflicts for the use of forest and aquatic resources.

Propelled by the Ecclesiastic Base Communities (CEBs), these localized struggles became organized at the municipal level, resulting in the creation of an STR (Rural Workers Union) in 1986. The leaders of this movement brought to their actions economic issues (struggle against *aviamento*) and environmental issues (conservation of forests and rivers) which, linked to the extensive community-level organization, formed the pillars of the union policies which were implemented. In the early 1990s, the Gurupá STR launched the project "Fight for Life", establishing a political platform for sustainable development based on family agro-extractivist production.

Clearly, "environmental services" have always been high on the agenda in the organization and struggles of rural families in Gurupá and of its representative institutions.

Territory

According to IBGE data, the total area of the municipality is 8540 km², of which 18% is water, 58% is flooded forests or floodplains, and 24% is dry land. Of the total area, only 2% is used for agriculture, according to data from the 1995/96 Agricultural Census. The principal ecosystems in the municipality are the floodplains and dry upland areas, which to varying degrees are combined with the flooded forests and water resources (rivers, channels and inlets).

MAP 2: THE MUNICIPALITY OF GURUPÁ AND ITS LOCATION IN BRAZIL



There are no conservation areas formally established in Gurupá. The municipality borders on the National Forest (FLONA) area of Caxiuanã. There is an experiment in the community of Camutá do Pucuruí, where the residents themselves established an informal area of permanent preservation. This area, called the Community Reserve, has 6127 hectares, and the total area extractivist settlement reserve (area of common use) of Camutá do Pucuruí has 17,961 hectares and is home to 22 families.

Land Ownership Situation

In general, the land title situation in Gurupá is chaotic, despite the progress made by the FASE -Gurupá project. The rural producers are generally squatters on land owned by the Navy⁵ and more serious conflicts are avoided only because there is an abundance of land and because of the activities of community associations with FASE..

FASE is heavily involved in the land question in Gurupá, and in 1997 through an agreement with ITERPA (Pará Lands Institute) and the Pastoral for Land Commission, it carried out a survey of documentation that outlines the land base of the municipality. The goal was to identify the areas that still belonged to the Union and those that were now private property. All the deeds, registries and processes related to the concessions of rural properties were analyzed

⁵ Lands owned by the Navy include the strips of coastline or riverbanks where occupation depends on permission of the Brazilian Navy, which retains ownership and can grant leases for use for 90 years (as in islands). In general the strip is a few dozen meters wide.

and catalogued, along with the constant registrations in the Land Registry office of the judicial district of Gurupá.

As a result of this FASE/ITERPA agreement, on July 28th, 2001, land title was delivered to 300 families that make the Association of Communities left from Quilombos of Gurupá (ARQMG), which covers an area of 83,136 hectares (350 families). This is the fourth largest area in Brazil awarded to descendents of quilombos.

On the same day a Contract for Concession of Right to Use was signed between ITERPA and the Association of Rural Workers of Camutá do Pucuruí (ATARCP), the first area of agro-extractivist settlement in Pará (17,961 hectares). Also, the process or regularization of land title of the Ilha de Santa Bárbara, involving an area of 1800 hectares and 12 families, is in the final phase of approval by the Regional Office of Patrimony of the Union.

Economic Activities and Sustainability

They carry out economic activities corresponding to the geographic characteristics of the territory and the specialization in extractivist activities or of production in the areas depends of the supply of natural resources, subsistence needs and market opportunities. Currently extractivist activities predominate over agricultural (which is related to family subsistence). Only in the areas with greater availability of dry land is agriculture important to family income. More specifically, in lower floodplain areas palm hearts and *açaí* fruit are collected and wood is extracted; in the *restingas*, or higher floodplains, agriculture is practiced along with these activities; the *igapós*, or seasonally flooded forests, are used for wood extraction and collection of *açaí* and palm hearts; in the dry land areas the principal activities are agriculture and extraction of wood and other non-wood forest products. (FASE, 1997b).

Açaí: The majority of the producers of *açaí* in Gurupá are extractivist, without attention to replanting because of the ease with which this species reproduces in the region. There is little experience in Gurupá with management of *açaí*, and the little that exists resulted from the work of awareness-building carried out by FASE-Gurupá. Even so, those that carry out management activities only "clear" the area to improve the productivity of the *açaí* plants, tilling the area and eliminating the vines and climbing plants, and cutting down the tallest trees to allow more sunlight to enter.

In the floodplain areas, practically all the families produce *açaí* for domestic consumption, and sell the surplus to traders at the port. There was a failed attempt to market *açaí* through the cooperative (COOMAG), which no longer occurs.

Açaí Palm Hearts: Extraction of *Açaí* palm hearts is also widely practiced in Gurupá because of the abundance of *açaí* plants. There are small-scale factories in the municipality producing bottled palm hearts, who buy local raw material from the traders. IBAMA demands a management plan for the operation of these plants, but in spite of this demand, there are no areas where *açaí* plants are replanted for harvesting of palm hearts.

"There are two principal methods of cutting. First is "clear-cutting," where all the açai palm stalks that can be used for palm hearts are cut, and there is no cleaning up of the area of any kind, resulting in a regeneration period of at least two years. Selective cutting is where only the stalks which provide palm hearts with a minimum of quality are cut, and the clump is cleaned up to facilitate growth of other açai plants. With this type of cutting, the same area can be harvested again in only six months. (FASE, 1997b).

Fishing: The fishing communities of Gurupá also face the problem of the lack of documentation of members, which is necessary for registration as fisherfolk in the *colônia* (official organization representing fisherfolk). When subsisting from fishing, the *caboclo* (Brazilian of indigenous or mixed indigenous descent) is not seeking an income from extractivist activities in the forest, which could be seen as an indirect environmental benefit.

FASE-Gurupá has carried out important work of awareness-building with the shrimp fisherfolk, through training in techniques for individual selection, to make fishing less destructive. This technique involves the construction and use of screened-in cages through which water passes but not shrimp, and the construction of shrimp traps with coarser screens which allow the younger individuals to escape.

Wood: Wood extraction is practiced extensively in Gurupá, general in an unmanaged manner. The principal end buyers of logs, and in a few cases sawn lumber, are the large lumber companies of Breves, the neighboring municipality to Gurupá, which has a large number of lumber companies. FASE-Gurupá recently registered 67 small sawmills in the municipality of Gurupá. These sawmills employ between 2 to 5 people, generally from the same family.

There is no reliable registry of wood production in the municipality of Gurupá, since this information would have to be obtained from the lumber companies and they have no interest in releasing the numbers. To give some idea of the production, a producer claiming to be a conservationist in the community of São João do Alto Jaburú - Codó - extracted 90 logs of a variety of types in the period between January and June of 2001.

FASE-Gurupá carried out experiments in forest and timber management and inventories in the region of Camutá do Pucuruí, as well as in the communities of Jocojó and Ipixuna. In the pre-management inventory, financial indicators were defined for the unmanaged activity. The results obtained indicate that the wood removed in Camutá do Pucuruí had variable costs representing 58% of the final cost per m³ of wood produced. Through this methodology, the costs of wood extraction could reach R\$ 80.78 / m³, if the costs of community labour are taken into account. The average remuneration received by the producers was R\$ 22.00.

The logging activity with a chain saw had lower costs but also low remuneration for the final product. Neither of the activities of forest management researched by FASE-Gurupá are profitable for the local producers, indicating the need for financing of this activity in Gurupá. Thus, an instrument for compensation for environmental services could provide the income necessary to make sustainable management of logging a profitable activity in the municipality of Gurupá.

Agriculture: The principal agricultural product of Gurupá is manioc, cultivated on dry land. Manioc flour is part of the traditional diet of citizens of Gurupá, and perhaps for this reason manioc is more extensively cultivated other principal products cultivated in Gurupá such as corn, beans, yams, melons and sweet potatoes. In general, agriculture in Gurupá is for subsistence, with the surplus from family consumption being sold.

A comment by Edgard, a resident of a community on the Marajói River, reflects the common thinking about the relation between agriculture and forest extractivism: "...the *caboclo* lost the identity of making the land produce and resorted to extractivism ..."

CES Processes in Gurupá: Opportunities and Risks

Although there are still no formalized mechanisms for payment or compensation for environmental services provided in the municipality of Gurupá, in the course of this study the following activities were identified which contribute or could contribute to CES:

Potential:

- Reforestation in degraded areas of Amazônia.
- Sustainable management of native forests for timber production.
- Forestry certification, a necessary precondition for any action aimed at enabling environmentally sustainable and economically viable management.
- The National Forests Program (PNF), created and supported by the federal government, can be used to contribute to sustainable forest management activities.
- Non-timber management.
- Eco-tourism.
- Carbon sequestration market, which has a significant potential, and is currently receiving extensive international interest, in terms of the carbon sequestration and sink capacity of forests.

Existing:

- Experience in curing latex rubber using a technique called "latex curing leaf" (FDL).
- Management of açai with replanting for production of seed and palm hearts.
- *Pupunha* could be considered for production of palm hearts because of the shorter growth cycle (1.6 years), while açai takes two years to grow.
- Utilization of *pau-mulato* (in floodplain areas), *sumaúma* and *munguba*, which in 10 years reach 1 meter of circumference), while *virola*, one of the principal woods extracted from the municipality, needs 30 years to reach this size.

The emergence and implementation of effective instruments for compensation for environmental services "generated" by these activities depends on a range of factors (seen here as risk factors). One of these factors is the lack of attention from other actors, such as the State government and other NGOs, to this territory and to the environmental services generated by its population. The state government has no sensitivity or initiative in relation

to environmental services, and despite the significant results achieved through work with the communities and the preparation of studies that all the estimation of the potential for environmental services in the region, only FASE works as a “foreign” NGO in the region. This can be seen as a risk factor, especially when it is necessary to establish partnerships or when an instrument depends on broader political pressure in order to be implemented.

Analysis and Perceptions of Local Social Actors

The concept of sustainability is well understood among the communities of Gurupá, where people discuss among themselves ways to reduce the impacts of their economic activities on the stocks of natural resources. However, they are unanimous in emphasizing the importance of these environmental resources for the survival of their communities, for income generation and for their families’ food supply. In other words, they know that they need to better conserve their natural resources to allow future generations to also use these resources, but they depend on these same resources to live.

In general, today the expectation of all those interviewed – in our case study we include several statements, both from community members and from government officials and workers in institutions working with the population – is in terms of increasing the productivity and profitability of the economic activities pursued in Gurupá, whether forestry, agriculture or fishing. The communities reacted positively when they could see real benefits from compensation for environmental services.

Despite the level of awareness in the communities and the work the institutions have carried out in terms of the concept of compensation for environmental services, the low educational level, dependence on the “*geleiro*”⁶ (middleman) and the lack of official registration of the majority of the population are impediments to payment for such services. We would probably see a repetition of the process of exploitation practiced originally by the *geleiro* when contracts are signed with private companies or government institutions, given that they are more integrated into the market economy and price-setting process, and can thus easily pay less for the service provided.

Analysis of the Case from the Perspective of FASE

The work of the institutions – which includes government agencies as well as associations, unions, cooperatives, churches, private companies, and especially FASE, which is very close to the problems of the communities – along with working to meet the basic needs of the population in terms of education, health and hygiene, also works towards greater awareness with respect to problems of resource management and sustainability. Through this work, it seeks to show the existence and importance of the environmental services that could be and are provided, and how to take advantage of and benefit from these.

⁶ *Geleiro*: actor who uses a freezer to transport fish acquired in various places.

The greatest efforts are focused on working towards sustainable management of extractivism (of wood and other products) which can closely involve communities, but this work of encountered obstacles, especially in obtaining credit.

Great importance has been given to the issue of certification, seen as a way to differentiate and add value to the product, but problems such as the chaotic land title situation, technical conditions and financial viability make effective actions more difficult.

In terms of the carbon market, the uncertainty and lack of international rules are obstacles to the establishment of agreements and contracts, but there is a direct interest on the part of institutions, because of the abundance of forest resources in the region.

Partners and support to enable compensation for the environmental services that we have suggested above could come from non-governmental organizations, private companies, certification bodies, the state agency SEMA itself, or directly from the Amazonian Secretariat of the Ministry of Environment (MMA). For carbon specifically, an option is not to wait for a definition of a carbon market but rather to work towards a bilateral contract through a carbon marketing company that offers technical assistance and financial support for the preparation of technical plans and viability studies, along with contacts with potential carbon purchasers.

Conclusions and recommendations

In our study we sought to describe in detail the situation of the communities of the Municipality of Gurupá, surveying both their socioeconomic characteristics as well as the difficulties experienced in the region. Also, we described the relations of these communities with the different institutions working in the area in an attempt to resolve many of the problems brought by restrictions imposed by nature or by economic, social and political factors.

Given this situation, we have been interested in the issue of compensation for environmental services, and have tried to describe the perceptions and views of the communities and institutions in relation to the issue. We have noted the obstacles, risks and conceptual limitations, and have proposed actions towards enabling such payments or compensation, and suggested forms of support and potential partnerships.

Our analysis showed that despite the difficulties generated by the poor definition of property rights, the low educational level in the communities, dependency on *geleiros*, difficulties in obtaining credit and by the lack of registration of the majority of the population, and other factors, support organizations have been carrying out excellent work in the region – especially with regards to FASE – and contributing to a greater awareness of the concepts of provision of and compensation for environmental services, the subject of our study. We consider it essential that debate be expanded in the community about the issues raised here, in order to allow a better preparation for the paths we are suggesting.

5.3) POPULATIONS AND ENVIRONMENTAL SERVICES IN FULLY PROTECTED CONSERVATION AREAS: THE CASE OF JAÚ NATIONAL PARK - FVA STUDY

Introduction and Objectives

Jaú National Park (PNJ), because of its size, its state of preservation, its strategic position in the greatest reservoir of biodiversity and fresh water on the planet, and because of the participatory process used in developing its Management Plan, has proven an ideal context for establishing relations between social actors and appropriate for redistribution of benefits generated by compensation for environmental services, according to the criteria of the current study - territory, process and actors (participation).

Moreover, because it was declared a World Heritage site in December, 2000, and being the first National Park in the Brazilian Amazon where the local population was truly involved in discussions of management of the area, Jaú has a symbolic value that transcends regional boundaries.

The case study of Jaú National Park, which includes or covers the communities of Floresta (on the Unini River) and Lázaro (on the Jaú River), identified changes in the standard of living (in terms of perceptions and development of activities) of these people, as a result of their participation in the process of implementation of management in the area.

In this case study, we sought out residents of these communities as a sample for evaluation of creation of possible CES. The fact that these communities are actively participating in discussions of the Management Plan and have a clear position in relation to the land title situation of the population of the park was a determining factor for the implementation of the debate about Compensation for Environmental Services.

At the beginning of the study, contact was made with the Rural Workers' Union (STR) of Novo Airão with the objective of establishing an approach that would not generate great expectations among the residents of the communities studied. Another reason that the approach was worked out with STR was that this entity had experience with popular participation in the process of discussion and formulation of development concepts in the region of the Park. It was decided that the fewer "formalized" instruments presented during the case studies in the communities of Lázaro and Floresta, the greater the chances that the communities would consent to participation in the discussion.

The study in the Community of Lázaro took place on July 4-9, 2001. In the afternoon of July 6th, a meeting was held in which four local groups (extended families) were present. They talked openly about their relation with the land title issue, marketing of their products, education, health and community infrastructure, and their day-to-day activities (agriculture and extractivism, hunting and fishing). The relation of the communities to these activities and their perceptions of environmental services were established and reinforced during this

meeting.

The study in the community of Floresta took place on July 19-24. The study was carried out through conversations with groups and individuals, in meetings with FVA, and in visits with the residents. Floresta is in the process of forming a Residents' Association and beginning discussions and mobilization with leaders of neighboring communities about the permanence of traditional populations in Jaú National Park. The residents of Floresta immediately characterized themselves as agents of environmental preservation.

The body responsible for managing the park, IBAMA (Brazilian Environmental Institute), was also approached about their views and their perspective on environmental services. The Chief of the Jaú National Park was interviewed and presented his opinions about the relations of the residents with the body and with environmental services.

History of the Creation of the Park and Occupation of the Area

Jaú National Park (PNJ) was created by Federal Decree # 85.200 on September 24, 1980. It was created in the context of the "Decade of Progress for South American national parks" (1974-1984), the period which saw the creation of the largest number of fully protected conservation areas in Brazil, especially in the Amazon. The PNJ, however, was created during the military dictatorship, as part of the actions carried out during that period aimed at global and integrated planning, which was supported by a great inflow of international capital, and by international accords, treaties and agreements.

It is estimated that humans have been inhabiting the area of the PNJ for around 1000 years. The current residents are the product of a process of interbreeding between indigenous peoples and rubber-tappers who came to share the region of the Jaú River and its tributaries at the end of the 1870s. The process that led to the creation of the PNJ was characterized by authoritarianism, precluding any discussion with the local residents, most of whom still did not know they lived in a park 10 years after its creation. The development of the management plan, in the 1990s, however, involved the search for a participatory involvement of these residents. This involvement took place through holding community meetings, participatory mapping of resource use, meetings with representatives of communities within PNJ, and participation in technical meetings, in which the zoning and management programs for the Park were created. The FVA is making conscious efforts to involve residents in discussions about the future of the Park, in spite of the often ambiguous position of IBAMA, the legal custodian of the region.

Actors

Jaú National Park is currently inhabited by 930 residents (for a density of 0.004 inhab/km²), arranged in 175 family groups who live on the banks of rivers and affluents. Most residents live on the Unini River.

The principal illness affecting residents and users is malaria, and medical services are delivered through community health agents. The rate of illiteracy in the park ranges from 50-90% and there are few schools in the region, with 7 located in the Unini River, 3 on the Jaú River and 1 on the Carabinani River.

Park residents plant crops using a fallow rotation system, in 1 hectare plots, planting at most three fields simultaneously. Crops grown include mandioca, banana, sugar cane, pineapple, cashew, corn, coffee, peppers and different tubers. Mandioca, or *maniva*⁷, accounts for 90% of the area planted; there are up to 38 varieties cultivated in this region and 10 varieties can be planted in the same field.

The use of natural resources found in the park by the population is linked to subsistence needs of the family, and based on the knowledge that the residents have about the local environment. The products most used for direct consumption of the family group are obtained by plant extractivism, such as *cipó-titica* (*Heteropsis flexuosa*), and by hunting and fishing.

Plant extractivism does not cause significant alterations to the vegetative cover, since the methods used involve a low frequency of visits to the areas exploited (since the trails and roads are temporary and narrow. The different practices and uses of natural resources, in accordance with the cycles of nature, are the result of the use of various ecosystems, which demonstrates the existence of a body of traditional knowledge that supports the management of resources of PNJ.

Table 2 below presents information about the two communities involved directly in this study.

⁷ Maniva: regional term for manioc or cassava.

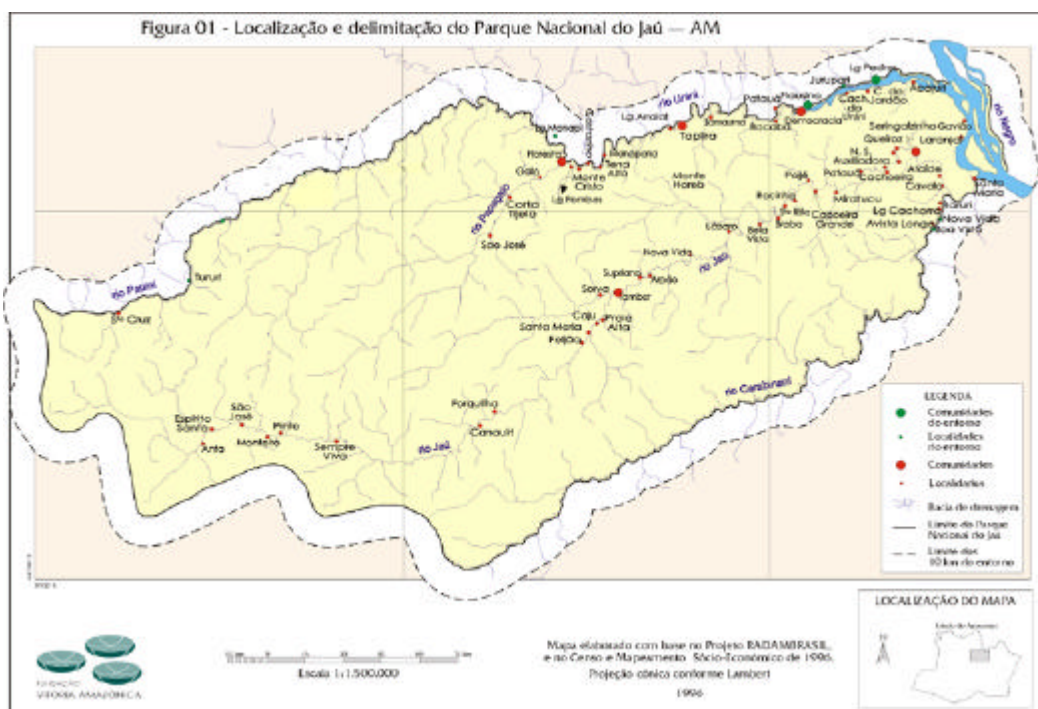
TABLE 2:
INFORMATION ABOUT COMMUNITIES OF LÁZARO AND FLORESTA IN
JAÚ NATIONAL PARK, INVOLVED DIRECTLY IN THIS CASE STUDY.

Information	Communities	
	Lázaro	Floresta
Location	Middle Jaú River, municipality of Novo Airão.	Middle Unini River, municipality of Barcelos.
Population	5 family groups.	10 family groups.
Age of community	3 years.	8 years.
Economic activity	Fields of manioc and banana, extraction of nuts and <i>cipó-titica</i> .	Fields of manioc and banana, extraction of nuts and <i>cipó-titica</i> .
Social Organization	President, vice-president, teacher, voluntary environmental agents, radio operator, community health agent.	President, vice-president, teacher, voluntary environmental agents, radio operator, community health agent, catechist and baptism agent, sports director, soccer team captain, generator technician.
Infrastructure	Shed built by community that serves as school and community center, health clinic, radio post, flour mill-house with <i>ceva-ciclo</i> (machinery for grating manioc) and a soccer field	School, health clinic, radio post, generator, catholic church, community port flour mill-house with <i>ceva-ciclo</i> , soccer field, TV/dish antennae/VCR.
Transport	FNS boats, research boats.	Merchant boats, Municipal Secretariat of Education boat, FNS boat, tourist boats, research boats

Territory

Jaú National Park, with 227,000 km², is the largest national park in Brazil and protects practically the entire watershed of a blackwater river – the Jaú river. The area of the Park includes an immense variety of vegetation types. The landscapes found form mosaics of swampy forests, seasonally flooded and upland forests, open fields and low second growth forests. Based on the work of FVA and its partners, the inventories of biological diversity establish PNJ today as one of the conservation areas most representative of the flora and fauna of the Central Amazon and even more so of the black water ecosystems.

MAP 3: THE PNJ AND ITS COMMUNITIES



PNJ has high levels of biodiversity representing a wide range of animal and plant groups. Many species are restricted to specific micro-environments of PNG, such as dryland forests or seasonally flooded forests. Also, some species are found only in locally distributed micro-habitats. The park protects many species threatened with extinction.

FVA has conducted scientific studies on the Park since 1991 and has a databank and publications on the subject. One could say that the park is home to roughly 60% of the biodiversity of the Rio Negro drainage basin (see table below). Its area is very well preserved, without significant deforestation, almost completely covered by native forests, with undisturbed carbon and water cycles, without significant pollution. The volume of water in the park's rivers has not been calculated. There is little data about geo-environmental exchanges in the Amazon, and what exists is controversial. NASA, INPE and INPA are carrying out a project (LBA) on the subject, but the data are still preliminary.

Biological Inventories (still not exhaustive):

Birds – 460 entries for PNJ.

Horseflies (family Tabanidae) – 74 entries (2nd place in diversity of this group in the world)

Reptiles and Amphibians: 42 entries, Lizards: 25 entries, Snakes: 41 entries.

Mammals – medium and large size: 42 species; other mammals: 120 species.

Phytoplankton – 49 taxons (preliminary).

Bats – 40 species.

Botanical – plants in forests on dry land: on average 180 species per ha, in seasonally flooded forests: on average 180 species per ha.

Fish: 320 species.

Scorpions: 11 species.

Crocodiles: 4 species.

National parks are conservation units which are necessarily heritage of the Government of Brazil and are incorporated under a management body, in this case IBAMA. In terms of the use of ecosystems and their natural attributes, they are considered Full Protection Areas and permit activities of scientific research, educational and environmental interpretation, recreation in contact with nature and ecological tourism.

The relation of the residents with nature is above all a living relationship. They state that the use of resources must be carried out in a way that there will be no shortage for their descendants. The possible environmental pressures caused by traditional populations are well defined. The level of family consumption, low population density, use of appropriate technologies, and lack of garbage in the rivers are some concrete indicators that show that coexistence between human beings and nature is possible.

Land Ownership Situation

The legal situation of the lands in the PNJ fall under three different cases: unpopulated lands owned by the State of Amazonas, privately owned lands and lands occupied by traditional populations. The unpopulated lands owned by the State of Amazonas must first be given official status as such in order to then be transferred to the management body of the protected area in the form of the relevant legislation, concession, donation, terms of transfer or expropriation. In terms of privately owned land, there are 31 properties in the area of the PNJ. The lands with such title account for approximately 1.7% of the total area of the Park. None of these properties were expropriated, and therefore their owners continue to be responsible for their taxes. It is significant that none of these land-owners have lived in the PNJ for years. The lands occupied by traditional populations fall under the classification of Agro-environmental (or Agro-ecological) occupation, following the definition given by Benatti in the Park's management plan.

This occupation is characterized by a collective form of ownership of natural resources and family work based on extractivism. Within this practice, we have identified two types of

occupation: community and family. The area for common use consists of rivers, lakes, boat landings, beaches, ravines and forests administrated for joint use of residents from a certain area, which are used collectively. These are open areas, and are not under private domain nor are the available for individual exploitation, but rather these open spaces are linked to the "market," since their products are sold, traded and marketed to the nearby communities. The definition of the rights of community members over areas used for cultivation and family residence occur within a spatial logic in which there is no necessity for these areas to be adjacent and permanent, nor that activities of work and residence be confined to fixed places. Also, the distribution of cultivated areas, houses and areas for common use is based on group consensus and not on isolated actions.

The residents today face a very uncomfortable and indefinite situation in terms of land title. The Law of the National System of Conservation Units, which allows for the possibility of re-classification of areas within the Conservation Units (Extractivist Reserve or Ecological-Cultural Reserve) has already been approved, but regulations have not been created. Under current environmental legislation, they face the prospect of being compensated for improvements they made and then resettled in another area outside the park. However, the law provides that until these two conditions are met, the residents have the right to remain on their land: "specific rules and actions will be established to reconcile the presence of traditional resident populations with the objectives of the unit, without prejudice to ways of life, sources of subsistence and the places where these populations live, and ensuring their participation in the development of these rules and actions". Furthermore, "the rules regulating the length of time they can remain and their conditions will be established in a regulation".

Conflicts

The principal activities giving rise to conflicts in the PNJ were located on the Unini River. These activities are carried out mainly by persons from outside the area in search of natural resources (principally ornamental fish, wood, lizards and their eggs). Few local residents pursue this type of activity as a commercial activity. The growing awareness of residents and their involvement with the PNJ Management Plan has contributing to preventing local involvement in these activities. Local residents have proposed that they unite against the *geleiros* (fish traders), to block the destructive commercial fishery.

On the Jaú River, these activities are drastically reduced, since IBAMA's boats operating at the mouth of the river have managed to control almost all of the flow of illegally extracted resources. However, tourist sport fishing activity has been going on without IBAMA's control, in part because there is insufficient IBAMA staff in the Park to monitor the visitors and control destructive and polluting activities.

Analysis and Perceptions of Local Social Actors about Environmental Services

Table 3 below presents the findings of interviews with community members intended to discover the views, contribution and relations that they have with environmental services in their day to day activities.

**TABLE 3:
ANALYSIS AND VIEWS OF SOCIAL ACTORS REGARDING COMPENSATION FOR ENVIRONMENTAL SERVICES**

Environmental service	Activity carried out	Mention		
		Lázaro	Floresta	IBAMA
Waters	Organic agriculture	Induced	Spontaneous	Spontaneous
	Solid waste disposal	Induced	Spontaneous	Identified
	Preservation of standing forests	Induced	Spontaneous	Spontaneous
	Conservation units	Induced	Spontaneous	Spontaneous
	Headwaters protection areas	Unidentified	Induced Induced	Unidentified
Solo	Agro-forestry	Induced	Induced	Unidentified
	Organic agriculture	Induced	Spontaneous	Spontaneous
	Solid waste disposal	Induced	Spontaneous	Unidentified
	Preservation of standing forests	Induced	Induced	Spontaneous
	Diversified agriculture	Induced	Induced	Induced
Micro Climate	Preservation of standing forests	Induced	Induced	Spontaneous
Global Climate	Preservation of standing forests	Induced	Induced	Spontaneous
	Sustainable management of native species	Induced	Induced	Spontaneous
Biodiversity (principally forests)	Conservation areas	Induced	Spontaneous	Spontaneous
	Diversified agriculture	Induced	Induced	Induced
	Preservation of standing forests	Induced	Spontaneous	Spontaneous
Landscape	Conservation areas	Induced	Induced	Spontaneous
	Agro-forestry	Induced	Induced	Unidentified
	Solid waste disposal	Induced	Induced	Unidentified

In contrast with the communities of Lázaro, the residents of Floresta immediately identified themselves as agents of environmental preservation. They perceived and valued their day-to-day activities as forms of conservation of flora and fauna, water and soil (Table 3), and clearly recognized the destructive potential of activities like commercial/industrial fishery and hunt of ornamental fish and lizards. This difference was to some extent predictable given the level of organization of each of the communities and the length of time they existed.

When we speak about payment for these services provided, members of both communities mentioned the needs they have for basic infrastructure such as a high school and a small hospital to serve the residents. Another common point is the need to improve their ability to market their products. IBAMA has not presented any compensation options, since the body has not presented an official position statement on the issue.

Analysis of the Case from the Perspective of FVA

FVA would also include the environmental services provided by residents of Jaú National Park would also include the maintenance of knowledge about existing biodiversity in the area and the willingness to share it with Brazilian society. FVA understands that, from a legal point of view, a delicate negotiation will be required between IBAMA and the residents' organizations, the communities and individual residents. FVA could act as a mediator in the negotiations, depending on the political situation under which this occurs.

Regulations for the National System of Conservation Units, which have not yet entered into force, provide that each family, with the support of their association, will negotiate and sign an agreement with the environmental agency responsible for management of the Conservation Unit which will govern relations (rights and duties) of both residents and the environmental agency. In the case of Jaú, the existence of maps showing natural resource use, prepared in a participatory manner with the residents, and whose accuracy was scientifically proven, could facilitate the establishment of the percentage of any benefits going to each partner or for each collective.

In our view, there will always be a strong tension between IBAMA headquarters, the local IBAMA and the residents, in which each will seek to receive the resources. The collective (residents/IBAMA/other interested parties) identification of infrastructure important to the park, for its residents and users, through mediation of a Park Consultative Council, could be a route to this negotiation. The Council would have the advantage of also involving the local authorities (municipal administrations).

From our point of view, it would be useful for this payment to be received by the associations/communities, which would require a process of collective negotiation which would not require a pre-existing legal instrument. Being a national park, the inclusion of such an agreement in its management plan could be a solution.

CES in Conservation Areas: The Point of View of Other Actors

IBAMA has no official position about charges or collection of resources through compensation for environmental services. There was not even any discussion of identifying the environmental services generated in the Jaú National Park or any other park, even though the proposal for the decree to regulate the National System of Conservation Units explicitly refers to these as a source of income for conservation units.

The chief of Jaú National Park emphasized the knowledge of the populations about local biodiversity, and demonstrated a concern about the possible resettlement of the residents to a distant area, which would mean the loss of the utility and wealth of this knowledge. As a potential form of application of the instruments of compensation for environmental services, he proposed the participation of residents in the preparation of agreements for regulation of the services, especially regarding the responsible parties, management body, and collective and individual actors. In his view, this would be a way to strengthen the partnership between IBAMA and the traditional communities.

Conclusions and recommendations

The implementation of Compensation for Environmental Services can and should be an instrument to benefit traditional populations of Jaú National Park. The Park Management Plan clearly shows the quality of service provided by these communities, their fundamental importance to activities to preserve the landscape, climate, water, soil and biodiversity throughout the park. In their day-to-day activities, residents of the park are aware of the deep interdependence between humans and nature. They are deeply concerned about the continuity of their way of life. Their relations with their rivers, inlets and lakes, the way they plant their crops, collect forest products, in sum, all their actions are integrated with the cycles of nature and their lives flow according to the same rhythms.

The traditional populations of PNJ are consciously using their social organization as an instrument for claiming their rights as citizens. The pursuit of quality of life is the basis for community mobilization. Investments in education and training of leaders in participatory processes, economic alternatives, administrative management, and participation in associations are necessary in order for them to achieve the necessary maturity and to enable the communities to autonomously negotiate and administer the resources deriving from CES.

5.4) CONSERVATION, DEVELOPMENT AND ENVIRONMENTAL SERVICES IN THE AREA OF THE MATA ATLÂNTICA: THE CASE OF VALE DO RIBEIRA, SP - VITAE CIVILIS STUDY

Introduction and Objectives

The watershed of the Ribeira de Iguape River in the State of São Paulo, a region with 23 municipalities and rugged terrain, contains around 20% of the remaining Mata Atlântica, whose primary forest cover has been reduced to around 7% of its original area in Brazil. This territory has a significant potential in experimentation and consolidation of proposals and actions for sustainable development, linked to preservation and research activities regarding the ecosystems that make it up.

The region has a rich fabric of social relations, with distinct human groupings (traditional communities of *caiçaras*, *quilombolas*, small farmers, etc.), a dense network of institutions and governmental and non-governmental initiatives and processes, either under way or in discussions, for application of CES instruments. Almost forgotten by previous governments, the region began to attract the attention of political leaders in the 1980s, as the result of re-democratization of the country and the work of local leaders and those from other cities of the State, especially the capital city of São Paulo, towards expanding the coverage of protected areas.

This study seeks to identify opportunities and conditions to enable rural communities of the Vale do Ribeira (Ribeira River Valley), in the State of São Paulo, to participate in instruments for compensation and to obtain benefits from environmental services that are "produced" on their territories. In terms of public policies, the purpose was to discover to what extent the principle of **protector - recipient** could be applied to support the environmental, economic and social sustainability of these communities. The principal instruments analyzed were the Ecological ICMS Tax⁸, charges for water use, product certification, the Clean Development Mechanism, and public sources of financing allocated to environmental conservation.

This study was carried out between May and July of 2001. The first step was to collect secondary data and materials about experiments with Payment/Compensation for Environmental Services (CES), both in Brazil and in other Latin American countries. Interviews were carried out with representatives of governmental bodies and agencies and non-governmental organizations involved directly in this area, in order to obtain information and positions of the organizations interviewed.

Preliminary contacts were then made with community leaders with the objective of assessing their level of awareness of the issue of CES and their interest in participating in a meeting of community representatives where the issue could be presented and discussed.

This study also presents proposals on issues ranging from obtaining compensation to

⁸ ICMS: Tax on Circulation of Goods and Services.

participation in the administration of its benefits.

Based on this work, Vitae Civilis organized⁹, in partnership with AGUA (Association of Friends and Residents of the Region of Guapiruvu), in Sete Barras, SP, a meeting of representatives of communities to present and discuss the issue of CES, and also to present proposals for implementation of CES, including obtaining and administering resources, in the region of Vale do Ribeira. This meeting was held on a Saturday in July, with the support of the Sete Barras municipal administration, and had a pre-established agenda, was widely publicized, and had the objective of providing information and learning about expectations and opinions of these actors about the application of instruments of CES to benefit their communities.

Around 80 community representatives attended, from different sub-regions of the Vale do Ribeira, including farmers, rural union leaders, teachers, municipal representatives, local media and staff of local agencies.

The first item in the meeting was an information session about CES, and in the afternoon working groups were formed for discussion of particular issues. The results of this work were presented to meeting participants and discussed. These results and our views of the issue are presented briefly below. This meeting was registered in a primer, which presents the outcomes, the participants and methodology used for the event. It is annexed to the full version of the Case Study by Vitae Civilis (Annex II) and was distributed to meeting participants.

Brief history of land occupation and context of creation of Conservation Units

The geographic isolation caused by the topology was one of the principal factors in the special concentration of the preserved Mata Atlântica in the context of widespread deforestation over history. This isolation also to a great extent impeded social and economic integration over the history of occupation of the area. The development of transportation facilities and agricultural technologies brought demands for economic development and at the same time an awareness of environmental preservation of the remaining forest. This process resulted in the concentration of Conservation Units in the region, generating, on the one hand, conflicts between “traditional” development and environmental conservation, and on the other, opportunities for identification and implementation of economic alternatives, for recognition of cultural and historic heritage, and for participatory approaches to management of the territory (ranging from the Mandira Extractive Reserve to the Watershed Committees, the Rural Agenda and Agenda 21).

⁹ Pamphlets and publicity material for this meeting are annexed to the Vitae Civilis case study.

Actors

There are around 400 rural communities with low population density compared to other regions of the state. In total there are around 310,000 people spread over an area of 15,480 km²¹⁰, covering that part of the Vale do Ribeira in the State of São Paulo. They are principally rural producers, extractivists, craftspeople and fisherfolk.

The level of urbanization, 65% in 1996, even with the growth in recent decades, is still far from the state average of around 90%. Most of the rural population works in banana production and extraction of palm hearts. There is also small-scale fishing, ginger cultivation, tea, craftwork and a range of subsistent production. There are communities and regions populated by rural producers, *caiçaras*¹¹ and residents of quilombos.

In 1999, the average value added per capita was around R\$ 2000, while the value for the state of São Paulo was R\$ 6355.00. The income distribution situation is also critical – in 1991, 72% of the heads of households had incomes of less than three times the minimum wage (approximately US\$ 250 per month in 2001). The educational level is also very low if compared with state or national averages, with 20% illiteracy.

Territory

The part of the Ribeira de Iguape River Watershed that lies in the State of São Paulo has 23 municipalities covering an area of 15480 km², and there are another 9,500 km² of the watershed in the State of Paraná. The remaining areas of the Mata Atlântica found in the Vale do Ribeira region are very important to the protection of this biome, since “the valley contains more than 2.1 million hectares of forests – equivalent to approximately 21% of the remaining Mata Atlântica in all of Brazil – 150,000 ha of coastal lowlands and 17,000 ha mangroves, all in an excellent state of conservation”. In addition, more than 50% of the total area of the Valley is under some type of environmental protection¹². There are in total 185 archeological sites and 273 caves. In addition, the region was recently declared a World Natural Reserve Heritage Site by UNESCO. Another important characteristic of the area is that the Régis Bittencourt Highway (BR 116) runs along its entire length. This highway is the only road link between two principal Brazilian cities, São Paulo and Curitiba.

10 Source: DAEE, 1998. Synthesis Report of the Ribeira do Iguape Watershed Action Plan, October, 1998.

11 Caiçaras: traditional population from the coast line. Qui lombos: communities founded by slaves, mainly during the XIX century.

12 Barreto, Ricardo (2001). Municípios do Vale do Ribeira recebem diploma de Patrimônio Natural da Humanidade. ISA - Instituto Socioambiental: Notícias Socioambientais. ISA, 20/07/01.

MAP 4: THE REGION OF VALE DO RIBEIRA AND ITS MUNICIPALITIES



Source: CODIVAR, 2000 and ValeTur, 2001.

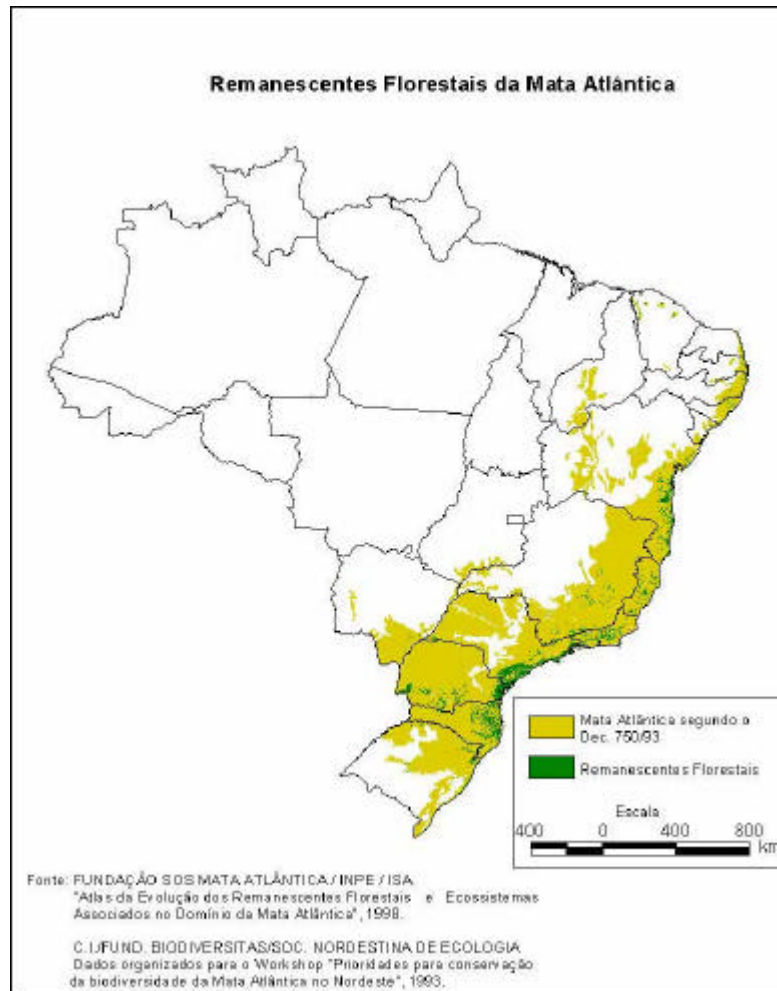
1. Apiaí	9. Iporanga	17. Pariqueira-Açu
2. Barra do Chapéu	10. Itaóca	18. Pedro de Toledo
3. Barra do Turvo	11. Itapirapuã Paulista	19. Registro
4. Cajati	12. Itarirí	20. Ribeira
5. Cananéia	13. Jacupiranga	21. São Lourenço da Serra
6. Eldorado	14. Juquiá	22. Sete Barras
7. Iguape	15. Jujutiba	23. Tapiraí
8. Ilha Comprida	16. Miracatu	

Map 5, below, shows the current critical state of deforestation of the Mata Atlântica. Today only 7.4%¹³ of an original forest cover of 1.3 million km² remain. A more serious fact is that 11% of the forest cover of this biome which existed in 1985 was destroyed over the following 10 years. If this trend continues, in 50 years the Mata Atlântica will have disappeared¹⁴.

¹³ Source: Fundação SOS Mata Atlântica, São Paulo.

¹⁴ Source: Dossiê Mata Atlântica, 2001. Projeto Monitoramento Participativo da Mata Atlântica. Rede de ONGs da Mata Atlântica, Instituto Socioambiental e Sociedade Nordestina de Ecologia.

**MAP 5:
THE MATA ATLANTICA TODAY AND AT THE TIME OF DISCOVERY**



Conflicts

The characterization of territory in terms of vegetation cover and conservation areas, along with the social and economic framework presented in the previous section, provide the context in which payment for environmental services will be studied in more depth.

The communities in the region face great economic problems, in addition to the restrictions and attention to environmental conservation. There is a significant rural exodus, although few migrants are in a position to avoid unemployment in the cities, because of the lack of preparation for available jobs in the urban context. Another significant problem is with inspection, since residents use various traditional techniques for their subsistence, including planting crops, hunting and fishing.

The excessive and illegal extraction of palm hearts (*Euterpe edulis*) for sale to industries at a very low price is another common problem in the region. The residents themselves consider this extraction to be unsustainable, but they carry out this activity in a clandestine manner, hidden from inspection. Therefore, they have to work quickly, removing everything without any of the traditional management criteria they once knew and used.

In this context, the principal threats to existing or potential environmental services from the region are related to deforestation for agriculture, pasture or urban expansion; unsustainable extractivism (especially of wood and palm hearts); water pollution; loss of soil fertility; silting of rivers and other factors associated with inappropriate agricultural practices and techniques.

However, as already described here, command and control systems and other traditional instruments for promoting local development have not been successful either for the objective of economic growth or of environmental preservation, or have had very high social costs (rural exodus and migration to other regions). The principal difficulties faced by the small rural producers are related to the lack of title to their lands and other guarantees to obtain credit, the lack of technical and extension support in the countryside on the part of the State, loss of competitiveness in the pursuit of markets for traditional products from the region, and extractivism, which has been carried out in an illegal and destructive manner, leading to legal conflicts and also internal conflicts between members of the communities.

The restrictions on the use and occupation of land and forests, imposed principally between the 1950s and the early 1990s, when most of the conservation areas were established in the region, have generated (or coincide with) a migratory movement to other regions and to mid-sized and large urban centers. Such restrictions put severe limits on the range of economic activities and soil uses than can be considered "legal", and within this range there is a much reduced set of activities that can be considered sustainable from an environmental point of view.

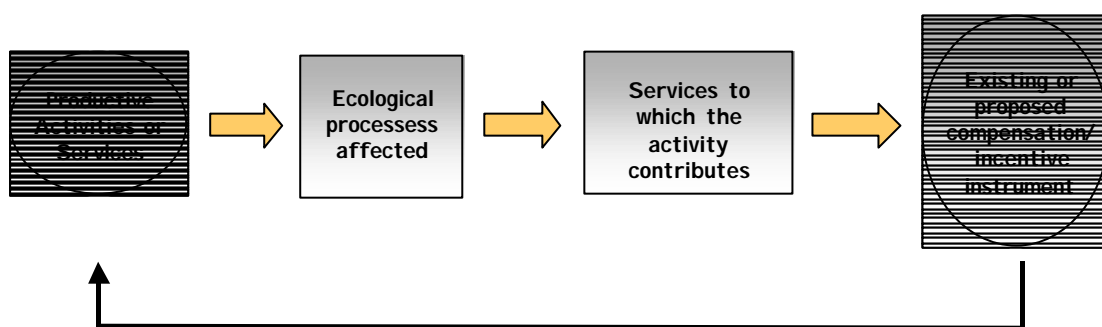
What occurs is that these activities, which preserve or "produce" environmental services, are practiced to a less extent than the "legal" activities which have negative impacts on the provision of some environmental services. In order to reverse this relationship, there is a need for a set of measures and policies that make these activities characterized by preservation also serve as promoters of sustainable development. Among these measures are research, education, awareness-building, training, resolution of conflicts over land title, direct investment in infrastructure, creation of special lines of credit, strengthening of community organizations and of networks of information and knowledge.

Compensation for Environmental Services can be seen, in this context, as ways to transfer and redistribute resources among social groups or economic activities with the general objective of ensuring the provision and conservation of environmental services. There are, however, several issues related to efficiency and operational aspects of compensation for environmental services that will be addressed in the following sections.

Economic Activities and Environmental Services

This study was based on the existence of a variety of types of land use (including strict preservation of a forested area, or “non use”) which generate or preserve some environmental services. Preservation of biodiversity, maintenance of water and nutrient cycles, maintenance of landscape and contributions to regulation of local and global climate are the principal environmental services already preserved or with the potential for having their supply increased in the region

Given the objectives of the project of which this case study is a part, it seems appropriate to focus not only on the environmental services being supported, but also, and perhaps principally, on the productive activities and institutions related to one or more environmental services (according to the scheme below. Such a change in perspective could contribute to unifying or concentrating process that are frequently implemented in parallel. Often productive activities are related (positively or negatively) to more than one environmental service at the same time, and such externalities, positive or negative, should not be ignored in decision-making.



CES in the Region of Vale do Ribeira: Opportunities and Risks

In the region of the Vale do Ribeira there are already some forms of compensation for environmental services implemented (ecological ICMS tax, the reforestation rate, some investment funds and lines of credit directed especially for such ends, and also ecological tourism, which expanded principally in the late 1980s. Some other instruments are being studied or in the implementation phase or regulations are being prepared, such as the sale of credits for reduction of emissions or capture of CO₂ (e. g., the CDM¹⁵) and the charge for water use. These instruments and the proposals for adaptations and alterations according to the objectives of the project will be the principal foci of analysis for this study.

Finally, in recent years some sources of financing have been created specifically for the preservation of environmental services or related activities.

¹⁵ Clean Development Mechanism, created in the Kyoto Protocol on global climate change.

Ecological ICMS Tax: This instrument was created initially in the State of Paraná, in 1992, and adopted by the States of São Paulo and Minas Gerais in 1996. Its origin is based on the possibility, given by Article 158 of the Federal Constitution, of States to pass legislation to define the criteria for distribution of 25% of the revenue collected in the State by the ICMS (Tax on Circulation of Goods and Services) to be forwarded to the municipalities. In the State of São Paulo, the environmental criteria accounts for 0.5% of this total, as shown in Table 1 below. Its creation in the state of Sao Paulo resulted, on the one hand, from pressure from municipalities and environmentalists, and on the other, the impact of the experience in Paraná.

Table 1
Criteria for distribution of ICMS to Municipalities

Criteria	Importance in structure of share of ICMS
Value Added	76%
Population	13%
Own Tax Revenue	5%
Area Cultivated	3%
Equal amount for all municipalities in the State	2%
Area Flooded for electrical generation	0.5%
Areas specially protected by the State (Ecological ICMS Tax)	0.5%

The share of the municipalities in this 0.5% is given by the following criteria and weighting (in other states, such as Paraná, Rondônia and Mato Grosso do Sul this percentage is 5%):

Table 2
Criteria for calculation of the Share of Municipalities in funds from the Ecological ICMS

Criteria	Importance in structure of share of ICMS
Weighted specially protected area in municipality	60%
% Area of municipality in relation to weighted area protected by the State	25%
Inverse of per capita municipal revenue ¹⁶	10%
Value Added	5%

¹⁶ This factor brings benefits to lower income municipalities.

The total area considered as a specially protected territorial space in each municipality is the sum of the areas covered by the different conservation areas in the municipality, weighted by the following factors:

Type of Conservation Unit	Weighting factor in Calculation of Weighted Area
Ecological Stations	1.0
Biological Reserves	1.0
State Parks	0.8
Wildlife Zones in Environmentally Protected Areas (APAs)	0.5
Forest Reserves	0.2
Environmentally Protected Areas (APAs)	0.1
Set Aside Natural Areas	0.1

Cross-referencing these data for each Municipality gives the “Share of Municipalities in the Ecological ICMS Tax”. This instrument allocated to the region approximately R\$ 13 million in 1999, which represents approximately 17% of the total municipal revenue in the region¹⁷.

The principal objective in creating this mechanism was to compensate municipalities for restrictions on productive activities and potential for generating other types of revenue from the territory where the state and federal conservation areas were created.

Certification: in the early phase of implementation, and being applied principally in the area of organic agriculture. Establishment of rules and standards for sustainable management of timber and non-timber resources from the Mata Atlântica is still being discussed under the FSC (Forest Stewardship Council). The pressure for preservation of the remaining fragments restrict activities in the sector, but certification is a way to give value to forests without destroying them and to encourage their conservation;

Charges for water use: an instrument currently being voted on in the Legislative Assembly. It seeks the rationalization of consumption and pollution of water so as to ensure its supply in adequate quantities and quality. The regulatory bodies will be the Watershed Committees, which have equal representation of the state, municipalities and civil society. These committees will decide the level of charges, exemptions or discounts, and priorities for investment and use of resources obtained;

Government Funds: funds created for purposes clearly related to provision of environmental services, such as the State Water Resources Fund (FEHIDRO) and the Brazilian Biodiversity Fund (FUNBIO); could be directed to activities (management, organic agriculture, sustainable tourism, etc.) and/or specific actors (associations, municipalities, small and medium-sized businesses, etc.).

Clean Development Mechanism: instrument that enables the negotiation of credits for CO₂ sequestration through growth of trees. The potential of the region is still not clear because

¹⁷ SEADE, 2001. *Informações dos Municípios Paulistas*. Fundação Sistema Estadual de Análise de Dados. Governo do Estado de São Paulo. <http://www.seade.gov.br>.

there has not been a systematic survey of the suitable areas, and the price per ton of carbon on the market is still very uncertain.

Ecotourism: Ecotourism is an activity that rewards the existence of natural landscape and attributes such as waterfalls, forests, caves, etc. Even though the infrastructure and organization is still poorly developed, the region has undoubtedly an enormous potential because of its proximity to the cities of São Paulo and Curitiba, and the quality and quantity of its natural attributes.

Community Participation in CSA Processes

Participation in processes of charges and compensation for environmental services could occur in various ways. The principal ways could be classified as:

- ✂✂ Direct transfer of money between the parties involved
- ✂✂ Forwarding of money through a managing institution
- ✂✂ Access to specific investment funds
- ✂✂ Access to technology
- ✂✂ Access to public services and training
- ✂✂ Influence in public policies
- ✂✂ Subsidies to products and distribution

Of course each type of environmental service and each type of social context will be better adapted to particular types of participation. Each one of these forms of participation or influence requires addressing some practical and technical issues, and also some political and administrative issues. The success of an initiative of payment or compensation for environmental services in terms of the sustainable development objectives will depend on how such issues are dealt with. Among other things, this issues involve:

- ✂✂ Identification of actors involved (beneficiaries, polluters and preservers) and their localization in time and space.
- ✂✂ Quantification and qualification of the environmental services involved
- ✂✂ Existence or creation of instruments for charges and payments
- ✂✂ Legitimization and standardization of such instruments
- ✂✂ Existence or creation of suitable institutions for an efficient and equitable management
- ✂✂ Clearly defined environmental objectives to be achieved

In the Vale do Ribeira, where the issue of compensation for environmental services is in its early stages, many of these issues still have not been addressed, or have not even been raised. Thus, inevitably, the participation of the local communities in the current instruments and in the development and regulation of the instruments being implemented or potential instruments is very superficial.

We present below the prospects for the current or future participation of local communities for the instruments presented above. We will also discuss the conditions needed for this

participation to take place in a more suitable manner, both with respect to influencing processes and to the effective management of resources.

Analysis and Perceptions of Local Social Actors about CES

The findings presented below are a summary of what was presented by working groups of the "1st Community Meeting on Compensation for Environmental Services in the Vale do Ribeira", held by Vitae Civilis in partnership with AGUA (Association of Friends and Residents of *Bairro do Guapiruvu*) in the municipality of Sete Barras. These finds were separated based on three questions discussed in the groups and in the plenary session, which covered the following topics related to CES:

- forms of contribution for environmental services;
- who should receive the resources;
- how should it be managed;
- where should the resources be used.

It should be remembered that the responses described in the questions are the expression of views and ideas of the community members and were only summarized here without altering them. In the tables below are the principal opinions of the participants regarding the elements of CES described above.

Ways of contributing to production or preservation of environmental services:

- Organic agriculture;
- Preservation and protection of forests;
- Environmental education and training;
- Sustainable management;
- Restoration of riparian forests;
- Septic tanks and sewage;
- Maintaining producers in rural areas, preventing rural exodus to urban areas;
- Diversification of production and soil protection;
- Reforestation with native species.

Actors who should receive the resources or compensation:

- Community associations;
- Cooperatives;
- Agricultural landowner who preserves;
- Municipal administrations;
- Squatters;
- NGOs;
- Schools.

Forms of participation in management:

- Management through participatory processes;
- Administration and management by 3rd sector (communities/NGOs/associations, cooperatives);
- Formation of a permanent council of associations;
- Guidelines should be created at the local grassroots;
- Demand actions from municipal, state and federal governments;
- communities, associations and groups should participate in planning for distribution of resources;
- Participate effectively in councils, watershed committees and meetings dealing with this issue.

Criteria for distribution and options for allocating resources and compensation:

- Public policies and projects for social, economic and environmental development;
- Direct payment of funds or credit to farmers who preserve;
- Purchase of equipment to improve local and regional infrastructure, as well as seeds, seedlings, organic manure, tools, etc.;
- Provision of technical assistance, training and distribution of information to communities and producers about agricultural techniques that preserve the environment;
- Access to sources of interest-free credit with government loan guarantees;
- Tax exemptions or reductions and support in finding markets for products;
- There should not be reimbursement for "not doing anything with a forest area", especially in large areas;
- Facilitation of bureaucratic processes related to protection of forests and water resources;
- Payment also for **implementing** of environmental services provision and not only for those who already provide them.

Analysis of the case from the perspective of VITAE CIVILIS

Our analysis will focus on our perception of the conditions for community participation in the specific CES instruments described above. Other aspects of our perceptions will be presented in our conclusions and recommendations in relation to the case studied.

Ecological ICMS Tax: Many of the proposals from community members were related to the possibility of passing the funds from the Ecological ICMS Tax directly to specific associations or activities. Unfortunately, such proposals cannot be implemented without changing the federal constitution, which determines specifically that this cannot occur. Thus, the only option remaining to the communities is to try to control or influence in some manner the allocation of these resources by the municipal administration. The only process that already functions and that could serve these purposes is the "Participatory Budget", which already functions in some cities in Brazil. There are also other municipal forum, such as the Municipal Development Councils, and the Rural Development Councils, which could be a forum for direct

political negotiation between the organized population and the municipal government.

Ecological Tourism What has occurred in the case of tourism activities in the Vale do Ribeira, like in many other similar regions, is that the income generated by ecological tourism does not always remain in the region where the tourism services were generated. Often, most of the value added of the activities carried out ends up going to agencies and companies from outside the area, with local actors playing only a supporting role. It appears that the local actors still are not directly involved with the local tourism activity as a “return” for the quality of environmental services (principally the landscape and natural attributes) “provided” by the region.

The increased participation of local communities in the benefits associated with ecological tourism depends principally on professional training, provision of infrastructure, definition of rights over natural resources and access to them, recognizing the “products” and services of nature and diversification of tourist attractions.

Certification: Certification processes involve two fundamental aspects that could involve the participation of communities involved with the activities to be certified. First is the definition of parameters and rules that will guide the process of implementation of a certification. The other is the creation of trust and credibility of producers and of the production system on the part of auditors, certification agencies and consumers.

In both these cases, something that could improve the ability to share the potential benefits of certification is the organization of the community around some activity, such that this community, or a network of them, could influence regulation processes and facilitate the creation of trust through monitoring and cooperation between the members of each community. It could also be demanded that government and related institutions give greater support in terms of technical training and marketing of products.

The engagement of community members and communities in these processes appears to still be very uneven and short-term. There are some community members implementing certified or certifiable systems on their properties but the discussion is still not well communicated and there is mistrust and uncertainty as to the economic advantages.

Charge for Water Use: Even though there is little certainty about the amounts to be allocated to each agency and for each watershed within the national and state water management systems, approval has already been given to a law which permits civil society organizations to present projects and request financing for activities whose suitability will be evaluated by the watershed committees, according to priorities that are also established with the participation of society.

In terms of the charge, the Watershed Committee is also the forum in which civil society can debate the price of the charge, the quality objectives, exemptions, discounts, etc. This forum currently has the significant participation of leaders and representatives of local communities, and in terms of social organization for presenting projects to be financed by FEHIDRO, there appears to be space for a more articulated and extensive participation than

is currently the case. Both for FEHIDRO and for other financing funds, one of the obstacles to participation is still the lack of capacity of local organizations and associations in completing the documentation normally required by these funding bodies.

The CDM and the Reforestation Fees: Community participation in processes of marketing of CO₂ sequestration certificates through reforestation projects depends on, among other things, the establishment of clear rules for the operation of these markets and on validation of this instrument through ratification of the Kyoto Protocol. One specific point that is not yet defined and is very important is the definition of who will have the rights to receive compensation for the carbon to be absorbed in different kinds of projects. Given the current stage of the negotiations, little can be expected from communities of the region of Vale do Ribeira in terms of influence in these processes, because they are well advanced.

Independently of participation in the process of defining the rules, there are other issues that will determine the capacity of communities to share the benefits associated with this instrument.

First, there will likely be competition between the different regions of the country and between countries for supply of such "products" (areas and human and physical resources for reforestation). One of the great advantages of the Vale do Ribeira in this sense is its ability to link reforestation and restoration of degraded areas with preservation of biodiversity.

In terms of organization, it appears very important for small producers and communities to unite around a common objective, since the issue of scale in this type of market is fundamental. Such organization could involve pursuing direct negotiations with companies and governments of industrialized countries that have (or will have) emission reduction goals, and also participating and receiving benefits indirectly through some state agency or representative institution (as occurs in Costa Rica). Finally, community organization could contribute to credibility on the part of the "buyer" market.

Public Financing Funds: The communities of the Vale do Ribeira face a variety of difficulties in obtaining access to and participating in the financing funds devoted to environmental services available in the region. These include:

- ~~///~~ complexity of the forms and information required to submit a request for funding;
- ~~///~~ the need to be organized in associations or groups in order to submit a project, as well as the lack of the required guarantees.
- ~~///~~ The need to regularize the land ownership situation.

Conclusions and recommendations of Vitae Civilis

In the Vale do Ribeira, the level of information and knowledge about CES instruments applied or applicable in the region is very low, especially compared to the high degree of technical complexity that some of them involve. There are only a few isolated cases of leaders who have some knowledge about the issue.

Despite this, our impression is that there is a very fertile field for implementation and reinforcement of these instruments in this region. This is because community representatives have a surprisingly clear perception of the relation between the activities carried out by their communities and the preservation and provision of environmental services which result from these activities. They also have a clear idea that environmental services provided can and should be the object of compensation, even though there is still only a very vague idea of what form of instruments providing this compensation could take. The conclusion is that, because of factors less related to participation or to the instruments themselves, environmental services are generated in this region in quantities and qualities that indicate a strong potential for implementation of CES, especially given the proximity of the two metropolitan centers benefiting.

For Vitae Civilis, the principal measures required for local rural communities to participate in and benefit from CES instruments are:

- ~~///~~ Awareness and diffusion of information and knowledge;
- ~~///~~ Creation of relevant information and databases;
- ~~///~~ Creation and strengthening of different forms of social organization and community associations;
- ~~///~~ Leadership training and technical capacity-building;
- ~~///~~ Improvement of institutional structure;
- ~~///~~ Regularization of land title;
- ~~///~~ Changes to the legal framework.

6) ANALYSIS OF CASE STUDIES

This section presents the principal considerations for implementing CES in Brazil based on the case studies carried out. The analysis we present below emerged from discussions between the national partners, focussing on territories, actors and processes.

Each sub-item of these three factors represents common or divergent elements in the case studies considered by the partners to be fundamental to the objectives of this project. Our analytical focus was on finding some kind of direct relation or strong influence between these elements and the effectiveness of implementation and community participation in CES instruments considered in the case studies as a whole.

6.1) ACTORS/COMMUNITIES

6.1.1) Formal Education

The actors involved in the case study are principally small producers and extractivists. They have in general a low level of formal education, and a large number (average of 60%) have either never attended school or have less than one year of study. The residents of Gurupá, in Pará, have a 30% illiteracy rate and in Jaú National Park illiteracy ranges from 50% to 90%, depending on the region. In the Vale do Ribeira, municipalities with available data had average illiteracy rates of around 20, ranging between 15% and 35%, which although better than those in the Amazon regions, are very high compared to São Paulo state average of 10%. The state of Acre has rates of between 20 and 30%, with some rural areas reaching 60%¹⁸.

The experience of the Rural Family Center Gurupá, with the system of "alternating education", recognizes the value of customs and provides support for youth to remain in the area. This situation ensures favorable conditions for discussions of CES since the issue depends considerably on the day-to-day relation of actors with the natural resources, and not only with the formal education system.

¹⁸ Source: IBGE (Brazilian Institute of Geography and Statistics). Demographic Census, 1991.

6.1.2) Social organization

The case study of the municipality of Gurupá, the state of Acre and the region of Vale do Ribeira all present a common point: social organization in the form of associations of residents and rural workers, as well as unions and cooperatives. This enables the strengthening of social actors in demanding rights and achieving economic and social improvements, in establishing partnerships with a range of actors, as well as in discussion of and access to CES instruments, as in the case of extractivists from the municipality of Gurupá and from the state of Acre. It is thus clear that the lack of official registration of many of the individuals in the communities is an obstacle to representation and to the ability to bring pressure to bear on legal and regulatory bodies. In Acre, however, the beneficiaries of the Chico Mendes Law has been looking for their documentation through actions coordinated by the state government.

In the municipality of Gurupá and in Jaú National Park, the communities also have a high level of social organization, but it is not legally formalized. The local populations can thus represent themselves in regards to local state agencies, but they are not able to participate in processes where formal organization is necessary. This need to formalize their organizational structure was observed in all the forms of compensation for environmental services, both existing and potential, reported in the case studies.

6.1.3) Relations with the market

In regards to relations with the market, there is often in place a system known as *aviamento*¹⁹ -- a commercial system characterized by relations of dependency and exploitation between merchants and local producers (whether a seller of locally produced goods or a consumer of products offered by the merchant), little influence over prices and almost a complete lack of cash – since most production goes to paying debts incurred in the exchange transactions unfavorable to the producer. This is the reality of the communities of Jaú National Park, the municipality of Gurupá (Pará) and, to a lesser degree, in the Vale do Ribeira (São Paulo). This arrangement directly affects the possibility of compensation for environmental services which could benefit the communities involved, since the great distance (physical or informational) of the markets would generate the same patterns of exploitation and price setting by the agents demanding the environmental services. The probable result in these cases are compensations far below the “value” that the service has for the agents benefiting (in the case of the carbon emissions market this difference is very large). In the state of Acre, however, the cycle of *aviamento* was to some extent broken by the associations and cooperatives of extractivists who purchase the products they need directly from suppliers, thereby managing to reduce the final costs by up to 75%, and substantially increasing their purchasing power.

¹⁹ *Aviamento*: provision of goods and materials by an *aviador* (merchant middleman). Normally the merchant is the only link between isolated communities and the “market”.

6.2) TERRITORIES

6.2.1) Institutional units, territorial scale and population density.

In order to consider the various types of spatial organization in Brazil, we selected four types of territorial units:

?? Conservation Unit: Jaú National Park (PNJ), state of Amazonas;

?? Watershed: Vale do Ribeira (the part located in the state of São Paulo, excluding the area that extends into the state of Paraná);

?? Municipality: Gurupá, in the state of Pará;

?? State: Acre.

The size and population density of the areas studied are very important factors. To give an idea, the smallest area analyzed here has 8540 km² and the greatest population density 18.6 inhab/km², as shown in the table below:

TABLE 4: TYPES OF TERRITORIAL UNIT AND POPULATION DENSITY

Territorial unit		Area (km ²)	Population	Population Density (inhab/km ²)
Type	Name			
Municipality	Gurupá	8 540	23 000	2.69
Watershed	Vale do Ribeira	16 670	310 000	20.02
State	Acre	153 000	546 000	3.60
Conservation Unit	Jaú National Park	22 720	886	0.04

All cases except for the Vale do Ribeira had a very low population density compared to the national average of approximately 18.5 inhab/km², which we expected to be the case in regions containing large conservation units and great expanses of forests.

These factors allow the communities to engage in subsistence activities with a low environmental impact because of the scale in which they are carried out. At the same time, however, this population/territory relationship is an obstacle to monitoring and control of activities that could generate significant impacts on these ecosystems (illegal timber extraction, forest fires, fishing, destructive extraction of palm hearts, etc.). If the question of participation in a CES requires proof of a direct contribution or relation of the local

communities to preservation (through the activity carried out or through “guarding” the territories), the low demographic density and/or low degree of effective control over the territories could be prejudicial to the negotiation and appropriation of benefits.

6.2.2) Scarcity and abundance

The concepts of scarcity and abundance are relative. In regards to environmental resources and services, they depend on the point of view of those that are assessing the scarcity. The amount of resources (financial or not) destined to CEP will depend on, among other things, the way that the actors involved (“producers” and beneficiaries) evaluate the question of scarcity of an environmental service.

The communities studied have a perception of abundance in relation to some natural resources on their territory, especially water and forests. For these populations it is difficult to understand that some other parts of the global society has a perception of severe scarcity of the same resources and services to the point that they are, in the language of economists, “willing to pay” for their preservation. Such asymmetry of perceptions and values will be reflected in the terms of trade in the negotiations for CES, and it is no accident that the majority of communities contacted expressed the desire that CES help to resolve basic needs and not be treated as a business opportunity. The possibility of seeing their productivity and profitability enhanced through provision of an environmental service in fact serves mobilize the communities involved around this opportunity, but this appears to be seen as a substitute for traditional public policy instruments than as compensation or payment for a service actually provided.

6.2.3) Land ownership issues

There was a unanimous recognition of a lack of regularization of land ownership and title issues in the areas studied. The legal status of land, even where not within conservation units or having their own legislation (floodplains, etc.) is in a chaotic state because of the lack of official title, inadequate and imprecise information and the overlap of properties in the land registry offices. There are, however, isolated situations in the case studies in which communities have managed to regularize their lands collectively, such as some communities of descendents of *quilombos* that have managed to have their land title recognized by the Brazilian government, and extractivists that obtained the legal right to use their lands (for example, the Extractive Reserves on Acre).

Like the formal establishment of civil society organizations, regularization of land ownership facilitates the access of communities to CES instruments. The majority of funds for financing and other CES mechanisms, such as some certification processes, require stable land title. The principal reason for this is the necessity for CES instruments to directly associate one agent to the preservation activity that ensures the provision of the environmental service. In cases where land title is regularized, the agents are more clearly identified, and can better ensure stability, because they are linked formally to territories through a title to property.

6.2.4) Conservation units and restrictions

In comparing the very different circumstances of the various cases, we posed the question of whether the creation of conservation units would have a beneficial influence on the possibilities and effectiveness of implementation of CES instruments in these areas and on local populations. There are two aspects here which need to be analyzed.

First, there could be a positive side in that legally protected areas (even with varying levels of protection) offer more guarantees than a CES instrument could in terms of environmental services **actually** protected, in the present as well as in the medium and long terms.

Second, however, for communities that live traditionally in these areas, the creation of Conservation Units could be a serious obstacle to their participation in CES instruments that could one day be implemented. The reason is that, even in cases in which the private ownership of territories or resources is clearly defined, it is difficult to establish in practice the relation between the "producers" of the environmental services and their "beneficiaries", in cases where the right to remain on the land where they live is not even guaranteed. This makes the possibility of these communities receiving benefits for environmental services very remote, and at a minimum it seriously undermines their chances of "demanding" such compensations as their legitimate right.

In Jaú National Park, like in many other places where conservation areas were created, the local residents do not have title to their land, and thus have no right to compensation. Also, the environmental restrictions often aggravate socioeconomic indicators. In some cases, as occurred with the ecological ICMS tax in the Vale do Ribeira, the municipalities are compensated for such restrictions. In general, however, the creation of conservation areas, especially the most restrictive (such as parks and ecological stations) have negative effects on the opportunities for local populations to participate in CES. This is because even if compensation does come to be implemented, there would be a conflict over who has the real title to the resources and environmental services for which the compensation was created. Would it be the state, as the owner of land, or the communities, because they carry out activities that promote preservation? Even with circumstances favorable to the communities, it remains to be shown how much they should receive for the services in question. For example in the PNJ, for a CES for preservation of biodiversity, the following questions should be addressed:

- ~~///~~ What is the area actually under the influence of the local communities?
- ~~///~~ Are there differences in the environmental services provided by these areas and those provided by the rest of the park?
- ~~///~~ Should the communities receive something for the areas of the park outside their area of influence?

Even in the case of Gurupá, where there are no conservation units, these questions would still

be relevant and the distributive conflicts over the CES would occur between different communities rather than between the populations and the government authorities or management bodies.

6.3) PROCESSES

6.3.1) Institutional arrangements and systems (governance and participation)

The case studies present a spectrum of governance and participation in terms of the possibilities for implementation of a CES in Brazil. In the case of Acre, for example, the principal conditions for the adoption of a CES are present. First, there is political support at various levels and spheres (civil society, government, NGOs) to support the implementation of a CES. Second, there is a legal basis in the form of the Chico Mendes Law (State Law # 1277/99). This law calls for the payment of a subsidy to rubber production as a form of remuneration for the environmental services provided by the extractivist populations in preserving the forests. Also, there is an efficient system for distributing the financial resources from the government to the rubber-tappers. This is done with the mediation of the Associations, which strengthens social organization at the same time as it ensures that the resources reach the beneficiaries. Furthermore, the use of a market parameter (rubber actually sold) provides an objective mechanism for precise and transparent control, and enhances the efficiency of the program. And finally, the use of good (in this case rubber) as a proxy or indicator of the environmental service provided increases visibility and greatly facilitates analysis of the performance and effectiveness of the CES. However, the financial values thereby mobilized are limited (R\$ 1,2 million, or around US\$ 500,000, projected for 2001).

However, few of these conditions exist in PNJ. Although the community is linked to an NGO in the conception and implementation of the Management Plan, the fact that the park is a Full Protection Conservation Unit poses a legal obstacle to the adoption of CES. There are also no public policies to compensate communities for environmental services provided, as there is in Acre, with the Chico Mendes Law. And finally, the government of the state of Amazonas has not shown an interest in supporting demands in the area of socio-environmental compensation.

In the Vale do Ribeira, we have another case where CES has already been implemented, in the form of the ecological ICMS tax. The mechanism is simple, since it involves only the State Finance Secretariat and Environmental Secretariat, and the municipalities. The resources involved in 1999 totaled around R\$13 million in the Vale do Ribeira, and in some municipalities this transfer of resources to compensation environmental protection accounts for more than half of the municipal revenue. However, the communities feel excluded from the benefits of these systems because they don't participate in the decision-making process and they question the autonomy of the municipal administration in the allocation of resources from the ecological ICMS tax.

According to current legislation, it is up to each municipal administration to prepare the

municipal budget, which must be submitted for consideration by the respective municipal councils. Thus, in theory, there should be public discussion of the allocation of the resources from the ecological ICMS tax, incorporated into the municipal treasury. The challenge is to stimulate the participation of civil society in the preparation of the municipal budget.

In the same region, a new CES involving water has a good chance to be implemented in the coming years. The preconditions for governance exist, since there is a regulatory and management body for water resources (watershed committee) which involves the municipalities, the State government, and civil society. Also, the committee has responsibility for establishing priorities and rules for the use of financial resources from FEHI DRO (State Water Resources Fund)²⁰. The principal types of activities financed (principally through loans) are:

- ✂✂ Creation and protection of headwaters areas;
- ✂✂ Flood control and prevention;
- ✂✂ Sewage treatment;
- ✂✂ Civil defense;
- ✂✂ Erosion control;
- ✂✂ Maintenance of soil infiltration capacity.

Those that can request resources from this Fund include State agencies and bodies, consortia of municipalities and civil society organizations.

For other potential forms of CES (e.g. ecotourism, carbon sequestration) there are reasonable chances, since a range of social actors surveyed are in fact organized and connected with other institutions (NGOs, governmental bodies) and can constitute networks for participation and dissemination of information if necessary. However, there is no clear idea of what possible form the institutional arrangements could take to involve the state government, municipalities and civil society in the management of these other types of CES.

In Gurupá, almost all the elements are present, including political support in the municipality and a NGO-community partnership, but the lack of resolution of land ownership questions appears to be a serious obstacle to the adoption of a CES. One option would be to consider a forestry product (perhaps palm hearts) that could represent an indicator of environmental services similar to rubber in the case of Acre. However, the government of the state of Pará has not shown an interest in supporting environmental issues even when linked to the improvement of quality of life.

6.3.2) Legal framework

The formalization of CES appears to us to be an important step to the consolidation of economic-financial instruments in a society founded on a democratic system. Nevertheless, there is a wide range of legal foundations for the cases analyzed here. There are also wide variations in terms of the ability of the actors who are the object of this study to influence

²⁰ This fund currently consists of royalties paid by hydroelectric generators and will receive the future payments for water use.

the processes of development, negotiation and implementation of the legal instruments that govern the CES and ensure its effectiveness and distributive justice. We know that there is a great asymmetry of forces and political capacities of the agents involved with CES, which in general favors the large corporations and beneficiaries of environmental services.

Of the four cases studied, two already have the legal structure defined and implemented for CES. In the Vale do Ribeira in São Paulo, there is the ecological ICMS (under state legislation) which allocates 0.5% of what is passed on to the municipalities (25% of the total collected in the state) that have state conservation areas. In Acre, the Chico Mendes Law (a state law) offers a subsidy of R\$ 0.40 (US\$ 0,20) per kilogram to rubber producers for the environmental service provided. In 2002 this value is likely to raise up to R\$ 0,60.

The legal foundation for conservation appears to be a serious obstacle to CES for existing communities in Jaú National Park and in other fully protected areas. However, in the units which allow sustainable use, keeping in mind the different kinds of title of the territories (which can be either private or public), a legal analysis should be conducted of the possibilities and arrangements for implementing CES. For example, on private properties within environmental protection areas, there would appear to be no obstacles, but in extractive reserves belonging to the federal government with the use ceded to an association, there are questions about who would have authority to enter into an agreement for a CES and receive its benefits.

Another important issue is that the legal institutionalization of CES in conservation areas, for example, depends on alterations or refinements to other legislation dealing with taxation, environment, property, etc., making the challenge of including local populations in the management of CES.

6.3.3) Partnerships

In all the case studies it was clear that the establishment of partnerships is a fundamental and determining element in the negotiation and implementation of mechanisms needed for CES. Most of the accessibility to benefits related to CES instruments are conditioned and depend on the attendance of requirements ranging from bureaucratic criteria, access to technologies, instruments and technical information to the need to be able to guarantee the control over products and processes.

In most cases, rural communities meet only some of those requirements, and often only a very few of them. Most commonly, communities that have empirical knowledge about productive activities and the natural environment of the region; some have leaders with some technical or formal knowledge, and control or protect in some manner the territories where they live (formally or informally, and involving conflicts or not).

However, to establish relations between the rural communities and eventual "payers" for environmental services that they provide, it is necessary take measures such as:

- ✂✂ Acquisition of technology and equipment for certification processes;
- ✂✂ Access to markets with demand or consumers (for products or services);
- ✂✂ Establish legal land title and legal registration of individuals and organizations;
- ✂✂ Obtain credit from banks or financing from specific institutions;
- ✂✂ Preparation and negotiation of contracts;
- ✂✂ Influence and participation in the design of specific legislation;
- ✂✂ Access to information and behavior of the “market” for services in question.

To achieve these objectives for implementation and participation, the establishment of partnerships between the communities and a range of organizations and actors could be very productive, with each case being better suited to a specific type of partnership. There are many examples of this: partnership between producers to obtain credit and market their products; partnership between producers and companies working in certification and local government to implement certified production systems; partnerships between communities and companies dealing in carbon credits; partnerships between communities and bodies such as IBAMA to create conservation units; and we could also site with some reservations the contracts for bio-prospecting signed between communities and interested companies.

6.3.4) Phases of the process

Using as a reference the “model” proposed in the first phase of the study of CES in Brazil²¹, the adoption of public policies and/or instruments implies three phases or dynamics, which could be simultaneous and interdependent.

These are:

- ✂✂ **Awareness-building**: generation of information and proposals for addressing specific challenges;
- ✂✂ **Negotiation**: formal and informal negotiation of the desired policy to meet the identified objectives. Along with formal contexts (Parliament, for example), negotiation occurs in the “public sphere” of society, in spaces such as media, seminars, etc.
- ✂✂ **Compliance**: the creation of capacities and actions to implement the contract (policy or instruments) established.

The table below shows the stages of implementation of the principal CES instruments found (or not) in each case study. This classification will be important when alternative proposals for action are proposed to improve the effectiveness and participation in these instruments. Each phase requires different kinds of measures in order to actually implement these processes.

²¹ Vitae Civilis, 2000. Payment for Environmental Services – Final Report. São Paulo: Vitae Civilis – Institute for Development, Environment and Peace, October 2000.

TABLE 5: PHASE OF IMPLEMENTATION OF CES IN EACH CASE STUDY

Case Study		Phase of Implementation		
		Awareness- building	Negotiation	Compliance
Jaú National Park	-	x		
Gurupá	-	x		
Vale do Ribeira	ICMS Tax			x
	Carbon	x		
	Water		x	
	Certification			x
Acre	Chico Mendes Law			x

7) PROSPECTS FOR CES IN BRAZIL

7.1) RISKS AND POTENTIAL

In spite of being very incipient in Brazil, processes of CES show a great potential for implementation. This is because of the abundance of environmental services currently "provided" by communities which are not now compensated, as well as the growing awareness on the part of society as a whole as well as in communities regarding the services to which they contribute through their productive activities and the preservation of their territories. Both end consumers and regulatory bodies, as well as the media, have shown increasing understanding and acceptance of the idea that rural communities can be allies in the preservation of environmental services that are valued by a range of domestic and global actors.

In an ideal, hypothetical scenario in which all environmental services were compensated by those components of global society benefiting from them, the amounts of financial and other resources would be immense. Just the "sale" of stocks and sinks for carbon and contracts for bio-prospecting would generate a large amount of resources annually over long periods of time. However, despite this abundance of environmental services that could be a source of compensation, there are still no instruments or markets sufficiently organized or legitimate to all such processes to become reality on a large scale.

However, even assuming a scenario in which these instruments exist and function efficiently in terms of transferring large amounts of resources between the parties involved, there would still be a range of risks and obstacles to an efficient and just flow of resources and to the rural communities participating in them.

The principal sources of risks to community participation in CES are discussed below.

7.1.1) Equity and perverse effects

Transfer of resources to a given community does not have only positive effects. There is the possibility that a process like this could cause social and institutional instabilities that could lead to internal conflicts within groups, as well as with other groups (as in cases where it is necessary to prevent invasions or migration). Also, the institutional organization of distribution of resources could generate conflicts of power and of trust and confidence between groups and individuals. It can also cause imbalances in the concentration of wealth and power within communities. These "perverse effects" can cause environmental deterioration leading to the reduction in the quantity and quality of the environmental service provided.

7.1.2) CES, basic rights and state obligations

Even though CES can often take place in the form of provision of basic services, equipment,

infrastructure and training and technical assistance, these types of compensation should not be understood to replace the duty that states and their governments have to provide such services. Just as anyone has the right to affirm that communities should not receive anything for preserving, since they are doing “nothing more than their obligation” to comply with the law, governments also cannot forget the fundamental rights guaranteed constitutionally. Most communities contacted in the case studies draw a direct link between the CES and provision of services and basic rights. The principal risk here is that CES instruments would be created to assume the duty of the State, with the consequence that the communities would be receiving something for environmental services that they should actually be receiving as a right of citizenship. This situation is inefficient from the economic point of view (both in allocative and quantitative terms) and unjust from a political point of view.

7.1.3) Scale and interregional competition

A frequently neglected point in studies of Compensation and Payment for Environmental Services involves the scale of implementation of an instrument. When one thinks in terms of the macroeconomic impacts of a CES instrument, there are two aspects that deserve attention. First is the competition that could be created between communities, regions or countries. Second is the impact of “flooding” a market or region with the application of an instrument. There are two basic examples of the first – the case of the value of forests for bio-prospecting, in which, if there are no sharply defined endemisms, competition between regions could bring the cost of the activity down to simply the cost of collection, since there will always be someone willing to offer their area for a little bit lower price; and the same reasoning applies to the supply of forests to absorb carbon or for plantations. In fact the estimates of prices per tonne of carbon stored appear to be falling over time, and were always far from the “willingness to pay” of the interested countries. An example of the second aspect would be product certification. In a hypothetical case in which the market is flooded with certified products, depending on the specific characteristics of markets, it could happen that the competitive advantages obtained from the certification be reduced to zero at the margin.

7.1.4) Relation with researchers, ethics and transparency

Many of the projects and instruments involving CES already implemented are in the experimental or test phase. We argue that this could imply risks for the communities involved because the time of maturation of these “experiments” or research is not sufficient to reveal all the aspects of their overall or systemic impacts. Instruments seen as panaceas may not have the expected results in longer time frames and could have as yet undetected perverse effects. At a minimum, what should be expected of companies, organizations and governments that from or propose partnerships with communities for the implementation of an instrument is that there be transparency and ethics in these relations. The communities and their leaders need to have a clear idea of the risks they are facing. Finally, it should always be remembered that it is crucial to keep the communities informed about processes under way or concluded because the lack of such feedback could cause problems both for the instrument and its credibility and the capacity for mobilization of the community involved.

7.2) CONCLUSIONS AND RECOMMENDATIONS

7.2.1) The perspective of community members

The contacts with community members and representatives demonstrated that they clearly identified, with little or no provision of technical information, the relation between their daily activities and the idea (even if not formalized) of environmental services. In addition, the community members recognized their role as providers of environmental services and consider that if there is a transfer of resources or benefits, they should be the final beneficiaries, even through most of them see the possibility of having intermediary institutions and actors involved in the transfer of these resources.

In general, the priority for community members is to increase the profitability and productivity in their daily activities, and this results from the high level of poverty observed in all cases. When discussing benefits for environmental services, they relate directly to the possibility of access to such benefits as improved quality of life, which could occur either through an increase in family income or through the provision of basic services and provision of equipment, material and technical training that leads to the implementation or strengthening of activities that “produce” environmental services.

The only points where there was weak understanding is in relation to the design and implementation of actual instruments for transferring resources derived from environmental services. Despite the existence of isolated and still superficial proposals for CES mechanisms and their functioning, the current stage of discussions, still very incipient in Brazil for most instruments, the level of technical complexity inherent in the instruments and also the low educational level and deficiencies of information and technical capacity in the communities, make it difficult to expect a very detailed contribution and participation at this moment, unless there are actions and policies to address these shortcomings.

7.2.2) Perspectives and recommendations of entities carrying out this study

Rural communities and populations must overcome a range of obstacles to be able to effectively appropriate the benefits linked to environmental services “produced” by activities that they carry out or by territories where they live and over which they exercise control.

Because of the nature of complexities of the relations and processes involved in implementation of CES (keeping in mind that they are more than simply “market” relations), we conclude that there are two types of actions and measures that could lead to an improvement in community participation and involvement in these processes. The first type involves expanding or improving participation in CES instruments and processes already implemented or whose regulations are very rigid and stable. The second type involves influencing regulations and participating in the creation of CES instruments still in the phase of awareness-building or negotiation. This second item involves influencing the **value** accorded to an environmental

service, which in the first case is a given for the communities.

Our recommendations do not differentiate between these two types of participation, since the measures for both are complementary and the main difference is the intensity and concentration of efforts necessary to achieve greater effectiveness in terms of the demands and necessities for each case and context. For the first type of measures – **participation in already defined instruments** – we believe that this should have the expected results in the short and medium term, while the measures we propose for the second type of participation – **influencing the design or creation of new instruments** – should have impacts in the medium and especially long terms, since they require a maturation of collective consensus and positions, both on the part of communities and on the part of the “benefiting” society or consumer of services provided.

7.2.3) Actions and measures to improve participation of rural communities in CES

~~EE~~ **Awareness-building and diffusion of information and knowledge:** in order for participation in CES to become a widespread social process, it is crucial to increase the level of knowledge about the functioning of CES instruments and processes, especially among members of communities where there is little awareness of these concepts;

~~EE~~ **Generation of relevant information and databases:** to address the lack of awareness described in the above point, accessible and high-quality information should be made available. The reality, however, is that there is a general scarcity of systematized knowledge to support the regulation, design and negotiation of CES instruments, and what exists tends to be imprecise;

~~EE~~ **Creation and strengthening of different forms of social organization and community associations:** this principally involves capacity for negotiation, credibility, influence in public policies, and logistics. Here it is useful to mention the role of watershed committees and partnerships with NGOs and government agencies;

~~EE~~ **Training and capacity-building of leaders, especially in terms of administrative management, commercial negotiations, and technical specifications of mechanisms:** leaders and representatives are the point of contact between different communities, and between communities and other institutions. They tend to have higher level of technical knowledge and political experience than other members of associations and communities in terms of CES issues, and also should know how to communicate with the grassroots and with other institutions;

~~EE~~ **Refinement of institutional structure:** many of the problems of implementation and functioning of CES instruments, and of environmental policy in general, results from an inadequate or inappropriate institutional structure, which has little flexibility and is very bureaucratic, or does not allow for meaningful participation and thus lack credibility;

~~EE~~ **Regularization of land title and ownership:** this is one of the most important factors for

CES, and at the same time one of the most complicated to resolve in the Vale do Ribeira. Regularization of land ownership, not necessarily implying ownership of land, has the role of creating a stable relationship between a population or community and the territory where they carry out their activities and over which they exercise control. If someone wishes to claim the "rights" to the environmental services produced on their land, they must demonstrate in some manner the link between the service and the community that provides it. Finally, there are some CES instruments that require the guarantee of sufficient control over a territory to ensure that it produces particular environmental services over the medium and long terms;

- ✍✍ **Proposals for changes to the legal structure:** participating in the development of and proposing changes to the legislation and regulations that govern CES processes is one of the activities that requires a higher level of technical knowledge and citizen action, but this activity can achieve the best results in terms of the effectiveness of community participation in CES. Participation in changing rates, parameters and forms of participation regulated in specific laws, as well as the regulation of CES markets, can achieve great advances in existing and potential instruments in the Vale do Ribeira.
- ✍✍ **Facilitating economic activities** that contribute to the provision of environmental services and on a sufficient scale to meet the requirements of specific instruments for each case;
- ✍✍ **Capacity-building in management of participatory processes:** principally involving conflict resolution, consensus-building and political negotiations.

8) REFERENCES

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9) ANNEXES

Annex I	Glossary
Annex II	Vale do Ribeira Case - Study of Vitae Civilis
Annex III	Gurupá Case - Study of FASE
Annex IV	Acre Case - Study of IMAZON
Annex V	Jaú National Park Case - Study of FVA
Annex VI	Chico Mendes Law
Annex VII	State Law 8510/93 for Ecological ICMS Tax in SP
Annex VIII	Federal Law 9433/97 for Charges for Water Use
Annex IX	Bill 0676/00 for Charges for Water Use in SP
Annex X	Terms of Reference for the 2 nd Stage of the
Annex XI	Cooperation Agreement between Brazilian partners
Annex XII	Types of Conservation Units and Legal Aspects
Annex XIII	Orientation Guide for Case Studies
Annex XIV	Agenda for working meeting for preparation of final