

***Tranquilidad* and Hardship in the Forest**

**Livelihoods and Perceptions of *Camba* Forest Dwellers
in the Northern Bolivian Amazon**



Ariënne B. Henkemans
PROMAB Scientific Series 5

The Programa Manejo de Bosques de la Amazonía Boliviana (PROMAB) is an international research, training and extension program advancing the sustainable exploitation and management of timber and non-timber forest resources in northern Bolivia. PROMAB is a joint effort of the Instituto Para el Hombre, Agricultura y Ecología, the Universidad Técnica del Beni, Bolivia, and Utrecht University, the Netherlands.

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Tranquilidad and Hardship in the Forest: Livelihoods and Perceptions of *Camba* Forest dwellers in the northern Bolivian Amazon

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***Tranquilidad* and hardship in the forest**
Livelihoods and perceptions of *Camba* forest dwellers
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***Tranquilidad* en ontbering in het bos**
Bestaansbronnen en percepties van *Camba* bosbewoners
in de Noord-Boliviaanse Amazone
(met een samenvatting in het Nederlands)

Tranquilidad y sufrimiento en el bosque
Recursos de sustento y percepciones de las *Cambas*
en el bosque de la Amazonía Boliviana
(con un resumen en Español)

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To Erwiges

“Fighting against mosquitoes and loneliness in the Ecuadorian Amazon Erwiges vaguely heard the call-note of Ariadne who was about to lose her way in the northern Bolivian forest. Without doubt he took up his arms and hurried to save her. Ariadne will be grateful to him for the rest of her life.”

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Guayaquil, October 2001

CHAPTER 1

INTRODUCTION

The airplane from Trinidad to Riberalta flew for more than an hour over a vast tropical rainforest. The forest was one giant green carpet interrupted only by small brown stains indicating pastures and agricultural fields. It was difficult to believe that deforestation would be the main problem in this region to justify the numerous NGO projects, international funding and ongoing scientific research. While passing the small and isolated settlements in the forest and the 'barrios populares' of Riberalta, I realized that it was not the lush vegetation that was suffering here, but the people living in harsh conditions and deprived of basic services.

Diary, 21 October 1996

1.1 The northern Bolivian forest region

The Northern Bolivian Amazon is a semi-evergreen tropical forest region covering an area of about 100,000 square kilometers bordering Peru in the west and Brazil in the north and east. It is part of Bolivia's tropical lowland and encompasses the five provinces of the Pando Department, the Province of Vaca Diez (Beni Department) and the northernmost part of the Province of Iturralde (La Paz Department). Figure 1.1 shows a map of the region including the two settlements Teduzara and San Antonio, where the mayor part of this study took place. The region has an estimated 160,000 people, of whom five percent are Indian, while the large majority consists of Amazonian *mestizos* - referred to as *Cambas*.¹ These people are the offspring from mixed marriages between extra-regional immigrants who came to the region during the rubber boom around 1900 and the traditional Indian population, and will be the main focus of this study.

Currently almost two thirds of the regional population lives in the three principal towns, Riberalta, Guayaramerín and Cobija (INE, 1992a and 1992b; MDSMA, 1996:26f).² A third lives in the rural areas, as laborers in one of the 300 forest concessions referred to as *barracas*, or as peasants in one of the 400 independent communities. They derive their livelihoods from a combination of forest extraction, semi-subsistence agriculture and wage labor. In the *barraca*, these activities are controlled and the benefits monopolized by the owner - referred to as the patron - while in the communities the households have independent production systems and are organized into grassroots organizations such as the village council or *Organizaciones Territoriales de Base* (OTB) (see Chapter 3).

¹ The term *Camba* is believed to originate from the Indian Guarani word meaning, 'friend' (Stearman, 1985:20). According to Jones (1984:64), the socio-political elite of the Oriente uses the term with the connotation of rude, rustic, or hick.

² Riberalta counts around 60,000 inhabitants, Guayaramerín and Cobija each 20,000 (INE, 1997e in Stoian, 2000b).

The region has a forest-dependent economy that is currently based on Brazil nuts and is able to keep traditional colonization with an advancing agricultural frontier out of the way. A long history of extractive activities, which are typically cyclic, have created a 'hollow frontier' in the forests of the northern Bolivian Amazon (James in Volbeda, 1984). Waves of forest product exploitation – of products such as Peruvian bark for the anti-malaria drug quinine, gold, rubber and palm heart - have attracted laborers as well as outside investors and merchants who developed the infrastructure and exploitation systems for the extractive products and then left when the market collapsed. Typically these boom to bust cycles have given way to the development of differentiated settlement structures and specific land-use patterns that have evolved and influenced the inhabitant's livelihoods until today.

The boom to bust cycle of rubber production has been most crucial for the current demographic and socio-economic situation of the region. The rubber tappers who came to the region during the boom period have for a century been able to maintain their forest livelihoods based on the exploitation of this product. Since for more than a decade rubber tapping has been no longer economically viable, and this has resulted in a strong process of urbanization. Consequently Riberalta's population doubled between 1986 and 1997 putting much strain on the urban system, causing unemployment and poor living conditions (Van Beijnum, 1996; Verheule, 1998).

At the same time the forest has become very sparsely populated and tends to be monopolized by large concession holders who do not give due credit to the diverse resources the forest offers for rural development. Although the urban population still largely depends on forest extraction with the seasonal collection and processing of forest products such as Brazil nuts, they are deprived of other (potential) benefits of the forest.

A positive consequence of the low population pressure on the forest is the maintenance of its vegetation cover. Deforestation rates in the Bolivian tropical lowlands are considered low by international standards with less than 0.2 percent of its Amazonian forest cleared each year between 1985 and 1990 and a total loss of only 5.6 percent by 1990 (Kaimowitz, 1997:537). So far, the conversion of forest into other forms of land use has not been extensive in the region with the exception of areas along the Brazilian border (Keizer, 1993:40). About 94 percent of the forest is still intact, 3 percent is under forest fallow, and another 3 percent has been cleared for arable land and pasture (Beekma *et al.*, 1996:53). These figures contrast sharply with the higher rates in adjacent Brazilian states of Acre and Rondônia, where small colonists and large-scale ranchers have massively converted the tropical forest into agricultural fields and pastures (Harcourt and Sayer, 1996).

Factors and processes explaining the difference have to be sought in various sectors and socio-economic and political domains. The currently low pressure on the forest in the northern Bolivian region and no pronounced colonization frontier has much to do with the low population density, absence of a colonization policy, limited accessibility, and distance from major markets. Other explaining factors are the type of forest products com-

mercialized, the category of forest dwellers present in the forest, and their actual modes of resource use (Kaimowitz, 1997; Byron and Arnold, 1999).

A growing threat to the forest in the northern Bolivian region comes from forest degradation associated with logging, potentially followed by different forms of agribusiness. With the expansion of the logging industry in the last few years, deforestation in the country has increased significantly. Logging in Bolivia's lowlands is highly selective with low volumes of timber logged per hectare and concentrated on a few valuable export species such as mahogany and cedar (Gullison and Hardner, 1993). But, since these species are near to extinct in the forests in the Santa Cruz department, logging companies tend to move further north towards Riberalta, at the same time exploring secondary timber species for commercialization and as such intensifying exploitation per hectare (Bojanic, 2001:112). In the meantime the logged-over forest in the Santa Cruz department is converted into agrarian land due to the expansion of large-farm soybean production, smallholders' shifting cultivation, and large-scale ranching (Kaimowitz *et al.*, 1999:3).

The concern of regional policymakers and development organizations is whether the future scenario of northern Bolivia will resemble that of Santa Cruz and of the Brazilian Amazon, or that more sustainable development scenarios are viable based on the characteristics of the region and the resource use strategies of its inhabitants. In the first case the forest dwellers become involved in the process of excessive logging and forest conversion with mainly short-term benefits or will choose an urban livelihood and give free play to the large concession holders. In the latter case they are able to maintain and develop more sustainable forest management practices and improve their livelihoods while preventing forest extraction companies from degrading their resource base. This study aims to shed some light on the probability of each scenario based on current livelihood strategies of the regions' *Camba* forest inhabitants.

1.2 Forest dwellers in the tropical forest

1.2.1 Interpretations of the scope for sustainable forest livelihoods

Over the past two decades, concerns about the fate of tropical forests and increasing rural poverty have converged towards the issue of sustainable livelihoods in the forest fringe.³ Scientists and policymakers have joined forces to understand forest dwellers' development strategies and the prerequisites for sustainable forest livelihoods. Their reasons are their interest in the specific cultures and livelihoods of these people, as well as their motives and incentives for certain modes of forest use. The challenge is to find out if the development of certain forest livelihoods is compatible with sustained forest use and under which circumstances. With growing pressure on worldwide natural resources and shrink-

³ Livelihoods are sustainable when they are resilient in the face of external shocks and stresses and can maintain their capabilities and assets to fulfill peoples' self-defined needs both now and in the future; while not undermining the natural resource base or the livelihood of others (based on Carney, 1998:4; and De Haan, 2000:13).

ing tropical forest areas, this interest has increased and different paradigms and schools have developed in the study of forest dwellers and their role in forest degradation and management.

What is striking in the scientific and policy-related discourses concerning the forest is the dichotomy between the numerous pessimistic voices and those making optimistic sounds. Although this often may depend on the specific features and location of the case studies, it is also related to fundamental differences in viewpoints. A pessimistic view hinging on the alarming deforestation figures, and the increasing commercial and demographic pressure on the forests, easily results in the conclusion that “the glass is half empty”, that forest dwelling people are destructive and that dramatic forest degradation is inevitable. A more optimistic point of view believes “the glass is still half full” with knowledgeable local forest managers, successful initiatives of primary forest protection and a recovering secondary vegetation in old frontier areas (cf. Anderson, 1990; Amanor, 1994; Fairhead and Leach, 1996; Rodrigues, 1996). In fact every tropical forest region has examples of forest destruction, as well as success stories of sustainable managed forest areas. This dichotomy is reflected in numerous discussions between those emphasizing and confirming processes of forest degradation and those turning the spotlight on the successes of sustainable forest management initiatives.

Without doubt these different perspectives and discussions contribute to our understanding of the complexity of the often-problematic relation between people and forests, and help to find solutions. They enable analysis and comparison of distinct cases and scenarios. Moreover, they reveal the various factors and processes at play, and the different actors involved. In my opinion, however, success stories deserve special attention and optimism is required to reveal conditioning factors and incentives for sustainable forest livelihoods, and to discover potential solutions to forest degradation. Often the pessimistic, market-related and product-oriented perspective, including the ‘political ecology’ approach, tends to result in doom and gloom scenarios about the future of forests, their products and inhabitants. According to these scenarios, forest products tend to lose their value for forest dwellers due to processes of substitution and overexploitation, and sustainable development of forest livelihoods based on forest management is not viable (for an overview see Schmink and Wood, 1987; Browder, 1995; Durham, 1995; Homma, 1996; Place, 1998). Such scenarios leave little interest or room for optimism and for the development of policies that could slow down forest degradation and stimulate sustainable forest management (Cleary, 1993).

More optimistic approaches on the other hand, highlight the successful initiatives of local forest management by forest dependent people and the institutions and organizations that support them (e.g. Poffenberger, 1990; Redford and Padoch, 1992; Robinson, 1999; Wolverkamp, 2000; Stott, 2000). These approaches link the maintenance of livelihoods and development of forest dwelling people to forest management and search for (potential) complementarities. Studies with such focus provide us with a more positive picture of the future of the forest, and with starting points and recommendations for policy devel-

opment and forest management. They enable us to find out in which circumstances forest livelihoods are sustained while the forest resource base is maintained; or in other words to define the prerequisites for sustainable forest livelihoods.

The Bolivian Amazon with its long history of forest exploitation and low deforestation is an interesting case for a diachronic study of forest-people relationships and for an assessment of possible future scenarios. Such an analysis can contribute to a) determining different categories of forest users and forest-people relationships in the region; b) insight into the dynamics and distinguished phases of these relationships; c) understanding the prerequisites, incentives and constraints for sustainable forest livelihoods, c) recommendations for an adequate analytical framework for forest livelihoods and d) the development of policies that support the sustainability of such livelihoods.

1.2.2 People – forest relationships

For millions of rural people and many urban households in developing countries, forest-related activities are an integral part of their livelihood activities and strategies and provide their main income source. These activities go beyond the mere gathering of forest products for subsistence and include important social, spiritual and income-generating aspects. Estimates of the numbers of people involved range from a few millions to one billion according to the definitions used and the degree of forest dependence (Byron and Arnold, 1999:789).⁴ From the perspective of forest management the quantification of people involved with forest use seems to be less relevant than their qualification into different categories based on the role of the forest within their livelihoods. Namely, differences in degree of forest dependence go along with distinct strategies of forest use and long-term management. In this sense forest dwelling people are expected to make more intensive use of forest products and to have the greatest impact on the resource base.

Until recently, the main distinction was made between indigenous or traditional forest dwellers and migrant forest colonists invading the forest. The first category of people depends almost entirely on the forest environment for their livelihood, practicing hunting, gathering and small scale shifting cultivation. These indigenous forest dwellers have received the majority of attention from researchers and environmentalists, especially since the 1980s, when culture, ethnicity and identity became fields of interest in studies on natural resource management. The reason is that they have long been seen as the best managers of the forest due to their intimate knowledge of the forest environment, their cultural dependence on its resources and many generations of harmonic co-existence with the ecosystem. Anthropological studies have provided several classic examples of indigenous people developing cultural institutions and customs that function to conserve the resources they rely on (e.g. Posey, 1985 and 1989; Clay, 1988).

However, critical studies based on economic theory, evolutionary theory and foraging theory have demonstrated that the assumed harmony is often biased and not resistant

⁴ At one extreme stand the studies that refer to people who are totally dependent on the forest for their whole livelihood, while other estimates count anyone who makes use or gains income from tree products.

to 'modernization' and demographic and technological development (Alvard, 1993; Redford and Stearman, 1993; Stearman, 1994). The shrinking of their numbers over the past centuries, due to advancing colonization frontiers, expanding urbanization and concurrent 'modernization' and acculturation, has considerably diminished indigenous peoples' overall influence on the world's forests (Persoon, 1994). In addition, the concomitant decline in forest areas and restrictions in access to forest resources have proven to be very disruptive for these traditional users of the forest and have rendered their resource management practices obsolete (Arnold, 1998).

Consequently, other categories of people drawing upon forest resources have taken the upper hand in their exploitation, increasingly determining the fate of the forest. Among these people are agrarian colonists in search of arable land. Their main strategy is to become independent from the forest wilderness and convert it into agrarian land or pasture through excessive slash and burn agriculture. This group of forest dwellers is highly represented in the Brazilian Amazon but largely absent in the northern Bolivian Amazon.⁵ A category of forest dwellers that is heavily represented in the region is that of primary forest migrants or shifting cultivators (and extractivists), who entered the forest in search for a better livelihood several generations ago. In the northern Bolivian Amazon these multi-ethnic forest immigrants are referred to as *Cambas*, which is the equivalent of *Caboclos* in Brazil and *Ribereños* in Peru (Harris, 1998:86; Chibnik, 1991). Until recently this group of people has received little attention in anthropological studies or in studies of forest management, resulting in an underestimation of their potential as defenders of the forest (Parker, 1989; Nugent, 1993; Henkemans *et al.*, 2001).

Together with the colonists, these migrants are considered in many countries as the main culprits in the degradation of forests into unproductive shrub- or grasslands. They are thought to lack knowledge of their new settlement area and of suitable agro-ecological practices, and are expected to have no long-term vision of forest resource use (see Pelzer, 1978; Dove, 1983; Brown & Schreckenberg, 1998).

Although, little systematic information is available to refute these common assumptions, various examples exist that show that they do not hold true everywhere (Fujisaka and Wollenberg, 1991; Hiraoka, 1992; Padoch and de Jong, 1992; De Jong, 1995; Henkemans *et al.*, 2001). Many variations exist in the way pioneer migrants exploit and farm their forest environments and several of their land-use practices do not necessarily involve ruthless exploitation of natural resources. On the contrary, due to intermarriage with indigenous people and generations long experience with hunting and gathering activities, shifting cultivation and agroforestry, the livelihoods of this group of people have, in many cases, become highly adapted to and dependent on the forest.

A recurrent question in the analysis of forest livelihoods is whether cases of sustainability are a matter of (a temporal) coincidence of favorable factors, or deliberate behavior of the forest dwellers involved, based on an environmental awareness and a long-term appreciation of the forest as a resource base (Alvard, 1993). Many forest dwell-

⁵ Such colonists recite in Bolivia along the agrarian frontier near Santa Cruz and hardly reach the northern region (Zoomers, 1997:61; Kaimowitz, 1997:537).

ers might be ready to convert the forest into pastures and escape from their forest livelihood if the option was within their reach. For this reason it is crucial to thoroughly understand peoples' livelihood development objectives and their motives for forest resource management. This insight is lacking among researchers as well as policy-makers. Although anthropologists extensively study peoples' past and current livelihoods, minor attention is given to their development goals and outlook for future possible action (Persoon and van Est, 2000:7). An analysis of views on the future and livelihood ambitions of forest dwellers can support anticipation of where forest dwellers are heading and their reasons for doing so. It provides a basis for policy development and interventions to enhance sustainable forest livelihoods and forest management (see Arnold, 1998 and Byron and Arnold, 1999:790). This study aims to provide such a basis by analyzing the livelihoods and development objectives of *Camba* forest dwellers in the research area.

1.3 Problem situation

1.3.1 Development of the Amazon and its people

Many agencies and scientists concerned with Amazonian development have studied and discussed the twofold problem of the Amazon: degradation of its resources and poverty of its inhabitants. Awareness grows that solutions have to be sought in the maintenance and sustainable development of the rich diversity of natural and human resources of the region (Anderson, 1992; Moran, 1993; Allegretti, 1994). All the proposed solutions stress that any type of development policy has to be carefully integrated into the particular cultural settings, interests and local knowledge systems of the forest dwelling population, otherwise they will not be effective (Dufour, 1990; Bennett, 1993; Kainer and Duryea, 1992). The search continues for adequate legal and socio-economic frameworks adapted to particular regions, where sustainable development can take root. However, one of the prevailing bottlenecks for implementation is not only a lack of means, but also a lack of insight into the factors that influence the social-economic reality of forest dwellers and their particular livelihood assets and development strategies. Understanding these specific aspects of forest livelihoods would enable policymakers and development workers to better adapt their plans and activities to regional or local requirements and develop potential for sustainable development.

1.3.2 Policy solutions in the northern Bolivian Amazon

For policy makers and development organizations in the northern Bolivian Amazon, the challenge is to reverse the process of urbanization and create the conditions for sustainable forest livelihoods. Several local development organizations have decided that revitalization of rural communities and a better division of the benefits of forest exploitation form the solution to tackle actual problems. An important argument for this strategy is the high degree of poverty among immigrants in the urban popular neighborhoods and a stagnant rate of development of the urban labor-market and services (Van Beijnum, 1996; Verheule,

1998). At the same time, the vast stock of timber and non-timber resources in the forest constitutes a rich base for peoples' subsistence, and the main potential for development due to its considerable value in the export markets. In the last decade, new legislation and successful certification programs have stimulated a more sustainable management of timber resources, but still a great deal of logging is unsustainable and only benefits a small group of logging entrepreneurs (BOLFOR, 1997; FSC, 2000; Bojanic, 2001). Since non-timber forest products (NTFPs) such as Brazil nut involve and benefit a larger number of forest dwelling people and urban laborers, certification of such trading products and 'democratization' of the markets is expected to be more viable and profitable for rural development (cf. DHV, 1993b:36; CFV, 1999).

Rural development projects in the region are based on: safeguarding forest dwellers' control of their natural resources and commercial benefits; bringing social services to the communities and; developing alternatives to migration and the overexploitation and conversion of the forest. State departments and NGOs have established projects for the legalization of land rights, agricultural diversification, community organization and forest management (Beekma *et al.*, 1996; Beijnum, 1996). These projects are supported by a decentralization of rights and responsibilities to local governments and grassroots organizations, which are expected to democratize decision-making on development and resource use and distribute benefits more equitable (Kaimowitz *et al.*, 1999:1). Partly due to a lack of systematic understanding of rural processes and the livelihood capitals, activities and perceptions of different groups of forest inhabitants, there is little insight into the effects of these interventions and their potential to contribute to rural development and sustainable forest management (*ibid.*).

According to Assies (1997a:73) the expectations of sustainable livelihood development based on extractivism are too high in the Bolivian Amazon. Drawing on a 'political ecology' approach and his analysis of the developments in the Brazilian Amazon, his prognosis for such livelihood development is pessimistic. He observes a process of 'vertical integration' in northern Bolivia in which the Brazil nut processing industry takes control over the whole chain of production, and forest dwelling people gradually lose their benefits of and interest in extraction of such forest products, leading to more forest conversion. Stoian (2000:284), however, confirms a process of 'democratization of the Brazil nut economy' during the past five years, in which the price for raw Brazil nuts doubled, the number of independent communities increased at the expense of *barracas*, and the forest dwellers' share of the export value rose. Such an increase of forest benefits would be expected to enlarge peoples' interest in long-term forest extraction and the development of forest livelihoods.

Present developments in the area as well as the divergent interpretations of their consequences give reason for investigating the livelihoods of current forest dwellers and their future perspectives of forest extraction. In order to be able to estimate the potential role of forest extractivism in rural development in the research area, it is necessary to understand the role of the forest in people's livelihood and determine their interest in either long-term forest use, or forest conversion, and/or urban migration. In each case the forest and its re-

sources play totally different roles in the livelihood and development strategies of the people, and are expected to stimulate divergent modes of resource exploitation.

1.3.3 *Problem definition and research questions*

This study investigates the livelihood assets of *Camba* forest dwellers in the northern Bolivian Amazon and the peoples' perceptions of the role of the forest in their development. The aim is to determine the scope for sustainable forest livelihoods in the region from the perspective of *Camba* forest-dwelling people and their livelihood objectives and based on long-term forest management practices. The study focuses on the different components of the peoples' livelihoods and the contribution of the forest in the form of assets and services. The way the people themselves explore and perceive the opportunities and constraints of the forest for current and future development of their livelihoods remains central. The study specifically raises questions about the background, options and motivations of these main actors involved in forest exploitation and the ways they combine their involvement with other economic activities in rural or urban areas. Furthermore, it takes into account the facilities available for the sustainable management of forest resource, in the form of favorable institutions for commercialization of resources and control of the benefits derived.

The main research question is:

What is the scope for sustainable forest livelihoods in the northern Bolivian Amazon from the perspective of Camba forest dwellers and their livelihood objectives and based on long-term forest management practices?

The following specific research questions are addressed:

- What are the characteristics of current forest livelihoods in the region and until what extent do they fulfil people's livelihood objectives?
- How do the *Camba* forest dwellers classify and harness the benefits of the forest and cope with its drawbacks as a natural resource base?
- How does the forest livelihood affect the households' human resource development?
- To what extent are the forest dwellers able to develop forest resources into durable production systems and physical capital?
- What is the forest's contribution to their household economy?
- How is the socio-cultural identity of the *Cambas* related to the forest and what are the consequences for their social well being and security?
- Which external factors and processes support and undermine the sustainability of the forest dwelling livelihood?
- To what extent and under which circumstances are improvements of this livelihood compatible with sustainable forest use?

1.4 Methodological issues

1.4.1 *Programa Manejo de Bosques de la Amazonía Boliviana (PROMAB)*

The present study was conducted within the framework of *Programa Manejo de Bosques de la Amazonía Boliviana* (PROMAB). This is an international research, training and extension program advancing the sustainable exploitation and management of timber and non-timber forest resources in northern Bolivia. It is a joint effort of the *Instituto para el Hombre Agricultura and Ecología* (IPHAE) and the *Universidad Técnica del Beni* (UTB) in Bolivia, and Utrecht University in the Netherlands. The program receives financial support from the Dutch Ministry of Development Cooperation (DGIS) and analyzes options for multi-purpose forest exploitation as a strategy to integrate sustainable forest management and rural development in the northern Bolivian Amazon. The main goal of the program is to improve the living conditions of forest-dependent people in the region, through the sustainable use and conservation of their forest and forest resources. PROMAB activities commenced in 1995 and have included forest-ecological and socio-economic research, extension, technical assistance and training of the region's forest users, with emphasis on farmers and rural communities, training of forestry students and the dissemination of information to forest users and governmental bodies responsible for the implementation of the forest law.

1.4.2 *The Sustainable Livelihood approach*

The main methodological approach drawn upon for this study is the 'Sustainable Livelihood approach'.⁶ This approach is a tool for the analysis of livelihoods, their essential components (including natural, human and social resources), and external factors and structures that act upon them (see Chapter 2). It has recently been adopted by various international agencies and donors involved with poverty alleviation (e.g. DFID, FAO, UNDP) and is used in rural as well as urban development programs. It is a follow-up of former development approaches that were mainly based on economic theories and concepts, and integrates other analytical concepts such as social capital, culture, gender and farming systems (Appendini, 2001:24). It is an approach that enables a holistic and flexible analysis of the complex livelihoods and household strategies of poor people, and helps to understand their realities and needs (Zoomers, 2001:16). Based on such understandings it is expected that more adequate policies can be developed to reduce poverty.

The SL-approach combines issues of poverty and resource management in a unique way, covering all the assets and factors that influence people's decision-making. This makes it a valuable tool for the analysis of forest dwelling livelihoods in the context of sustainable forest management programs. However, there are few examples of such an application of the approach.⁷ For this reason the approach needs further exploration, in-

⁶ The concept of 'Sustainable Livelihood' has been developed by DFID as a normative concept with the aim to improve the lives of poor people and to strengthen their sustainability (Carney, 1998:4).

⁷ CIFOR recently started using the approach in the study of deforestation and forest management processes and is about to publish the results (Sayer, personal comment, 2000).

cluding the concepts and the special issues involved with the development of forest fringes (see Chapter 2). The approach, and especially the assets pentagon, has been the main tool for structuring and analyzing the empirical data collected for the purpose of this study.

1.4.3 *Fieldwork and research methods*

Fieldwork for this study took place from 1996 to 1998 and involved surveys and case studies at different social-organizational levels and in different agro-extractive seasons. It started in 1996 with a pilot study of two months followed by nine months of research, which included the Brazil nut season from December until March 1997. During that period, an extensive regional survey took place at the community-level, on which basis the *barraca* Teduzara and the community San Antonio were selected for household-level surveys and in-depth case studies. The larger part of this book is based on these two cases. The second research period in both settlements was conducted from October 1997 to May 1998, covering a second Brazil nut season and a planting and harvesting season of staple crops. Final data gathering took place during a four-month period at the end of 1998, including the season of slash-and-burn activities for the preparation of agricultural fields.

The community level regional survey was conducted in order to get a reasonable picture of the different settlement types and production systems in the region (see Chapter 3) and to select case studies that are with respect to the research problem representative for the region (see Chapter 4). The survey was performed in collaboration with my colleague Dietmar Stoian, and consisted of visits to 163 rural settlements along the main roads and rivers in the seven provinces of northern Bolivia. The sample contained, in the first place, road-based settlements between Riberalta and Cobija, along the road Riberalta-Guayaramerín-Cachuela Esperanza-Riberalta and various side-roads in the Province of Vaca Diez (see figure 1.1). Secondly, river-based settlements were visited along the Madre de Dios River (between Riberalta and the confluence with the Sena River), along the Beni River (from the confluence of the Orthon River until the mouth of the Biata River), and throughout the lengths of the Manupare and Orthon Rivers. Settlements from those a few minutes drive from a town up to those seven days upriver by regular transport were all included.⁸

Semi-structured and structured interviews and group discussions were held with representatives such as elected or appointed village leaders in the case of the independent

⁸ The sample of 163 settlements - out of the total of 700 rural settlements in the region - can be considered fairly representative for the following reasons. (1) The total number of households covered in the survey is 3,737 households, representing about 22,000 people, which is equivalent to half the regional rural population. (2) All the different types of settlements existing in the region are included in the survey except for military bases, individual farms (*granjas*) and cattle ranches (*estancias*). These three types of settlement are not wide spread and have a rather small population and limited importance for forest product extraction. Settlements recently founded by individual squatter families have also been excluded due to their limited numbers. (3) Along the selected rivers and roads, all the settlements were surveyed except some remote settlements several hours walk from a river. The latter are under-represented in the sample (cf. Stoian, 2000b).

communities and patrons, administrators or caretakers in the case of the *barracas*. Information was gathered on geographical, demographic and organizational issues, as well as on the main productive activities, social services and internal and external development interventions. The data were processed and analyzed by means of an extensive database and formed the basis for Chapter 3 of this book and for the thesis of Stoian (2000b).

From the settlements surveyed two were selected for deeper analysis: a middle-sized and easily accessible community (San Antonio) and a middle-sized *barraca* only accessible by road during the dry season and by boat during the other half of the year (Teduzara). They represent the two main types of forest settlement identified in the region in terms of their number and development potentials. At the same time they are two very distinct cases based on the organization, infrastructure and livelihoods of their inhabitants (see Chapter 3 and 4). The *barraca* Teduzara is nine hours by boat from Riberalta and has a relatively dynamic patron and a diverse composition of inhabitants who work as laborers in different production systems. The low number of permanent inhabitants (40) is characteristic for *barracas* run by town-based enterprises. The community San Antonio is an agro-extractive community, which makes up one of the largest categories of the independent communities. Its 271 inhabitants - commonly referred to as *campesinos* - practice autonomous agriculture and extractivism, which are the two main activities in these communities.⁹ People also have a range of other income opportunities that are typical for the region such as wage labor, including seasonal nut harvesting in a *barraca* during the *zafra*, and care taking on large estates. Moreover, San Antonio has a good infrastructure and lies along a reasonable feeder road forty minutes drive from Riberalta where the *campesinos* can sell their products.

In the two selected settlements, research has focused on peoples' livelihood strategies through a household-level survey of their economic activities, participant observation of daily activities, semi-structured and informal interviews with key-informants and the recording of oral histories. Other methods used were transect walking and product identification, village and homestead mapping, and group discussions with men, women and children. Moreover, photos were used to discuss peoples' perceptions of various livelihood issues and several children and adults produced drawings of their desired future.

A survey of peoples' plant knowledge and use was conducted among a sample of 21 persons spread over the two settlements and based on peoples' (distinct) knowledge of plants, age, year of settlement in the area, experience, and gender. Questions were related to the identification of useful plants, the purpose of use, potentials and obstacles in the exploitation and commercialization of the products, and initiatives to improve the benefits through resource management. The economic household survey conducted in both settlements resulted in an extensive database on the productive activities of a sample of 38 families. Data were collected on the type of activities and products, the people involved, the production costs and benefits and the revenues derived in cash or in kind.

⁹ The term *campesinos* is preferred above the English term 'peasants' for the reason that the last term emphasizes an identity of small agricultural producers, not giving due credit to the forest dwellers' dependence on forest extraction.

Much attention has been given to socio-cultural issues such as peoples' beliefs and underlying socio-cultural perceptions and concepts. Compared to economic parameters these do not generate hard figures, but actually influence considerably peoples' livelihoods, decision-making and welfare. Therefore, the starting point of the research is fundamentally '*emic*' in the sense that it really wants to capture what forest dwellers themselves consider as vital for their livelihood. For this purpose, the culturally embedded notions of '*tranquilidad*' and '*sufrimiento*' have been the main starting points.¹⁰ The '*etic*' component consists of the researchers personal and academic analysis of these interpretations and the actual interaction of the forest dwellers with the natural resources. In addition, it elaborates on the economic value in the market place of the main forest products for the different categories of forest users.

1.5 Structure of this study

The second Chapter of this study develops a conceptual framework for the analysis of forest livelihoods. It explores the concepts of livelihood and livelihood strategies, including the five assets or "capitals" that are vital for the development of a rural livelihood. Furthermore, an overview of the main debates related to forest dwelling populations reveals the opportunities, pitfalls and bottlenecks of sustainable livelihoods, extractivism, forest management, and the management of common property resources.

A general description of the research area, its history of forest extraction and the current transformation of forest settlements is presented in Chapter 3. It includes the different categories of forest settlements and forest users and the organizations and institutions involved in rural development. In Chapter Four, the settlements, Teduzara, San Antonio and Trinidadcito, are presented in detail including the background of their inhabitants, their livelihood capitals and the infrastructural and institutional context.

The Fifth Chapter elaborates on the forest dwellers' access to, categorization, and use of the forest resources. As such, it gives an insight in the natural capital on which the forest dwellers base their livelihood. It goes further than a 'catalogue approach' with mere lists of products and addresses issues of varying value and peoples' preferences in forest use and conversion. Chapter 6 discusses the material and economic value of the forest for subsistence and income generation. It analyses and calculates the main commercial and subsistence benefits and how people combine them in order to gain cash and satisfy their basic needs.

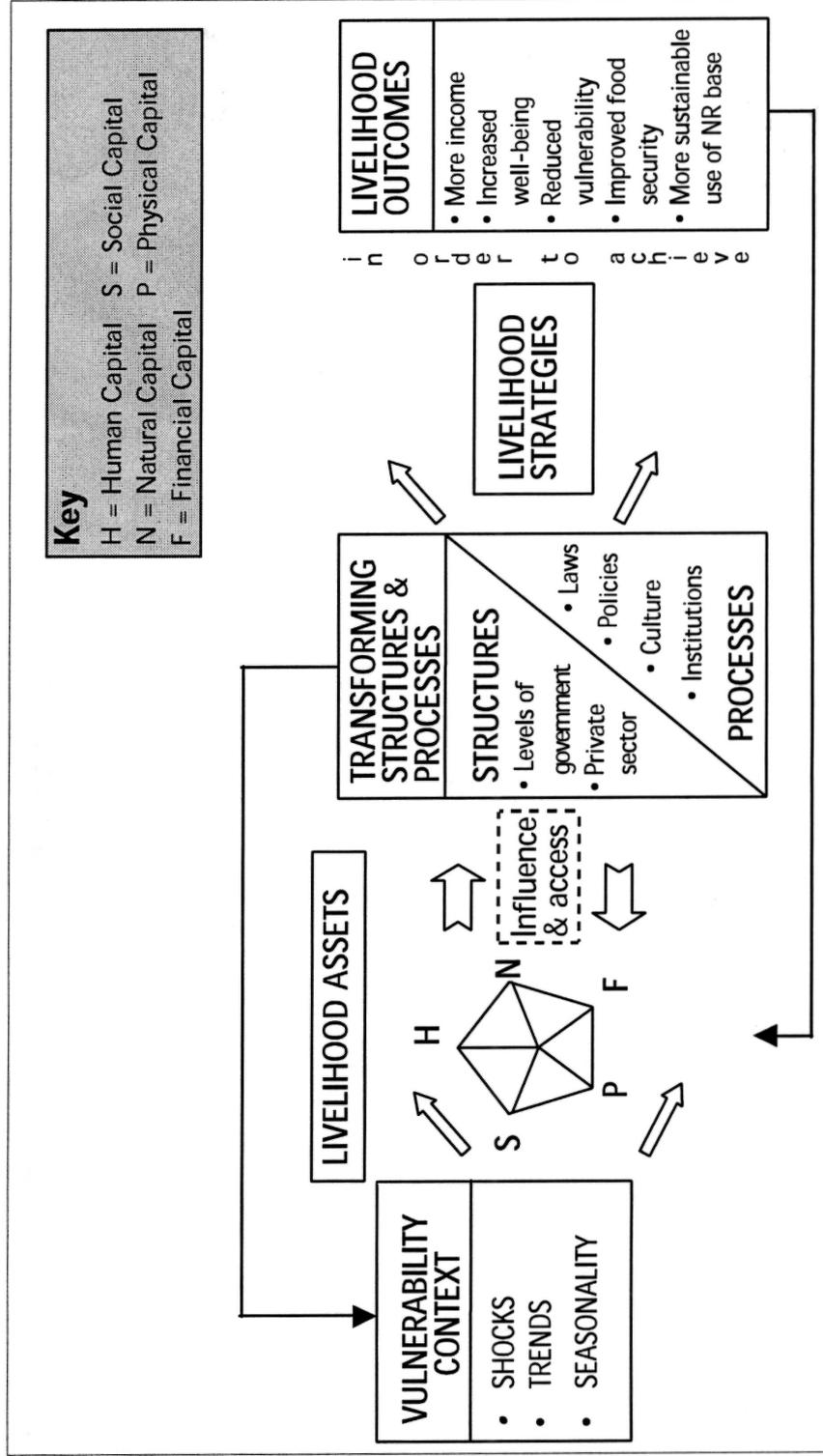
The Seventh Chapter defines the socio-ethnic category of the *Camba* and discusses the social aspects of the forest livelihood and the contribution of the forest to the forest dwellers' socio-cultural well-being. It outlines the important terms in forest dwellers' perceptions, attitudes and beliefs towards the forest and their present identity building based on a life as *campesinos* living in an independent community or dependent *barraca* laborers.

¹⁰ *Tranquilidad* is a Spanish term commonly used to express a positive feeling of being at ease. *Sufrimiento* is a Spanish term locally used to refer to a negative feeling of hardship and suffering.

Chapter 8 highlights important concepts that have emerged from the previous chapters and are determining for the development of sustainable forest livelihoods in the region. In the first place, *Camba* peoples' quest for *tranquilidad*, which is intrinsically linked and opposed to the way people suffer, is considered as an important driving force of livelihood strategies. Secondly, peoples' perceptions of the role of the forest in their future livelihood development shed light on current forest use. Finally, the viability of social action in sustainable forest management becomes clear through investigating the potential for social organization and common resource management in prevention of forest degradation by outsiders.

The study will round up with conclusions on the potential for sustainable forest livelihoods and forest management in the region and the use of livelihood studies to discover such potential in forest areas. Hopefully, this study provides pointers for the further understanding of motives of forest users and for stimulating initiatives for sustainable forest exploitation.

Figure 2.1 The Sustainable Livelihood framework (source: Carney, 1998:5)



CHAPTER 2

**LIVELIHOOD DEVELOPMENT OF FOREST DWELLERS
AND
SUSTAINABLE FOREST USE**

“Inputs from forest and tree sources are typically small yet integral parts of rural household systems. This implies that the present and likely future importance of forest products must be looked at in the context of household systems as a whole – patterns of and trends in subsistence use, sources and allocation of household income, household availability and allocation of labor and land, etc.” (Arnold, 1998:163).

2.1 Introduction: Sustainable livelihoods in the forest

This chapter offers a conceptual framework for analysis of the livelihood of forest dwellers in the northern Bolivian Amazon and their relation with the tropical forest. The focus is on non-indigenous forest dwelling households, and their ability to develop sustainable livelihoods in the forest based on long-term forest management. An important factor that fosters management of forest resources is a diversified and flexible livelihood base for the inhabitants, stimulating an integrated multiple forest product management (Richards, 1997). Dependence of the livelihood's maintenance on forest products and services is expected to enhance a positive identification with the forest and its conservation. For this reason it is important to understand forest dwellers' livelihoods, their perceived needs and development strategies. The specific role of the forest within these issues can shed light on how people interact with the forest and what are their interests in the long-term management of its resources. It includes an analysis of the conditions necessary to establish a livelihood largely based on extractive activities and the available alternatives.

The literature on peasant livelihoods and livelihood strategies is mostly related to poverty, and options and limitations for sustainable rural development.¹ In general, scholars seek to explain poverty of rural households, stagnation of rural development and the consequences for peoples' natural resource use (see Reardon and Vosti, 1995; Scoones, 1998; Carney, 1998; Ashley and Carney, 1999; Bebbington, 1999). Some of the concepts and analytical frameworks used in those debates are also useful for the analysis of Bolivian forest dwellers' livelihoods and the role of the forest in the maintenance and improvement of these livelihoods.

¹ In this study, the category of 'peasants' refers to rural smallholders in general. Coomes (1996) refers to forest dwellers as forest-reliant peasants.

In forest areas with common tenure or property resources - which is the case in many forest fringes - one also needs to analyze peoples' group identity and informal social control, issues which have a particular influence on their division and management of resources (Rudel, 1995; Mishra, 1987).

The first part of this chapter is a general introduction of the concepts relevant to the analysis of forest dweller livelihoods and peoples' strategies to sustain and develop these livelihoods. The second part discusses existing scenarios of forest livelihood development, the main factors involved, and the consequences for forest management.

2.2 The Sustainable Livelihood Framework

The sustainable livelihood framework was elaborated by several development institutes for the purpose of analyzing and developing the livelihoods of poor rural households. It is an holistic framework which includes and conceptualizes both the internal and external components of such livelihoods in a dynamic model (figure 2.1). The current study has its main focus on the assets that lay at the basis of forest livelihoods in the research area and on peoples' desired livelihood outcomes, while the contextual factors and processes that influence this resource base get less attention. Nevertheless, for a better understanding of what livelihood is, this Section will shortly present the framework as a whole.

The term livelihood refers to peoples' way of living and working as well as the conditions under which they live, produce and reproduce. Livelihood is a complex concept and is constantly discussed and reformulated, but the definition that is currently most used by policy-makers is the following:

"A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living (Carney, 1998:2).

According to Ellis (1997: 4):

'A livelihood encompasses income – both cash and in kind – as well as the social institutions, gender relations, and property rights required to sustain a given standard of living. A livelihood also includes access to and the benefits derived from social and public services provided by the state [or NGO's] such as education, health services, roads, water supplies and so on.'

These definitions indicate that a livelihood is not synonymous with the income situation of people – a perception that has prevailed for a long time in studies on livelihoods and poverty (Ellis, 1998). Currently, it has become common knowledge that a livelihood encompasses other dimensions including ecological and socio-cultural aspects. Several scholars use a categorization of five types of "assets" or "capitals" needed to sustain a livelihood (e.g. Chambers and Conway, 1992; Chambers, 1995; Carney, 1998; Bebbington, 1999; Uphoff, 2000; De Haan, 2000).²

² Although it has an economic connotation the term 'capital' is the most appropriate to refer to available or claimed resources, tangible and intangible assets, as well as non-material opportunities of people (De Haan, 2000:15).

1. *Natural capital* refers to renewable and non-renewable natural resources such as land, water, forests, biodiversity, wildlife, pastures and minerals.
2. *Physical or produced capital* includes food stock, livestock, housing, equipment, tools, machinery, energy, infrastructure, drinking water, health care and education.
3. *Human capital* includes labor or the ability to work, health, skills, experience, knowledge, information, creativity and inventiveness.
4. *Financial capital* refers to saved money, loans, credit, subsidies, remittances and pensions.
5. *Social capital* concerns the quality of relations among people, and the social-cultural norms, values and institutions that regulate peoples' access to all types of capital and that shape mutual support and assistance.

The SL-framework, based on the various types of capital and external factors enables a holistic analysis of peoples' livelihoods and their strategies of maintaining and improving it. It supports the understanding of material as well as immaterial features of peoples' way of living. The capitals are not simply resources that are used to make a living; they also give people the capability to exist and to act. These assets give meaning to a person's world and shape his/her identity (Bebbington, 1999:2022).

Peoples' access to the five assets is determined and influence by structures and processes in the form of norms, policies, markets created by external actors such as the government and the private sector (Figure 2.1). In addition, rural livelihoods and their particular assets are effected by seasonal fluctuations in climate and natural resource availability, and by environmental, socio-economic and political shocks and stresses. A livelihood is in general considered sustainable when it can overcome such shocks and stresses, and maintain its assets and capabilities for future development; while not undermining the natural resource base or the livelihood of others (Carney, 1998:4; DFID, 1999).

Another important characteristic of a sustainable livelihood is that it can fulfill the self-defined livelihood objectives or outcomes of the household and its members (De Haan, 2000:13). These objectives are multiple and variable and include productive as well as reproductive goals. In general, people seek a secure and sustained living, adequate for the satisfaction of their self-defined material and immaterial needs and proof against natural and socio-economic calamities. Such needs include maintenance and augmentation of the five capitals in a certain preferred proportion. Short-term benefits and daily needs, such as food, health and shelter are some of the first prerequisites, followed by accumulation of resources or capital and status improvement.³

³ Since such self-defined objectives are very context-related, a further conceptualization of livelihood objectives will be based on an analysis of the livelihoods and preferences in the research area (Chapter 8).

2.3 Livelihood capitals in the forest fringe

2.3.1 Natural capital: the natural resource base of livelihood

Rural dwellers develop their livelihoods largely on natural capital (land, water, biodiversity, forests, wildlife, pastures and minerals). For poor households the access to these natural resources forms a primary condition for livelihood next to a “healthy” ecology. They lack a buffer in the form of physical and financial capital and the natural environment is their main capital source providing them with geo- and bio-diversity for the implementation of various productive and reproductive activities.

As a natural resource base for forest dwelling livelihoods, the forest environment is very rich, providing a high biological diversity and environmental services (Brown, 1987; Pearce and Myers, 1990; Aylward and Barbier, 1991). It offers a large diversity of renewable resources in the form of plant and animal diversity, providing local households with subsistence products as well as commodities for income generation. For millions of people the forest livelihood is mainly based on natural materials; houses are constructed from forest materials, food and fuel products are largely extracted from the forest and the daily activities take place in the forest (cf. Scoones *et al.*, 1992; Byron and Arnold, 1999:1). In addition, the forest provides the inhabitants with land for (potential) development of agricultural fields and pastures. Old-growth forest especially is seen by the forest dwellers as potential agricultural soil with high fertility for the first harvests. Moreover, the forest has an important function as a saving bank and as safety net for misfortunes. Various products, such as timber trees and palm leaves can be maintained in woodlots without deteriorating and can be sold for special occasions or in difficult times (Chambers and Leach, 1987; Scoones *et al.*, 1992; Godoy *et al.*, 1998).

Values of the forest that are often overlooked are cultural heritage and an independent way of life. Local and regional cultures, including livelihood activities and identities are closely interwoven with their natural resource base. For example, in many cases forest areas or specific species have sacred or spiritual values for forest dwelling people (Altman, 1994). In addition, exploitation and development of forest resources gives the forest dwellers an often highly appreciated self-reliance and autonomy, compared to other production systems.

Tropical forests, however, can also form an obstacle for livelihood development. It is a harsh environment, with several fast growing weedy and dangerous plants, animals, and insects that provoke diseases, undermine households’ infrastructure and human capital, and as such obstruct livelihood development. Though peasants and forest dwellers are often experienced and adaptive producers within their natural environment, this environment in many ways also limits them. Physical and geographical conditions such as soil quality and vegetation type largely determine peasants’ potential activities and choices. In addition, changes in this environment - due to seasonal variation, degradation or natural calamities - often undermine the continuation of livelihood practices and as such the maintenance and improvement of peoples’ livelihoods. Chapter 5 will further elaborate on this type of capital.

2.3.2 Physical capital: infrastructure to sustain and enhance livelihood

In order to be able to live in a natural environment and apply the natural capital for productive and reproductive purposes, people need physical or produced capital in the form of housing, drinking water and energy, as well as tools, food stock and livestock. Additionally, one needs infrastructure and transport to benefit from healthcare and education, to facilitate the flow of inputs and outputs, and commercialize surplus production. It is obvious that this form of capital is highly related to the other capitals. The natural environment in which an actor lives, for example, largely prescribes infrastructure. A household's access to food stock and drinking water is crucial for the maintenance of its human capital in the form of productive labor.

As a living environment, the tropical forest offers a good basis for the development of certain forms of physical capital. The highly available natural capital can, for example, be transformed into constructions and into food crops. Other forms of physical capital, however, such as electricity, tools, infrastructure, transport, healthcare and education, are underdeveloped in most forest settlements – mainly due to their remoteness from urban areas and policy headquarters. Chapter 3 and 4 will elaborate on this form of capital as it is developed in the region and in the selected communities respectively.

2.3.3 Human capital: human resources and values to create welfare

Human capital is among the main assets in shaping livelihoods and entails an objective and quantifiable component as well as a subjective and qualitative component. The first component is peoples' labor capacity and educational level. The second component entails cultural and personal characteristics, including values, feelings and preferences that motivate people and enable them to give meaning to their activities and livelihood.

As a consequence, analysis of human capital requires the collection of quantitative data on labor capacity (including productive family laborers, education, experience, planning skills, etc.) and the gathering of qualitative data covering the historical background of the households, socio-cultural values and the meaning people give to their livelihoods.

Labor capacity

Forest dwelling families rely heavily on family labor. The total family labor capacity depends upon typical characteristics of the households, such as the number of productive members, the age structure, the schooling rate of children, and the health and nutritional status of the household members. During peak demand periods, family labor can be supplemented with hired wage labor (Huijsman, 1986; Ellis, 1999). To obtain extra-family workforce, people participate in labor groups or 'labor for labor' exchange, where labor is repaid with the same quantity of work in a similar activity (Netting, 1993; De Jong, 1995; Zoomers, 1999).

Human capital in the form of labor is, however, not only a quantitative matter. Men and women, adults and children make a different quantitative and qualitative contribution to the livelihood of a household and community. Influenced by gender based cultural and social norms and institutions, children, males and females have specific productive and reproductive rights and responsibilities. This results in a typical labor division in which individuals represent different qualities of human capital. In determining the availability of labor it has been common practice to mainly look at the labor required for production activities, excluding the labor required for tasks outside the sphere of income earning.

However, in correctly specifying labor availability for production activities, ample attention should be given to activities that are necessary to support the household as a production unit. They include home production activities to reproduce the household as a unit; maintenance activities - such as feeding the animals - to reproduce the farm as a production unit; and social activities to secure the household's position in the social system. The relative importance of these reproductive activities in the total time expenditure of the household depends largely on a household's life-cycle stage, while the availability of reproductive labor depends on its gender composition and the division of local labor (Huijsman, 1986).

In addition, peoples' ability to work depends on their health status, skills, knowledge and experience. This includes peoples' intellectual capacity and education, as well as their creativity, inventiveness, accesses to information, and leadership potential (DFID, 1999:7). An increase in labor capacity enables a higher and more efficient productivity, while higher education improves management skills and stimulates a more efficient use of production inputs. Also, better nutrition increases physical strength and potentially increases labor returns per unit of time. Experience is an important factor that can lower entrance costs in agriculture and improves yields (Sen, 1997).

Identity and self-determination

The qualitative component of human capital refers to peoples' cultural and personal identity and richness, as well as their vision and autonomy to improve their livelihood (Sen, 1997; Bebbington, 1999). It is related to peoples' cultural heritage, traditional knowledge and experience. Such human capital provides people with guidance and meaning for their activities and capacity to claim rights and take decisions. Human capital in the form of cultural tradition, knowledge and historic identity is largely based on the natural environment people are used to living in and enhances optimal benefits from this environment. This implies that pioneer migrants entering a new environment, lose part of their human capital because their cultural heritage and related experience with certain natural resources becomes largely obsolete. In such case they need to develop a new lifestyle and build new human capital (Meggers, 1995). In addition, a person's identity and status in a group – a factor that influences their social capital - are based on physical and financial resource endowment (see Kearney, 1996; Reijntjes *et al.*, 1994:33).

Current discourses about the identity of peasants and forest dwellers' livelihoods reflect the dynamism and differentiation of such categories. Rural peoples' livelihood diversification makes it increasingly difficult to group them in certain classifications. People combine strategies and identities, which are heterogeneous and multi-dimensional, making them at the same time subsistence peasants, wage laborers, and entrepreneurs (Kearney, 1996; Ellis, 1998).

Human capital and forest livelihood development

The harsh living conditions in tropical forests make a household's human capital particularly vulnerable. Lack of basic healthcare affects peoples' ability to work in an optimal condition, while lack of education prevents them from improving their production and livelihood planning. In addition, the isolated living conditions stimulate ambitious youngsters to migrate and might lead to a 'brain drain' as well as a 'labor drain', while a lack of infrastructure and communication channels reduces access to information and opportunities for networking.

On the other hand one can say that peoples' nutritional status is favored by the fruits, nuts and other forest products collected, as well as by their ability to grow their own food. Also the use of natural medicines from the forest can support the health status of forest dwellers. Moreover, the knowledge, skills and experience forest people gain in forest use and agrarian production is very valuable and supportive for livelihood development as long as they live in such an environment. In addition, the forest, as a living environment with its numerous resources and its seasonal fluctuations and unexpected disasters supports peoples' creativity and inventiveness. In order to benefit from the forest for livelihood development the forest dwellers require a certain cultural base in the forest, reflected in a broad practical knowledge on the forest environment and on the utilization of its plants and animals (Meggers, 1995). Chapter 8 will analyze in detail the status of the *Cambas*' human capital in the research area.

2.3.4 Financial capital: the capability to invest in livelihood improvement

People can improve their livelihoods and their financial and social status by saving money, or receiving loans, credit, remittances and pensions. However, the accumulation of financial capital is very difficult in rural areas and especially so in forest environments. Forest dwellers usually have negligible amounts of savings. In the first place, the cash economy rarely reaches remote forest areas. In the second place, most of their cash income is spent directly, while savings for contingencies are usually kept in the form of physical or natural capital such as food stock, domestic animals or valuable trees. Financial capital can only result from the commercialization of labor and production into cash and through the remittances sent by family members working in urban jobs or abroad. For this reason some degree of involvement in casual labor often has high priority for those living in marginal forest areas.

Those who are unable to raise the required capital to invest in extraction, agriculture or animal husbandry depend on loans or credit. Yet, due to their inaccessibility and the low population figures in forest areas, forest people do not represent an important constituency, which would give them leeway for obtaining official credit schemes, subsidies and support for infrastructure and basic services. Moreover, official credit schemes require registered properties such as land as collateral (Soto, 1989). Poor peasants usually reject opportunities to borrow and make their land as collateral, because the risk of losing their only major asset is too high (Netting, 1993). As a result, forest dwellers usually only have access to informal credit such as favors of family members or neighbors. Chapter 8 analyses the *Cambas'* access to financial capital and their ability to raise an income in the two selected communities.

2.3.5 *Social capital: enhancing security and access to resources*

Social capital can be explained as a network of social relations, which results in access to resources and social support, through personal relationships such as kinship, neighbors, friendship and through contracts with commercial enterprises and governmental and non-governmental agencies (Von Benda-Beckmanns, 1994). These social bonds and social norms are identified as an important basis for sustaining livelihoods. These bonds support material gain (e.g. credit, land, information) and in addition enhance mental and spiritual well-being, a sense of identity and belonging, honor, social status and prestige. Core elements for acquiring social capital are (1) relations of trust, reciprocity and exchange; (2) common rules, norms and sanctions; and (3) social cohesion or connectedness, through networks and groups (Carney, 1998; DFID, 1999:119).

Social capital also offers support and mutual assistance in situations of stress and access to resources in times of scarcity. Uphoff (2000) defines social capital as an accumulation of socio-cultural and institutional assets that favor mutually beneficial cooperative behavior. The strongest roots for such a cohesion and cooperation lie in historical bonding processes and traditions, including mutual trust and a habit of pooling resources and skills. Other important factors are strong leadership, balanced decision-making, and outside threats that stimulate the forming of strong alliances (Richards, 1997).

The inclusion of social capital in a livelihood analysis helps to bridge the gap between the more materialist and the more actor-centered notions of livelihood and development. It provides a notion of access to resources that supports our understanding of peoples' strategies to deal with poverty not only in a material sense (by making a living), but also in the sense of quality of life, meaning giving and social status (Bebbington, 1999; Uphoff, 2000). In that respect, two important theoretical concepts are relevant: "endowment" and "entitlement". Endowments can be defined as "*rights and resources that social actors possess*" (Leach *et al.*, 1997:16). Entitlement refers to the way in which people claim rights and obtain access to resources.⁴ It is their capability to actually have

⁴ This term was introduced by the economist Sen (1981) in order to explain and conceptualize famine as a social-political problem of food distribution and not a lack of production.

command over their endowments (Dietz, 1996:42; Leach *et al.*, 1997). Whether people have access or entitlement to the different types of capitals depends not only on their owned assets and rights but also on their capacities to claim these endowments based on their social capital.

Interdependence is a distinctive feature of social capital and can exist between household members, among different households within the same community and between different communities. When it takes the shape of alliances between households to fill up shortages of land, labor or capital, it constitutes an essential component of social capital that can overcome misfortunes and natural disasters (Zoomers, 1999).⁵

Other important relations of interdependence exist between different genders and generations due to their different contributions to the livelihood of a household, extended family, community or a wider social entity. Persons and sexes depend on each other for their unique knowledge and skills. In most rural households, women depend on male family members for the preparation of farmland, while the men depend on the skills and labor of women in the processing of products (Rocheleau, 1995; Leach, 1994).

Community organization and beyond

Community organizations such as syndicates and official and non-governmental services are institutionalized forms of a community's social capital and are believed to play a facilitating role in all aspects of rural development. In an ideal situation, these organizations can enhance all forms of social capital and enable households to benefit from advantages of scale, while minimizing individualism and externalities (see De Morree, 1998:339-360). Particular relevant functions of these organizations in a forest environment are the management and division of common property resources and the protection of natural resources against intruders. Formal and informal organization enhances social control systems and enables people to stand up to outsiders threatening their resources or the benefits they provide. Such organizations also facilitate alliances with other communities or with higher level organizations that can serve the interests of the community (Brown and Rosendo, 2000).

2.4 The complexity of livelihood strategies

2.4.1 Strategies for sustaining and improving livelihood

From the above description of the components of livelihoods it becomes clear that the different capitals are closely related and are subject to mutual exchange and transformation into other forms of capital. A livelihood is a dynamic phenomenon, which changes over time due to external factors, changes in the configuration of the capitals, and due to people's "livelihood strategies". A clear definition of this common sense word is neces-

⁵ Examples of non-monetary modalities are "labor to labor" exchange, and "labor to harvest" exchange (Zoomers, 1999:32).

sary, because it will be used in different settings in the course of this study. Zoomers (1999:18) defines livelihood strategies as:

“The way that households respond to change, handling opportunities and limitations, resulting in the (re)allocation of land, labor and capital resources.”

Based on their livelihood objectives, their antecedents and their capitals, peasants and forest dwellers develop strategies for livelihood maintenance and improvement. They do this by allocating productive and reproductive activities in such a way that their needs are most likely satisfied - often including the safeguarding and development of the five capitals.

In order to understand livelihood strategies, it is important to recognize that these are not always based on deliberate and strategic behavior (Zoomers, 2001:15). Often these strategies are a defensive or opportunistic reaction to changing internal and external circumstances. A distinction has to be made between involuntary coping behavior based on ‘*coping strategies*’ and deliberate adaptive behavior or ‘*adaptive strategies*’. Coping strategies – also referred to as *compensatory or survival strategies* - are often a short-term response to un-anticipated shocks such as drought, floods, or acute sickness. Adaptive strategies are a reaction to frequent shocks and stresses or anticipation of structural changes such as a growing labor pool, the development of new markets, or state policies (De Haan, 2000:19). Other, more deliberate strategies - practiced in non-crisis situations- are: *accumulation strategies* that seek to establish a minimum resource base and to expand towards the future and *consolidation strategies*, that involve investments in stabilizing the household’s well-being and improving quality in the short term. In structurally insecure ecological or socio-economic situations often *security and risk-reducing strategies* are applied. These strategies involve diversification strategies such as multi-tasking and multi-cropping, as well as sharecropping strategies and investments in social capital and savings (Zoomers, 1999).

Households combine different aspects of the above strategies simultaneously or develop each strategy in different stages of their family life-cycle. A high degree of dynamism is required in order to cope with natural periodicity, the availability of means of production and changing contexts. The following Sections discuss some of the main factors that influence forest dwellers’ livelihood strategies and decision-making.

2.4.2 Peoples’ livelihood objectives and antecedents

Peoples’ self-defined objectives form the basis for their livelihood (Chambers, 1995). In order to understand the development of peoples’ livelihoods for the designing of adequate support systems, we need to gain insight into the objectives that people aspire to and the opportunities and obstacles they perceive (Von Benda-Beckmanns, 1994). Their objectives are far less documented than the opportunities and obstacles involved in the devel-

opment of poor peoples' livelihoods. One of the reasons is that these objectives are very location-, culture and household specific and hard to define for people involved. As far as we know, the main livelihood goals of rural households include productive objectives such as 'productivity', 'reproduction', 'security', 'continuity' and 'quality improvement' of resources (see Zoomers, 1999). Non-productive livelihood objectives of people are often underestimated and can be classified as maintenance and expression of 'identity', socio-cultural 'meaning', 'dignity' and 'power or prestige' (Reijntjes *et al.*, 1992:32, Bebbington, 1999).

To understand such non-productive objectives of households, a livelihood analysis should take into account specific elements of their culture, (group) identity, social position and self-image. Moreover, peoples' attitude towards natural resources is influenced largely by their objectives. The more the households depend on natural capital for the fulfillment of their objectives - including expression of their identity - the more they are expected to aim at sustaining their resource base for their own livelihood and that of future generations (Chambers, 1995; Chambers and Conway 1992).

In their turn, the objectives and perceived obstacles and opportunities of households are to a large extent based on people's antecedents in origin, resource endowments and experience. The virtues and constraints of the culture, norms and production systems people grew up with, make them either strive to maintain or transform the capitals and livelihoods of themselves or the next generation. For example for people who are born and raised in a situation of extreme poverty without education, professionalizing their children is one of the main livelihood objectives.

2.4.3 Influential actors and external factors

Livelihoods are usually studied at the level of households or extended families, which have fluid boundaries (Wilk and Miller, 1997). Households too often tend to be regarded as a single decision-making unit maximizing their welfare (Zoomers, 1999). However, there is seldom a unit as such for peasants and forest dwelling people. On the one hand, the individual level reveals a large internal heterogeneity. Separate household and family members often have different goals, tasks, and capitals, making the household's output the negotiated result of multiple actors and decision-making processes (Schmink, 1984). On the other hand, livelihood and decision-making goes beyond the household level. Large families spread over several dwellings and members seasonally migrate between different geographical locations, while maintaining systems of resource pooling.

In addition, livelihood strategies of small-holders go beyond direct actor-to-actor relations, and their opportunities and choices are influenced by other - distant and sometimes even global - actors' strategies without face-to-face contacts occurring (Vayda, 1983 and 1996; Blaikie and Brookfield, 1987; De Groot, 1992; De Haan, 2000). The national government, regulating prices and taxes and facilitating infrastructure and credit, is by far the most important distant actor for forest dwellers. The ongoing process of globalization has increased the influence of worldwide prices and markets for agrarian prod-

ucts and macro-economic fluctuations. A typical example for Bolivia's lowlands is the price of extractive products paid to the collectors, which depends on international price setting and, thus, on the demand in developed countries (see Assies, 1997a; Borges, 2000).

For this and other reasons, poor peoples' livelihoods and strategies are extremely subject to change, especially in rural areas. A high degree of dynamism is required in order to cope with natural periodicity and calamities, and adapt to changing markets and policies.

2.4.4 *Differences in access to the five capitals*

Variance in access to land, labor and other resources may lead households to pursue different objectives and strategies.⁶ Different strata of peasants and forest dwellers evolve based on the hectares of forest or cultivated land held and the number of domestic animals kept. Households with more financial capital or strongly developed social capital usually succeed in gaining access to better natural resources and more easily invest in durable produced (physical) capital. A household's labor supply depends on its endowment of financial or social capital to buy or claim labor support, but also the family composition is largely decisive in determining the households' human capital.

There is a clear pattern of accumulation and decumulation of resources related to the household's life cycle and changing patterns of needs (Ellis, 1993). Godoy *et al.* (1997) indicate that this family life cycle is also reflected in the amount of cleared forest; natural capital transformed in produced capital. A young couple starting a household has a limited production potential and low consumption requirement. When children are born, consumption needs rise without an immediate increase in the household's labor supply. Only when the children are old enough to help with production and exchange activities, the household reaches its peak in both production potential and consumption needs. With the marriage of the children and the parents growing old, the availability of labor power gradually diminishes and resources dwindle, especially as children demand their inheritance (Zoomers, 1999).

2.4.5 *Costs and benefits of different activities*

Households' livelihoods and practices also depend on the perceived advantages and disadvantages of different activities. Households decide to allocate their labor and scarce resources to different productive activities – such as forest extraction, agriculture and wage labor - after a 'cost-benefit analysis' of their advantages and disadvantages. These activities differ in the type and amount of benefits and returns for the labor invested. At the same time, they require different physical labor inputs, investment costs and time commitment.

⁶ The term 'access' refers to actual user rights and the command and control of benefits.

For example, with respect to physical requirements, wage labor can physically be more demanding than agriculture. Although the type of work might be the same, a wage laborer usually has a higher time pressure and needs to perform more consistently, while an independent peasant is more flexible and can plan his own labor time (Chibnik, 1980).

Taking into account the entrance costs, agriculture involves higher investment costs than wage labor. These costs include obtaining and securing land, labor input for farm establishment and maintenance, seeds, tools and fertilizers. Forest extraction often requires low establishment costs and is characterized by easy entry and open market access except in areas where patrons control production (Byron and Arnold, 1999). Also, the market for wage labor is easy to enter, but remunerative wage labor – such as chainsaw operator in a logging team - has higher entry barriers than odd and menial jobs in farming, because it requires special skills or higher levels of education.

Agriculture offers more flexibility in day-to-day time allocation, but less over the course of a year than wage labor due to climatic conditions and specific crop requirements. Extraction also is more flexible in time allocation than agriculture and can be scheduled outside the peak periods for agriculture, though there are some forest products (Brazil nut) that are bound to a specific harvest season. An disadvantage of wage labor is that it can often not be practiced near to the house and as such consumes much time in traveling at the cost of ‘family leisure’ time.

Returns from agricultural labor vary widely under tropical conditions. Because of risk, variations in climate and unstable markets, returns from agricultural labor are less certain and less immediate than those of waged work. In general, wage labor offers quicker and more certain returns for the labor invested. Extraction activities such as hunting and gathering usually result in low marginal returns for labor, but returns are more immediate than for agriculture, because obtained forest product can be sold directly after the labor input (FAO, 1989).

2.4.6 Risk and uncertainty

Another very important factor in peasants’ livelihood strategies is the risk involved with investment in productive activities of which the outcome is always uncertain. The fragile balance between risk and security is an important characteristic of forest livelihoods. Due to the unpredictability of natural conditions, related fluctuations in production levels and market prices, as well as other contingencies, rural households constantly have to take risks, while aiming to secure their livelihoods (Zoomers, 1999). Contingencies can take many forms, being sudden and unexpected; slow in onset; or large needs which can be foreseen. Chambers and Leach (1987) identified the following categories:

- *social conventions*: such as ceremonial and social needs going along with weddings and funerals;
- *disaster*: such as theft of assets, loss by fire, floods, droughts or epidemics;
- *physical incapacity*: including sickness, old age, disablement and accidents;

- *unproductive expenditure*; such as failure of small enterprises and other investments that do not pay off;
- *exploitation*: including excessive demands and illegitimate acts by the powerful.

The ability of peasants to cope with these contingencies and adapt to changes depends above all on their resource endowments (availability of land, labor and capital); their knowledge and access to information, their social network, and their creative ability. Wealthier peasants are more flexible and better able to take risks. For poor households contingencies usually go along with shortages in consumption products and income, and without buffers this may lead to further impoverishment and indebtedness. Households that have the capacity establish buffers in the form of multiple-income sources, cash savings, or saved assets such as land, domestic animals or valuable natural resources, including trees (Godoy *et al.*, 1998). Poor households tend to minimize the risk of production and income failure and depend more on reciprocal relationships between households (social capital) as buffers to overcome crisis.

A way to minimize risk is to invest labor time in low-risk activities and to diversify income to smooth consumption. 'Multi-tasking' or diversification is expected to contribute to this end. According to Ellis, '*Diversification might reduce (a) the risk of income failure overall, by diluting the impact of failure in any single income source; (b) intra-year income streams; (c) and reduce inter-year income variability resulting from instability in agricultural production and markets*' (1998:14). Diversification is closely allied to flexibility, resilience and stability, making diverse livelihood systems less vulnerable and more adaptable to change (Ellis, 1999). Smallholders are constantly spreading risk by opting for a diversity of land use practices, forest exploitation activities and income generating jobs. Their avoidance of risk enhances overall security but goes along with reduced productivity and possible losses of exchange. Higher risk taking can result in higher production but endangers livelihood security (cf. Huijsman, 1986).

Multi-tasking and diversification of income generating activities enables forest dwellers to balance the advantages and disadvantages of the different activities. Usually, they do not perform singular livelihood practices, but engage simultaneously in multiple activities. This multi-tasking allows forest dwellers to derive optimal benefits from the available means of production and changing conditions. This is necessary, because households' multiple objectives - producing subsistence food, minimizing risk, and increasing their social security, cash income and prestige - are rarely attainable by carrying out only one activity. Income diversification plays a crucial role in households' strategies. Poor peasants spread scarce resources among several plots and engage in multiple activities in order to reduce risk. They often need direct money returns and therefore also engage in wage labor.

An additional advantage of multi-tasking is the interrelationship between different livelihood activities. First, there are activities that facilitate other activities, such as animal husbandry, producing manure for fertilization of agricultural fields. Second, other activi-

ties complement each other such as wage labor for cash and agriculture for alimentation (Zoomers, 1999). Along the forest frontier, forests and trees provide peasants with critical support for agricultural production. Trees can provide fuel and food, cash income and supplement farm production and provide a buffer during droughts and crop failures. In certain areas, gathering and processing of forest products is an important means of cash income (FAO, 1989 and 1996).

However, the scarcity of the production factors forces people to make choices between different productive activities, which are not compatible. Examples are temporary migration and small-scale animal husbandry, or slashing and burning of valuable forest products to make way for agriculture.

Since poor peasants are incapable of eliminating the risks they encounter, they focus on making the consequences of risk more bearable. In line with this view, peasants consider it rational to invest their savings in a social network, in friends, parties and social activities, to increase their social capital and buy social security (Zoomers, 1999).

2.5 Scenarios of forest livelihood development and resource management

The above Sections have discussed the different components of rural/forest livelihoods and peoples' strategies to sustain and develop these. The linking of forest livelihood issues with forest management raises many questions about the specific conditions of forest livelihoods and peoples' motives and obstacles for sustainable resource use. The forest has a large potential for livelihood development but contains also features that obstruct the maintenance and increment of several livelihood capitals. The balance people perceive between these constraints and opportunities for their livelihood is decisive for generating living conditions that favor permanent settlement in the forest and maintenance of the forest cover. Various social, cultural and economic decisive factors determine to which side the balance tilts and what scenario of forest livelihood development and forest management takes place. Possible scenarios and the most relevant decisive factors are discussed below.

2.5.1 Types of forest-livelihoods

As mentioned in Chapter 1 the type of forest-people relationships and resulting forest-livelihoods are very diverse and an insight into the differences in their quality is very important for understanding forest use and management scenarios. The quality of the relationships depends on several factors such as the physical and cultural proximity of people to forests and the extent to which they depend on its products and services for their subsistence and/or income generation (Byron and Arnold, 1999). Reliance of a group of forest dwellers on natural capital and long-term forest resource use for their livelihood has a crucial influence on their valorization of - and interaction with - the forest. Even more so when it is based on a lack of other livelihood opportunities or no interest in other ways of living. The more diverse the utility and role of the forest in their lives, the stronger the

incentive for forest dwelling people to exploit their natural resources without causing irreversible degradation (Richards, 1997).

Based on peoples' proximity to the forest and their dependence on its natural capital we can distinguish a continuum of various groups of forest dependent people. At one extreme are those living within forests who have a high degree of dependence on forest resources and services. At the other extreme are groups that live far from the forest, but earn their living from the transport and processing of forest products. Such a continuum includes: hunters and gatherers; shifting cultivators; farming communities drawing upon forests; wealthier farmers and landowners; poor farmers and land-less families; artisans and traders; transporters of forest products; employees of forest industries or mixtures of these (Byron and Arnold, 1999).

The *Camba* forest dwellers in the northern Bolivian Amazon belong to one of the first three categories, both living very close to (in) the forest and at the same time having few other livelihood opportunities there than forest extraction and semi-subsistence farming. For this reason they are the group of forest dwellers whose livelihood is most dependent on the forest and are the most influential in the daily use and management of its resources.

The most widespread forest and land use practices of such forest dependent people are semi-subsistence slash-and-burn agriculture and forest product extraction, forms of natural resource use that can be practiced without much degradation of the resource base. Land use systems which include such foraging and slash-and-burn agriculture with long fallow periods and which are low-intensity or "poly-cyclic", rarely involve any type of drastic canopy opening. Most forest products can be exploited without removing or degrading the resource base. In addition, tree harvesting, if employed at all, is in these systems usually selective in nature (e.g. Posey and Balee, 1989; Anderson, 1992)

However, with processes of increasing globalization and forest dwellers' integration in the market economy, more intensive forms of forest exploitation have developed, among which are large-scale extractivism⁷ of timber and Non-Timber Forest Products⁸ and agroforestry plantations. Forest dwellers' access to and need for money has increased their efforts to develop financial capital. This has led to changes in the subsistence and commercial use of forest products and access to forests. As a result a further diversification of forest livelihoods took place, making people intensify their use of wild forest products, domesticate the products into agroforestry systems or move away from the forest into processing industries. Arnold (1998) distinguishes the following scenarios of current and future forest livelihood development

⁷ 'Extractivism' is defined as "a system of commercial exploitation of forest products. Extractive activities are distinct from those of a hunter-gatherer society whose products are only for household consumption or for local exchange" (Lescure et al., 1994:59). In the context of the Brazilian Amazon, the term 'extractivism' usually refers exclusively to NTFPs and excludes the commercial extraction of timber (Rodrigues, 1996). In this study extractivism includes small-scale logging activities.

⁸ NTFPs can be defined as: "All biological materials other than timber that are extracted from natural forests for human use. These include foods, medicines, spices, essential oils, resins, gums, latex, tannins, dyes, ornamental plants, wildlife (products and life animals), fuelwood, rattan, bamboo, small-wood, and fibers" (De Beer and McDermott, 1996:17).

- Forests continue to be central to livelihoods;
- Products from forests play an important supplementary and/or safety/buffer role;
- Forest product activities are increasingly based on agroforestry sources;
- Opportunities exist to expand artisanal and small enterprise forest product activities;
- People need to move out of declining forest product activities.

The extent to which the evolving livelihoods are sustainable and compatible with forest management depends on various contextual factors, but the threat of forest conversion is expected to increase with expanding cultivation of forest products or declining economic importance of forest product activities within the livelihood. The following Sections will discuss the most prominent processes and scenarios, as well as the key factors and their impact on the forest.

2.5.2 The extraction of Non-Timber Forest Products and extractive reserves

Due to the continued development of (new) markets for forest products, many forest livelihoods remain dependent on forest products for subsistence and income generation. Of all the possible productive uses in the forest, NTFPs are thought to have the highest potential as a basis for sustainable forest livelihoods. A large variety of these products is accessible to forest dwellers, the exploitation is mostly capital extensive, world wide potential markets exist for exotic natural products, and the nature of NTFPs makes it often possible to exploit them without removing or degrading the resource base (De Beer and McDermott, 1996; Nepstad and Schwartzman, 1992; Ros-Tonen *et al.* 1995; Broekhoven 1995). The marketing of NTFPs burgeoned during the late 1980s and numerous projects and publications focused on making tropical forests economically more attractive to local populations using NTFPs. It was assumed that with added economic incentives, these people would become interested in long-term forests exploitation and start protecting the forests (for an overview, see Ruiz-Pérez and Arnold, 1996; Ruiz-Pérez and Byron, 1999).

The study of Peters *et al.* (1989) opened up an entire new dimension for the debate on the enormous economic potential of NTFPs. They calculated a Net Present Value of 350 potential marketable NTFPs (fruits, fibers, rubber, medicinal plants and lianas) on one hectare of forest in the Peruvian Amazon and found out that these products yielded ninety percent of the use potential on the test area against ten percent for logging. Even though these local figures cannot be simply extrapolated to large tropical forest areas, it has triggered the debate on the economic viability of extractivism.

In the same vein, a market approach to attain the goals of conservation and socio-economic improvement of forest dwelling populations has demonstrated that improving prices to producers, adding value locally, and community development, can lead to sustainable forest management. The U.S. based NGO 'Cultural Survival' along with companies such as the 'Body Shop' have been a pioneer in green marketing and establishing marketing

links between forest dwelling populations and sensitive consumers in the first world (Clay, 1992; Entine, 1996) (see box 2.1). These initiatives go hand in hand with the formulation of criteria for the certification of NTFPs such as Brazil nuts (see CFV, 2000).

However, to create conditions for sustainable livelihood development and guarantee benefits for the poorest and most remote forest dwellers, households and communities need to be organized and politically empowered. Critics of the "rainforest-crunch" thesis (see box 2.1), like Michael Dove (1993) see the key to sustainable forest management in the empowerment of local users and their self-determination of the use of NTFPs. When considering the prospects for developing NTFPs, Dove believes that the greatest challenge is not to create greater development prospects for forest inhabitants, but to ensure that these prospects are not taken away from them. Three significant means to this end are their social organization, empowerment and secured tenure.

As mentioned in Section 2.2.5, social institutions and organizations improve peoples' social capital and as such increase their capacity to secure their political and economic rights - a necessary condition for sustainable extractivism. A high level of social cohesion demarcates the group and its resource base and excludes outsiders who are not committed to the agreements (Richards, 1997). In addition, such groups are more likely to be recognized as a party whose interests have to be taken into account by outsiders (Barraclough and Ghimire, 1995; Brown and Rosendo, 2000).

Secure property rights or usufruct rights are also vital to the sustainable livelihoods of forest extractivists. Resources in forest fringes are often Common Property Resources (CPR) divided in all sorts of ways between different stakeholders, resulting in many variants of common property-like, open access-like or private property scenarios. Michael Richard's (1997) analysis of CPR management systems in Latin American forest areas indicates that there have been various positive and negative experiences. The negative experiences include the obvious vulnerability of Amerindian informal institutions to market forces in the Amazon. However, other communities have responded positively to market pressures once an appropriate management structure has been established, with or without support of the official policy environment. The latter is crucial for successful CPR management, because CPR institutions have been deprived of an enabling environment and generally lack the necessary agency and capacity to organize themselves.

Nowadays, common property analysts agree that it is not the type of property agreement that determines the success of natural resource management, but the institutional arrangements and effectiveness of the legal system. Unclearly defined tenure arrangements and conflicting customary and legal rights claims result in insecurity and a resource use based on a short-term rationale. Successful management of a CPR requires customary and legal arrangements that are enforced in the local setting and the formulation of the tenure institutions – or 'rules of the game' – that define the rights and responsibilities must be based on shared interest and understanding among people (Forster, 2000).

The Brazilian rubber tappers movement and the development of extractive reserves in the Amazon has been an important step in fulfilling the above mentioned prerequisites for sustainable extractivists livelihoods. After the murdering of its leader Chico Mendes, the movement has pushed through recognition as a distinct group and was granted control over large reserves of forest and land resources; referred to as extractive reserves.⁹ The inhabitants of these reserves share a group identity as rubber tappers, depend mainly on forest products for their income and largely succeed to withstand the pressure on their resources from ranchers and land speculators (Allegratti, 1994). The most important aspects of the forest exploitation system are the commercial collection of NTFPs and selective logging in scheme of community forestry. With these activities the forest structure is maintained, the forest is given an important long-term utility value and the benefits go directly to local people.

Many scientists and policymakers have adopted this model as an optimal alternative to stop forest destruction and consider it a useful institutional framework to combine forest conservation and income generation for rural inhabitants (Schwartzman, 1989; Allegratti, 1994). It can provide forest dwellers with a fairly secure access to a large diversity of NTFPs and timber species and gives opportunities for agroforestry, small scale processing industries and eco-tourism if it is combined with the necessary assistance and finance (Clüsener-Godt and Sachs, 1994).

Box 2.1: The Rainforest Crunch experience

In 1989, Ben & Jerry's 'Rainforest Crunch' ice cream was launched in the USA containing Brazil nuts from the Amazon forest. The idea was to pay fair prices and give nut gatherers a far greater return instead of the regular 3 % from the wholesale price in New York. The NGO 'Cultural Survival' helped the community in Xapuri, state of Acre, in the Brazilian Amazon to establish a cooperative where former rubber tappers could bring the nuts they had harvested. The cooperative sorted, cracked and stored the supplied nuts, which then were exported and a percentage of the profits were to be reinvested into the cooperative. Rainforest Crunch flavor became an instant hit in the USA, mostly due to its progressive marketing image. The ice cream was originally sold with the claim that the nuts were purchased directly from forest peoples (Clay, 1992).

The nut ice cream sparked glowing articles on a new model of ethical business practices and socially responsible capitalism in the Amazon. However, anthropologists and indigenous rights groups were skeptical in the beginning and it appeared that they were right (see Corry, 1993; Dove, 1993). The cooperative never produced the necessary quantity or quality to meet the exploding demand and the Ben & Jerry sourced 95 percent of the nuts from other commercial suppliers. The cooperative was disappointed about the unfulfilled promises and cut off all supplies by 1994 (Entine, 1996).

⁹ The Brazilian government decreed the first extractive reserves in the Amazon in the late 1980s in order to avoid conflicts on forestland between ranchers and loggers on the one side and Amerindians, rubber tappers and NTFP harvesters on the other side (Fearnside, 1989).

Due to the often-low commercial value of unprocessed forest products, it has proved necessary for forest dwellers and development organization to continuously search for ways to add value to the products through primary processing in small-scale industries. In an ideal situation such developments would enable the forest inhabitants to better commercialize their products and more efficiently transform their natural capital into financial capital. However, as the example of the Brazil nut factory and cooperative in Xapuri shows, such initiatives have to cope with financial and organizational problems and low quality and quantity outputs. The main reason is that cooperatives and the extractivists households involved often have limited access to several of the five livelihood capitals including the physical infrastructure, credits, commercial experience, and social abilities and cohesion.

2.5.3 *Bottlenecks for livelihood development based on NTFPs*

In fact the long-term sustainability of extractive livelihoods and extractive reserves is very fragile and requires constant financial and political support (Hall, 1996). This fragility has much to do with the characteristics of forest commodities and the boom-to-bust cycles of their markets. Five main reasons why income from forest products could decline are

- Successful commercialization may lead to appropriation of the benefits from the resource base by the more powerful stakeholders (Dove, 1993);
- The resource base can be destroyed due to over-harvesting (Peters, 1994);
- The products may go out of fashion and therefore demand may be reduced;
- The product may be substituted by one that can be manufactured (Homma, 1996; Harris, 1996; De Jong *et al.*, 2000).
- The products may be domesticated and produced in plantations far away from the original collectors (Homma, 1992);

A main problem is that the success of rain forest products is in the end mainly benefiting political and economic elite and other distant actors, who control the markets of valuable forest products, while degradation of the resource base or collapsing markets hit mostly the direct producers (Dove, 1993). Forest product collectors are often not able to survive in competitive markets and have to move out the business or sell their products or labor to merchants (Assies, 1997a). Critics of the extractive reserve model, in addition, refer to fluctuating markets for forest products; low efficiency in land and labor inputs; poor living conditions; and a constant threat to conversion of the forest areas into economically more profitable land uses such as ranching, logging and cash crop agriculture (see Homma, 1994; Lescure *et al.*, 1994; Hall, 1996).

At the same time, the extraction of NTFPs can lead to forest degradation. Although exploitation of these products is supposed to result in a less severe forest destruction than timber extraction, it often becomes unsustainable if practiced on a highly commercial level. Various authors have warned against the risk of overexploitation and the limits of a long-term NTFP development (Nepstad and Schwartzman, 1992; Boot, 1997; Pena and Zuidema, 2000).

Another obstacle for the development of forest livelihoods based on sustained NTFP production is a dwindling interest in the extraction products and activities. Forest products maintain or lose their importance in the livelihoods of forest dwellers depending on the existence of modern alternatives / substitutes, cultural preferences and potentials for commercialization (Godoy *et al.*, 1998). There is little evidence that rural households in the long run desire NTFP dependence. In general NTFPs are perceived as inferior goods with a low commercial value; collection is a labor intensive and backward activity; and trading and storing can be costly (Cavendish, forthcoming). Harsh labor conditions and unfavorable socio-economic structures such as patron-client relations devalue the perception and image of the activity and stimulate strategies towards more domestic and autonomic livelihood activities, such as agriculture and agroforestry plantation (Lescure *et al.*, 1994; Assies, 1997a).

The poor image of forest products and extractive activities is often a dilemma for the development of markets, processing industries and forest dwelling livelihood. Customarily only rural households with low incomes, lack of capital, lack of access to labor and agricultural markets, and high production risks tend to stay involved in NTFP production. For others the forest products become less important but might keep their value as a buffer for contingencies. Exceptions exist in areas and markets where people identify themselves more positively with the forest based on socio-economic and cultural factors. Peoples' cultural valorization of and attitude towards wild forest products influences their livelihood strategies and makes them either (1) maintaining the natural resources and processes (sustainable forest extraction); (2) gain control of nature (forest domestication); (3) or convert nature into cultivated resources (forest conversion).

The low extraction efficiency of forest products in dispersed forest areas stimulates people to domesticate and cultivate useful plants and raise animals (Byron and Arnold, 1999). Products with a high market value tend to be substituted by synthetic alternatives. Homma (1992) has developed a very useful theory for understanding the natural life cycle of NTFP commodities. He explains the intrinsic problem of synthetic substitution and plantation of a NTFP as soon as it becomes successful and when it is more cost-effective than the harvesting of wild products. He distinguishes four phases, which usually occur sequentially:

- Expansion phase with growing use intensity (e.g. palm hearts)
- Stabilization phase with a flexible balance between production and demand (e.g. Brazil nuts)
- Declining phase (e.g. wild cocoa, wild rubber)
- Cultivation phase (e.g. cocoa, coffee, tea, rubber)

His model illustrates that all NTFP uses, which enjoy a continuous and perhaps even growing demand, gradually develop into a plantation type of production. During this process, many of the above mentioned advantages of the original extractivism of NTFPs disappear, especially their social compatibility and their contribution to conserving forests.

In summary this means that neither a low valorization nor a high valorization of a forest product is favorable for the sustainability of forest livelihoods. The ideal typical development stays somewhere in between, such as the development of a strong regional demand and market (Cavendish, forthcoming).

Fortunately some more optimistic scenarios exist in which emerging ‘green’ and ‘organic’ markets offer a high-value niche for NTFPs (Borges, 2000). According to Borges the predictions that forest extractivists are doomed to economic extinction are premature. Based on the development of new consumption values and consumers, who are willing to pay for green, natural and organic products, new markets may develop for a wide range of forest products: “*A non-timber forest product that today rots in the forest may again be traded*” (Borges, 2000:2)

Prerequisites for success are: a) continued analysis and promotion of the specific properties of NTFPs; b) regulation and certification of acceptable standards of quality and price; c) strong lobbying to put NTFP extraction on the political agenda; and d) development of adequate organizations and institutions to secure property rights, access to market information and economic benefits for those collecting the products.

2.5.4 *Forest product plantations versus intermediate systems*

According to Homma’s model a continuum exists between gathering and cultivation of forest commodities. Although it are often the more wealthy actors in distant locations who start cultivating forest products, forest dwellers themselves also tend to domesticate and cultivate livelihood necessities and commodities from the forest. Stimulated by the unfavorable characteristics of extractive economies they have the tendency of domesticating important forest species and at the same time intensifying their agricultural practices. In many forest fringes, a change from hunting and gathering towards agroforestry or peasantry is probable, based on an increased management and control of natural processes and greater reliance on agricultural and horticultural production (Fujisaka and Wollenberg, 1991; Wiersum, 1997). In reality, external factors such as socio-economic circumstances, policies and new commodities can alter this evolution. Therefore, the transformation is not an unilinear or irreversible process. In certain situations, such as production failure in agriculture, forest dwellers can fall back on extraction (Coomes and Barham, 1997; Byron and Arnold, 1999). Whether a certain product will become an integrated part of the agro-ecosystem or will be harvested in its natural ecosystem will depend on peoples’ cultural values, economic criteria and the possibility for domestication.

This transition from forest extractivism to agroforestry cultivation, or a combination of the two, can be referred to as an ‘Intermediate System’ (Ellen and Fukui, 1996).¹⁰ The development of such systems by forest extractivists is not a simple transformation of productive activities, but a gradual process of cultural change over several generations, con-

¹⁰ ‘The term ‘intermediate system’ refers to semi-domesticated production forests or to agro-extractive systems in which the extraction of wild forest products is combined with the cultivation of crops in the same area (FORESASIA, 2000).

current with the development of a new identity. In the Amazon, we can observe societies and households in different phases of this kind of transition process. They tend to stabilize their livelihoods into sedentary homesteads with strategies towards more permanent agro-extractive land use systems (see Melnyk, 1993).

A crucial question concerning these intermediate systems remains whether they are structural systems in which extraction of forest products continues to stimulate the maintenance of a forest-like ecosystem, or whether they form a transitional phase and gradually develop into plantations or agricultural fields. The answer depends on the ecological circumstances, the economic cost and benefits, and the cultural preferences of the forest dwellers. It is expected that agro-extractive activities and forest management are more prone to be sustained in case they have a commercial base and are socio-culturally embedded in the forest dwellers livelihood. At the same time, the particular ecological conditions of closed forest areas that constrain intensified cultivation, mono-cropping and annual crops, may impede the development of intensive plantation and require the development of agro-forestry systems in a forest environment (Michon and De Foresta, 1997).

An important fact that is often underestimated is the need of most forest dwelling people to convert part of their forest into arable land for the production of staple foods. An evolution of agricultural practices in forest areas takes place parallel to the development of extractivism practices. Although extractive reserves have been created with the idea that livelihoods based on forest extraction can be sustainable, empirical evidence in South America indicates that the continuation and improvement of forest livelihoods can not depend purely on extractivism (Romanoff, 1992; Homma, 1994; Assies, 1997a). Forest extraction is seldom a full-time occupation, but part of forests dwellers' multiple economic strategy and can be best sustained in a broader natural-resource use system (Van Valkenburg, 1997; Rijsoort, 1998). Subsistence food production and often the development of small-scale commercial agriculture are essential to forest dwelling people. Therefore the linkage between small-scale agriculture and extraction seems to be the backbone of sustainable forest livelihoods.

2.6 Prerequisites for sustainable forest livelihoods and forest management

The above Sections have discussed the main pillars for sustainable livelihoods and the potentials and limitations for development of such livelihoods based on long-term forest extraction. The sustainability of a livelihood depends on a certain configuration of the five main capitals and the potential to maintain, augment and transform these capitals for the benefit of the household or family and conform the development objectives of its members, without degrading the natural resource base.

Characteristic of the livelihoods of poor forest dwellers is that these lean heavily on the natural capital available and depend mainly on the household's own effort and human capital to convert part of this capital in required products such as food, shelter and commodities, and some financial capital. This reliance on (long-term) forest resource use is an important prerequisite of sustainable forest management, but is in itself not satisfactory

for livelihood development. Without sufficient human capital and financial capital to harvest and control the benefits of the natural resources, these are encashed by others or become obstacles that restrict peoples' development. At the same time, some forest areas and resources need to be sacrificed for the development of other vital livelihood activities such as agricultural plantations and animal husbandry.

The insecurity of such livelihoods, due to their dependence on unreliable natural products and processes, can be partly controlled and compensated by the development of social capital through social cooperation and organization. As we discussed above, this form of capital supports the livelihood of forest dwellers in many ways, improving their access to and control over resources, increasing their ability to demand external support, and enhancing their capacity to commercialize their natural capital.

At the same time social cohesion and cooperation is identified as one of the main prerequisites for sustainable forest exploitation. In forest fringes self-governance of forest resources by a united group of forest dwellers is most promising as a fence against forest degradation (Ostrom, 1998). Typically characteristics of these isolated areas are: (a) absence of law enforcement of land rights; (b) resource users without individual property rights who exploit the forest as a (*de facto*) Common Property Resource (CPR)¹¹; (c) elevated competition for resources; (d) common property resources threatened by intruders. In this situation long-term forest management and peoples' control of the benefits depends on social cooperation, the formulation of common rules and regulations, and informal social control to enforce the rules.

Such cooperation relies on a high level of common interest and social cohesion, which demarcates the group and its resource base and excludes outsiders who are not committed to the agreements or rules of the game for natural resource use. This kind of informal cooperation forges bonds of mutual aid and dependence, which discourage trespassing and conflicts over land and forest ownership. The security of resource control decreases the need to claim land by clearing forest. As a result the households are able to shift their focus to the resources in their territory and adopt a more selective exploitation and clearance of forest, while high-value commodities such as timber are considered savings for future use (Rudel, 1995).

The importance of a group identity and the linking of livelihood issues with natural resource conservation is indicated by the fact that many local alliances and initiatives for natural resource management and conservation originate from social movements to compel autonomy and political and economic rights. The rubber tappers movement in Brazil illustrates this principle (cf. Silva, 1999; Assies, *et al.*, 2000; Forster, 2000).

It is only in the last decade that the policy literature has recognized the ability of appropriators of natural resources to organize themselves and move towards more effective governance of their resources (Ostrom, 1998). This has led to the further conceptualiza-

¹¹ As mentioned in Section 2.4.2 many variants of common property exist due to peoples' internal division of the resources and creation of rules.

tion and legalization of such approaches as 'community forestry' and 'social forestry'. The concept of 'social fencing' is based on the same notions, but stresses the protection of natural resources from destructive 'outsiders' – such as colonists, loggers and ranchers – through processes of organization and social control. The essence of this concept is that local producers share the interest in protecting natural resources and play the main role in the management of these resources, while protecting them from being degraded by uncooperative insiders and outsiders (Mishra, 1987).

The main obstacles that impede social fencing of forest resources are economic and demographic pressure in combination with the weak excludability of many CPRs (Richard, 1997). Market integration often distorts communal life forms, leading to erosion of traditional reciprocities, and dependency on commodities, and boom-to-bust cycles of external markets. In many Amazon countries, official colonization policies have triggered the advancement of the agricultural frontier and concomitant forest conversion. Consequently, forest dwellers suffer from insecure tenure arrangements and a weak institutional base, while their lack of a habit to share talents and resources obstructs cooperative efforts, including those for resource management.

The difficulty often lies in complex social stratification and divergent interests inside local communities, where social relations are complex and multi-stranded (Barraclough and Ghimire, 1995). Collective action is usually ad hoc and organized around productive and reproductive activities that are not necessarily output-optimizing. The institutions for such action do not need to be rationally developed, but are partial, intermittent and often invisible, being located in the daily interactions of peoples' daily lives (Cleaver, 2000; Luckert *et al.*, forthcoming).

2.7 Concluding remarks

The understanding of local forest dwellers' livelihoods and strategies requires a holistic and diachronic analysis that takes into account local configurations of the five main capitals and variation between households and in different phases of their development. Sustainable forest livelihoods depend on the maintenance, augmentation and transformation of the five capitals towards the fulfillment of peoples' development objectives. In order to comprehend the forest dwellers' options and incentives for certain livelihood activities and modes of natural resource use, we need insight in their historic antecedents, culture, access to the five capitals, and livelihood objectives.

Due to their situation in often physically and economically isolated forest areas forest livelihoods largely depend on natural capital while other capitals are considered to be less abundant. However, a closer analysis can reveal the forest livelihood's physical and economic values in the form of subsistence products and cash income, and its socio-cultural values for the identity and well-being of forest dependent people. The livelihoods of forest dwellers are based on an economic rationality - securing basic needs and economic development - as well as on more socio-cultural norms and values, such as family relations and prestige. In accordance with peoples' development objectives and opportunities,

their livelihoods tend to build on long-term forest resources, or move away from such dependence towards peasant or urban-based livelihoods. Such choices and processes are influenced by many economic and political factors, but maybe mostly by peoples' identification with forest products, and extractive activities. Their interest in long-term forest management largely relies on their perceived dependence on the forest as a diversified and flexible livelihood base, and the cultural significance of the forest and its products. Although, the image of extractive products and activities is often backward, this image tends to improve with the emergence of new consumption values and 'green' markets.

The scope for sustainable forest livelihoods based on long-term forest resource management not only depends on forest dwellers' valorization and strategies at the household level, but also on their shared norms and interests, and their social organization for the control and commercialization of the resources. For this reason peoples' social capital requires special attention when analyzing the viability of forest management. Such an analysis should explicitly focus on: processes of social organization; existence or formation of a corporate identity; common goals, rules and regulations; and shared control and benefits.

The success of common property management through social fencing depends on several socio-economic institutions as well as resource-related factors. Forest dwellers are expected to prevent the forest from degradation caused by insiders and outsiders in the case that most of the following prerequisites are fulfilled: (1) the reliance of a group of forest dwellers on long-term forest resource use for their livelihood, culture and economy; (2) a strong corporate identity of the group members; (3) shared agreement and decision-making on tenure arrangements and resource management; (4) a collective decision-making process on tenure arrangements; and (5) rights and measures to exclude outsiders.



Photo 3.1 Regional boom settlement 'El Sena'

CHAPTER 3

FOREST PRODUCTS, PEOPLE AND TRENDS IN THE NORTHERN BOLIVIAN AMAZON¹

“When the exploitation of Peruvian bark (cascarilla) started in our enormous forests of the Northeast, foreign cascarilleros appeared in the region. After half a century, the extraction languished until it disappeared because of the plantations in ‘English India’, wiping out regrettable lives, capitals and hopes. [...] With the discovery of rubber and the great demand all over the world, rubber tappers started to settle in the inaccessible forests [...].” But after a golden rubber century, the history repeated itself; the market for this forest product deteriorated and Brazil nut collection became the main focus.

Translated from: *‘El imperio del caucho’* Becerra (1984:23,25,26)

3.1 Introduction

The northern Bolivian Amazon is an isolated forest region which history, population and economic development largely depends on the exploitation of commercial forest products and the creation of divers agro-extractive systems. This chapter will give a more elaborated description of the research area, its history of forest extraction, its population, different settlement forms and institutional characteristics. It is meant to give a general insight in the region and its development potential, and outline the regional (vulnerability) context of the case studies that will be presented in the following chapters.

First, it gives an overview of the forest products that have determined and still determine the development of the region and the forest dwellers’ livelihoods. Second, special attention is given to the rubber era and its influence on the regions’ production systems, forest dwellers and livelihoods. Third, a typology of forest settlements is presented, based on the results of the regional socio-economic survey. It gives notion of the diversity of *barracas* and communities that can be distinguished in the region and their different perspectives for development. Fourth, it portrays a typology of forest users, based on their distinct dependence on the forest and specific interaction with its resources. Fifth, it discusses past and current demographic trends and the main processes of transformation of settlements and forest production systems. Sixth, it presents the policies and projects of governmental and non-governmental organizations concerned with rural development and forest resource management in the region. Finally, it argues on the regions’ main problems and trends related to these issues.

¹ This chapter is largely based on Stoian and Henkemans (2000).

3.2 The main forest commodities in birds eye view

For more than one and a half century, the region's infrastructure and economy has been based on the extraction of forest products. Boom and bust cycles of commercial forest product extraction have consecutively dominated the regional economy.

3.2.1 *Peruvian bark*

Around 1830, the first commercial extractors entered the Bolivian forest in search of Peruvian bark (*Cinchona spp.*, *Myroxylon spp.* and *Lonchocarpus sp.*), which contained the antimalarial drug quinine (McKean and Robison, 1996). The gathering of Peruvian bark (*cascarilla*) involved indigenous people, but did not develop permanent settlements or infrastructure in the isolated forest areas. The exploitation was characterized by an open-access character and an indiscriminate collection, which resulted in a depletion of the *cinchona* tree. The extraction was at its peak around 1850 with the city of Rurrenabaque as the regional hub. At the turn of the century, the demand for *cascarilla* collected in the Amazon forest fell as it was substituted by cheaper plantation production from Asia (Stoian, 2000b).

3.2.2 *Rubber*

The region became really integrated in the international trade with the rubber era that lasted roughly from 1860 to 1990. Rubber is the most famous product of the Amazon and tens of thousands of forest dwellers made their living from tapping latex from the *Hevea brasiliensis* tree. For Bolivia, rubber exports accounted for 49 percent of Bolivia's total export value in 1898 (Bieber, 1984). In the boom period around 1900 and after the oil crisis in 1973, official export figures approximated US\$ 3.2 million, while an additional one third of the production was estimated to be unofficially trafficked over the border (Pacheco, 1998:206). Today, rubber tapping is no longer economically viable and commercial production has dropped dramatically.

3.2.3 *Gold*

Gold was reportedly found in the Beni river as early as 1827, but the real gold rush in Bolivia's lowland rivers lasted from 1985 to the early 1990s (Stoian, 2000b). It coincided with the gold fever in the Brazilian Amazon and the high international gold price that lured gold diggers (*garimpeiros*) into the area with the dream of making fortune in one day (Cleary, 1990). Many of them were ex-rubber tappers, who stepped in to a similar labor system with investors providing them with the necessary equipment and food supplies for a hard work in isolated areas (Stoian, 2000b).

3.2.4 Brazil nuts

The commercial extraction of Brazil nuts started in 1920 and over the past decade, the Brazil nut industry has evolved as the single most important pillar of the regional economy. Today, nuts are the main export product providing jobs and income for former rubber tappers. A disadvantage is, however, that this employment and income is only seasonal and subject to fluctuating prices on the international market (Bojanic, 2001). Consequently, the regional economy and development is highly vulnerable to a possible stagnation in the Brazil nut market.

In the last decade, the market for Brazil nuts from Bolivia has been booming. While Brazil continues to be the largest exporter of in-shell nuts, Bolivia has been the world's largest exporter of shelled nuts since 1992. From 1986 to 1998, Bolivia's nut exports increased dramatically from US\$ 3.5 to 28.2 million (CNF, 1997 and 1998). By 1998, the number of Riberalta-based processing factories (*beneficiadoras*) - where the nuts are processed, graded and packed for export - soared to twenty (Coesman and Medina, 1998:150; Justiniano, 1998). Bolivia now supplies half of the world market for Brazil nuts (Man-Producten, 1997).

The Brazil nut industry of the region provides jobs and income to 5,500 persons (mostly women) in the *beneficiadoras* and to some 12,500 collectors or households from both rural and urban areas. Furthermore, some 500 contractors and several hundreds of intermediaries organize the transport. In 1998, Brazil nuts yielded a mean rural household income of around US\$ 500-650. The distribution of benefits appears to be rather skewed towards the urban areas (Stoian, 2000a).

The future of Bolivia's Brazil nut export may look stable with a constant international demand for edible nuts and a low probability of a substitution by plantation production.² However, prices have fluctuated a lot in the past and the low returns on land occupied by nut trees (US\$ 2/ha per year) make the forest vulnerable to more profitable land uses such as ranching and plantation crops. Another issue is the high risk of aflatoxin development in Brazil nuts. In 1999, the European Union, a main importer of Brazil nuts, enacted a ban on the import of products contaminated with a certain dose of aflatoxin.³ The EU-directive has not yet been integrated into EU-member countries' national legislation, but as soon as that happens, Bolivia's export to Europe might drop significantly. The problem is that the slow transport from remote *barracas* towards the *beneficiadoras* combined with poor processing, storage, and packaging cause the presence of these fungi. Measurements to combat these would require high investments in faster transport and improved equipment in the *beneficiadoras*, which would mean the deathblow for the actual harvesting system and the whole nut industry in Bolivia.

² The existing Brazil nut plantations in Brazil struggle with poor financial and technical performance (Bojanic, 2001).

³ Aflatoxin is a fungal toxin which is widely found in cereal crops and nuts that grow under moist conditions and is a major cause of liver disease (Lachmann, 1999).

3.2.5 *Palm heart*

Over the past decade, wild palm heart extraction has boomed in northern Bolivia. Hearts of the single-stemmed wild asai palm (*Euterpe precatoria*) have found ready markets in neighboring Brazil and European countries (CNF, 1997). Palm hearts are extracted during eight months of the drier period between April and November. The main extraction areas are situated in northern Bolivia and in Santa Cruz Department and production has risen dramatically to an export value of US\$ 8 million in 1997 with 19 new canneries opened in two years (Stoian and Hofmann, 1998). Then came the dramatic decline, which caused production to fall by almost two-thirds in 1999 due to a sharply reduced demand in Brazil (Stoian, 2000a).

The palm heart industry has started to extract its raw material in the forest surrounding the urban centers, but unsustainable harvesting and the rapid increase in production have caused a gradual expansion into more isolated areas (Stoian, 2000a). Today, the palm heart industry represents an important alternative income source after the collapse of the rubber industry in the region, and employs some 800 laborers on a seasonal basis (Hoffman, 1997). It needs to be emphasized that palm heart extraction is not practiced in a sustainable way and extraction lasts on average 3.5 years in a given settlement before stocks are depleted (Peña and Zuidema, 2000). Efforts are taken to secure future supplies of raw material by cultivating peach palm (*Bactris gasipaes*) (PROMAB, 1998).

3.2.6 *Timber*

In the wake of the latest rubber crisis, many landowners have allowed timber merchants to extract timber from their estates as an alternative sources of income. In the mid 1980s, the annual cut in northern Bolivia was estimated at a mere 20,000 cubic meters, which provided employment to about 400 laborers (Salas, 1987:25ff). By 1992, annual production rose to 64,000 cubic meters with mahogany (*Swietenia macrophylla*), tropical cedar (*Cedrela odorata*) and tumi (*Amburana cearensis*) accounting for ninety percent of the total cut (DHV, 1993a:18). In accessible forest areas, where above species have been removed, attention now turns towards several lesser-known and commercially less valuable timber species. The latest trends of the logging industry will be discussed in Section 3.7.2.

3.3 **The region's rubber history**

3.3.1 *The different boom-to-bust cycles*

The first exploitation of rubber started around 1850 when Bolivians and Brazilian explorers penetrated the Amazon forest lowlands to tap wild rubber trees. Rubber tapping expanded from that time onward, ushering in a rubber boom between 1900 and 1913. Rubber production was organized on so-called *barracas* established on forestlands that heretofore were only occupied by Indians. The term *barraca* referred to both the territorial extensions of a rubber estate and its functional center sited around the river-based hut of

the owner or patron (*patrón*). In addition to this transshipment point, a *barraca* consisted of forest-based rubber posts or rubber centers where the majority of rubber tappers (*sirringueros*) lived in the absence of basic facilities.

In the early years of rubber exploitation, *barracas* were the only type of rural settlement in northern Bolivia, apart from a few indigenous settlements not incorporated into the rubber economy (Ormachea and Fernández, 1989:48). A few large rubber houses dominated the trade, with Suárez Hermanos and Co. being the most powerful among them.⁴ After 1913, rubber from plantations in Southeast Asia turned out to be much cheaper than the wild rubber collected from the Amazon. Bolivia entered its first rubber crisis and rubber barons searched for another extractive product for the world market and started to invest in Brazil nut harvesting. During the crisis, many rubber patrons had to abandon their *barracas* and these were subsequently taken over by the laborers. They founded the first 'independent communities' in the late 1920s, which *de facto* meant occupying the *barracas* rather than buying the land from their previous employers (Ormachea, 1987:26).

The debt-peonage system in the *barracas*, which is called *habilito* in Bolivia and *aviamento* in Brazil is intrinsically linked to the rubber era and has marked the labor relations in forest exploitation up to the present. In its most traditional form, it consisted of subsistence goods supplied by a patron to a collector in a remote forest area in exchange for a labor service. This form of credit was necessary in order to ensure rubber extraction in isolated areas. Patrons have long prevented forest dwellers from farming and hunting, because the whole debt-peonage relationship was based on monopolizing the trade relations of food products. Consequently, the patron could charge heavily inflated prices for food products, which made the laborers incur accumulating debts. In this way, forest dwellers were patronized in the early days of the rubber era without any option for improvement of their position. However, in order to sustain the system and safeguard the patron's rubber supply and the tappers' well being, the relation also developed a social dimension of interdependence, involving rights and duties for both parties.

During World War II, the high demand for natural rubber in the United States, which was cut off from plantation rubber from Southeast Asia, brought about a second rubber boom in the Amazon. After the war, the demand for wild rubber dropped to pre-war levels and was increasingly substituted by plantation and synthetic rubber. Meanwhile, rubber empires fragmented due to lower prices and land reform, which stimulated the development of smaller properties and independent communities. This second rubber bust was to prevail for about three decades (Pacheco, 1992).

In the 1970s and early 1980s, rubber exports boomed again when prices for natural rubber soared due to the surge in international oil prices. By the mid 1980s, the world economy had recovered from the oil shock, while a severe monetary crisis hit the Bolivian economy. Rubber production suffered a further setback with the abrogation of the

²⁵ The empire of Suárez Hermanos and Co. was founded in 1881 and lasted for more than 60 years. At the height of their power around 1910, they commanded about 6.5 million hectares of forests and controlled some 60 percent of Bolivia's rubber production (Fifer, 1970:141; Ormachea and Fernández, 1989).

Brazilian price support scheme in 1986 that kept prices for wild rubber artificially high. This third rubber crisis resulted in the deathblow for the Bolivian rubber production that ended in 1992 for the time being (see Stoian, 2000a).

Although the tapping of rubber is hardly practiced anymore, most of the older generation of the inhabitants have lived in rubber estates and worked as *siringueros*. Their life has been shaped by the collection of wild rubber and by the price fluctuations and livelihood insecurity that went along with the boom and busts periods of the rubber market.

3.3.2 *Evolution of the agro-extractive cycle*

The differentiation in productive activities due to the rubber crises brought about new extractive and land-use strategies, which were gradually integrated in what Assies (1997a) has called, an 'agro-extractive cycle'. Since rubber tapping alone could no longer sustain a family, forest dwellers began to combine it with swidden agriculture and Brazil nut extraction. The combination of rubber, Brazil nut extractivism and farming was to become the principal livelihood strategy for half a century and shaped rural livelihoods in both *barracas* and independent communities as long as rubber production was economically viable (see box 3.1).

The region's rural population had to prove its adaptive capabilities more than once during the century. During the rubber boom, forest dwellers' working time was entirely dedicated to the time-consuming tapping, smoking and transport of the rubber. In the *barracas*, the patrons had effectively forbidden rubber tappers to practice agriculture, because the system of *habilito* was partly based on providing imported foodstuffs at highly inflated prices in exchange for their labor force. Some patrons organized the cultivation of staple foods under their control on a common plot (*chaco comunal*) within the *barraca*. This monopolization of agricultural production intended to keep the labor force directed towards rubber exploitation and to reinforce the tappers' dependency.

After the first rubber crisis of 1920, many patrons could no longer control the *barraca*'s economy, nor could they provide the laborers with basic needs. The rural impoverishment prompted a diversification of agricultural production as imported food products became unaffordable. Consequently, patrons had to relax the restrictions on agriculture and turned to the exploitation of Brazil nuts as an alternate extractive activity (Stoian, 2000a). Forced by the low rubber price and helped by the new opportunities, forest dwellers started to explore other complementary economic activities outside the Brazil nut season, such as logging, palm heart exploitation, agriculture, horticulture and ranching.

Historical analysis suggests that each rubber crisis resulted in an increase of independent communities at the expense of *barracas* (cf. CEDLA, 1986). The reason why people left the *barraca* system and moved to independent communities lies in the opportunities to develop agricultural activities in the latter settlement type. To be successful in the long run, forest dwellers' livelihood systems had to be shaped around agriculture. Gradually, the *barraca* economy relied on a temporary labor force to extract forest prod-

ucts and the temporary character of labor relations no longer permitted patrons or enterprises to establish dependency relations. The most recent rubber bust in the 1990s led to an accelerated conversion into independent communities and resulted in the breakdown of the traditional agro-extractive cycle. The final disappearance of the rubber market brought about substantial modifications in the rural livelihood strategies, which required a new balance between agriculture, extractivism and wage labor. These adaptive responses to the rubber crisis were neither unique to northern Bolivia nor unprecedented within the region. Elsewhere in the Brazilian and Peruvian Amazon, subsistence and commercial agriculture also became more important in inter-boom periods, and households needed to trade-off and balance extractivism against agriculture, wage labor or other income sources (Coomes and Barham, 1997).

Box 3.1 Don Adolfo Alpire, *siringuero* in Teduzara

“I lived in the *barraca* Teduzara and worked as *siringuero* from the 1950s until the 1980s. I had three rubber paths (*estradas*) each with 100-200 rubber trees. From six to eleven in the morning, I cut curves (*raias*) in the bark, then went for lunch and gave the rubber milk (*leche*) time to come out. In the afternoon, I collected the *leche* and smoked it at home with the help of my wife. Our harvest was normally good during the first tapping period from April to July with 400 to 1,200 kg. During the second period - from October to December - high rainfall usually lowered the production to 100 kg. My *estradas* were situated along the riverbank (a *bajío*) and were inundated completely at the end of November, which forced me to stop until the next dry period.

During the rainy season from December till March, we collected Brazil nuts (*castañas*) for the patron. After the first rubber season, we also worked in the patron’s communal *chaco* that covered about 20-30 hectares. We prepared the *chaco* during the dry season in July and August and planted rice, plantain and manioc with the first rains in October. We received between 2 to 4 *arrobas* (*arroba* = 11.5 kg) of rice for the work and the patron sold the rest to his laborers in exchange for rubber. We were also allowed to make our own *chaco* if we could find the time to do so. The rice and maize harvest - between February and April - always coincided with the last months of the Brazil nut season. Plantains and manioc from the patron’s *chaco* were harvested throughout the year, providing us constantly with food. Fish and game represented our meat consumption together with some small livestock that was tended in the *barraca*.”

3.3.3 *Agricultural land use today*

Food security is the underlying principle of the livelihood systems in independent communities and different studies in the area have indicated that pure extractivism as such cannot sustain a family (see Assies, 1997a; Stoian, 2000a). Consequently, the current agro-extractive practices of independent forest dwellers include a considerable component of staple food production from individual plots (*chaco*). Agricultural production, though, is not only orientated towards meeting subsistence needs, but is increasingly for commercialization. The growing importance of cash crop production results from the need to

compensate for the loss of rubber-based income. The average area cultivated per family has increased over the years and especially in communities located close to urban centers. This expansion of peasant agriculture has resulted in a large increase in forest conversion. Between 1980 and 1990, the area cultivated in the Departments of Beni and Pando rose from 18,000 to 33,000 hectares and 3,000 to 15,000 hectares respectively (Torrico, 1983; INE, 1999a and 1999b). However, this conversion into arable land is dispersed in the forest on small plots and occurs in a system of shifting cultivation with considerable fallow periods. So far the large-scale conversion of forest into agricultural land has not been that extensive in the region, with the exception of areas along the Brazilian border (Keizer, 1993:40). Large-scale commercial agriculture and livestock raising do not have a high potential in the region and are limited to a small number of larger landowners (*granjeros*).

Cattle ranching increased in some parts of the region, in particular in the Province of Nicolás Suárez and along the major highways.⁵ The costly conversion of forest into cattle pastures is not lucrative in this region due to the existence of extensive natural savannas in the more southern parts of the Beni Department (Stoian, 2000b; Bojanic, 2001:201). At the same time agricultural plantation is hampered by infertile soils, a lack of infrastructure and competitive markets involving the more fertile and productive Santa Cruz department and adjacent Brazilian regions (Markewitz *et al.*, 2001; Bojanic, 2001:49).

3.4 Settlement typology

The region's settlements vary considerably in terms of resource endowment and accessibility and for this reason offer a distinct potential for the development of forest dwellers' livelihoods. In the rural areas, *barracas* and independent communities form the main settlement types. The major distinction between these two categories of settlement lays in the inhabitants' control of the resources. The *barracas* consist of a large forest concession controlled by one single owner while the inhabitants extract the resources for their patron. In contrast, most households living in an independent community have control over their own forest plot and its products.

In 1984, there used to be 347 *barracas* in the Pando department, while the province of Vaca Diez only counted a small number of *barracas* (Ormachea and Fernández, 1989). In the early 1990s, Pando and Vaca Diez together harbored about 350 independent communities (DHV, 1993a). Considering the accelerated conversion of *barracas* into independent communities since the 1990s, currently one may estimate figures of 300 *barracas* and 400 communities in northern Bolivia. Of this estimated total of 700 rural settlements, about two thirds are permanently inhabited and the rest are forest concessions where seasonal extraction takes place. The foundation of the *barracas* took place in the first half of the 20th century, while the 400 independent communities have gradually been established since 1950, in particular following the Agrarian Reform in 1953 (Ormachea and Fernández, 1989:27f).

⁵ From 1986 to 1993, cattle pastures in the Province of Nicolás Suárez increased by 118 % from 8,200 ha to 17,889 ha (Keizer, 1993:40).

Also within the two categories of settlement a considerably variety exists in terms of resource endowment and accessibility. Previous researchers have roughly classified the settlements according to their production capacity (e.g. Ormachea and Fernandez, 1989; DHV, 1993b; Assies, 1997a) or ownership (e.g. Pacheco, 1992), resulting in a division of small and large *barracas* and independent communities. However, the results of our village-level survey suggest that more types of *barracas* and independent communities can be distinguished. It turns out that settlements are also distinct in land tenure, employment and income opportunities; in their location in relation to urban and/or market centers; their ethnic composition; and in their settlement history. The following typology tries to catch current trends and to refine the classification in order to have a better understanding of present livelihood systems. The typology is mainly based on the relative importance of Brazil nut production compared to agriculture and on different types of ownership.⁶

3.4.1 *Barracas*

Today *barracas* are marked by the process of gradual conversion into independent communities while the *barracas* that persist suffer a drop in permanent inhabitants due to the ongoing migration flow towards independent communities. Still, *barracas* represent a flexible and dynamic settlement type and have specific organizational characteristics that are particularly adapted to forest livelihoods in the remote areas. This section will describe the different types of *barracas* and the actual trends in their transformation.

Small patron *barracas* are typically controlled by patrons who run a sole *barraca* and live there permanently as successors of a single patron family that has had control over the area for generations. These *barracas* have been either split up among all the sons or passed to the eldest one. Consequently, most of the permanent residents belong to the same family but are divided into separate households. Today, they consist of an average of only four households and have a relatively low production of Brazil nuts. These *barracas* use the available family labor to collect an annual production that does not exceed 2,000 boxes and only hire outside collectors if the production capacity exceeds the locally available labor force.⁷ Small patron *barracas* have a certain future, if they do not suffer from emigration of the younger generation. To get a proper land title under the new forestry code, they need to register themselves as a formal social group (*Agrupaciones Sociales de Lugar* or ASL). The acknowledgement of this organization is necessary to obtain technical assistance of the Municipal Forestry Unit and to receive funds provided by the Popular Participation Program (see Section 3.6.2).

Large patron *barracas* produce in most cases more than 2,000 boxes of Brazil nuts a year and have an average population of only four permanent households. This category

⁶ With Brazil nuts being the most important source of rural income in recent years, we used their annual production as one of the key variables for stratification.

⁷ A box or *caja* is the main measure for in-shell Brazil nut and weighs approximately 22 kg.

also includes *barracas* that have a lower production, but that belong to a large patron who owns several *barracas*. These settlements are very similar in terms of labor relations and management. Most of the large patrons live in Riberalta and stay only in the *barraca* during the Brazil nut season. This type of *barraca* lost most of its permanent population during the most recent rubber crisis. Today, caretaker families are the only permanent inhabitants and during the harvesting season Brazil nut collectors are hired from towns or independent communities.

Enterprise-run *barracas* are a rather new phenomenon and owned by Brazil nut factories that have purchased *barracas* to consolidate their position in the market through vertical integration (Assies, 1997a:51f). In addition, this type of *barraca* is owned by large enterprises from Santa Cruz - involved in the timber industry, palm heart processing, construction work and agribusiness. They have shifted part of their forests-based activities towards Northern Bolivia due to depleting timber stocks around Santa Cruz. Another reason for the purchase of *barracas* is to benefit from the expanding markets for nuts and palm hearts. Enterprise-run *barracas* are merely concessions and have a low permanent population. For this reason, temporary laborers are recruited for harvesting activities. Only those enterprises that invest in infrastructure development and year-round income opportunities stimulate permanent residency.

Barracas in transition represent the transitional stage between patron or enterprise-run *barracas* and independent communities. In some *barracas*, the patron is still in control of the sale of forest products while the *barraca* residents have started to gain political power through the foundation of village councils (*Organizaciones Territoriales de Base* or OTBs). Although an established OTB can serve as an indicator for the autonomy of a community, some OTB decisions are still dominated by the patron and an alibi to obtain funds of the Popular Participation Program that supports OTBs. In other *barracas*, residents have been able to obtain individual parcels and control the sale of Brazil nuts and other forest products, while the patron continues to dominate politics inside the *barraca* and local organizations. However, the existence of plots managed by individual families clearly indicates the irreversible transition from a patron-controlled *barraca* to an independent community. The popularity of this type of *barraca* is illustrated by a relatively high number of permanent residents.

Nowadays, the traditional *barraca* system is being challenged in two ways. First, in the region's most remote areas, large and small patron *barracas* have given way to 'enterprise-run *barracas*'. The reason is that patrons have lost their interest or capability to maintain the *barracas*' infrastructure, particularly in the wake of the latest rubber crisis. The *barracas* closest to urban centers, on the other hand, are in the process of being converted into independent communities. These '*barracas in transition*' are primarily en-

countered along the newly constructed roads that cut into areas that previously were deprived of marketing channels other than those controlled by the patrons.⁸

However, the traditional *barraca* system will not entirely be taken over by independent communities. An adapted *barraca* system will persist, but restricted upstream in zones of low population density, while areas closer to town will exclusively be covered by independent communities. Difficult accessibility is an important feature favoring the persistence of the *barraca* system in the more remote pockets of northern Bolivia. Vast areas rich in Brazil nuts, palm hearts, and timber are located in isolated parts of the region almost devoid of any permanent population. Extraction of forest products from these far-off places incurs high costs preventing most independent extractors from this undertaking. Only prosperous entrepreneurs will be able to maintain *barracas*, because they can afford to invest in infrastructure and pay the concession fees for timber stipulated by the new Forest Act.

The modern '*barraca* system' implies an evolution towards *barracas* considered as concession areas where seasonal laborers extract Brazil nuts. The maintenance and management of these 'modern *barracas*' require advance payments, which are only affordable for large patrons and enterprises. Without substantial payment in advance, hardly any collectors migrate seasonally to a *barraca*. In 1998, the advance payments were two to three times higher than the US\$100 in 1995 due to higher competition for labor and the successful campaigning of labor unions. These advance payments are a relic of the *habilito* system and are crucial in the actual nut harvesting.

NGOs and official labor organizations have tried to abolish this contracting system in order to attain better contracts for the collectors, but regular labor contracts fail to acknowledge the importance of such advance payments. By the same token, Smith *et al.* (1995:79f) state that a disappearance of the *habilito* system will not necessarily ensure more prosperity for extractors. Market prices for extractive products tend to fluctuate enormously and the *habilito* system has traditionally provided stable, though poor incomes through advance credits and goods to people who would otherwise be cut off from such credit assistance.

Remoteness, though, is not the only factor determining the persistence of the *barraca* system. The previous paragraphs have indicated that extractivism as such cannot sustain a forest dweller's livelihood. Food crop production is necessary for a forest dwelling household to survive, but not all forest dwellers are successful in producing it themselves. In *barracas*, patrons can largely fulfill this need and provide their extractors with foodstuffs during the time of employment. This service also ensures transport facilities, which are also necessary to commercialize forest products and keeps people attached to the *barracas*.

⁸ Between 1987 and 1993, the road network extended with 65 % in the Pando Department and with 30 % in Beni Department (INE, 1989 and 1994).

3.4.2 *Independent communities*

Unlike the *barracas* where income opportunities and land use are largely determined by patrons, independent communities autonomously establish the institutional arrangements governing natural resource use. The vast majority of independent forest dwelling households own individual plots.⁹ Parcels typically consist of agricultural fields, home gardens, forest fallow, high forest and grasslands. Six types of independent communities can be distinguished by accounting for the relative importance of Brazil nut extraction, commercial agriculture, and wage labor, as well as ethnic composition and the infrastructure available.

In all types of independent communities, subsistence agriculture is crucial whereas the importance of market-oriented agriculture varies largely according to the area cultivated and access to markets. This is especially true for those communities that are located within less than an hour's traveling distance from town. In these areas, independent communities compete for land with the urban-based owners of cattle ranches and farms. Due to the increasing urbanization, the need to convert forests into arable land or pasture continues to put pressure on these communities.

Extractive communities account for the largest number of settlements in the sample (see table 3.1). They are primarily characterized by a high production of Brazil nuts, amounting to an annual average of 180 boxes per family. Most of these communities are located in areas rather distant from urban centers where competition for land is low and forest cover is high. The main source of income is Brazil nuts collected on their own territory; they are sold to passing merchants or contractors hired by urban-based processing plants. Swidden agriculture mainly provides subsistence to the families without having much potential for commercialization. To a limited extent, agricultural produce, fish and bush meat are traded, exchanged within the community or bartered with river traders. One fifth of the households leaves for the *barracas* during the Brazil nut season in order to gain additional income as seasonal laborers. Conversely, some extractive communities even hire outside collectors, as they cannot gather all the Brazil nuts with the labor force available within the community.

Agro-extractive communities are situated at an average distance of less than one hour from an urban center and have good to moderate access to markets. Sale of agricultural produce is reported to be the main source of cash income supplemented by earnings from Brazil nut collection. Each family collects an average 36 boxes of Brazil nuts within the community boundaries. The income derived from the sale of nuts is equivalent to two month's of day wages. One third of the population leaves temporarily to collect Brazil nuts in a *barraca*.

⁹ The size of individual parcels mainly varies between 20 and 80 ha, in particular in the densely populated rural areas of Vaca Diez Province. As the population density decreases in rural Pando, parcel sizes reach from 50 to 150 ha with maximum sizes of 500 ha along the Puerto Rico-Cobija highway.

Agrarian communities have good access to urban markets that usually are attended weekly. This type of independent community reveals the highest importance of commercial agriculture. Within the community, land scarcity is less pronounced than in peri-urban communities. Villagers, however, frequently complain about boundary conflicts with adjoining *granjas* mostly owned by the urban elite. Agrarian communities compete with them not only for market shares but also for territory. Several *granja* owners and better-off farmers within these communities employ caretaker families to look after their plot, while they themselves reside in town. For this reason, village organization and sharing of duties and responsibilities is rendered more difficult. Forest product extraction is less relevant on the territory of agrarian communities due to the relatively large area of forest converted into agricultural land and pastures. The average amount of Brazil nuts available to a family is 4.7 boxes per year. One third of the households temporarily migrates to *barracas* to gain additional income during the Brazil nut season.

Peri-urban communities are situated close to urban centers or boom settlements where wage labor is the main source of income. The communities have good infrastructure, basic facilities and showed a marked in-migration in recent years. Agriculture is both subsistence and market-oriented, but land resources are generally scarce. The potential for forest product extraction within the community boundaries is very low due to the high rate of deforestation in urban surroundings. About one fourth of the households leaves for the *barracas* during the Brazil nut season to supplement its income with the collection of nuts.

Indigenous communities are a category apart in the sense that they are inhabited by Indians who have already lived in the area for centuries. They manage their land differently from the *Camba* population in the other communities. In most indigenous communities, households cultivate individual fields, while the forested land is managed as a common pool resource. In contrast, most *Camba* communities divide their territories, including forest, into parcels managed by individual families. Because of their average distance of more than 11 hours away from urban areas, these communities have a large access to forest resources and depend on Brazil nut commercialization as a main source of income.

Rural boom settlements stand out in various aspects. They are strategically located at the intersection of principal roads and rivers. On average, they are as distant from town as extractive communities (see Table 2.3), but they display a well-developed infrastructure and are seat of a municipality or sub-municipality. This in turn stimulated in the last decade an immense influx of immigrants in these settlements, resulting in a population growth far exceeding that of the urban centers.¹⁰

¹⁰ In the period 1976-1992, populations of Riberalta, Guayaramerín and Cobija grew annually by about 6 % (INE, 1992a,b). Annual population growth in the rural boom settlements averaged 21 % between 1992 and 1997.

3.4.3 *Urban settlements*

Two thirds of the regional population reside officially in the three principal towns, Riberalta, Guayaramerín and Cobija.¹¹ Most urban inhabitants are former forest dwellers who - after the crash of the rubber market - migrated to the marginal urban neighborhoods (*barrios marginales* or *populares*). Consequently, Riberalta's population doubled between 1986 and 1997 putting much strain on the urban system, causing unemployment and poor living conditions (Verheule, 1998). These people still depend directly on forest extraction and to a lesser extent on agricultural cultivation. Every rainy season, they join the permanent inhabitants of the *barracas* for the collection of Brazil nuts.

There is a strong interface between urban life and forest livelihoods. Many families living in independent communities have second homes in Riberalta, while most of the inhabitants of *barracas* have close contacts with family members living in town. Rural settlements are dependent on the larger regional towns for economic transactions, social life and administrative matters. The town of Riberalta has the largest sphere of influence and that is mainly due to its strategic location downstream of the confluence of the Beni and Madre de Dios rivers. Riberalta's prominent role is mainly due to the absence of an extensive road network in the region and the ensuing importance of river transport.

The livelihood options of forest dwellers include partial or part-time settlement in town and involvement in the urban economy. The youngsters study in urban colleges and perform casual labor activities, driving motor taxis or working in the industrial processing of forest products. Current job opportunities in the urban labor markets are diverse, but short term, insecure, and with low benefits (Verheule, 1998). In addition, the plots in the urban neighborhoods are too small for the cultivation of food crops or for the raising of domestic animals, while theft of such resources is a mayor threat.¹² In order to increase their incomes, urban dwellers make use of the option to become temporarily involved in forest activities. Many of them are seasonal involvement in the Brazil nut harvest in a *barraca* along the rivers. Besides, they are involved in logging expeditions, join 'urban labor gangs', and enter the forest for extracting palm heart, bush meat and wild fruits.

3.4.4 *The rural settlements' population and geographic characteristics*

The vast majority of the rural population in northern Bolivia nowadays prefers to live independently from a patron. Among the sample population, 89 percent reside in independent communities and only 6 percent remains in pure *barracas* and 5 percent in *barracas* in transition. The latter has the highest average of residents relative to other *barraca* types. Unless infrastructure development occurs in small and large patron *barracas*, it is unlikely that this trend will be reversed. The example of investments in some enterprise-

¹¹ Riberalta counts around 60,000 inhabitants, Guayaramerín and Cobija each 20,000 (INE, 1997e).

¹² During the municipality's social plan for urban settlement (Plan Social) from 1990 to 1995, the standard size of a parcel was 12,5x23, with a price of only 1 Boliviano (≈0,20 US\$ dollar) per m². In 1996 the price doubled to 2 Bolivianos per m² and is expected to rise unto 1US\$ (Verheule, 1998). To pay the costs some families split the plots in two.

run *barracas* and their comparatively higher population shows that even today pure *barracas* can attract permanent residents by offering employment and improved facilities.

While scarcity of land along with good access to the urban centers is characteristic of many peri-urban, agrarian, and agro-extractive communities, the opposite is true for the majority of extractive and indigenous communities. Endowed with vast tracts of forest-land, these communities are deprived of access to agricultural markets and urban services. Instead, opportunities to derive income from forest product extraction are far better than in other community types. NTFP-based income, however, is higher in extractive communities, as many indigenous communities are less integrated into the market economy.

Viewing the region as a whole, *barracas* and independent communities not only differ in terms of resource endowment and socio-political organization, but also as regards their spatial distribution and demography (Table 3.1).

Table 3.1 Key geographical and demographic characteristics of rural settlements

	Number of samples (n)	Average distance to next town (hours)	Number of settlements accessible by road (%)	Average permanent population in 1997	Average number of families in 1997
<i>Barracas</i>					
Enterprise-run <i>barracas</i>	14	15.6 (± 9.9)	14.3	87	6.2 (± 8.6)
Large patron <i>barracas</i>	22	11.9 (± 9.2)	36.4	85	3.9 (± 5.5)
Small patron <i>barracas</i>	22	9.4 (± 7.7)	31.8	67	3.0 (± 2.6)
<i>Barracas</i> in transition	15	6.8 (± 4.5)	73.3	164	10.9 (± 8.6)
<i>Independent communities</i>					
Peri-urban communities	7	0.3 (± 0.2)	100.0	195	27.9 (± 2.1)
Agrarian communities	19	0.6 (± 0.5)	94.7	379	19.9 (± 4.5)
Agro-extractive communities	22	0.7 (± 0.4)	100.0	651	29.6 (± 5.7)
Extractive communities	26	2.8 (± 2.3)	80.8	734	28.2 (± 9.4)
Indigenous communities	8	11.2 (± 15.8)	37.5	223	27.9 (± 9.0)
Rural boom settlements	8	2.7 (± 2.2)	100.0	1,167	145.9 (± 85.4)

Column 1 shows the relative distribution of the sample over the different settlement types. The following columns indicate the distance to the next town, accessibility by road and some key demographic data of rural settlements in the northern Bolivian Amazon.

Except for indigenous communities, all independent communities are much closer to towns than *barracas*. Most of the peri-urban, agrarian, and agro-extractive communities are within a traveling distance of less than an hour to the nearest town, using a combination of different modes of transport. Extractive communities are more distant, as are rural boom settlements. But the general picture is that the *barraca* area occupies the more remote pockets of the region, whereas the community area is located closer to town.

Road construction is a crucial agent of change and that is reflected in the high percentage of *barracas* in transition connected with a road. More than two thirds of these *barracas* are accessible by road, but less than one third of the other *barraca* types have road access. Consequently, *barracas* in transition are relatively nearest to towns. In total, 85 percent of the independent communities have road access compared to only 38 percent of the *barracas*. Virtually all peri-urban, agrarian, agro-extractive communities, and rural boom settlements are accessible by road. In contrast, one sixth of extractive communities and two thirds of indigenous communities are only accessible by river.

The population of peri-urban, agro-extractive, extractive and indigenous communities averages a little less than 30 families each. Agrarian communities, however, have only 20 families on average, as they face land scarcity and the lack of alternative income sources. Peri-urban communities, for example, also suffer from limited availability of agricultural land, but their inhabitants can rely on wage labor offered in the nearby town. Agro-extractive communities are largely deprived of this income source, but the higher availability of land enables their inhabitants to base their economy on market-oriented agriculture complemented with extractive activities. Rural boom settlements have by far the highest average population and display the best-developed infrastructure in rural areas, thereby attracting immigrants from the rural hinterland. Migration to rural boom settlements is part of a complex process of migratory trends, which will be discussed further in Section 3.5.

3.4.5 *Livelihoods in the barraca and independent communities*

Those few families determined to stay on the *barracas* no longer face restrictions on making their own agricultural fields and produce part of their food consumption themselves. On the other hand, they continue to be dependent on itinerant traders and patrons for the supply of basic goods (sugar, oil, salt, kerosene, etc.) and their time dedicated to agriculture conflicts with work to be carried out for the patron. Gradually, transportation facilities and social-political transformations have contributed to ease the patron's grip. At the same time, the authorities have stipulated official regulations on maximum prices for basic goods along with minimum prices for collected nuts. Consequently, there has been a gradual shift from a 'patron system', in which social and economic relations were centered around the patron, to a '*barraca* system' characterized by a less stringent debt-peonage system.

Seasonal laborers who live temporary in the *barracas* have benefited from the rising competition for raw material and labor between the patrons and enterprises. The expansion of the Brazil nut industry considerably enhanced the opportunities to generate income through extractivism, reflected in the steady increase of prices paid for in-shell nuts during most of the 1990s (Stoian, 2000a:284).¹³

¹³ In 1993, nut collectors received between US\$ 2.2 and 3 per box, while in 1998 prices had more than doubled to US\$ 4.5 and 7.5 per box (Stoian, 2000a:284).

Livelihoods of those who migrated to independent communities are mainly based on a combination of agriculture and extractivism and, in part, wage labor. Food security is the first concern of *campesinos'* livelihood strategies. Agricultural production, though, is not only orientated to meet subsistence needs, but is increasingly directed to urban markets. Wage labor includes: contract work in forest exploitation; activities related to the agricultural cycle; construction of roads and buildings; and transport. Today, rubber tappers or extractivists with no other source of support no longer exist. Those among them who migrated to independent communities adopted livelihood systems ranging from extraction-based subsistence agriculture to market-oriented agriculture coupled with various degrees of rural or urban based wage labor.

Above sections give us insight into the characteristics of different settlement types, their facilities for livelihood development and attractiveness to migrants. We can conclude that rural boom settlements provide most favorable conditions for rural livelihoods, but are limited in number. Of the other settlements agro-extractive communities seem to be most attractive to forest dwellers due to their not so far distance to urban centers or rural boom towns in combination with a rich resource base. For this reason one of these communities was selected for an in-depth case study of forest livelihoods (see Chapter 4).

3.5 Typology of forest users

In correspondence with the diversity of settlements, the region is inhabited by various categories of forest dwellers characterized by distinct origins, control of resources and habits of forest use. A typology of these inhabitants gives insight in their particular potential for and interest in the development of forest based sustainable livelihoods. It does not lay within the scope of this study to analyze the livelihoods of all categories of forest dwellers, but it is important to have an overview of the main direct forest actors for understanding their interaction with the forest and with each other.

3.5.1 Indigenous forest dwellers and Cambas

Originally, the northern Bolivian Amazon was inhabited by scattered groups of nomadic Indians making their living from hunting and gathering. These indigenous groups were not sedentary and had no legal claims whatsoever on the forest and its resources at the time the first rubber tappers entered the area (CIDOB, 1979a; Jones, 1985). The colonization of the forest for the creation of rubber estates resulted in the disappearance of many of these groups and those who survived the battles and the introduced sicknesses, were assimilated in the rubber extraction and subject to the *habilito* system. Only a few groups were able to continue to live independently (Ormachea and Fernández, 1989).

Today, seven groups continue to live in indigenous communities - the Tacana, Arana, Chácobo, Cavineños, Esse Ejja, Yaminaua and Pacahuara. Together they count for an estimated 5,000 to 7,000 people, who live dispersed in some 25 main areas and larger

communities in the region. The Tacana have the largest presence in the region (CEJIS, 1995, CPTI-CIDOB, 1997). At first sight these people are not easily differentiated from other *campesino* populations in the tropical region, and are often classified as '*campesinos orientales mestizos*'. Actually, many people in northern Bolivia are first or second generation descendants of Tacana ancestors, but rarely express it due to the backward image and low status of lowland Indians (Wentzel, 1987).

The Indians' extent of cultural integration shows marked differences. During the last two centuries, most Indians have largely been acculturated and assimilated with extra-regional migrants. Of all the groups, the Tacana are the most acculturated and have adopted the language, institutions and organization of the broader Bolivian society. However, beneath the mainstream cultural layer, Indians of today have conserved a whole area of traditional elements that have survived and are submerged in modern customs and Catholic ceremonies. Shamanism and a special attitude towards the natural environment and spirits are still actively practiced (Ottaviano and Ottaviano, 1979; Camp and Liccardi, 1979; Diez and Riester, 1996).

In the past few decades, Indian communities – supported by non-governmental organizations and governmental policies – have strengthened their position and improved their opportunities for a socio-political and cultural revival. The larger Indian groups have a strong group identity, combined with a high internal organization. Resources are communally managed and their traditional habit of labor exchange between family and neighbors has extended towards non-indigenous groups who also practice it in rural areas.

Indigenous communities traditionally display low market integration, while the importance of hunting and fishing often outweighs that of extractivism or subsistence agriculture (manioc, plantains, sweet potatoes, maize and rice). Recently, indigenous groups are increasingly exploiting Brazil nut, palm heart and especially timber, which is still abundant on their territories.

The non-indigenous peoples - making up 95 percent of the region's current population - are the descendents of mixed marriages between former indigenous people and rubber tappers who came to the region in the second half of the 19th century. The absence of a local labor force for rubber exploitation implied the transfer of about 80,000 laborers from the Beni and Santa Cruz departments, the adjoining Yungas and some valleys around Cochabamba (Riester, 1975; Sanabria, 1988; Zeitum, 1991). Workers were transferred under an enlistment system (*sistema de enganche*) and had no liberty to settle as independent producers (Ormachea and Fernández, 1989). In general they are referred to as '*Cambas*', a term that has its origin in the northern Santa Cruz region and is used to distinguish the multi-ethnic lowlanders or *mestizos* from lowland Amerindians, and from the '*Kollas*' or highland Indian Aymara and Quechua (Stearman, 1985; Albó *et al.*; Heath, 1994).¹⁴ According to their economic activities and control over forest resources,

¹⁴ '*Camba*', '*Caboclo*' and '*Ribereño*' are terms that refer to de-culturated Indians, people of mixed ethnic ancestry in the Amazon, considered as semi-indigenous peasants, in the Bolivian, Brazilian, and Peruvian Amazon respectively (Chibnik, 1991; Nugent, 1993; Harris, 1998).

different categories of *Cambas* can be distinguished in the region. The main categories will be discussed below.

3.5.2 *Barraca laborers and campesinos*

Today's *barraca* employees (*empatronados*) originate directly from the thousands of recruited rubber tappers who were controlled by the *habilito* system for more than a century (Fearnside, 1989). These people have decided not to migrate towards one of the towns or independent communities, but to stay in the *barraca* and to live and work for a patron. The way of life of these forest dwellers differs little from that of their ancestors. Laborers in remote *barracas* still depend almost completely on the attendance of their patron for their income, infrastructure, services and goods provided. In most cases, this implies a low standard of living and little possibilities for improvement. *Barraca* laborers use the forest as a source of raw material for their subsistence and collect commercial products for the patron. They do not have a say in the commercialization or management of the forest. Currently, they are allowed to make agricultural fields, but they often lack the time, experience and other inputs to do so. The isolation of most *barracas* hampers the commercialization of crops and patrons still use ways to obstruct trade.

The *Camba* people who live as independent forest dwellers in rural communities are referred to as *campesinos*. Compared to the *campesinos* from highland regions, forest dwelling *campesinos* of the northern Bolivian Amazon identify themselves as small agro-extractive producers rather than as peasants living from agriculture. Originally, these lowland *campesinos* have little historical bond with their current settlement, their land and their neighbors. They have migrated repeatedly and lack attachment to a certain patch of arable land. Due to their multi-ethnic background and patronized past they also hardly share a corporate identity as *campesinos* or as community members. The main social and common identity they were able to form was that of *siringueros* with rubber tapping as their daily productive activity with related labor relations, lifestyle, and culture, including myths, music and stories. Due to the above described changes in their livelihoods, their identity as *siringueros* could not hold and gradually has made way for an identity of *campesinos* as independent agro-extractive producers and entrepreneurs.

3.5.3 *Granjeros and caretakers*

Granjeros are urban-based large-estate owners who use their forest area for the extraction of timber and Brazil nuts. If they have the means, they often choose to convert the forest into arable land or pasture for agricultural/horticultural plantation (*granjas*) or cattle raising (*estancias*) (see Bakker, 1999). The conversion of forestland mainly takes place near the urban centers and along the main road axes.¹⁵ The *granjeros* themselves rarely reside

¹⁵ Most *estancias* are situated along the Brazilian border (Beekma et al., 1996; Bakker, 1999). In those areas, the forest conversion rate is visibly much higher than around Riberalta (see Keizer, 1993:40).

at their property because of their work and social life in town, where they are merchants, professors, or other professionals. For this reason, they normally have caretakers living on their estates.

Caretakers (*cuidantes*) form a category apart and live as responsible laborers on *barracas*, *granjas*, and *estancias* of absentee owners. Their task is to stay permanently in the forest in order to take care of plantations and livestock and prevent intruders from stealing forest products, crops or animals. Usually, they are former *barraca* laborers encouraged to stay and work in the *barraca* in exchange for some privileges or are newly settled in a community where they have not yet obtained their own land. They are allowed to have an agricultural plot for subsistence production, but cultivation for commercialization is often prohibited by the owner or impossible due to time constraints. In some cases the caretakers receive a salary or have a sharecropping contract with their boss. Most of them stay only for a limited time on an estate and are not interested in long-term investments in forest management or agro-forestry plantations. Additionally, they have little incentive to become engaged in community matters and the organization of resource use.

3.5.4 *Zafros, palmiteros and 'urban labor gangs'*

The group of *zafros* (harvesters) are urban-based or community-based collectors of Brazil nuts, who seasonally migrate to one of the *barracas* during the Brazil nut harvest (*zafra*) from December to March. Stoian (2000a:284) estimated their number at around 6,500 of whom some 5,000 are poor urban dwellers from the *barrios populares* of Riberalta. The rest are *campesinos* of independent communities who leave for the *barracas* once they have collected the nuts on their own territory.

Palmiteros are either urban-based or community-based palm heart gatherers who are contracted by palm heart factories or intermediaries to exploit asai palms for their palm heart. This activity involves the felling of entire palm trees and the removal of their apical meristem. This type of extraction is obviously not sustainable and together with a very concentrated range of the activities in accessible forest areas, it results in serious degradation and depletion of asai palms (Peña-Claros and Zuidema, 2000; Zuidema, 2000).

'Urban labor gangs' make up another type of urban-based forest extractivists.¹⁶ They are independent extractors who enter the forest in a more *ad hoc* and dispersed manner in order to extract timber, palm hearts, fruits, fish, and bush meat. Usually they hitchhike with a vehicle from town and enter the forest somewhere along the road. These forest extractivists often trespass on state, private and community property and their exploitation methods are without much concern for the resource base exploited, much like *zafros*, *palmiteros* and logging laborers. It means that they cut down forest trees to ease the harvest of palm heart and fruits, hunt excessively, or use poison to kill fish.

¹⁶ Assies (1997a) named these forest extractors 'predator gangs' due to their uncontrolled and predatory exploitation of forest resources.

Evidently, multi-ethnic forest dwellers are most numerous in the research area and therefore form an important target group for rural development projects. Among them, *campesinos* have the highest freedom in exploiting and commercializing forest products and therefore experience the most opportunities for livelihood development. Consequently, they play a crucial role in the utilization and management of forest resources in the region. The case studies of different *barraca* households and *campesino* families will provide more insight in these issues in the following chapters. First we will look further into the main demographic and institutional issues and trends in the region.

3.6 Migration Patterns

In the second half of the 19th century northern Bolivia experienced a surge of extra-regional immigrants when tens of thousands were recruited from the southern Bolivian Amazon and elsewhere to meet the demand for labor on the rubber estates. But ever since, intra-regional migration has been the principal pattern of migration. The post-war reorganization of the *barracas* and the emergence of independent communities have induced a wave of rural-rural and, to a lesser extent, rural-urban migration. After the latest rubber crisis, the region's population has been further reshuffled and is characterized by increased urbanization (Table 3.2).

Table 3.2 Population and its annual growth rate in northern Bolivia from 1976 to 1992.

	Population in 1976	Population in 1985	Population in 1992	Annual growth 1976-1985	Annual growth 1985-1992	Annual growth 1976-1992
Province of Vaca Diez	42,386	62,405	84,651	+ 4.4 %	+ 4.5 %	+ 4.4 %
Urban ¹⁷	70.4 %	73.8 %	84.1 %	+ 5.0 %	+ 6.4 %	+ 5.6 %
Rural	29.6 %	26.2 %	15.9 %	+ 3.0 %	- 2.8 %	+ 0.5 %
Department of Pando	34,493	46,933	38,072	+ 3.5 %	- 2.8 %	+ 0.6 %
Urban	10.6 %	10.3 %	26.3 %	+ 3.2 %	+ 10.9 %	+ 6.5 %
Rural	89.4 %	89.7 %	73.7 %	+ 3.5 %	- 6.0 %	- 0.6 %
Total	76,879	109,338	122,723	+ 4.0 %	+ 1.7 %	+ 3.0 %
Urban	43.6 %	46.6 %	66.1 %	+ 4.8 %	+ 6.9 %	+ 5.7 %
Rural	56.4 %	53.4 %	33.9 %	+ 3.4 %	- 5.0 %	- 0.3 %

Source: Based on INE (1976a, 1976b) Ormachea and Fernández (1989) and INE (1992a, 1992b).

¹⁷ 'Urban' refers to Riberalta, Guayaramerín (province of Vaca Diez) and Cobija (Pando department).

After 1985, urbanization was pronounced in Vaca Diez and Pando. Given an internal growth rate of 3 percent in northern Bolivia, the rural areas in Vaca Diez had an out-migration of 5.8 percent, while the rural hinterland of Pando experienced a loss of 9 percent.¹⁸ The rural people of Pando contributed to a large increase in the relative growth of the small town of Cobija (Pando), but the absolute number of migrants to Riberalta (Vaca Diez) was higher due to job opportunities in the processing industry. As a result, the department of Pando faced out-migration and Vaca Diez immigration.

Riberalta is the largest town in the area and counted 56,393 inhabitants in 1998. The town received the highest influx of migrants between 1980 and 1987 and experienced a population growth of 6.7 percent per year. Then the annual growth rate slowed down to 4.8 percent between 1987 and 1992 and, subsequently, to 4.4 percent during the period 1992-1998 (Secretaría Regional de Salud, unpublished data; Van Beijnum, 1996).

The figures of table 3.2 do not show the rural-rural and urban-rural migration. However, the village-level survey showed substantial migration from *barracas* to independent communities (see figure 3.1). Since the end of the rubber-tapping epoch, all types of *barracas* have experienced out-migration and the trend was the most pronounced in the enterprise-run *barracas*, because they are located in the most remote areas where permanent inhabitants have moved out to more accessible places, and their labor force has been replaced by seasonal workers who migrate to the *barraca* during the *zafra*. Many of the *barraca* migrants have moved to independent communities, especially to those communities that were the most accessible and have agricultural production.

To complete the picture, more recent migratory trends were analyzed by comparing the data of the 1992 official census with those from the 1997 village-level survey (see table 3.3). Due to the cessation of rubber production after 1992, out-migration from the *barracas* was pronounced, while independent communities experienced in-migration. The overall rural population was calculated taking into account the internal growth rate and showed that the population of the 163 rural settlements sampled grew by 10.7 percent from 1992 through 1997 due to rural immigration. Therefore, one may conclude that the rural exodus was at its highest in the late 1980s before it leveled out in the early 1990s and partially reverted to immigration in the mid 1990s.¹⁹ Though the drain of the population from the *barracas* continues unabated, nowadays many of the *ex-barraca* residents find their way to an independent community rather than migrating to town. These recent trends in rural-rural migration are confirmed by Riberalta's decelerated population growth in the mid and late 1990s.

¹⁸ 'Internal growth', called 'natural growth' by others, is defined as the balance of fertility rate and mortality rate. 'Population growth' combines internal growth and growth due to migration. In Bolivia as a whole, the population grew by 2.7 % per year (Harcourt and Sayer, 1996: 219). Pando's population was estimated to grow annually by little more than three percent (INE, 1992b: 5).

¹⁹ Given the regional population's high mobility and diverse patterns of residency, double counting of the same households as rural and urban is inevitable. Moreover, population data are politically biased, since governmental programs such as Popular Participation are granted on a per capita basis.

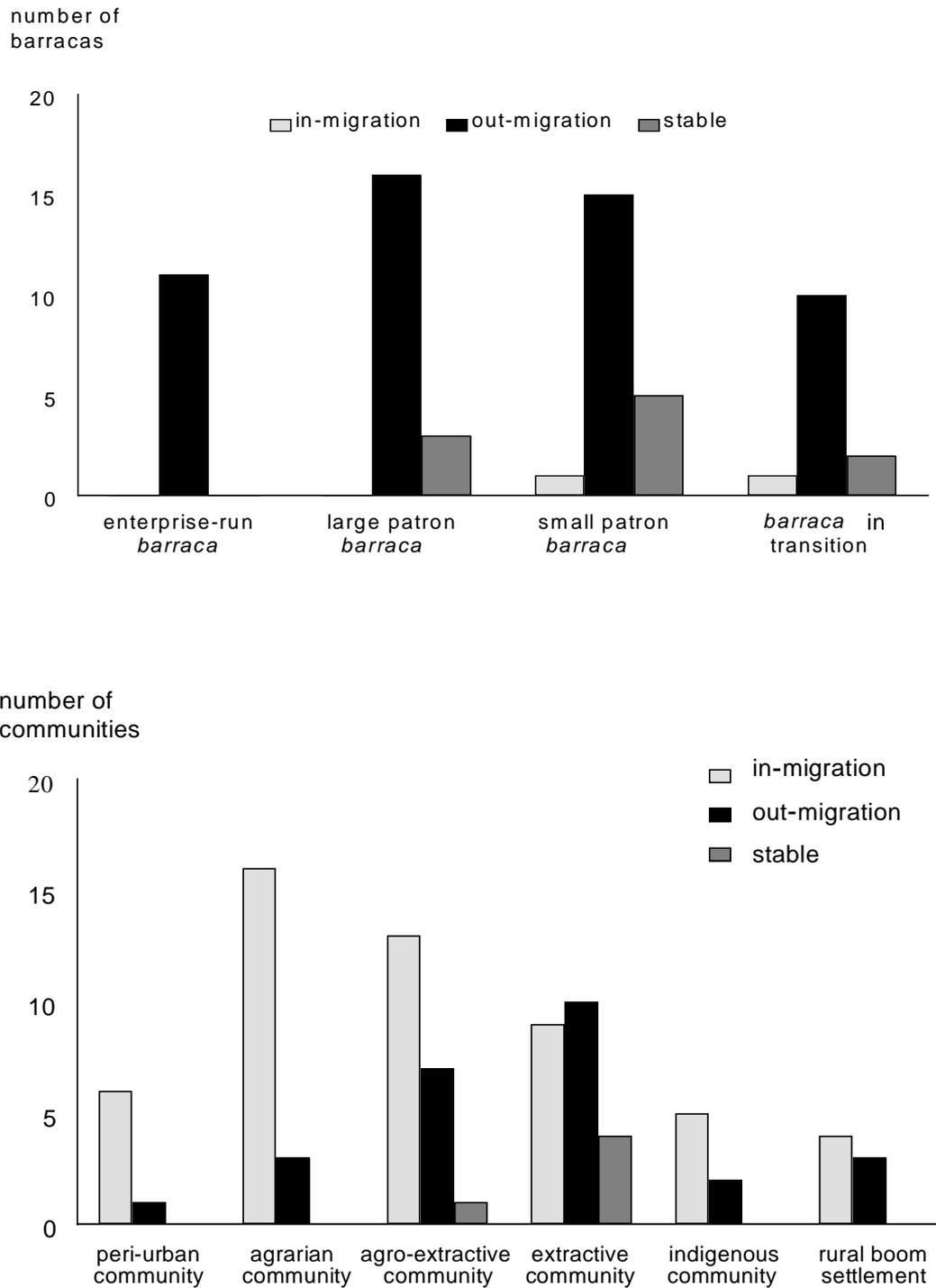


Figure 3.1 Migratory trends of resident families in 64 *barracas* and 84 independent communities between the year that rubber tapping stopped in the settlement and 1997.²⁰

²⁰ Rubber tapping disappeared in each settlement at a different moment (from the 1970s to the early 1990s). The influence of internal population growth is eliminated. The virtual number of families in 1997 is computed by anticipating an internal population growth of 3 % a year and compared to the actual number gained from the village-level survey. With a deviation ≤ 15 %, a population is defined as stable; a positive deviation of > 15 % stands for in-migration and a negative deviation of > 15 % as out-migration.

Table 3.3 Changes in population of rural settlements in northern Bolivia and their average distance to the next town in relation to migratory trend.²¹

	Population in 1997 as percentage of popula- tion in 1992	D for in- migration settlement	D for out- migration settlement	D stable Population settlement
	(%) (StDev)	(hours)	(hours)	(hours)
<i>Barracas</i>				
Enterprise-run <i>barracas</i>	35 (± 53.7)	5.5	14.4	32.0
Large patron <i>barracas</i>	34 (± 50.2)	8.8	13.0	8.5
Small patron <i>barracas</i>	95 (± 198.9)	4.0	12.4	11.7
<i>Barracas in transition</i>	96 (± 41.4)	9.9	6.0	7.8
<i>Independent communities</i>				
Peri-urban communities	206 (± 182.0)	0.3	0.2	0.2
Agrarian communities	128 (± 70.5)	0.3	0.7	0.5
Agro-extractive communities	157 (± 132.5)	0.7	0.8	0.6
Extractive communities	124 (± 57.8)	2.5	3.2	3.4
Indigenous communities	115 (± 36.2)	6.0	30.0	2.6
Rural boom settlements	223 (± 97.8)	2.7	n.a.	n.a.

D: distance to the next town for different settlement types

Factors like accessibility of goods and services, land tenure, and social relations explain the diverse patterns of rural-rural and urban-rural migration. Most of these factors are related to the distance to the nearest town. Within a given settlement type out-migration has taken place in the more remote settlements, whereas in-migration occurred in the same type of settlements closer to town (Table 3.3). This trend holds particularly true for the *barracas* as well as those communities located farther from town, such as many extractive and indigenous communities. In addition to the distance from the nearest town, availability of schooling and health care are key factors as regards migration (Table 3.4).

Independent communities are far better equipped with schools and health facilities than *barracas*. These findings and the related migration patterns confirm the results of Romanoff's village-level survey conducted in 1981, *i.e.* well before the ultimate collapse of Bolivian rubber trade. "People do move to get better services, particularly schools ... Patrons themselves note that conditions on the *barracas* are unacceptable (*infra-humana*) and that *barraca* workers now require social services, such as education" (Romanoff, 1992: 130). Schooling and health-related infrastructure are therefore crucial determinants concerning the migratory flow from *barracas* to independent communities or towns.

²¹ The percentage of population growth between 1992 and 1997 is calculated on the number of households recorded during the village-level survey in 1997 with the computed data of INE (1992a and 1992b). Computation of the figures of 1997 took into account an internal growth rate of 3 % a year. Thus, a settlement growing according to the internal growth rate between 1992 and 1997 assumes the value 100. Consequently, settlements affected by out-migration or in-migration assume values below 100 and above 100, respectively.

Table 3.4 Types of schools and health care in *barracas* and independent communities.²²

	<i>Barracas</i> (%)	<i>Barracas</i> Transition (%)	in Independent communities (%)
<i>Schools</i>			
No school	64.8	26.7	2.2
Primary school (<i>básico</i>)	36.2	46.7	57.8
Lower sec. school (<i>intermedio</i>)	0.0	26.7	27.8
Higher sec. school (<i>medio</i>)	0.0	0.0	12.2
<i>Health care</i>			
No health care	93.1	80.0	28.9
Basic health care	3.4	6.7	7.8
Good health care	3.4	13.3	63.3

3.7 Institutions involved in sustainable rural development

A large number of organizations, institutes and stakeholder agencies are involved in rural development and natural resource use, formulating plans and laws, and implementing projects. The activities of these different entities have an important role in strengthening the evolving structures of the independent communities. Several regional organizations exist that support rural dwellers to improve their health care, education, production, infrastructure and forest management. The actual results show that much is still lacking, but the active involvement also illustrates that forest dwellers around Riberalta are getting organized and are gradually setting up rural organization entities. The influence of national policies is also tangible through the repercussions of a number of important laws, and the state has a hand in rural development through national funds, although implementation remains problematic. The organizations and activities described in the following paragraphs will illustrate that forest dwellers around Riberalta are not languishing, although they have a backward position in comparison with urban areas.

3.7.1 Community-level institutions

At the community level, a number of organizations form the organizational backbone of independent communities. The community council or OTB is the main body and resembles a municipal council. This elected committee is a continuation of the original community syndicates that gained legal personality under the law of Popular Participation of 1994. It gives the communities access to governmental and non-governmental sources of

²² Health care is defined as 'basic' when there is access to traditional and/or allopathic remedies provided by a skilled person including doctors, nurses, natural medicine men (*naturistas*), shamans (*curanderos*). 'Good' health care stands for a mini-hospital, a clinic, or health center available in a given settlement.

funding and subsidies. The OTBs function is to co-ordinate local-level committees and communal activities and to represent the community at the regional level. An OTB is an indicator of the autonomy of a community, as it is entitled to take all decisions in village affairs. The success of these councils is demonstrated by the efforts that many *barracas* in transition perform in order to establish official OTBs in their settlement in order to get access to governmental funding. Some patrons stimulate this process in order to hive off their responsibility for infrastructure and services to public organizations. However, these OTBs in the *barracas* can hardly be considered independent organizations, because the influence of the patrons is always looming in the background.

Conflicts that arise within a community are settled by a community conflict manager (*corregidor*). The *corregidor* has a police function at community level and remits complicated conflicts to the courts in Riberalta. The role of this conflict manager is crucial in a community, since conflicts are frequent and are mostly related to boundary conflicts, forest usufruct rights, trespassing and theft of forest products.

For many communities education of the children is one of the main communal priorities and an important reason to get organized. The formation of a school board of parents (*junta de auxilio escolar*) is one of the requirements for the establishment of a school. A settlement needs to have a minimum of 15 children attending school and a school board in order to receive government support for the construction of a school building and the appointment of a teacher. This board of a small group of parents is supposed to monitor and regulate the schools' provision of teachers and materials. The inhabitants of many of today's *barracas* are not able to fulfill these requirements (any more).

Another important social element in most of the communities is the community sport club (*club deportivo*), which organizes football and basketball in the community and contests with other communities. These initiatives increase the internal and external social relations of the communities, making them stronger in their development. In contrast, most *barracas* lack this kind of sports club and the concomitant element of cohesion. Many communities also have a health committee (*comite de salud*), which has the task of managing the settlement's health care facilities and its members - including an expert in medicinal plants (*naturista*) - are trained by the NGO *Salut Sin Limites* (SSL). Next to this, community members establish a cash fund for emergencies (*caja de emergencia*) in case some member needs urgent medical treatment. In general, it can be said that many community organizations are still too weak to defend the rights of their members or coordinate the development of the community. So far, the mediation of NGOs is indispensable for obtaining legal rights and negotiating with the authorities. The main reasons for this organizational weakness as determined by development workers and the *campesinos* themselves, are the former rubber tappers' lack of experience with self-determination and social cooperation, requiring proper planification, administration and communication (see Chapter 7).

3.7.2 Official policies for rural development

The national authorities have enacted several laws that have had important repercussions for the lives of forest dwellers around Riberalta. Some regulations have improved their living conditions and resulted in the financing of a limited number of rural development projects, but the overall execution is problematic and characterized by burdensome procedures and a lack of implementation and follow-up.

In the most important economic sector, things have changed. In the course of the last decades, farmers' organizations and syndicates have put pressure on the government to regularize the Brazil nut industry and improve the position of collectors. The Labor Inspection service has imposed and monitors maximum prices that the patron can charge for basic goods along with minimum prices to be paid for the collected nuts.²³

The *Ley Participación Popular* (LPP) of 1994 and the *Ley de Decentralización Administrativa* (LDA) of 1995 have created a system of local authority and have decentralized the budget for development projects (Velasco, 1997). The LPP aims to foster village development through decentralization and transfer of funds from the national treasury to lower administrative units. Funds of that program are only granted to independent communities with recognized OTBs. These OTBs are supposed to formulate their own development plans, but most of them are still too weakly organized and inexperienced to do so and not aware of the necessary bureaucratic formulas. At the same time, the municipality authorities dispose of the necessary funds, but they lack the continuity and formation to succeed (Van Beijnum, 1996). It looks as if the government took effort to decentralize political power and the authority of funds, but did not manage to train its lower officials yet. NGOs have largely taken over that role, although that may be no real solution, as NGO presence and funding is never guaranteed. Moreover, it may even obstruct the enrollment of long-term development projects and many examples exist of the premature termination of initiated projects.

Two important governmental funds have become more accessible to the inhabitants of the region. The Fund for Social Inversion (*Fundo de Inversión Social* (FIS)) finances initiatives for health care improvement, the installation of drinking water, provision of school materials, and general infrastructure works in rural communities (OAS, 2000). The Development Fund for *Campesinos* (*Fundación de Desarrollo Campesino*) supports production improvement projects of organized *campesinos* and its funding comes from international donors (GTZ, 1996). Both these programs possess sufficient means to set up activities and many infrastructural projects have been realized. However, political changes and bureaucratic delays have hampered the impact of the funds and their continuation.

The educational reform issued by the *Ley de Reforma Educativa* of 1994 has modernized the rural education system and stimulated adaptation to regional lifestyles and indigenous cultures and languages. Implementation in rural areas remains problematic,

²³ Minimum prices are negotiated between the Chamber of Exporters, the Association of Producers of Rubber and Brazil Nuts (ASPROGOAL), the local labor inspection and representatives of the collectors in December each year (Assies, 1997a: 40).

because the law has prescribed completely new teaching methods, subjects, books and new school materials. The rapid transformation was imposed on the teachers, school children, and their parents. The result has been confusion, protests and a setback in the level of education. Since education is one of the few opportunities of upward social mobility for forest dwellers, the threat of such a negative development contributes to the rural exodus. In the coming years, it will become clear whether the new regulation has been suffering from child diseases or has been too ambitious for remodeling rural education.

The new forest law of 1996 has been an important milestone for forest management in the region. It has improved the overall situation, but illegal logging tolerated by corrupt officials remains rampant (Environment News Service, 2000). The new forestry department (*Superintendencia Forestal*) has initially reduced the total area of logging concessions, but, notwithstanding, timber production has gained larger importance in the departments of Pando and Beni. The new code has also enabled local forest dwellers to influence forest policies and has given municipal authorities an explicit role in forest management. The Forestry Service (Servicio Forestal (SERFOR) is in charge of the local administration and control of the forest use. Municipalities are poorly equipped and have so far made little progress in local forest management. Combined with their lack of capacity it has resulted in poor implementation of the legal opportunities that the new forestry code has created (Kaimowitz *et al.*, 1999; Beekma *et al.*, 1996).

The *Instituto Boliviano de Tecnología Agrícola* (IBTA) is a government institute that directs agrarian research through the establishment of pilot sites with experimental plantations. Several communities in the region have received tree seedlings to develop agroforestry plantations. However, they did not receive any technical supervision or follow-up resulting in failure of most of the plantations. Due to a lack of resources and staff for the processing of data and extension of their findings, IBTA currently focuses mainly on the establishment of a gene-bank in order to collect and preserve important agricultural and forestry species.

One of the objectives of the municipal policy of Riberalta is the re-migration of recent inhabitants of the popular neighborhoods of Riberalta back to the rural communities. The most ambitious project developed within this policy has been an integrated rural development program for food security (*Proyecto de Seguridad Alimentaria*), initiated in 1994. This project has supported the development of agricultural production, alimentation, health and education projects in almost 13 rural communities in the vicinity of Riberalta (Van Beijnum, 1996). Although the project seems successful in the prevention of further out-migration from the communities, it has not yet resulted in a spontaneous return of migrants from the *barrios populares* to the settlements. Further development of agrarian markets and income generating opportunities proves to be of major importance in the rural areas.

3.7.3 NGO support for forest dwellers

The region counts a long list of NGOs that are involved in rural development and natural resource management. These NGOs are the only institutions that reach the grass-roots level with adequate development support and give an example of how to comply with the aims of the LPP and the LDA laws. In 1991, the Riberalta-based NGOs and some government institutions decided to unite their efforts and established a coordinating body: *La Coordinadora Interinstitucional Rural* (CIR). This entity has coordinated different rural development projects by exchanging information and recruiting the expertise for implementing projects and support institutional strengthening of grass-roots organizations.

In the following description of the most active Riberalta-based NGOs, it becomes clear in which areas activities take place and it indicates that most of the initiatives have been started in the last decade. It illustrates that the institutional dynamism of this region has accelerated enormously and rural development is becoming a serious issue.

IPHAE

One of the most successful NGOs combining community development and forest management projects in rural communities is the *Instituto Para el Hombre Agricultura y Ecología* (IPHAE). Since 1994, this NGO has searched for sustainable development options for the region and works in about sixty communities in the vicinity of Riberalta (Beekman *et al.*, 1996). They help small forestry producers to increase benefits from Brazil nut collection and introduce agroforestry products for the improvement of fallow fields and for income generation. The institute also empowers the *campesinos* in their negotiations with forestry industrials and legal institutes such as the National Institute of Land Reform (INRA) and the Forestry Superintendence. They train them in conducting forestry surveys and support them in the preparation of forest management plans. They also set up practices of sustainable forest exploitation and give environmental education in schools and through radio programs organized in cooperation with Radio San Miguel. In cooperation with CEJIS, they take effort to give the forest dwellers legal support in tenure issues such as the legalization of their (communal) land titles. Moreover, they organize meetings to make the different communities and families exchange experiences. Recently, IPHAE initiated together with the CAIC the establishment of a new organization for the commercialization and processing of agroforestry products.

The Farmers cooperative CAIC

The *Cooperativa Agrícola Integral "El Campesino"* (CAIC) aims to assist *campesinos* in product diversification, obtaining market information and credit. The cooperative stimulates agro-extractive production and provides technical assistance and organizes the commercialization of forest and agricultural products from its affiliates in independent communities in order to give the producers larger benefits (Beekma *et al.*, 1996). However, financial and organizational problems have obstructed the activities and success of the CAIC. Due to a lack of capital they are unable to diversify the commercialization of

farmers' products, pay them the prices they have promised, or give technical assistance.²⁴ Even the discovery of the 'Fair Trade' market channel in Europe and the establishment of a cooperative Brazil nut factory in 1992 did not solve these problems. Its share in the regional production is only three percent and the cooperative can not control the price setting for in-shell nuts in the region (Assies, 1997b).

CIPCA

The organization *Centro de Investigación y Promoción del Campesinado* (CIPCA) has come recently to Riberalta and specializes in research and action for rural development. Initially CIPCA supported several communities with the diversification of their agricultural crops. Currently it largely concentrates on community development and the implementation of national policies for rural development, after having identified the organizational problems faced by independent communities. Its other specialization is the development of small-animal husbandry.

Radio San Miguel

The radio station San Miguel was established in 1968 by the Catholic Vicariate of Pando, based in Riberalta, and informs and educates rural people through interactive radio programs. The programs facilitate exchange of knowledge and information between local communities and with regional authorities and organizations. They give special attention to gender issues; land tenure and conflicts; and environmental and health issues. Due to a close collaboration with IPHAE and other NGOs for rural development, people consider the radio as an institution that defends the rights of *campesinos* and *barraca* laborers.

Missionaries

Several Catholic and Evangelic missions (mainly North American, Swiss and Dutch) are working in Riberalta to support urban dwellers and give them religious formation. Some of these organizations are also active in rural development such as the *Pastoral Social Rural*, which is an NGO dependent on the Vicariate of Pando. The *Pastoral* supports health care in communities and popular urban neighborhoods through the maintenance of health posts, the establishment of wells, the creation of communal and private vegetable gardens and the provision of information about child alimentation (Van Beijnum, 1996).

The provincial federation of syndicates (FSUTCPVD)²⁵

The primary objective of the Federation is to organize its members, defend their interests and stimulate political empowerment. Most community syndicates and their affiliates are member of this Federation. Specific examples of the Federation's activities are its role in the yearly price negotiations for Brazil nut in the "Chambre of Commerce" and the or-

²⁴ The cooperativa sets a price for the nuts at the start of the harvesting season, which is paid to the collectors at the payol (communal storage facility). It organizes the commercialization and when the final market price is higher, farmers can claim an extra bonus (reintegro), which is often not paid.

²⁵ FSUTCPVD: Federación de Sindicatos Unicos de Trabajadores y Campesinos de la Provincia Vaca Diez.

ganization of workshops on *campesino* land rights. An additional task of the Federation is formulating and submitting community development proposals in the framework of the LPP law. The federation's capacity, however, is low and forced its leaders to join the CIR and cooperate with the NGOs for a better coordination of the rural development projects.

CEJIS

The *Centro de Estudios Juridicos e Investigación Social* is a human rights group fulfilling an important role in the protection of land rights of indigenous people and *campesinos*. CEJIS is involved in land reform projects in the Bolivian Amazon through studies and negotiations about property rights. The legal assistance concentrates on the implementation of the Land Reform law (INRA) of 1996 (WRM, 1999).

SSL

Salut Sin Límites (SSL) has been important and effective in the development of sanitation and healthcare in rural communities. It supports many independent communities with the establishment of health posts and the use of medicinal plants. Its actual activities have been hampered by lack of funding.

OMED

The *Organización de la Mujer en Desarrollo* (OMED) has the objective of improving the position of women by organizing them, providing information and empowerment. The final aim is to make them more independent and enable them to develop income-generating activities such as vegetable gardens. Their staff and resources are too limited to reach the rural areas.

ADRA

The NGO *Agencia de Desarrollo y Recursos Asistenciales* (ADRA), founded by the Seventh Day Adventists, has acted as counterpart in development programs of other organizations in the region, such as in the municipal program for food security. They channelize donations of USAID in the form of aliments or small credits. ADRA has organized rural women into Mother Clubs (*Clubes de Madres*) that form the base for the creation of vegetable gardens for the school children and the provision of breakfast at school. Most independent communities have established such *Clubes de Madres*, which disappeared again as soon as ADRA left.

SNV

The Dutch Organization for Development Cooperation (SNV) is currently the main foreign organization operating in and around Riberalta. SNV works since 1995 in Riberalta and its overall aim is to support NGOs in their efforts to empower local people and stimulate sustainable development. Recently, it has opened a regional office in Riberalta from where it supports and coordinates the activities of most of the above mentioned NGOs.

3.8 Current trends and today's main problems

As in many tropical forest fringes, experts, researchers and policy makers have reported about the actual problems related to the use of the forest resources in the Northern Bolivian Amazon. They warn for the increasing threat of uncontrolled logging, the overexploitation of palm heart and wildlife species, and increased shifting cultivation without sufficient fallow time. A combination of these factors could even lead to a serious degradation of the forest, although large-scale forest clearing is not yet to be feared (see DHV, 1993a; Keizer, 1993; Zuidema, 2000). Other studies stress the uncontrolled urbanization with alarming living conditions for poor urban dwellers (Van Beijnum, 1996; Verheule, 1998) and the poor livelihoods in backward rural areas (Romanoff, 1992; DHV, 1993d). In the following sections, a number of specific threats related to these issues are discussed, because they will be crucial in determining the livelihood strategies of the forest dwellers in the next years.

3.8.1 *Unequal and unclear property rights*

In the Bolivian Amazon, property regimes are badly organized and conflictive. Customary rules and regulations are dynamic and lack transparency due to the former immigration of people with different origins, the existence of a deteriorating *barraca* system, and continuous legal changes. The mixture of people, settlement types and production systems in the region has resulted in a dynamic complex of customary and informal claims, and modern (legal) rules and regulations. In addition, due to a delayed implementation of the land reforms, land continues to be controlled by *de facto* rather than *de jure* landowners (Stoian and Henkemans, 2000).

The *campesinos* and independent communities own their existence and their access to natural resources mainly to the Agrarian Reform of 1953. This law granted the inhabitants of communities access to a forest plot with an *estrada* (Serreno, 1993; Romanoff, 1993). A consequence of the reform and the concomitant free land trading was land concentration, because many smallholders sold their land to rich large estate owners. As a result, the group of *granjeros* gained access to comparatively large plots in ex-*barracas* that had been converted into independent communities (Ormachea and Fernández, 1989).²⁶

Most of the forest in northern Bolivia is public land, and only few smallholders have obtained a legal title. Since 1996, things have changed legally. The Agrarian Reform Act and the New Forest Law of 1996 entail a transparent and effective registration system with a larger access to land for smallholders, decentralization of land titling procedures and a more effective system of land taxation and the conservation of biodiversity (World Bank in Naerssen *et al.*, 1997). These laws guarantee the recognition and protection of

²⁶ Smallholders count for 88 % of the land holdings and cover 9 % of the land. Medium land holdings between 500 and 2,499 ha represent 8 % of the land holdings and have 12 % of the total land. Large landowners with a property larger than 2,500 ha form 4 % of the land holdings and occupy 79 % of the land (INE in Ormachea y Fernandez, 1989).

indigenous and *campesino* communities' rights (cf. BOLFOR, 1997). The independent communities are granted access to a communal territory for an initial period of 40 years, which they mostly divide internally between the inhabitants. The community syndicates or OTBs, which are responsible for its management, are authorized to either divide all the forestland or manage part of it as communal forest. Within this communal territory, individuals have on average access to a forest plot of about 50 hectares.

Since parts of the new laws are conflicting, it remains to be seen whether or not the legal reforms will finally benefit the envisioned target groups and sustainable forest management. In 1997, the Agrarian Superintendence and the regional offices of the National Institute of Land Reform (INRA) have initiated an overhaul of the existing land titles (*saneamiento*) in order to establish a clear picture of the land rights situation including all the claims on land by different interest groups. Due to the stagnant decentralization of government services and the lack of papers proving land claims, the process is very slow.

One problem is the unequal distribution of land rights and the skewed division of benefits of forest exploitation between Indians and *campesinos*, on the one hand, and patrons and merchants on the other hand. The region's indigenous peoples have long been deprived of the benefits accruing from NTFP trade, while also the *Camba* laborers did not receive a fair share. This situation was unfavorable for forest management, as well as for rural livelihood development, involving short-term resource use strategies and stirring in urbanization.

But both the new Forest Act and the revised Agrarian Reform Law provide the legal basis for forest dwellers' active participation as autonomous land users (see BOLFOR, 1997). Many Indian communities currently strive to obtain land titles over large tracks of forest with support from NGOs. In the northern Bolivian Amazon, they have applied for 1.6 million ha. Even if not the entire area will be handed over, considerable changes of land tenure are likely. The anticipated impact of land redistribution is twofold. First, Indian communities may become the driving force challenging the *barraca* system from inside. Second, the remote location of indigenous settlements along with their enhanced legal status can establish a secure basis for the survival of their social and cultural life forms. At the same time, *campesino* communities have strengthened their land claims and bargaining power with merchants and forest product companies.

However, the attempt to give the regions' (non-indigenous) *barraca* laborers access to individual forest plots and make them shareholders of the concession met fierce resistance of the patrons (Boot, personal comment). The small population of *barraca* laborers does not have lobbying and negotiation power and as long as the flow of temporal laborers from urban areas fulfills the labor demand of the concession-holders, they have little incentive to share their resources. Only in the more accessible and populated areas where external support and alliances are viable, such transition might take place in the coming years.

3.8.2 *The expansion of the logging industry*

The Bolivian logging sector is rather moderate in size and concentrated in the eastern lowlands around Santa Cruz. Notwithstanding the good intentions of the new land reform and forest law, logging concessions are still given preference above forest territory claims of forest dwelling communities. Within a year of operation, the new Forestry Superintendence renewed and granted 88 logging concessions on an area of 5.7 million hectares. Half of these concessions are located in the department of Santa Cruz, with others in the departments of Pando and Beni (Superintendencia Forestal, 1997 and 1998 in Stoian, 2000). Several of these concessions overlap with *barraca* areas and territories claimed by indigenous groups, raising disputes between logging firms on one side, and Brazil nut or palm heart extractors and indigenous groups on the other side (Stoian, 2000b).

Although actual deforestation is still low in the region, the recent increase of logging activities is the most threatening development that represents a considerable risk for further forest encroachment. Lumber companies and independent loggers have speeded up their activities in the area and diversified the list of economic species. Bolivia's forestry law, passed in 1996, allows the government to lease forests to private companies in 40-year concessions according to sustainable forest management principles. However, if such principles are followed in the far north, is largely out of the state's control. In addition, concession boundaries are not always respected, resulting in conflicts about illegal extraction on Indian land and in *barraca* territory or community forests of *campesinos*.

The new law enables Indian people to obtain exclusive user rights for forest resources situated on communal land in territories reserved for indigenous groups. This right implies a considerable economic value, since a large part of the potentially exploitable timber is situated on Indian Territory. In most cases, Indians lack the capacity to perform the exploitation themselves, and board out the logging to timber entrepreneurs in exchange for low stumpage fees. Their lack of market information and experience in the timber business gives them a weak negotiation position, which makes them lose large potential profits on timber. In 1998, the *Grupo de Trabajo Forestal en Comunidades* (GTF) initiated a campaign aimed at raising the indigenous groups' awareness of the real value of their forest resources and the advantages of taking commercialization into their own hands. Such awareness raising has already shown some success with Indian forest dwellers as well as *campesinos* negotiating with entrepreneurs about fair prices and controlled logging operations. This evolution illustrates the progress made compared to before the logging ban (*Pausa Ecológica*) from 1991 to 1996. At that time, timber was sold whenever an industrial or chainsaw operator came with a proposal to the landowner. Many cedar and mahogany trees have been harvested in this manner for low prices.

The certification of forests is another positive trend, which supports a sustainable forest economy in the region. Bolivia's Voluntary Forest Certification initiative may work towards this end by establishing guidelines and criteria for sustainable forest management - mostly based on logging and NTFP extraction - that can represent a basis for the re-

gional economy offering jobs and income to casual laborers in the *barracas* and concession areas (CFV, 1999). Since it was launched in 1993, the Bolivia Sustainable Forestry Management (BOLFOR) project has facilitated the certification of almost 900,000 hectares of tropical forests in Bolivia's lowlands with the FSC standard. It represents nearly 25 percent of all forest production in the country and Bolivia is now the only tropical country with such a large area of natural certified tropical forest (FSC, 2000).

However, underlying causes that contribute to deterioration of the region's forest resources and hamper sustainable development lay in two important socio-economic factors: the unclear property rights and an uncontrolled urbanization.

3.8.3 *Uncontrolled urbanization*

Although decreasing, rural-urban migration towards the regional towns still forms a constraint for sustainable development in the region. The migrant forest dwellers flock into the *barrios marginales*, which rapidly changes the livelihood balance of many households and, at the same time, is overturning drastically long established extraction systems and social institutions. Migrants leave their rural communities due to lack of education, healthcare, diversified foodstuffs and income opportunities, and the difficult access to other services (DHV, 1993c). In the outskirts of the towns, however, they encounter a cash economy that makes services inaccessible for them and the necessary employment to earn money is not available. Furthermore, they lack space for cultivating their own food, making their life even worse than in the forest. The result is an increasing overpopulation and poverty in the towns and seasonal involvement of town inhabitants in predatory forms of forest exploitation (Assies, 1997a). A related disadvantage is that the scarcely populated forest becomes an inefficiently exploited resource base with several rural development options left unused and a free area for large companies and private land owners to perform uncontrolled logging and forest conversion.

Alarmed by the high rural-urban migration of the 1970s and 1980s, and the concomitant overpopulation of the urban popular neighborhoods, several development organizations have concentrated their efforts on improving the living conditions in rural communities around the regional towns. The organizational instability due to out-migrations has been identified as one of the main constraints for community development, which made development agencies concentrate their effort on stabilizing rural livelihoods.

3.9 **Concluding remarks**

The northern Bolivian Amazon has been marked by the different cycles of extractivism of forest products. The boom to bust cycles of rubber and the related *barraca* system have definitely had the largest impact on the livelihoods of the forest dwellers and have left behind distinct marks in the way people use their land and organize their settlements.

The first important consequence of the rubber era is the gradual disappearance of the agro-extractive cycle based on rubber in the last 80 years. The cycle was a year-round

range of activities shaped by rubber tapping and nut harvesting. Now that rubber is no longer tapped, people have diversified their livelihoods. Brazil nut harvesting together with agriculture make up most of their livelihoods, complemented with seasonal labor in timber and palm heart extraction, and hunting.

The second important evolution is the ongoing conversion from *barracas* to independent communities. Parallel to this changing settlement type is the increasing out-migration from the remaining *barracas* towards independent communities and urban centers. This migration trend has brought about important changes for the settlements' viability and people's livelihoods. Based on the characteristics of the different types of forest settlement, agro-extractive communities tend to offer most opportunities for livelihood diversification and development based on independent extractivism, agrarian production and wage labor.

The larger part of the forest inhabitants are multi-ethnic *campesinos* who - after having lived and worked for several generations as rubber tappers under a debt-peonage system - slowly start to establish themselves as small agro-extractive producers in independent communities. Others have settled in one of the popular neighborhoods of the regional towns and are only temporarily involved in forest exploitation as migrant Brazil nut gatherers, palm heart extractors, timber laborers or "urban labor gangs". The typology of different user groups has indicated that the way people manage their resource base depends to a large extent on the control they have on the land and products and the duration of their interaction with the resources. For urban as well as rural people in northern Bolivia, their livelihoods and future largely depends on the forest environment and their strategies to use and develop its potential. The region's main strength and development potential lies in its forest riches.

Today's critical issues are socio-political empowerment, corporate identity, land rights security and market outlets for extractive products. Institutions and organizations which are involved in forest dwellers' livelihood development try to cope with these challenges by organizing people, defending their legal rights and supporting their economic development based on agro-extractive activities. Several NGOs are active in rural development and slowly the prevailing legal and political structures become amendable for changes that reactivate rural life. The efforts are concentrated on basic sanitation and health care, education, infrastructure, the diversification of forest dwellers' production and natural resource management.



Photo 4.1 The *barraca* Teduzara

CHAPTER 4

**The *BARRACA* TEDUZARA
and the
COMMUNITY SAN ANTONIO**

4.1 Case studies of forest settlements and livelihoods

This chapter presents the settlements that were selected for analyzing the livelihoods and perceptions of the *Camba* forest dwellers in the region. After having described the most important generalities of the region's *barracas* and communities, and their inhabitants, this chapter introduces two case studies, one of a *barraca* and one of an independent community. It describes the historical, demographic and institutional characteristics of the population as well as the livelihood assets and development potentials on which they rely. Although almost 90 percent of the forest dwellers currently live in independent communities, the *barraca* system continues to put its stamp on their lives and practices. Most of the *campesinos* are still under the influence of the heritage of their past in a *barraca*, and in some cases continue to seasonally collect Brazil nuts in the *barracas*. A minority continues to live a life as laborers in one of the *barracas* largely dominated by a patron and the seasonal harvest of Brazil nuts.

The first case study is of a relatively isolated enterprise *barraca* on the Orthon River in the Pando department. The *barraca* Teduzara is a large forest concession controlled by a patron and illustrates how the debt-peonage system persists in the more isolated forest areas. The *barraca* is inhabited by a small number of families whose livelihood is based on labor for the patron. The second case study - the community San Antonio - is an accessible agro-extractive community in the neighborhood of Riberalta. The diversity of livelihood options for the independent *campesinos* results in a whole range of productive activities. They autonomously develop their livelihoods based on the opportunities provided by close interaction with an urban center. The viability of a forest livelihood becomes clear in the context of urban markets, governmental and non-governmental interventions, and competition for natural resources. Table 4.1 gives some general characteristics of the settlements.

A closer analysis of Teduzara reveals the 'separatist movement' of part of its inhabitants, trying to organize themselves in an independent community named 'Trinidadcito'. This produces a third and special case of a settlement in which several former *barraca* laborers are trying to develop an independent community. It illustrates how limited the *Camba* peoples' chances are of avoiding the influence of the *barraca* system and developing an independent community in an isolated forest area.

Table 4.1 Basic settlement characteristics

	<i>Teduzara</i> ¹	<i>San Antonio</i>
<i>Type of settlement</i>	Barraca	Independent community
<i>Strata</i>	Enterprise <i>barraca</i>	Agro-extractive community
<i>Year of foundation</i>	1881 (current patron from 1974)	1940
<i>Area</i>	85,000 (center) 8,000 (Peninsula) 21,000 (Trinidadcito)	4,000 ha
<i>Number of permanent families</i>	13	47
<i>Number of permanent inhabitants</i>	86	207
<i>Distance to the nearest town</i>	6 hours by boat	1 hour by car
<i>Main income sources</i>	Wage labor in forest extraction	Commercialization of forest products and agricultural surplus

4.2 The *barraca* Teduzara

After a four-hour boat trip on the Rio Orthon, the small port of Teduzara appeared suddenly after a curve in the river. A large pontoon full of Brazil nuts lay ready to be carried to Riberalta. Two women doing the laundry in the river watched us with curiosity, while the children – playing in the water – tried to hide shyly their laughing faces. Nobody approached us as we climbed the high riverbank until a representative of the patron brought us to his house.

The patron, Sr. Castedo, had a healthy appearance and a pronounced belly. He welcomed us at the doorstep of his house, a reasonable residence in such a remote forest location. He looked a bit worried to see unexpected visitors, but he welcomed us as a friendly and generous patron. After a good dinner with ingredients from the fridge, we got a TV-soap for desert. He told us all the success stories of the barraca and his good relations with his laborers, while the cook and the maid were still busy in the kitchen.

Then, we went to visit the laborers who live in small run-down sheds opposite to the patron's house. As we crossed the swampy grass fields taken over by free roaming cows, people looked suspiciously at us. Before we could explain the purpose of our visit, one of the patron's cows took advantage of the situation and grabbed a T-shirt from the laundry line. To our surprise the people stayed apathetic and hardly dared to approach the cow and chase it. Before asking them, we could already imagine how they looked up to their patron as even his cows were untouchable!

Diary, February 1997

¹ Teduzara here includes Trinidadcito and Peninsula.

4.2.1 *The barraca in a 'nutshell'*

Teduzara is a family-enterprise *barraca* of the Castedo family located along the river Orthon, about nine hours travel from the departmental capital Cobija by local road and river transport (see figure 3.1). The patron lives permanently in Teduzara together with some 86 inhabitants, comprising 13 permanent families and about 10 temporary laborers. The *barraca* concession is composed of three separate areas managed by the Castedo Hermanos enterprise, which has its own *beneficiadora* in Riberalta. The main area, referred to as 'Teduzara' is located on the northern bank of the river and covers 85,000 hectares and encompasses the main port with the *barraca's* central buildings.² In the west, Teduzara borders the Nacebe *barraca* owned by a timber company from Santa Cruz that tends to trespass over the boundary and extracts Mahogany and Cedar from Teduzara's land. The second area of 8,000 hectares called 'Peninsula', has its port half-an-hour upstream on the southern riverbank. It is a forest concession for timber, Brazil nuts and palm hearts, administered by a caretaker and his family. One hour further upstream, the patron claims another concession of 21,000 hectares, referred to as 'Trinidadcito'. Three independent families that refuse to work for the patron inhabit this area. They have claimed independent ownership from the moment that their former patron died in 1990 and now want to establish an independent community. There are only three houses there, while some desolated sheds and an empty, rundown, school building are reminders of a larger settlement in the past. The inhabitants live by subsistence agriculture and from selling palm hearts and Brazil nuts to river traders and to merchants in the nearest community - situated on the main road to Riberalta, more than five hours walk away.

About seventy percent of the entire *barraca* area consists of *terra firme* with high forest and a valuable reserve of timber species, including cedar. Twenty percent is lowland or flooded forest (*bajío*), containing a high diversity of palms and other useful plants and animals, as well as suitable soils for agricultural production. Ten percent of the area covers natural and planted grassland and some small agricultural land and home compounds. The *barraca* also has a large Brazil nut extraction area with a potential production of 50,000 boxes of in-shell nuts. This area encompasses about forty collection centers scattered in the forest, in some cases at a distance of sixty kilometers, or twelve hours walk, from the main port where the Brazil nut collectors (*zafreiros*) arrive every year for collection. In addition, the concession contains wild and planted asai palms for palm heart production.

Transport and mobility is problematic for the inhabitants of the *barraca* and they are dependent on the patron. Their main mode of transport is by foot or hitchhiking with the boat or truck from the patron. The feeder road that passes through the neighboring Nacebe *barraca* is only accessible in the dry season and river transport is mainly available in the rainy season. On average, it takes for the laborers at least a day to travel to the towns of

² The central buildings of the *barraca* are the patrons' residence and store, the sawmill, sheds and houses for the laborers, a boarding house for temporary staff (such as technicians for the sawmill), a small school building and a health center.

Riberalta or Cobija. The costs of such a trip are around US\$12, two and a half day's wages. Puerto Rico, the nearest rural boomtown (*peublito*) along the river is a four-hour boat trip away in a fast motor boat but 6 to 8 hours distant with slower transport. During the nut-harvesting season, merchants travel up and down the river and can sometimes provide transport.

4.2.2 *History and development of the barraca*

The development of the *barraca* has been largely dominated by the boom and bust cycles of the rubber trade). Teduzara was founded in 1880 and was part of the larger rubber estate of the Casa Hermanos Suarez during the heydays of the rubber trade. At that time, about 200 rubber tappers inhabited the *barraca*, living and working in the forty centers (*puestos gomeros*) dispersed over the concession area. In addition, the patron had more than hundred day-laborers, working on infrastructure and transport. Different patrons run the *barraca* until it came into the hands of the current patron in 1974. Although its decline had already begun, the *barraca* was still highly developed at that time. According to the pioneer inhabitants who lived in the Teduzara for more than thirty years, it resembled a small town with many facilities. Rubber was exploited commercially until 1989 after which time the rubber tapping families increasingly left the settlement due to a lack of jobs, and to deterioration of all the other facilities.

“Teduzara was a nice small forest town (pueblcito). We had a primary school and a college with 150 pupils, two churches, and electric light in the main center and an airstrip for small airplanes. In those days, the patron’s store had a large assortment of goods. The rubber centers (puestos gomeros) were connected by good paths and we were almost comparable to a community.”

Don Adolfo Alpire, currently living in San Antonio

Despite the visible decay, the patron has tried to revitalize the *barraca* with several new investments. He established a processing plant for Brazil nuts (*beneficiadora*) in Teduzara, which has provided jobs for about 90, mostly female, nutcrackers (*quebradoras*). The work in the plant slowed the out-migration for a couple of years. However, in 1992, the *beneficiadora* in the *barraca* had to close down, because it could not meet new export standards of hygiene and uniformity. The obsolete equipment and the long period of water transport turned out to be detrimental to the quality of the shelled nuts. From 1994 to 1997, a palm heart factory was operating in the *barraca* providing alternative jobs. However over the last year production was not profitable anymore due to the stiff competition from mobile palm heart processing plants on the river, and overproduction resulting in plummeting prices (see Hofmann, 1997; Stoian and Hofmann, 1998). Then, the patron set up a new *beneficiadora* in Riberalta that today processes the nuts from the *barraca*. The most recent development has been the establishment of a sawmill, which has brought about several changes in the settlement. It has created jobs for permanent in-

habitants as well as for urban migrants. The permanent inhabitants are mainly involved in prospecting, cutting and transporting timber trees. The urban migrants are skilled for working in the sawmill. This situation has resulted in a stabilization of the out-migration of inhabitants and an immigration of temporary and semi-permanent laborers.

The son of the patron, who is currently taking over the *barraca*'s management, has promised improvements to the laborers. He has plans to establish plantations of fruit trees and to tend more cattle on the natural pastures of Trinidadcito. In addition, he stimulates the laborers to make agricultural fields and become more self-reliant. However, he does not provide the conditions for these activities in the form of sufficient time and seeding material.³ This makes one wonder if his main motive to stimulate his laborers' self-reliance may be to reduce his responsibility for their food security.

4.2.3 *The permanent inhabitants*

The Castedo family governs the *barraca* as their private holding, although there are no formal grounds for this.⁴ The patron together with his three children and an administrator controls entirely the different activities in the *barraca*. The senior patron himself travels up and down between the properties and the towns, while one of his sons is in charge of the *beneficiadora* in Riberalta and the other manages the *barraca* activities. The administrator holds track of each family's work, production and consumption, and administers the households' diaries and accounts. The goods bought by the workers during their shopping trips (*habilito*) every 15 days, are subtracted from their accounts without any control from the laborers. The patron's total mastery of these account books is the best illustration of his domination of the laborers.

The number of permanent inhabitants has declined dramatically since rubber production ended in 1989. For the main *barraca* area, it fell from 200 families during the rubber heydays to forty in 1992, and only 3 households at the beginning of 1997 (DHV, 1993c; survey data). In 1998, it increased again to eight permanent families due to a number of *zafreiros* who settled permanently after the *zafra* and a couple of families that returned from Riberalta after the establishment of the sawmill. Most of them have young children. A couple of adolescents have found work with the patron in the boarding house or in the sawmill. Others have moved out to study and work elsewhere, mainly in Riberalta. Some of the families have members living outside the *barraca* who contribute to the household's income by sending money. Most men permanently living in the *barraca* center work for the patron as day laborers and perform all kinds of jobs including prospecting for valuable timber trees and the collection of Brazil nuts. Others are monthly contract laborers with more specialized jobs in transport and felling trees with chainsaws.

All laborers receive their salary in kind, in the form of necessities from the grocery store of the patron under a typical *habilito* system (see Section 3.2). Some women work

³ To prepare their own *chaco*, laborers need permission from the patron for an unpaid 8-9 days leave.

⁴ Although the patron of Teduzara claimed to have bought the entire area, he was not able to present any formal documents to prove his legal ownership.

part time for the patron and the administrator washing laundry, collecting fuelwood or cooking. The caretaker family in Peninsula earns its living as contractor and coordinator of *zafreiros*, palm heart exploiters and laborers working in timber exploitation. In addition, they practice some subsistence agriculture and make simple furniture to sell. The families in Trinidadcito independently exchange and commercialize agricultural surpluses and forest products, except timber.

More than half of the households from Teduzara lives in one of the houses or communal sheds belonging to the patron, with on average only one room and a small kitchen. These huts are remnants of the rubber era, providing little comfort. They are small, noisy and unreliable during bad weather. In contrast with the inhabitants of San Antonio, none of the families in the *barraca* has a second house elsewhere. In addition, the cows of the patron are not fenced and freely roam around the houses and eat and destroy anything they can find.

“The animals, especially the cows, do not leave any plant standing. That is why we can not cultivate anything around the house. We have to make our chacos far in the forest and do not clean the path in order to prevent the animals from reaching the fields.”

Doña Christina Justiniano, pioneer inhabitant of Teduzara

The permanent *barraca* laborers are typical *Camba* people. Several of them have Tacana forefathers, but do not identify themselves as indigenous people. Most of the inhabitants of Teduzara were born or grew up in a *barraca*, but have also lived part of their life in one of the regional towns. Only a few have settled in a community for some time, the others do not know what it is to be an independent *campesino*. Some of the 13 families are pioneers who have lived in the *barraca* as rubber tappers for more than 25 years (see Box 4.1). Some of them have never moved and hardly dare to imagine themselves living and working elsewhere than in Teduzara. Other households were settled between five and 25 years ago, because they knew the patron or could not feel at home elsewhere in town or a community. A few recently settled families came to the *barraca* less than five years ago as *zafreiros*. They did not succeed in ending the Brazil nut season with a surplus of income and had to stay in the *barraca* to pay off their debts to the patron. Most of them are still young and are used to live in town. They do not intend to stay and hope to be able to leave the *barraca* within a year. Since recent settlers never stay long, and only the pioneer inhabitants are faithful to their settlement and patron, the permanent population of the Teduzara tends to grow gray.

Most permanent inhabitants are ambivalent about their plans and wishes for migration and settlement. They are aware of the advantages and disadvantages of a town life compared to a forest livelihood, and would like their children to benefit from both ways of living. Some of them say they would try to live in a community in order to have that experience. Others prefer to stay in the *barraca*.

Box 4.1 *Barraca laborers for life*

Pastor and Juana Galindo, a 50-year old couple, belong to the pioneer families of Teduzara. They were born in the neighboring Nacebe *barraca* to parents who worked as *siringueros*. Pastor has tapped rubber for twenty years and had many other jobs. He worked in road construction from the age of 12; collected Brazil nuts; worked in processing factories for nuts and palm heart in Teduzara; cultivated and maintained the patron's *chaco*; and today he tends the patron's cattle. During his whole life, he has only made ten *chacos* for his own family, because the work for the patron has consumed all his time. He works seven days a week, earning an average of US\$120 per month, paid in rice, food cans and other utensils.

Juana manages the household and takes care of the *chaco* of half a hectare. She washes the patron's laundry and sometimes repairs clothing on the sewing machine they bought some years ago. For them, life is good in the *barraca*: "*the patron is 'una buena persona'. He provides us with work and with basic goods.*" As far as they know, they are without debts, but do not have any savings either. They are thinking of asking the patron for a credit of US\$100 to go to Riberalta for a medical examination, because they are worried about their health. What they miss in the *barraca* is cash and a church that disappeared together with the migrants.

They remained in the *barraca* when the *beneficiadora* closed in 1992 and most of the households left for Riberalta. The couple has only left the *barraca* for short visits (*a pasear*) to their children, who work and study in Riberalta. Juana is longing to go to Riberalta: "*I would like to live with my kids who go to school in town. I think I can get quickly used to the urban life and find a job as empleada*". On the other hand, she likes to live in Teduzara: "*I like to move around in the forest and have free fruits and a chaco, things you don't have in Riberalta*". Pastor is afraid he will miss the *barraca* and be unable to get used to town life. Until today, these doubts have kept them in Teduzara and probably will do so for the time being.

Most of the pioneers think they are too used to the *barraca* system, and too old to leave and live independently. Especially in town - where the cash economy dominates daily life - they think they would have problems maintaining their livelihoods. They feel uncomfortable with too much independence and self-reliance because of the strong mutual dependency relationship they have developed with the patron.

When the rubber market collapsed a few years ago, they had no money or courage to leave the patron, and felt incapable of living independently. They were used to working for the patron, but were also afraid of repercussions from his side if they tried to leave. According to some stories, the senior patron sometimes used force and blackmail to keep his laborers in the *barraca*. He knew that they would not be able to leave and build a home elsewhere without sufficient cash and pretended they had debts with him.⁵

⁵ According to an inhabitant of San Antonio who ones migrated from Teduzara, it requires at least US\$110 to pay the costs of transport and unproductive days, and to develop a home somewhere else.

4.2.4 *The temporary inhabitants*

Additionally, many temporary laborers inhabit Teduzara. These are seasonal laborers attracted by the job opportunities offered by the patron in the *zafra* and in the sawmill. Some of the ten laborers working in the sawmill formerly worked in the palm heart factory. The majority arrived recently. These laborers are generally young people, often without accompanying family. Usually having their family in Riberalta, most of them do not intend to settle down in the *barraca* and develop long-term activities, such as agriculture. They leave for town during the holidays and the rainy season when the factory closes, and as soon as they have had enough of the work, or are content with their savings, they move on.

Every year at the beginning of the Brazil nut season in December, around 400 *zafreiros* come to the *barraca*. They originate from Riberalta and its surrounding communities and do not stay permanently in the *barraca*, except when they find a lucrative job. Most of them are males: fathers with sons. Some others bring their family including small children. Depending on the quantity of Brazil nuts available, they work in one or more collection centers in the *barraca's* forest. They camp in the forest in precarious living conditions and work long days to harvest the nuts (see photo 4.2). Normally, they travel back home in March, before the start of the school season. Several, however, have to stop working before that time, due to sickness, exhaustion or family matters back home (see box 4.2).



Photo 4.2 *Zafreiro* in front of his temporal house

Box 4.2 Zafreros in the barraca

The *zafreiros* arrive in December at the port of Teduzara after a several days long boat trip. They start walking to the collection centers which takes them about two days. Before they start to collect nuts, the middlemen (*contratistas*) who hired them in Riberalta instruct them to construct temporary houses and organize the first food distribution. *Zafreiros* work from dawn to dusk, six to seven days a week in order to collect as many nuts as possible.

The wives usually stay with the children around the *payol* (storage facility for Brazil nut) and prepare the meals with the limited ingredients available. “*We have to live from plain rice and what we can find in the forest*”. The men go hunting and often cut down fruit trees or palms around the *payol* in order to accelerate the harvesting of edible products. The families sleep in small uncomfortable huts made out of sticks and palm leaves, which are rarely rain and snake-proof. The women’s biggest worry is the security of the children who get easily hurt or sick in the forest.

The *patrón* regularly makes unannounced visits to the collection centers for a quick inspection and brings some fresh food products. Sometimes, the man in charge of the health center (*sanetario*) accompanies him, takes care of people with malaria, and sells medicines. The *patrón* himself pretends to be generous, but hardly pays attention to the living conditions of the *zafreiros*. He is mostly concerned about the *zafreiros*’ production and always promises to fulfill their demands the next time.

4.2.5 *Social capital and organization*

In Teduzara the pioneer laborers claim to have established a good relationship with the patron. Several of them were born in the *barraca* area and inherited their social-economic ties with the *barraca* and the owners from their parents. They choose the security of their long-term relationship with the patron and their mutual dependence. They find their long-standing working relationship with the patron as beneficial.

“The patron has gained faith in me and treats me well. He is a good boss. He helps where he can and easily gives credit (habilito) without interest.”

Don Pastor Galindo, pioneer Teduzara

These confidants of the patron feel respected by him due to their faithfulness and their valuable knowledge of the forest concession and the products exploited. This respect gives them livelihood security. They expect the patron to take care of them. However, according to several other *barraca* laborers, good patrons are scarce these days and not every laborer has a good relationship with the patron. In the opinion of some *barraca* laborers, the current patron has evolved into a mere merchant who does not take care of his laborers anymore. The patron-laborer relationship has lost most of its social content and has become a simple economic interdependence, in which the laborers provide cheap and obedient labor in exchange for basic goods. As an alternative social security, the perma-

ment laborers need to establish mutual relationships among themselves and try to support each other with the little resources they have.

“The patron is bad. He does not care about our health and economic situation. He leaves us ignorant about our debts and savings. Moreover, he does not support us when we are sick or have other problems.”

Doña Christina Justiniano, Teduzara

The patron, in turn, depends highly on the presence of cheap laborers. He needs to give the laborers incentives to stay in the *barraca* or to prevent them from leaving in another way, for example by causing them to be indebted to him. The *habilito* system still works well for that purpose, because the remote *barraca* remains almost completely isolated from urban centers and the patron can control largely the transport of outgoing extractive products and incoming food products. The whole system is based on making the laborers indebted to him, or making them think they are. As long as this is the case, many workers do not dare to leave. The veterans in the *barraca* have ambiguous feelings about their position. On the one hand, they are proud of the fact that they have become the confidants of the patron due to their long service. On the other hand, they regret that they never had the courage or the ability to leave and become independent.

The fact that the young patron persuaded his laborers to organize themselves into an OTB is rather ambiguous and probably has to be seen in the light of his escape from responsibility. In case his laborers, through the OTB, become eligible for governmental support he does not need to support them anymore by establishing and maintaining a school and health center or in developing other livelihood projects, while he maintains access to their cheap labor. In the meanwhile, funding of the Popular Participation law does hardly reach this isolated area, giving the laborers' a small change to get support. Consequently, the laborers find themselves in an institutional vacuum without structural support from the *barraca* system or from the state.

The inhabitants of Trinidadcito have decided that the supposed social security offered by a patron is little worth to them and they want to organize themselves in a more independent and democratic social unit. However, the number of households and people is too small to form a proper basis for an OTB and create sufficient social capital for the members of the community. Consequently, they search for socio-economic association with river traders and with communities on the road. At least the alliance between the families and their strong fight for independence has forced the patron of Teduzara to let them to stay and control part of the natural resources.

4.2.6 *The laborers' living conditions and human capital*

Communal infrastructure and facilities in the *barraca* have deteriorated instead of developed during the last decade. Drinking water is taken from polluted wells and from the river; the health center is neglected; electricity is only available for the patron and the administrator; the school is functioning badly; there is no church; and the patron's store

only provides a limited number of basic necessities, which are more expensive than in town.

The harsh living conditions make it difficult for the people in the *barraca* to maintain and develop their human capital in the form of productive labor, health and education. Due to hard physical labor and a poor diet, the laborers' general health condition is weak. Malaria and illnesses due to poisonous snakes, insects, and plants are the most problematic.⁶ Being sick means for the laborers a lack of income and having to spend money on medicine. The *barraca* has a health center, supported by the municipality, but according to the laborers the attendance of diseased people is limited and the medicines are expensive. The patron is supposed to cover his laborers' health insurance, but costs made are usually subtracted from the laborers' accounts. For this reason, people tend to wait too long before seeking medical attention. Young people are constrained in their formal education with an unsuitable school building, poor school materials and no capable teacher. They usually want to leave the settlement in order to study or work elsewhere.

In Trinidadcito, the situation is still worse; because the OTB is not yet formalized, the eight schoolchildren are without a teacher, and other services are absent as well. Although the adult inhabitants are determined to stay and try to ease their life with alcohol, most adolescents have left, and the younger ones will follow.

For the *zafros*, basic living conditions during the *zafra* are even harsher. There is no clean drinking water, and their diet is limited to pure rice bought on credit from the patron, and the fruits and game they can find in the forest. At the same time, the temporary sheds they live in do not protect them from harmful insects and reptiles. Despite the bad conditions, the men overwork themselves for the collection of the maximum possible number of boxes of Brazil nuts in a short time. They carry a bag of about 80 kilograms (which equals almost 4 boxes) on their back twice a day and wash the nuts in a small stream in order to receive one *boliviano* more per box. (see photo 6.1)

4.2.7 Control of resources and the establishment of produced and financial capital

Because the *barraca* is situated in a remote and mostly intact forest area, it includes a large old-growth forest area that contains a whole range of valuable extractive products for subsistence and commercialization. However, the *barraca* laborer are only allowed to collect products for their daily needs, while the patron controls and arranges the rest of the natural capital in the form of products with commercial value. Consequently, the *barraca* laborers are not able to transform their natural resources into financial capital through commercialization. Another consequence of the laborers' lack of authority over the resources is their inability to prevent temporal forest dwellers - such as the *zafros* - from hunting and gathering forest products in areas that permanent laborers normally use for their food supply.

⁶ The type of work often includes long days of harsh physical labor in the forest with the risk of being injured by wild plants and animals.

In Trinidadcito, the patron and the inhabitants are entangled in a lasting conflict over the commercialization of the natural assets. The inhabitants claim authority over the resources as laborers of the former patron, who left the area to them for the foundation of a community. The patron of Teduzara, though, claims to have bought the area and since then frustrates every effort of the inhabitants to seek independence. The current agreement is that the inhabitants are permitted to exploit and sell Brazil nut and palm heart independently, but have to leave the timber for the patron. In practice, however, they also have to compete for the Brazil nut production with *zafreiros* sent by the patron.

The biggest challenge for the *barraca* laborers is to transform the rich natural capital, as well as the human capital, into financial capital, or convert it into another kind of progress. This is a tough job. The *barraca* laborers believe it as an advantage of the *barraca* that there is always sufficient work available to have a secure job and income. Yet they hardly get any cash for their efforts, although the men work at least 20 days a month and earn US\$5 per day. Each family has a running account with the patron and only receives cash in special cases and after special request, such as in emergencies. They spend on average all the US\$80 they earn per month on goods they buy during the two weekly *habilito* sessions in which they obtain staple food, food additives, school materials, and other basic goods for the household. As soon as they incur extra expenses for sickness, they have to ask the patron for credit. Since the patron does not allow them access to their accounts, most of them do not know how high these debts are and some estimate them between US\$100 and 900.

“Here in the barraca we do not have the custom of selling things. No money is circulating in Teduzara, the cash economy has not reached unto here.”

Doña Juana Galindo, pioneer Teduzara

Although river traders pass by in the rainy season, the *barraca* inhabitants are not able to buy or sell anything. They do not have money and hardly have any surpluses to exchange. Other possible income sources, in cash or in kind, are remittances or emergency gifts from organizations such as CARITAS or the Red Cross in case of floods. Options for economic progress - in the sense that day laborers with a wage of US\$5 can be promoted to a monthly-laborer with a wage of about US\$7 daily - are limited. Combined with a lack of options for developing other commercial activities, this implies that the opportunities for livelihood improvement are scarce in the *barraca*.

In Trinidadcito, it is also difficult to accumulate financial capital and invest this in livelihood improvement, one reason most forest dwellers do not to attempt to make a living in such an isolated place. The couple of families left in this settlement mainly live from selling palm hearts and Brazil nuts to traders. Sometimes they can also sell or exchange some rice, wild cocoa, animals and bush meat, but their surplus is limited. A number of merchants are willing to give credit up to US\$100. They often bring goods on

request or carry luxuries including alcohol, which they know they can always sell or exchange.

Another challenge for the laborers is to transform their natural and human capital into physical and financial capital such as housing, tools, food stock, and animal stock. This goal is hard to reach, because the laborers do not control their own natural resources, their labor time nor their money. In addition, many laborers fail to make up their minds on such investments, due to their doubts about the future. Several of them are not sure if they want to stay in the *barraca* or migrate to another settlement. This situation, in combination with their lack of access to a private home compound, prevents them from building their own house, making a private *chaco* and breeding animals. The households that do have a *chaco* and produce some basic food stock are by no means self reliant.

Besides shelter and some basic furniture and clothing, the laborers do not have many possessions. A tool that is not missing in any household is a rifle, indispensable for hunting. However, the patron often fails to have munitions in the store. The houses are illuminated with self-made kerosene or gasoline lamps, but fuel is not always available. Some households have a radio and can now and then reduce their isolation by listening to news and music from the towns - when they can get hold of some batteries. Only the specialized and monthly paid laborers were able to buy a sewing machine, a wall clock, or a small manual mill for grinding grains. The patron's chainsaw operator possesses the chainsaw, which is the most valuable piece of equipment owned by a laborer in Teduzara.

4.3 The independent community San Antonio

A jeep drove us from Riberalta to San Antonio in less than half an hour. A name sign hidden by weeds and red dust showed pointed down the side road to the community. Not far from the main road, we ran into a small school building with a sports court in front. The children welcomed us with enthusiasm and the teacher interrupted the class for a conversation. He indicated us the way to the payol, halfway down the feeder road, where we could meet the leader of the community.

Of the small number of houses along the road some had flowers and fruit trees in front, while others were surrounded by pastures with livestock, or idle grassland. All the houses, fields and the road were abandoned, because people had gathered in the payol for a community meeting about a newly arrived family of settlers. The community board assigned them a forest plot and the leader stressed the importance of making chacos in order to occupy land and prevent large landowners from claiming it.

Diary, April 1997

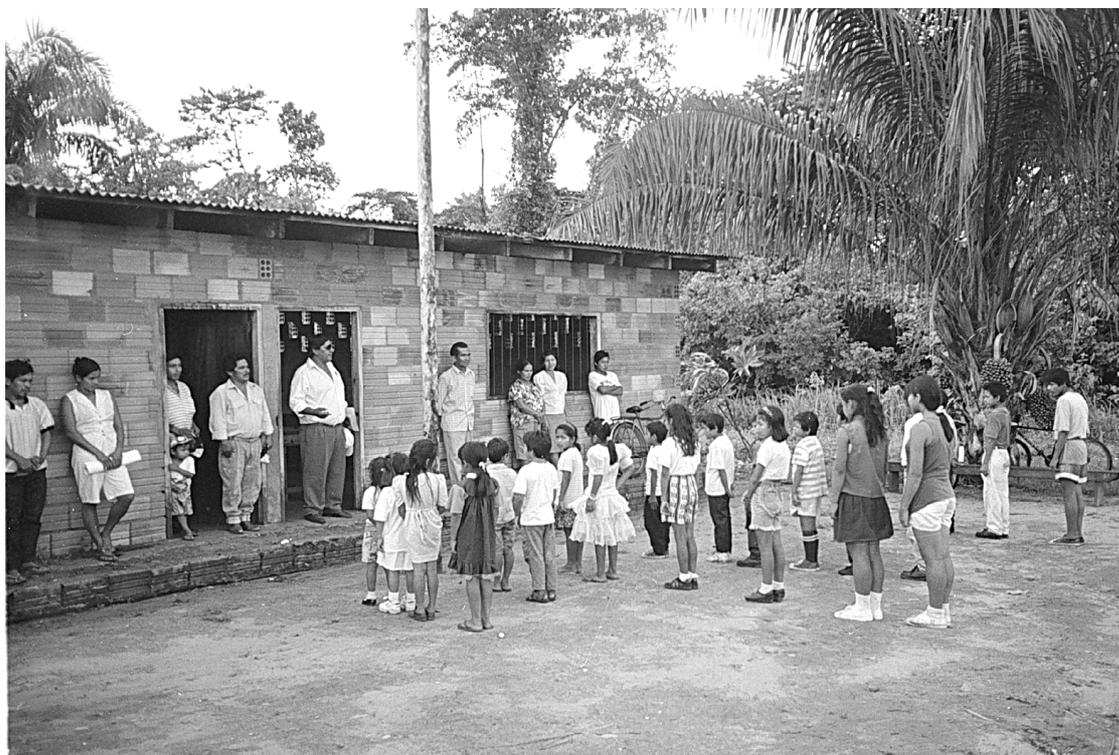


Photo 4.3 Escuela 'San Antonio'

4.3.1 A bird's eye view of the community

San Antonio is an independent agro-extractive community located in the province of Vaca Diez 17 kilometers from Riberalta (see figure 1.1). The community covers an area of 4,000 hectares of *terra firme*, of which more than half contains old-growth forest and the rest is agricultural land, fallow fields, secondary forest and man-made pastures. The community comprises 47 households totaling 271 people. These include about 35 independent *campesino* families, some large ranchers and several caretaker families working for absentee landowners. An estimated 47 children live in urban centers for study or work.

The houses are located at varying distances along a nine kilometer-long feeder road that is connected to the main road between Riberalta and Guayaramerín (see figure 4.2). Ranchers and absent landowners own the houses close to the main road to Riberalta. The forest around these houses is largely converted into pasture fields. The most distant house, at the top end of the feeder road lies in an area of old-growth forest.

The community's school is located no more than three kilometers from the main road. The double-roomed stone building with galvanized roof is surrounded by a communal school compound, including the soccer field, a newly constructed well, a small tree nursery, some fruit trees and a caretakers house. In the corner of one of the schoolrooms, one can find a statue of St. Antonius, the holy patron of the community. Many inhabitants believe the school compound is the beating heart of the community:

"The school has to be a good place with good teachers to educate our children. We need to work hard and organize ourselves in order to send our children to school and prepare them for their future."

Don Leoncio Tomicha , father of eleven children, San Antonio

Another communal compound is situated seven-kilometers distance from the main road. There, more at the center of the community, people constructed with support from the cooperative CAIC a shed for nut drying (*payol*), storage, and selling groceries supplied by the cooperative. Because of its central location, this *payol* has become the seat of the community syndicate (OTB) and the main location for formal meetings as well as celebrations and parties. Half way down the feeder road, at the compound of the Tomicha family the inhabitants have also built a health post. The NGO SSL supported its construction and arranged the training of a health attendant and a medicinal plant expert (*naturista*).

Inhabitants cover the distance between the main buildings by foot, resulting in walks of at least one or two hours per day to school or to a meeting. Other modes of transport are bicycles and in some cases a motorcycle. The quality of the feeder road is reasonable during most of the year. However, the hilly terrain, several small stream crossings and erosion during the rainy season causes the need for constant maintenance. Although the

community is accessible for all forms of transport, it remains a dead-end that is hardly entered by motorized vehicles.

The main reason for the current settlement structure and the large distances between the houses is the former division of the forest area in rubber concessions (*colocaciones*), each including a family compounds. This dispersed settlement was maintained by the current informal division of the community's territory in individual plots although several home compounds have been moved closer to the feeder road. The majority of the *campesino* families in San Antonio have access to a forest area of ninety hectares on average (ranging from 45 to 310 ha), which is leased from the community. Roughly two thirds of the *campesino* families manage their own plot, while one third are caretakers on land owned or claimed by absentee landowners. The plots usually include a large tract of old-growth forest as well as secondary forest vegetation. Closer to the house, one can find several agricultural plots cultivated with staple crops such as rice, maize and cassava. Most of the *granjeros* also have cattle and pastureland. The home compound usually includes several fruit trees, a small vegetable garden (*huerta*), a dwelling, some animal sheds, a well and a tree nursery (see figure 5.3). Dwellings are divided into two to three rooms and are made of forest materials such as wood, palm leaves and bark (see figure 5.1). The families who are more permanently settled have walls made of clay embedded in a matrix of sticks, referred to as *tapique*. Some of the better off families have plastered and painted their houses.

Several inhabitants have a second house in Riberalta from where children go to school and family members perform urban jobs. During school holidays as well as in the peak seasons of agricultural activities and Brazil nut extraction, all family members reside in the community. During the rainy season, families without a house in Riberalta usually go there once a week to buy and sell things. In the other seasons, they go less frequently due to a lack of money or goods to sell.

“The house and granja in San Antonio is for our chaco and food production, and also generates cash from the crops and forest products. The house in Riberalta is for the education of our children and their professional career. Our adult children work in town and earn some additional money”.

Don Leoncio Tomicha, pioneer inhabitant San Antonio

People spend most of their time on the collection of forest products and the maintenance of agricultural fields. Additionally, they attend weekly community meetings of the OTB. This community syndicate has 36 members (males and females) and apart from weekly meetings organizes communal labor days in order to maintain and improve the settlement's infrastructure.

4.3.2 San Antonio's history and development

San Antonio's territory was part of a large rubber concession governed by a powerful business family during the rubber era. The laborers inhabiting the *barraca* were mainly involved in rubber tapping and in the preparation and maintenance of the patron's sugarcane plantation and pastureland. Around 1935, the military forces took over the concession and reorganized the tapping of rubber. The former rubber tappers became independent and had the option to rent a *colocacion* with rubber trees. In 1940, the military withdrew from the area, leaving the land to the families. In that same year the families organized themselves into a village syndicate and set up a school committee in order to obtain official support for employing a teacher. The school and the community were named after St. Antonius.

With the Agrarian Revolution of 1952, the settlement was officially recognized as an independent *campesino* community, the syndicate became an OTB and the inhabitants became eligible to apply for land rights. This triggered the in-migration of *barraca* laborers into the community and those inhabitants who were able to pay the administration costs and topographers applied for private land titles. An important prerequisite to claim land was the clearance of forest and cultivation and "improvement" of the land. In 1961, the boundaries of the private land holdings were indicated on a map and those who succeeded in obtaining formal titles are the ranchers and absent landowners of today, together with a few *campesino* families.

"Most campesinos could not afford official land titles and were too poor and tired to bring their land into cultivation."

Don Juan Oliver, oldest inhabitant of San Antonio

In the following decades, the low rubber price could hardly provide a living and several *campesinos* sold their land to the urban elite and migrated to Riberalta.⁷ Others were persuaded by landowners to stay and became caretakers on their own land. The landowners promised good labor relations and monetary compensation, but according to the *campesinos*, rarely lived up to their promises. Consequently, more families left, resulting in a concentration of much of the community's land in the hands of a few landowners.

For several years, the families were disunited and the community organization hampered. One of the main reasons was a lack of continuity due to the high in- and out-migration between the 1960s and 1980s. Additional causes of disunity were the interference of large landowners, and mistrust between the different families - due to a corruption affair with communal credit.⁸ The disunity and weak community organization led to difficulties in fund raising for community development and as such hindered progress in this

⁷ Some *campesinos* sold their forestland to *granjeros* such as Cabrera and Robledo, who converted it into pasture and plantations of cash crops such as urucú. These *granjeros* paid on average US\$ 1.8 per hectare.

⁸ In 1973, the community received a credit from the *Banco Agrícola* for a cooperative and food store. Subsequently, the money was embezzled and the community had to sell the entire store in order to reimburse the debt. This experience has made the community members skeptical about any new communal project.

matter. A fundamental element for all these organizational problems was the size of the community's territory and the dispersed location of the houses. At that time, the community was much larger than nowadays. The syndicate had 200 members and the community's territory included today's neighboring communities of Florida, Las Mercedes, Bolívar and Santa Amalia. The distances between the dwellings and the school and community buildings were too large and several families decided to jointly establish extra schools. This resulted in the foundation of new communities and the reduction of San Antonio to its current size.

At the start of the 1990s when the rubber market crashed entirely, the inhabitants stopped rubber tapping. Old leaders as well as active families left the community to become laborers or professionals in Riberalta. Several of them combined their part-time settlement in the community with a homestead in Riberalta, while the caretakers who stood in for them rarely engaged in community matters. In the last few years, however, the community's out-migration has reverted to immigration, with new *barraca* families entering the community and reviving the interest of poor urban dwellers in community life. Although the recent migrants from *barracas* often do not have much experience with organizing themselves, they are interested in cooperation. This situation has resulted in a better climate for community development, and for receiving NGO support.

4.3.3 *The community inhabitants and their backgrounds*

The community's demography is highly related to the booms and busts of the regional extraction cycles, as well as to urban development processes. Most of the families living in the community are former rubber tappers who left their *barracas* in search of work and an independent livelihood. They came to the community in different immigration waves, which resulted in three different groups of community inhabitants: pioneers, old *barraca* migrants, and recent immigrants (see table 4.2). The pioneers arrived just after the Agrarian Revolution, more than forty years ago and founded the current community. The "old *barraca* migrants" had a long labor history in one of the more remote *barracas*, before migrating in the 1980s when the *barraca* system could not satisfy their livelihood anymore. Half of the inhabitants are new settlers, mostly young families, who only arrived during the mid 1990s. They managed to leave their old *barraca* only lately, or came from another community or town, where they lacked access to suitable land, had financial problems or were entangled in relational conflicts. Since the urban way of life does not always live up to people's expectations, urban-rural remigration has also become more pronounced in the last years.

Immigrants either have claimed a plot abandoned by people leaving the community or have started working as caretakers for one of the absent landowners. Almost one fourth of them have bought the forest plot informally in order to compensate the former owner for his investments in buildings and fruit trees. Some of the owners live in urban centers and have appointed caretakers on their *granjas* or *estancias*. These caretakers are usually allowed to exploit and commercialize part of the forest products of their boss. Most of

them would prefer to have their own plot and try to claim the land of their patron, or wait for the opportunity to occupy land somewhere else.

Table 4.2 Origin and immigration of San Antonio's inhabitants

Immigration period	Percentages
1950s	20
1980s	30
1990s	50
Origin of the parents	
Pando and Vaca Diez	24
Ituralde (Tacanas)	39
Beni and Santa Cruz	22
Brazil and Peru	15
Place of birth	
Barraca	44
Independent community	10
Town	25
Granja/estancia outside the region	21

The inhabitants of San Antonio refer to themselves as *campesinos* and do not identify themselves with a particular indigenous group. As in Teduzara, most of them are typical *Cambas*, with ancestors originating from different Bolivian lowland regions, as well as from the Peruvian and Brazilian Amazon. A quarter of the interviewed claimed to have ancestors indigenous to the region, from Pando or Vaca Diez. Most of them have moved around the region and lived in settlements on different roads and rivers. Some of them originally lived in Riberalta, but have migrated to a forest community. More than ninety percent of San Antonio's inhabitants have lived in a *barraca* before migrating.

4.3.4 Access to natural resource and tenure conflicts

The natural resource base in San Antonio is somewhat limited compared to settlements along the rivers. The first reason is that close to the urban center of Riberalta and along the roads more forestland has been converted into pasture and agricultural plantation. Consequently, the *campesinos* have reduced access to high forest vegetation. Moreover, wildlife is scarcer in the community than in the *barraca* areas, resulting in greater efforts to provide the household with bush meat. Secondly, in San Antonio the patches of Brazil nut trees are dispersed over the area, causing an unequal distribution of trees and nut production over the different family plots. Thirdly, further away from the rivers, San Antonio has hardly any *bajío* and as such is unfavorable for the growth of palm heart species. Another consequence is that the soil is less suitable for the production of plantains and bananas, which grow badly and only produce for one to two years. Furthermore, the community lacks the benefit of large fish species and turtles from a larger river system.

The differentiation in resource access and control that exists between the households of San Antonio is largely related to the year of immigration of the *campesinos* and the location of the forest plots. Pioneer settlers have been able to claim areas above one hundred hectares and selected the best plots - with the most valuable high forest, large patches of Brazil nut trees and water sources. Recent settlers and younger inhabitants have smaller plots and smaller areas of high forest. New settlers and the younger generation of forest dwellers are increasingly confronted with a diminishing availability of forestland and a lack of high forest. Some of them invade and cultivate the land of absent landowners in the hope that this will give them the right to keep the land. *Campesinos* who have little high forest with Brazil nut trees in their own plot join the urban *zafros* in the *barracas* and collect nuts for a patron.

The 1996 Land Reform Act considers the 4,000 hectares covered by the community as communal land and the families lease the plots from the community. Currently, most of these people are without official titles and papers. Only one or two of the inhabitants have a formal land title. In practice, however, the households perceive and manage their forest plot as if it were a private possession. The tenure arrangements that regulate the *campesinos'* access and usufruct of the forestland are merely informal understandings between the community syndicate and the inhabitants. The community syndicate actively stimulates squatters on the land of permanently absent landowners to make agricultural fields or at least work and improve the land. According to the new law, this provides them with the rights to occupy and exploit the land. Half of the people applied recently for a title under the new INRA law. Due to the costs and the complex paperwork involved, only some will be able to obtain these.

Although the households in San Antonio have the authority to keep intruders from their land and from exploiting their valuable resources, boundaries between individual forest plots are often not clearly delineated and trespassing takes place by outsiders as well as by community members. A disadvantage of San Antonio's accessibility is the intrusion of urban dwellers in the community's territory, practicing hunting and fishing. Forest products with a market value, such as Brazil nut, are stolen and fruits are harvested without permission. Although *campesinos* could combat such robbery, they have difficulty in preventing town people from hunting game and fishing in the rivers, because the animals are considered common property.

“Especially in the weekends we encounter town people on the road, carrying bushmeat or fish presumably from our territory. In the rainy season, they even steal Brazil nuts. We thought about establishing a control post on the road but probably that would be a waste of labor time because people can enter from different sites.”

Don Chao Zenón, OTB president of San Antonio

Due to its location, the availability of land, and its successful organization and NGO support, San Antonio attracts migrants from *barracas*, other communities and towns. The

community syndicate or OTB is involved in the land rights situation and encourages new *campesinos* to settle in the community and to become a member of the syndicate. The more active and settled *campesinos* in the community, the more they are able to combine forces in their fight against the big landowners and outsiders who compete for the forest and its resources. Converting forest into agricultural fields is highly encouraged, because it enables the community to claim the land. Inhabitants of neighboring communities that are weakly organized and who are losing their land to *granjeros*, are choosing to merge with San Antonio by affiliating themselves to the syndicate. The new land reform is also stimulating some caretakers of *granjas* in and around San Antonio to apply for land. They want to develop their own farm to become self-reliant and independent. Their salary or crop share is not enough to live on and they are not taken seriously in organizational matters, because they are landless.

The changes in legislation have strengthened the local struggle for control of natural resources and have made old and new conflicts over unclear boundaries more pronounced. In general, *campesinos* would prefer to have full ownership of their land. This privilege is associated with more security, a higher status, an increased access to credit and a brighter future. However, most do not have the means to make their land private property. This means they have to depend on the land allotted to them by the community and the collectively agreed tenure arrangements. Meanwhile, community members are becoming increasingly antagonistic towards large landowners around the community, who try to claim or buy land. These *granjeros* are hardly interested in forest products except timber and Brazil nuts and their clearing activities undermine the communities' production of forest products.

“Granjeros clear the forest and create pasture or make plantations. They live mostly in Riberalta and are only here during the zafra for the nut collection. They cut and burn the forest whenever they please and leave barren and useless land (sujales) behind.”

Don Chao Zenón, OTB president of San Antonio

4.3.5 Family composition and human capital

Compared to the households in Teduzara, the *campesino* households in San Antonio have a higher level of human capital. They have an average number of more than seven household members, within the range of 1-15 members.

Carmelito is a single man of 40 living and working on his own. After some wandering around in the community, having lived together with other small households as a worker or caretaker, he now occupies his own plot at the extreme end of the community and has started to build his house.

The family Casilima is an extended family with 15 household members. Three adult sons live with their wives and young children at their parents' compound and pool their financial and labor resources, while exploiting and cultivating separate parts of the family plot.

On average, more than four household members perform productive labor, with a male participation rate that is slightly higher than that of women. Several households have family members living and working or studying in Riberalta. One third of the families have a second household in Riberalta and a frequent exchange of labor and goods between these two homes (see box 4.3).

The living conditions are much the same as in the *barraca* and the harsh physical labor in the forest and in the *chaco* consumes substantial energy of the *campesinos*, making them vulnerable to diseases such as malaria. However, the health status of San Antonio's inhabitants is rather good due to a varied diet and access to health care and information of extension workers. The generally higher educational level is also supportive to people's hygiene and health care. Most of the adult *campesinos* have finished primary school, while some have studied a couple of years at an intermediate level or reached college level. Additionally some of the *campesinos* have an extensive practical knowledge of wild plants and animals, while the *naturista* is the person with the greatest erudition.

The community's location and organization facilitate the maintenance and development of the *campesinos*' human capital. The relative small distance between the community and Riberalta (less than an hour by car or bus) guarantees a fair access to information as well as the availability of teachers and the continuation and further development of the children's basic education. In addition, representatives of the community can follow courses offered by state agencies and NGOs that operate from Riberalta. Nevertheless, several *campesinos* express their lack of confidence in their own educational level and show their respect for professionals. Many of them are insecure about their communication with town people and wish their children to develop themselves more and get rid of their shame as backward forest dwellers.

4.3.6 *The campesinos' productive capacity and income generation*

As an independent San Antonio offers its inhabitants a range of opportunities to apply their human capital independently and make their natural assets productive. They are able to add value to their natural resources by producing their own food crops and by building permanent home compounds. In addition, they succeed to transform part of their natural capital into financial gains by selling their forest products, agricultural surpluses and small livestock. San Antonio's infrastructure and its organization as an independent community near to an urban area greatly facilitate peoples' market access and a swift commercialization of products. Based on their autonomy in the allocation of family labor, their subsistence production is extensive. Almost every household has built its own house and developed a valuable home compound with fruit trees, vegetables and some small livestock.

Another opportunity for the *campesinos* to convert human capital into goods and financial gains is performing casual labor for landowners or well-off community inhabitants. Such labor opportunities consist of the extraction of forest products or work on the fields or in construction. Some caretakers have a small monthly salary - taking care of a chicken farm or cattle. Others do not receive compensation in cash, but are allowed to exploit and commercialize part of the forest products and cultivate crops.

Campesinos invest the larger part of the benefits from commercialization in education, healthcare or agricultural production. They buy additional foodstuff and clothing, pay school fees and materials, and buy agricultural inputs such as seeds and tools. For production, maintenance, and transport of their stocks, most households own a simple manual sowing machine, rifle, bicycle and in some cases a motorbike. In almost every household, a radio cheers up the isolated life with music and provides them with news and other valuable regional information. Some families have a small mill that facilitates the manual processing of grains for kitchen use. As in Teduzara, a limited number of households have a sewing machine and only one family has its own chainsaw. Families who have the opportunity buy a plot in Riberalta and establish a second home compound. Although these houses are usually marginally equipped, some families succeed in getting access to electricity and luxury goods such as a television (see box 4.3).

Box 4.3 Forest dwellers with a part-time urban life

The Tomicha family has a large dwelling in San Antonio where the adults live and a second house in the '*barrio del Sol*' on the unpaved outskirts of Riberalta, where the children stay during the school periods. The latter house is a small *tapique* shed with three rooms and an open kitchen at the back. The small windows are covered with a piece of cloth and the roof is of galvanized iron. The little sandy plot measures 12 by 12 m and has a well and a small wooden toilet next to the house. As most urban home compounds, the garden does not have fruit trees, vegetables or domestic animals. The three rooms are mainly full with beds and the central room has a TV. "*Our house in San Antonio is nicer and has much more space, but for the students here it is O.K. Normally we have electricity and tap water. We like to watch TV, but they have cut the power because we and our neighbors share the same bill and have accumulated debts*".

Normally, there is always at least one adult in each house to take care of things. The head of the family lives in San Antonio, where he is involved in the community's organization and works as *naturista*. During weekends and the holidays, most members reside in the *granja* in San Antonio to help with the harvest of nuts and the work on the fields. In the seasons when there is less work on the farm, most adults live in town; the males work as taxi drivers and some of the females and children work in *beneficiadoras* cracking Brazil nuts.

4.3.7 Social capital and community organization

San Antonio shows a dynamic community life that enforces the inhabitants' social capital. The community benefits from a considerable social cooperation and alliances between the families and with external organizations. With the help of NGOs, people in the community have set up several community and livelihood development initiatives in the ultimate years. The hard core of San Antonio's community organization is the OTB, sustained by some 15 active community families. The rest of the families tends to become involved only when they please or can expect direct benefits. This syndicate has gained much importance and strength, because the inhabitants are increasingly aware of the need for organization, management and competent leadership in their community. Notwithstanding, many problems with the OTB persist and cause friction and distrust. Pioneer inhabitants tend to dominate the organization, *granjeros* try to acquire land and break the power of the OTB, and caretakers do not see any benefit in collaborating.

The school is essential for the maintenance and development of the community and parents consider children's education as the main reason for community organization. In 1998, the school lacked a college level teacher, which meant that children of the sixth grade had to go to school in Riberalta. This situation was a reason for families to migrate part-time to Riberalta and to withdraw from the OTB as active members. Recently, the community's school board has succeeded in appointing a new teacher and improved the educational facilities. This has resulted in a larger number of students who stay now in the community in stead of attending the college in Riberalta.

Other important communal achievements are the *payol*, built in 1997 - with help of the cooperative CIAC - for the storage of Brazil nuts and some canned food products during the collection season. SSL has installed a health post and trained the *naturista*. However, adequate management of the post is still problematic due to mistrust, misunderstandings and lack of experience of the people in charge. The collective emergency fund of US\$80 - organized by SSL - enables members to borrow money to pay doctor's bills in case of a medical emergency. A number of families collaborate with IPHAE for agricultural development. They receive seeds of agroforestry species and technical support for setting up nurseries. The community's *club de madres* organized by ADRA disintegrated due to a lack of initiative and guidance. Nevertheless, some women hope to find support to reinitiate the women group and establish vegetable gardens.



Photo 4.4 The Casilima family

4.4 Comparing the settlements

The *barraca* Teduzara and the community San Antonio differ largely in their geographical position, socio-economic organization, and development. Accordingly, households' livelihood capitals and development potentials are different in the two settlements (see table 4.3). The inhabitants of Teduzara are isolated from urban areas and markets, and restricted in their socio-economic development through a persisting debt-peonage system. The *campesinos* have access to urban-based markets and development agencies, and are independent in their livelihood development.

Both Teduzara and San Antonio have access to an extensive natural resource base, but in the community the competition for high forest vegetation, bush meat and commercial forest resources is much higher. Consequently, the households' resource access and control varies according to their settlement period and relations with other households. While the *barraca* laborers do not control the natural resources nor the economic benefits they provide, the community inhabitants have the authority to keep intruders out and are able to exploit and develop their resources independently beyond the subsistence level and for their own economic benefit.

Compared to the households in Teduzara, the *campesino* households in San Antonio have a higher level of human capital due to slightly better living conditions and social services. In addition, they have more opportunities to apply this human capital independently for the conversion of natural capital into subsistence products, commodities and financial capital. This financial capital they can re-invest in the development of human capital, in the form of health care or education, or in other types of capital such as infrastructure, tools, food and livestock, or stronger social relations. The *campesinos* are free to allocate their own assets to whatever activity they wish and consequently their livelihood strategies are more complex and diverse than those of *barraca* laborers. The dynamic community life that is shown in San Antonio contrasts sharply with the inertia in Teduzara. It enforces the inhabitants' social capital, alliances with external organizations and access to development aid.

In the *barraca*, the patron dominates the commercialization of all valuable products. The laborers are trapped in their dependency and lack autonomy and organization. They are stuck at the subsistence level without options for improvement. The incentives to organize themselves and invest in social capital are limited. Social ties between the families are less important than in the community because they hardly have surplus resources to share, including their labor time, which is managed by their patron. Additionally, the flow of information and resources from NGOs and governmental departments situated in urban centers does not reach this *barraca*.

The isolated extractive community Trinidadcito is a special case which shares features with both Teduzara and San Antonio, but in a composition which is not favorable for the inhabitants' development. Although they have the control of rich natural resources, they lack the human and physical capital to exploit and commercialize them efficiently. In addition, they have insufficient members and social capital to establish a strong community and claim the required external support for community development.

The main characteristics of these settlements and the livelihood opportunities of the inhabitants are expected to be similar/representative for other enterprise *barracas* and agro-extractive communities for the reason that these categories have been distinguished at the basis of these characteristics, including the inhabitants' access to different types of resources and services.

Table 4.3 Comparative overview of capitals and livelihoods in Teduzara and San Antonio

<i>Livelihood capitals</i>	<i>Barraca</i>	<i>Community</i>
Human capital	Moderate Low number of family laborers Hard to maintain and improve due to lack of social services Labor allocation dependent on patron	Considerable An average of 4 family laborers Options for improvement; healthcare and education Independent labor allocation
Natural capital	Extensive Rich natural resources including intact old growth forest and river ecosystem No options for commercialization No options for transformation into produced and financial capital	Considerable Divers natural resources but less timber, wildlife and river ecosystem. Independent commercialization Transformation into produced and financial capital
Physical capital	Small Lack of options, incentives and labor time to invest in such capital Insecure property rights Short-term vision Lacking infrastructure	Considerable Incentives and resources to develop stock and permanent structures (home compound) Relative secure property rights Longer-term vision Gradual development infrastructure
Financial capital	Small No market No circulation of money Debts, and limited items of financial value	Moderate Independent markets and trade Limited cash flow Some small savings and valuable items
Social capital	Small Isolated from extended family No viable OTB Lack of inter-family relations and organization No lobbying power and institutional support	Considerable Cooperative extended family in community or nearby town Successful OTB Community organization and communal labor Lobbying power and GO / NGO support
Institutional Context	Negative Barraca system (incl. habilito); positive for basic subsistence, but limiting factor in capital accumulation and livelihood development Absence other institutions	Positive Tenure and OTB; favorable for capital accumulation and livelihood development Divers external support structures and processes for livelihood development
Vulnerability	Moderate Secure labor system; food and work Dependent and inflexible; vulnerable to change Little access to external support in case of emergencies	Moderate Insecure labor, production and income Independent and flexible Inexperienced and carrying risk: vulnerable to natural calamities and market fluctuations Access to external support in case of emergencies

4.5 Concluding remarks

The various settlement types determine to a large extent peoples' forest livelihood development based on sustainable forest exploitation. The *barraca* Teduzara shows that the production system and patron-client relationships provide the forest laborers with a basic security in alimentation and paid labor, but do not facilitate improvement of peoples' livelihood by way of accumulation or transformation of livelihood capitals. The exploitation of forest resources offers only a basis for their subsistence, but no opportunity for livelihood development due to a lack of resource control. The inhabitants of this *barraca* are the last who stayed behind and who became very dependent on the patron and the settlement. A lack of experience makes that they hardly see alternative livelihood opportunities and are afraid to take the risk of change. Their lack of autonomy, resilience and external support as a production unit is partly compensated by the security the patron offers with work and food (see table 4.3).

Agro-extractive communities such as San Antonio are much more favorable for forest livelihood development and long-term forest exploitation, transforming part of the natural capital in produced and financial capital. A general trend is that natural resources are strategically managed and commercialized for the benefit of an increased financial capital, while increased investment takes place in social organization and lobbying for external livelihood support. All these initiatives have considerable success, but also reveal serious problems and 'growing pains'. In any case, the dynamism and activism in San Antonio is a strong illustration of the fact that the community structure provides much more potential for forest livelihood development than whatever form of the current *barraca* system. However, the vulnerability of the livelihoods in these settlements is of the same magnitude as that of *barraca* laborers. Although the inhabitants are stronger and more independent producers and can count on external support they carry the risk of production failure, market fluctuations and other contingencies themselves and can not fall back on the security of a patron.

The situation of Trinidadcito (split off from the *barraca* Teduzara) is exemplary for the *Camba* peoples' difficulty of living independent from the *barraca* system in an isolated forest area and developing an independent community in such a limiting environment. The viability of independent communities in this situation is very low, caused by both a lack of population and access to services. These two factors reinforce each other and cause a vicious circle of diminishing development opportunities for households in similar remote extractive communities. The population decreases due to a lack of services and as such lowers the probability of successful social organization and lobbying for community rights and governmental support. The livelihood of the inhabitants is merely a matter of survival, based on the natural resources they are allowed to use and commercialize, and their ability to produce stock and negotiate with river traders.

The following chapters will more profoundly analyze the distinct forms of capital in San Antonio, Teduzara, and Trinidadcito and the ways *campesinos* and *barraca* laborers utilize and manage these capitals for their livelihood maintenance and improvement.



Photo 5.1 *Chaco* and forest plot with Brazil nut trees

CHAPTER 5

FOREST DWELLERS' NATURAL RESOURCE USE

“The ‘monte alto’ is very important for us campesinos. It is the place for extracting all kinds of products, making chacos and hunting. The forest is also important for the animals, giving them fruits and shelter. In fact, the two things are connected. If we deplete the asai palm with its fruits so much that it disappears, there will be fewer birds and other animals for us to hunt.”

Don Juan Oliver, San Antonio

5.1 Introduction

Understanding the utilization of the resource base in peoples' livelihoods requires a description of the different categories of vegetation and other resources as they are distinguished, characterized and used by the forest dwellers. This chapter is presented in descriptive terms using case studies and quotes in order to show peoples' dependence on the surrounding forest and their typical ways of combining extractivism with farming.

Most of the information was derived from the case studies of San Antonio and Teduzara, cross-checked with Trinidadcito and supplemented with data from the regional survey and from an earlier study of DHV (1993d). The basic knowledge that people have on the natural resources and their use is very similar in the different settlements. However there are two main differences between the settlements, which should be kept in mind when trying to understand peoples' access to and use of the resources. These are: a) the location of Teduzara and Trinidadcito in an isolated forest area along the river, and their consequent access to the flora and fauna of river banks, while San Antonio is located inland, surrounded by *granjas* and pastures, and close to an urban center; b) the ruling tenure system, which gives the inhabitants in Teduzara and Trinidadcito less control over the resources than the *campesinos* in San Antonio, and limits their incentives to domesticate and cultivate (permanent) crops.

Camba forest dwellers distinguish different agro-extractive zones in their natural resource base, on the basis of geographical and bio-physical characteristics, the exploitation history of the vegetation, and on the distribution and density of useful and non useful plant species. In their classification the forest dwellers do not make a clear distinction between wild or cultivated species, but do differentiate between useful and non-useful species. They perceive their natural environment as an agro-ecosystem with, on the one hand useful plants that are either wild forest plants or exotic and cultivated plants, and on the other hand wilderness and weeds that are not useful. The same is true for animals that contribute to their livelihoods or that are considered pests.

“In distinct parts of our forest lot and fallow fields we can find many different plants that deliver useful products. We can collect food, medicines and construction wood; tranquilo.[...] We encounter also several useless plants, hierbas malas, that are only a pest for us and our crops.”

Don Orlando Alvarez, San Antonio

The perceived utility of the natural resources is based on their contribution to the livelihood of the forest dwellers. According to them, their daily concern is to fulfil their basic needs and live in tranquility (*tranquilidad*). Their main preoccupations are: a) the production of staple crops (rice and manioc); b) the cultivation of maize to make *chicha* (traditional alcoholic beverage) and to feed their animals; c) the acquisition of proteins in the form of meat or fish; d) the collection of fruits and medicines for healthy children; e) and the collection of Brazil nut for cash income. In addition, many other wild and cultivated products contribute to their wellbeing.

5.2 Peoples' categorization of their natural resource base

The inhabitants of the research area generally refer to the rural area as ‘*el campo*’ in contrast to ‘*el pueblo*’ or ‘*pueblito*’, respectively referring to a town such as Riberalta and a largely urbanized community or *barraca*. The forest vegetation as well as other wild bushy vegetation is usually referred to as *el monte*. The general word used to refer to land that is brought into cultivation is the *granja* (farm) which may include all types of cultivated land such as cropping fields (*chaco*), a home garden (*huerta*) and pasture (*pasto*).

A common distinction in the Amazon forest is between *bosque the altura* and *bajío*. *Bosque de altura* is upland forest growing on *tierra firme* which are soils that are not subjected to regular flooding. It generally consists of climax forest with canopy trees that reach to a height of 45 meters (Beekma *et al.*, 1996). In addition, it is a suitable location for the construction of houses and for the cultivation of the main staple crops – because it is safe from floods.

The Brazil nut tree - locally referred to as *almendro* (*Betholletia excelsa*) – is one of the most valuable trees found in upland forest. The species is endemic to the Amazon and requires rainfall of between the 1,400 and 1,800 millimeters per year. The species grows in clusters of, on average, five trees and reaches the highest density of 20-30 trees per hectare in the province of Pando - where Teduzara is located. The tree reaches a height of 40 meters and forms the upper canopy together with other emergent trees such as *tumi* (*Amburana cearensis*) and *almendrillo* (*Dipterix odorata*), which are valuable timber species. The upland forest is also inhabited by a large number of animals such as monkeys, large predators and rodents such as *agoutis* (*Agouti paca*). The latter plays an important role in the dispersion of the Brazil nut seeds by opening the pods with their teeth and dispersing the seeds through the forest.

Bajío is lowland or flooded forest, located in a valley or along a stream or river. It is characterized by cyclic flooding and the accumulation of river sediment. The result is a

fertile and well-drained river clay soil. The *bajío* ecosystem is very complex due to its zones with different riverine sediments and the presence of various palm species. The fauna is dominated by amphibians, turtles, some monkeys, and water-loving mammals such as the tapir and rats. For the forest dwellers, the advantage of *bajío* is that wild fruit bearing palms such as *asai*, and banana and plantain trees thrive in the wet soil. Moreover, it is the most suitable soil type for the cultivation of vegetables and guarantees year-round fresh water for humans and livestock and, in the best case, fish and other water fauna for food consumption. A disadvantage of the fertile river soil is the risk of flooding during the cropping season, resulting in a loss of production.

About 20 percent of Teduzara consist of *bajío* and contains a high diversity of useful plants and animals. The larger part of the nearby *bajío*, however, is reserved for the *chaco* of the patron. Due to its location - further away from the rivers - San Antonio has hardly any *bajío*. For this reason, the production of plantains and bananas in the community is low. According to the inhabitants, the plants grow badly on higher land and only produce for one or two years.

Next to the distinction between upland and flooded forests, the forest dwellers discriminate between several human influenced vegetation types or agro-ecological 'zones'. In the following sections, it will become clear that the categories of vegetation are related in a successive and cyclic manner.

5.2.1 *Old growth forest (monte alto)*

Monte alto is old-growth forest or climax forest that has not been cultivated and that is selectively used for the extraction of NTFPs and some timber trees. According to the interviewees, old-growth forest provides the highest quantity and quality of useful forest products for current or potential subsistence use and income generation. Most of the productive Brazil nut trees grow in this type of forest. Since old-growth forest serves as a hiding place for larger mammals, it is the best place for hunting large prey. Another advantage is that this vegetation still has the potential to be converted into cultivated land. Although slash-and-burn of old-growth forest is very labor intensive, the soil is highly suitable for agriculture due to its relative richness and the absence of aggressive weeds such as *sujo* (*Imperata brasiliensis*).

The larger part of Teduzara is covered with old-growth forest and has a high density of Brazil nut trees. The laborers use this forest for hunting and gathering while the patron commercializes the Brazil nut and selectively exploits the commercial timber species such as Mahogany and Cedar. Two thirds of the average household plot in San Antonio is *monte alto*, mostly kept not far from the house for rapid access to the resources. The distance between the dwelling and the remaining *monte alto* gradually increased due to the ongoing conversion of forest into arable land. Because the patches of Brazil nut trees are dispersed over the area, there exists an unequal distribution of trees and nut production over the different family plots. Moreover, wildlife is scarcer in San Antonio than in *bar-raca* areas, resulting in a higher effort to provide the household with bush meat.

5.2.2 *Agricultural field (chaco)*

The agricultural field that is created in the forest, after cutting and burning the vegetation, is referred to as the *chaco* and is usually made not far from the home compound in an old fallow field or in *monte alto*. In San Antonio, the *chacos* are located within a radius of 30 minutes walk and about two thirds of the tracks are accessible for motorized vehicles. In Teduzara and Trinidadcito, the *chacos* are located a minimum distance of half an hours walk from the dwellings, hidden from the cows and other potential trespassers, and safe from floods. A *chaco* is cultivated with annual crops such as rice and maize for 1 to 2 years, combined with or followed by manioc for another 1 to 2 years. Depending on the quality of the soil and the availability of shoots (planting material), some inhabitants plant perennials such as bananas and plantains in the *chaco* in the second year. The result is a large diversity of differently cultivated fields ranging from the monoculture of rice or maize to fields with multi-story intercropping. Apart from agricultural produce, the *chaco* also provides a number of wild products, which will be discussed later.

5.2.3 *Homegarden (huerta)*

The *huerta* is the vegetable garden as well as the orchard around the house. Some households have a *huerta*, measuring around one *tarea* (1/10 of an hectare) with cucumber, squash, hot paprika and tomatoes. Such a garden is usually fenced against roaming domestic animals. Most forest dwellers, however, do not maintain such a garden, but have a limited number of vegetables such as onions and scallions cultivated in trays located on poles high above the ground. In this case, the *huerta* refers to the overall home compound including both these trays with vegetables and the horticultural plants around the house such as pineapple, mango trees and oranges. The diversity of cultivated plants and useful wild plants maintained in the *huerta* such as *motacú* (*Attalea phalerata*) varies from household to household and reaches 25 species in San Antonio (see Box 5.1 in section 5.3). In the *barraca*, the people do not cultivate trees and only have some onions or scallions.

5.2.4 *Young fallow field (barbecho bajo)*

When the *chaco* is left fallow after a few years of cultivation, it regenerates with secondary vegetation. *Barbecho bajo* refers to a fallow field of less than ten years old. After two to three years, when just recovering from cultivation, such a field is covered with small shrubs, immature trees, and some grasses such as *sujo*. *Campesinos* characterize the *barbecho* as a field of low economic value with trees of low diameters that are mainly suitable for domestic use. The vegetation is dominated by seedlings of fast growing pioneer species such as *ambaibo* (*Cecropia* sp.), *balsa* (*Ochroma pyramidale*), *patujú* (*Phenakospermum guianensis*), and *uña de gato* (*Uncaria tomentosa*), which are mainly used for construction and medicine (cf. Arredondo, 1998).

The longer the soil is cultivated and the more it is burned, the more the vegetation becomes dominated by species resistant to poor soils and drought, such as leguminous plants with thorns, lianas and grasses. This vegetation is relatively dense, which makes it inaccessible. It is an ideal hiding place for harmful insects and reptiles, but at the same time attracts small mammals that are valuable sources of bush meat. After 8-10 years the trees have started to shade out the grasses and have reached a height of about 15-20 meters (see Peña, 2001 for ecological data).

A *barbecho* of 1-2 years is called *rastrojo*, referring to the remains of rice or maize plants that are still visible. In some cases, the forest dwellers extract a second harvest of rice from *rastrojo* fields. If the plants are compacted on the soil after harvest these will regenerate and produce a second time. This production, however, is of lesser quality than the first one and only harvested in case of food scarcity. Agricultural fields that have been planted with perennials such as plantains become productive fallow fields for a couple of years, of which the owner can exploit cultivated products. Both in San Antonio and in Teduzara, the young fallow fields are located within a radius of about 25 minutes from the houses.

5.2.5 *Old fallow field (barbecho alto)*

Fallow fields more than ten years old are called *barbecho alto* and are characterized by dense stands of mature pioneer tree species such as mentioned above. These trees dominate the canopy and have higher diameters than those in the *barbecho bajo*. Old growth forest that is extremely logged over is also often referred to as '*puro barbecho*' because it lacks the commercially valuable trees. As will be described in more detail below, the tree species in this type of vegetation provide suitable wood for fuel and for construction, as well as palm leaves for roofing and fruits for consumption.

The advantage of this forest type is that the products are more physically accessible and available than in the old-growth forest and more mature than in the young fallow. Many forest dwellers rely on these older fallow fields for the preparation of their agricultural fields and they are usually located at smaller distances from the houses. In San Antonio they are within a radius of about 15 minutes walk. In Teduzara, the larger part of the former communal *chacos* of the patron have not been left fallow, but have been transformed into pastureland owned by the patron. The old fallow fields of individual households are usually located further away and scattered in the forest.

5.2.6 *Pasture (pasto)*

The region shows a distinction between natural pasture or savannas and human-created pasture. Natural pastures or *pampas* exist mainly in the Beni department and at some specific locations along the rivers (see figure 1.1). In the studied settlements, only Teduzara and Trinidadcito have some natural savannas, which the patron exploits for a small herd of cows. In San Antonio, the majority of the forest dwelling households do not own any

cattle or pastureland in contrast to the absentee land owners (*granjeros*). Three caretakers manage the human-made pasturelands of *granjeros* (each measuring between 50 to 100 ha). Some former pasture areas have been neglected and have become wasteland due to repeated burning and the domination of *sujo*.

Human-made pastures are created in the forest after a semi-clearcut and one or two years of crop cultivation. Total clear-cutting is not practiced because it is prohibited to cut Brazil nut trees according to the forest law. Consequently, most pasture areas are scattered with a number of Brazil nut trees. After repeated burning these isolated trees stop producing and die. Usually, the commercial timber trees are already exploited before the forest is converted into pasture. The main grass species used are *kudzu* (*Pueraria phasealides*) and *pasto elefante* (*Braquiria spp.*). Due to the high investment costs, starting livestock production is a privilege of the larger landowners. The lack of capital to build up a herd inhibits forest dwellers from becoming ranchers. Some *campesinos* in the region have created pastureland in order to combat *sujo* and with the hope of buying cattle in the future (DHV, 1993d). All the interviewees share this same desire, but they do not have the courage and the capital to take this first step of creating pasture.

5.2.7 Idle grassland (*sujal*)

After repeated burning or excessive cultivation the soil is invaded by *sujo* and to a lesser extent by other weeds such as 'cutting grass' (*Cypericea scleria*) and thorny whickers. The land becomes idle grassland or wasteland (*sujal*) and contains the least useful species for the forest dwellers. The dense and strong root system of the weed prevents the growth of other species and slows the regeneration process of secondary forest vegetation. Repeated burning increases the dispersal of the *sujo* seeds - which are fire resistant - and accelerates the invasion of the weed while other, less fire-resistant plants die.

5.3 Extractive products

5.3.1 Plant products

The forest dwellers make intensive use of a wide range of plant products, converting their natural livelihood capital of wild plants into produced capital in the form of domesticated fruit trees, constructions and tools. Moreover, they use it for the purpose of food and medicine, contributing to the peoples' human capital, health and labor strengths. In San Antonio and Teduzara a mixed group of men, women and young and old people mentioned altogether 160 plant species which they perceive as useful.¹ These species grow in the different agro-ecological zones and vegetation types with variable densities and quali-

¹ The sample of 21 persons included a purposeful selection of men and women with (distinct) knowledge of plants. About 50 % of the species and uses is mentioned by all of them, while several men know some additional species for construction purposes and some women added a number of medicinal plants. The inhabitants of San Antonio demonstrated a more active knowledge on plants and their use. The *naturista* of San Antonio has most knowledge on natural medicine.

ties.² The majority of the species are wild. About 13 percent are cultivated and in some cases exotic, while several of the plants are (semi) domesticated forest species managed in the *chaco* and homegarden, such as *motacú* and *pacay* (*Inga spp.*).

Almost half of the plants are multi-functional because different parts of the same plant are used for several purposes and, therefore, are very valuable to the forest dwellers. Combinations of food and medicinal use are most common, together with trees for construction as well as fuel wood or industrial timber. With an average of three products per plant, the forest offers the inhabitants a diversity of about 500 useful plant products. The most common multipurpose plants are mentioned by more than half of the interviewees (Table 5.1). A good example of a multi-functional plant is *asaí*. The bark of the palm serves as construction material for walls of houses; the fruits are eaten and attract birds and mammals that can be hunted for meat; the leaves are useful as roofing material; the roots are medicinal; and the shoot can be eaten or sold as palm heart.

The main categories for which people have mentioned the use of plant products, are medication (80); food (50); construction, including roofing (50); and fuelwood (33). Other purposes are income generation such as (industrial) timber and Brazil nut (hardly used for subsistence); tools and furniture; games and handicrafts; and others (including shade). In the following paragraphs, these main purposes will be discussed and it will be indicated that the extraction of forest plants is not synonymous with sustainable use.

Table 5.1 The most common multipurpose plant species and their use

<i>Common name</i>	<i>Scientific name</i>	<i>Type of plant</i>	<i>Use</i>
Asai	<i>Euterpe precatoria</i>	Forest palm	Food, construction, medicine, roofing
Bitumbo	<i>Couratari guianensis</i>	Small tree	Construction, fire wood
Cari Cari	<i>Acacia sp.</i>	Forest tree	Construction, medicine, fire wood
Guayaba	<i>Psidium guajava</i>	Small fruit tree	Food, medicine
Hoja redonda	<i>Chelyocarpus chuco</i>	Forest palm	Food, construction, roofing, broom
Isigo	<i>Tetragastis sp., Protium carnosum</i>	Timber tree	Food, medicine, fire wood
Itauba	<i>Mezilaurus sp.</i>	Timber tree	Construction, timber
Limón	<i>Citrus sp.</i>	Fruit tree	Food, medicine
Majo	<i>Jessenia batauba</i>	Forest fruit tree	Food, construction, medicine, roofing
Motacú	<i>Attalea phalerata</i>	Forest palm	Food, medicine, roofing, ventilator
Naranja	<i>Citrus sp.</i>	Fruit tree	Food, medicine
Pacay	<i>Inga sp.</i>	Fruit tree	Food, fire wood
Piraquina	<i>Xylopia sp.</i>	Forest tree	Construction, fire wood, rope
Patajú, plantanillo	<i>Phenakospermum guianensis</i>	Forest tree	Food, construction, medicine, roofing
Tajibo	<i>Tabebuia rosea</i>	Timber tree	Construction, medicine, timber

² Since the people do not make a clear distinction between cultivated plants, and wild forest plants, horticultural plants such as citric fruits are included.

Medicinal use

Diseases and other health problems that are believed to be cured with medicinal plants are manifold. Of the total of 80 plant species that people classify as natural medicines, *uña de gato* (*Uncaria tomentosa*) is the most important. This fast growing liana with thorns is abundant in secondary vegetation and people use its bark, resin and leaves to treat all kind of diseases such as infections, diabetes, malaria, rheumatism and cancer. The inhabitants of San Antonio and Teduzara are most familiar with species for common health problems such as diarrhea, amoebas, fever, malaria, and headache (Table 5.2). Examples are *patujú*, Brazil nut, *motacú* (used as antibiotic), *sujo*, wild cashew nut (*Anacardium aff. giganteum*) and domestic species such as mango (*Mangifera indica*) and orange (*Citrus spp.*). Only the *naturista* or medicine man of San Antonio and some older inhabitants of the community know plants used for diseases that are more specific.

Table 5.2 Health problems and number of curing plants known by forest dwellers

<i>Type of health problem</i>	<i>Number Of Plants</i>
Diarrhea, dysentery, amoebas	19
Pain in the head, the stomach, the back, etc.	18
Cold, cough	13
Fever	12
Malaria	11
Wounds, cuts and bruises	11
Internal or external inflammations	10
Liver problems	10
Hernias, rheumatism	7
Anemia	6
Snake or insect bites, skin problems	5
Heart problems, 'polluted' blood, bleeding	5
Vomiting	4
Fractures	3
Parturition	2

Edible products

People eat about 50 wild fruits from forest trees and shrubs and the most common are *motacú*, *pacay*, *majo* and *chonta* (*Astrocaryum aff. tucuma*). From seven other plants, the nuts or seeds can be used to eat or to produce oil, such as Brazil nut, wild and domestic cashew and *chima* (*Bactris gasipaes*). The different wild and domesticated fruit species have their fruiting period in distinct times of the year, providing the forest dwellers with an almost year round source of fruits. The only slack period is from July to September, when the forest is dry and fruits are scarce (see table 5.3). During the rest of the year, children and adults pick and eat fruits anytime of the day. These fruits help to satisfy hunger and add vitamins and variety to the diet. Additionally, the fruits have a social function because people spend time together collecting and cleaning the fruits and share and exchange them with neighbors, friends, and visitors. Brazil nut is the most important com-

Construction material

Forest dwellers refer to about forty plant species as valuable for the construction of buildings (houses, schools, and churches) as well as stables and fences for domestic animals. In addition, ten species provide material for roofing such as palm leaves and fibers for ropes (*pancho*). The strong hardwood and straight stems of several species are suitable for the main frame of a construction, forming the pillars in each corner (*horcones*) of a house or room (see figure 5.1). They are the most durable, but also the scarcest species, and require considerable time to gather. Examples of these species are *itauba* (*Mezilaurus* spp.), *palo santo* (*Sclerolobium* spp.), *tajibo* (*Tabebuia* spp.), *corazon de coco* (*Guazuma ulmifolia*), and the less durable *majo* and *chonta*. Other, lighter species that can be found in large quantities and with slender stems, such as *aliso* (*Vochysia vismiifolia*) and *piraquina* (*Xylopia* sp.) are used to join the corners of the construction and carry the roof (*soleras* and *llaves*).

The constructors of houses choose the species based on the planned lifetime of the building, available labor time and the durability of the construction material. For making the roof, the leaves of palms such as *jatata* (*Geonoma deversa*) *palla* (*Attalea butyracea*), *patujú*, *hoja redonda* (*Chelyocarpus chuco*), *asai* and *motacú* are used. Every type of leaf has its specific qualities and characteristics. The most durable leaves such as those of *jatata* are more scarce and difficult to harvest and transport. *Jatata* grows in selected areas and is harvested and processed (knitted together) by specialized and skilled people. Although the weed *sujo* is very abundant and suitable for making roofs, it is the forest dwellers' last choice. It is highly inflammable and people lack the experience to process this plant into a durable roof. The walls (*cercos*) of the houses are usually made of the bark of palms such as *asai* and *pachiuba* (*Socratea exorrhiza*), or from some trees such as *bitumbo* (*Couratari guianensis*) or *Blanquillo* (*Rinoreaocarpus ulei*). For houses that are more durable, wood is used or mud (technique referred to as *tapique*).

Several other plant species provide fiber material that can be processed and used as *pancho*. The bark from two trees called *pancho* (*Eschweilera coriaceae* and *Couratari macrocarpa*) and from *cabeza de mono* (*Apeiba membranacea*) is used as rope to bind the leaves together and fix them to the construction. The rope can be as durable as 15 to 20 years. It is also used to tie all kind of things together and to make 'backpacks' - for carrying Brazil nuts for example. *Pancho* from the stem of the *patujú* palm is a less durable alternative.

Firewood

An important advantage of living in the *campo* is the abundance of freely-collectable fuelwood for cooking, while in urban areas fuelwood has a price. Forest dwellers know 33 different species that are suitable for fuel. Examples of durable hardwood species are trees such as *tumi* (*Amburana cearensis*), *cedro* or *coco*. Some less durable softwood species are *guayabochi* (*Capirona decorticans*), *pacay*, *cari cari* and *aquia* (*Chrysophyllum sparsiflorum*). The latter grow in relative abundance closer to the houses, producing rapidly in the regenerating fallow fields. Firewood is often a side product from the preparation of a *chaco*, which lowers the effort of collection. To light a fire forest dwellers often make use of some latex from the rubber tree or *siringa* (*Hevea brasiliensis*) and resins from other trees.

Commercial timber

The number of woods that have gained commercial value is increasing. Until a couple of years ago, Cedar and Mahogany were the only commercial timber species. Although these are still the primary timber species, nowadays about 14 species are commercially exploited for their wood. The most common secondary species are *tumi*, *cuta* (*Astronium lecointei*), *trompa de anta* (*Qualea paraensis*), *itauba* (*Mezilaurus spp.*) and *tajibo* (*Tabebuia spp.*) (see Beekma *et al.*, 1996). Timber extraction is hardly practised by the forest dwellers themselves, due to a lack of machinery. Usually, landowners sell the standing trees to a sawmill that extracts the commercially valuable species and pays a small stumpage fee. The paradox is that forest dwellers, surrounded by trees, have to buy processed wood for construction purposes - such as the building of a church or meeting hall - in town.

Other plant products

In addition to the main use categories, forest dwellers distinguish several other applications of plant products. The wood of the tree species *mururu* (*Batacarpus amazonicus cf.*) and *palo amarillo* (*Aspidosperma cf. tambopatense*) is used by men to make or repair tools, such as the handle of an axe or machete. The leaves from the herb *malva* (*Malachra alceifolia*) and from the *chonta* and *motacú* palms can be used to make baskets, brooms, and fans. *Mururu* wood is also suitable for making mortars (*tacus*) for pounding rice and *paquio* (*Hymenaea sp.*) is used for sugar cane presses (*trapiches*). A small tree called *tutummo* or calabash tree (*Crescentia cujete*) provides calabashes that are used as trays for bathing (*bañador*), washing or drinking, and for storing things. The milk or latex of the *surba* tree and of the rubber tree is in some cases used to repair holes in shoe soles or other materials, or to make toys such as balls. As mentioned before, the rubber is also used in small quantities as fuel. On some of the home compounds, the tree is purely ornamental and provides shade.¹ Women make pillows and mattresses from wild cotton

¹ The rubber trees are not much more than relics of the past, memories of the success of the rubber boom. Although its wood is suitable as fuel, the tree stays untouched in the hope that the latex will regain its economic value.

(*algodón*) of the *balsa* tree (*Ochroma pyramidale*). Seeds of some palm trees are carved into jewelry such as decorative rings. Toys for the children (often made by the children themselves) are made of wood or seeds such as those from the *enchoque* tree (*Cariniana decendra*).

Most of these practices, however, are referred to by occasional or specialized practitioners such as the *tacu* maker in San Antonio (see box 6.1, chapter 6.). The people rarely process wood into furniture or handicrafts since they lack the experience and the tools to do so. Some communities have a carpenter such as in Peninsula (Teduzara), but most of the forest dwellers need to purchase their furniture from urban areas.

5.3.2 *Animal products*

Forest dwellers appreciate the forest fauna as part of their resource base. The highest diversity and density of fauna species exists in the old-growth forests of remote and sparsely inhabited areas. Around the human settlements encounters with larger mammals such as jaguars (*Panthera onca*) and apes are scarce. Adults and children refer to 30 animals that inhabit the forest. The animals that are best known are those that are hunted and provide meat (see table 5.4). The main categories of prey are birds, rodents (*agouti*), deer, wild pigs, bush cats and monkeys. Since food without meat is seen as ‘empty food’, finding meat is a daily concern for the forest dwellers. If they are not able to kill a wild animal a couple of times a week they have to buy expensive meat, or have to kill one of their domestic animals that are scarce and valuable. According to the interviewees it is more worthwhile today to hunt in the *barracas* or isolated communities along the rivers.

“Sometimes we long for the barraca because of the easy availability of meat. There you enter the forest with your gun and within no time you come out with a Jochi, or you go to a lake or river and catch a large fish.”

Don Adolfo Oliveira, San Antonio

In the communities closer to the regional towns hunting takes much more effort and seldom results in a good catch. On average, one or two male members of a household go hunting 2 to 3 times a week for 3-4 hours. In San Antonio, some men go hunting almost every day and trade bushmeat with their neighbors and merchants.

Moreover, the respondents know of some ten varieties of fish of which the majority can be caught and eaten. In Teduzara, the river Orthon is an important source of fish such as *pacú* (*Collosoma macroponum*), *surubí* (*Pseudoplatystoma fasciatum*), *dorado* (*Brachyplatystoma sp.*) and provides some water turtles and their eggs. Other sources of fish are the small streams dispersed over the large area of the *barraca*. With some tools and patience, the catch of fish can be substantial and can result in a nutritious meal, supplementing or substituting bush meat. San Antonio lacks a larger river system, which means that the inhabitants have to get by with the five small streams that cross the community. In both settlements it are mainly men and young boys who dedicate themselves to fishing.

Table 5.4 Most common wildlife species

<i>Bolivian common name</i>	<i>Scientific name</i>	<i>Type of animal and English translation</i>
Jochi or Agouti	Agouti paca	Rodent
Taitetú	Tayassu tayacu	Collared Peccary
Tatú or armadillo	Dasypus sp.	Armadillo
Pava / Mutun	Cracidae	Curassow (Bird)
Tucán	Ramphastos	Toucan (Bird)
Loro	Pionus / Amazona	Parrot (Bird)
Perdis	Tinamidae	Tinamous (Bird)
Pato del monte	Anadidae	Wild duck (Bird)
Peta	---	Turtle
Manechi / Mono	Alouatta sp.	Howler monkey
Huaso	Mazama gouazoubiza	Deer
Urina	Manzama americana	Deer
Gato del monte	Felis sp.	Bush cat
Chancho de tropa	Tayassu pecari	White lipped peccary
Anta	Tapirus terrestris	Tapir
Tejón	Taxidea taxus	Badger
Ardilla	Sciuridae	Squirrel

As well as the forest animals appreciated for their meat, some animals are chased and killed because they are threatening and harmful. Land and water snakes can be poisonous, while reptiles, rats and mice and some birds damage the crops. Last but not least, the forest dwellers share their habitat with a large number of - mostly harmful - insects that emerge in different seasons and bring a lot of discomfort, including diseases such as malaria and dengue.

“We often feel threatened by wild animals and snakes that can hurt us and our children and by insects that bring diseases to people and crops. Especially, the forests along the rivers are full of dangerous animals and insects that make us suffer’. Every type has its season, but insects are most numerous during the rainy season. They really do not let you sleep if you do not have a mosquito net.”

Doña Angelica Franco de Espinosa, San Antonio

5.3.3 Extraction area

From the 160 plant species used, about 55 percent are preferentially extracted from *monte alto*, 20 percent from the *huerta*, 13 percent in the *barbecho*, and the rest in the *chaco*, *pasto*, *sujal* and along river banks (see figure 5.2). More than half of the species are trees and the others are shrubs, herbs and climbers. Some of the products extracted from the old-growth forest are also available in the other vegetation zones, but, in lower densities and quality, and are more difficult to extract. The diversity of useful plant species is highest in *monte alto*. In addition, the plants in the old growth forest are on average more mature and give quality products. A disadvantage of the old growth forest is that parts of it

are usually located at relatively larger distances from the home compound requiring more effort and time for transport (see figure 5.3).

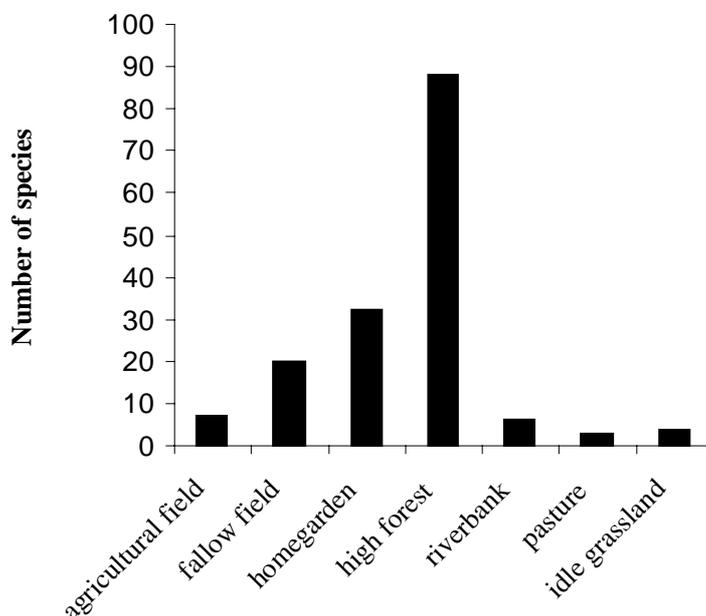


Figure 5.2 Number of species in each vegetation type (Source: adapted from Verkade, 1998)

The *huerta* near the house is the second most important zone for the collection of useful wild and (semi-)domesticated plants (see box 5.1). Women grow herbs and vegetables in this homegarden. In addition, useful plants are spared and seeds are thrown on the ground and to a lesser extent planted in the *huerta* in order to facilitate the extraction of medicine and food products. This is mostly done by men and children. In San Antonio, the interest in fruit trees has increased and people have gained experience or knowledge from each other and learned from several extension programs organized by IPHAE and other institutes. Once planted, however, the fruit trees are left to their own destiny until they bear fruits. The maintenance of plants and trees is something the forest dwellers do not have experience with and is not a priority activity. Their efforts are limited to sowing the seeds and harvesting the fruits. After that, they consider good production to be dependent on nature and on God. Consequently, little labor is spent on the production of orchard fruits and the prevention of pests and diseases.

“Production of plants largely depends on nature and on God. We plant and have to wait and see if we are lucky. We produce or we fail. Life in the campo is a gamble. You invest but do not know what you are going to get.”

Don Enrique Ortiz, old inhabitant San Antonio

Box 5.1: Wild and domestic homegarden species

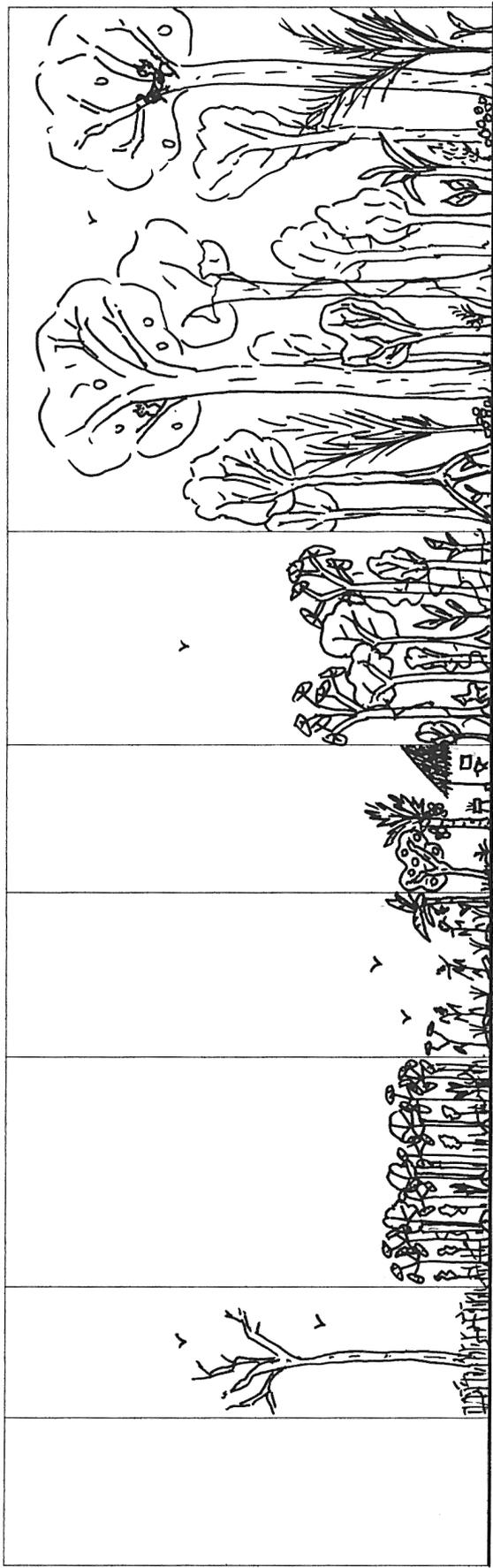
In San Antonio, the Huari family are considered to be successful and respected farmers. They migrated from Riberalta to San Antonio 17 years ago and have resolutely chosen a forest livelihood. Compared with many other *campesinos*, the family valorizes and uses the natural resources to the maximum and with a long-term perspective. They protect and domesticate several fruit trees in their forest plot such as cocoa, wild cashew, *majo* and *chonta*. They take care to clearly demarcate their forest plot for intruders and control the exploitation of the products. The fact that they intensively exploit and process the products without letting them be wasted, makes other forest dwellers respect the ownership of the trees. Their *huerta* contains over 25 useful plants. About 18 species are trees and shrubs: coffee, mango, orange, mandarin, *motacú*, guava, cocoa, coconut, calabash, *biriba*, cashew, lemon, avocado, *achachairú*, Spanish pepper, paprika, *urucú*, pineapple. Other plants are: lemon grass, *melva*, onions, scallions, green beans, cabbage, and tomato. Animals rooming around the *huerta* are: Chickens, ducks, pigs, dogs, cats and parrots.

Many plant species that are extracted from *monte alto* are also available in young or old fallow fields. Although the quantity and/or quality of these products might be lower due to immaturity,² the advantage is that the *barbecho* fields are usually near to the house and the extraction of products takes less time and saves labor. For daily necessities such as fuelwood this is very important. An obstacle of older fallow fields, though, is the often-dense vegetation and the presence of an extensive amount of climbers with thorns.

As is implicit in the notion of wasteland, the *sujal* is not particularly useful to the forest dwellers. It is indeed wasted land with only about four species that are useful. *Sujo* itself has a root used for medicinal purposes and *uña de gato* mainly grows in *barbecho bajo* and to a lesser extent in the *sujal*. Brazil nut trees that are left standing in these fields usually stop producing after some years in the open field with the intense sun and accidental fires.

Hunting is most successful in old-growth forest and in older fallow fields, where animals can easily hide in the dense vegetation. Hunters choose their hunting ground also in function of the presence of fruits that attract animals and await their prey at sunset or at dawn. Fishing is practiced anywhere along the streams, but it is more rewarding further in the old-growth forest where the fish accumulate in deeper ponds and in shady places. These places are mainly visited on the weekends or holidays when people have more time and both men and children can go fishing. Fishing places that are located in family plots are only accessible by the owners, while others need permission. Friends and family members who do not have access to such fishing locations often gain access in exchange for some part of the catch or some other form of barter.

² Exceptions are fuelwood and wild cotton from the *balsa* tree, which is a pioneer species.



Vegetation zone	<i>Sujal</i>	<i>Barbecho bajo</i>	<i>Chaco</i>	<i>Huerta</i>	<i>Barbecho alto</i>	<i>Monte alto</i>
Land use	Waste land, minimal NTFP extraction	Fallow, subsistence NTFP extraction	Agriculture, agroforestry	Agro-silvi-pastoral	Fallow, semi-subsistence NTFP extraction	Intensive subsistence and commercial forest product extraction
Main plant species	<i>Sujio, uña de gato</i>	<i>Ambaibo, balsa, patujú</i>	Rice, maize, manioc, plantains	Citrus, Moutacú, vegetables	<i>Ambaibo, balsa, patujú</i>	Diversity of valuable mature trees such as Brazil nut trees, timber trees
Animals	Small wildlife	Small wildlife	Pests: birds, rats	Chickens, ducks, pigs	Diverse wildlife	Large mammals such as deer and bush cat
Main products	Medicinal plants	Fuelwood	Staple food, fire wood	Vegetables, fruits, meat	Construction wood and palm leaves	Brazil nut, timber, bushmeat

Figure 5.3 Transect of Tomicha's forest plot in San Antonio

5.3.4 Extraction modes and their impact on the resource

The sustainability of the extraction is largely determined by peoples' envisaged use of the products (for what purpose and long-term or short-term), the mode of extraction they choose for and the particular characteristics of the product (which part of the plant is removed). In general people do not worry about the long-term availability of forest products. In their perception most of the forest resources are endless, although it might take some more time to collect resources that have been removed (overexploited or converted) around the house. In many cases, specific products and species regenerate or can be substituted by alternatives. Nevertheless, *campesinos* tend to maintain and reproduce certain important species near the house in order to sustain and ease the harvest and increase their *tranquilidad*.

Among the 160 plants used in Teduzara and San Antonio are trees, palms, shrubs, lianas, climbers, and herbs. Almost one third of the species are felled or pruned for the wood of their stems or branches. These are resources that not so easily regenerate. Of one fifth of the species the fruits or nuts are exploited. From the rest of the plants, people extract leaves, bark, exudates, roots, seeds, and in rare cases, the flower, apical meristem or heart of a plant.¹

Fruits are either collected from a standing tree or picked from a felled tree. The forest dwellers prefer to collect the fruits from the ground or pick them from standing trees in cases where it is possible to reach the fruits or climb the tree. In cases where this is not an option, such as with the high *chonta* palm, which has large spines, long sticks are used to harvest the fruits.² Some people, who do not want to wait for the fruits to fall naturally, use methods that are more drastic. Forest fruit trees such as *majo* and *chonta* are sometimes cut down to ease the harvest, using axes and machetes. Reasons are that these trees are high and hard to climb, while the fruits are damaged by birds and/or spoiled as soon as they fall down. Moreover, the fruit trees far from the houses tend to be exploited by outsiders before the owners have a chance to do so. The *majo* fruit is especially popular for consumption in rural and urban areas. When the tree is fruiting, urban *majo* collectors or *majeros* enter the forest daily for the collection of fruits for trading. Usually they climb the trees, but forest dwellers accuse them of cutting the trees.

Campesinos tend to spare valuable forest trees while selecting the location for a new *chaco*, but fruit-bearing forest trees that stand in the way are often cut down. *Paquio* (*Hymenaea spp.*) is a tree that is considered not worth left standing, although its fruits are edible and its wood is of good quality. The reason it is felled is that the fruits are too high to reach and its wood does not yet have a market. Those forest trees that are left standing after clearance do not resist the sun and the fire, and die off eventually. According to the *campesinos*, removing the trees prevents future accidents with falling branches. *Campesinos* who are less prone to destroy such trees, are those who appreciate the (economically)

¹In addition, the larvae growing in the stem of certain palm species are extracted and used for medicinal purposes.

² If the forest dwellers are well prepared they carry a cloth which they can use to catch the fruits.

valuable fruit trees in their own forest plot, who have sufficient space to make their *chacos*, and who are able to control the exploitation of the trees. Particularly when they are planning to settle down and are able to harvest the long-term benefits of the trees, they tend to maintain them (see box 5.1).

Palm leaves are generally removed with a machete. Palms like the *jatata* and trees like the *patujú* (resembles the banana tree) can regenerate new leaves from the stem when they are cut carefully (Zuidema, 2000). Other palms like the *palla*, *palma real* and *hoja redonda* however, are often entirely cut down, because they carry their leaves on high stems and are difficult to climb. Since these palms have only one growing shoot or meristem, they do not regenerate once cut down. However, little material is wasted from the felled palms. Their stem is often used as construction material and the bark serves as rope or as material for walls.

Other leaves, used for medicine for example, are picked from the tree or taken with part of the branches such as from *urucú* (*Bixa orellana*), *mandarin* (*Citrus spp.*), *avocado* (*Persea americana*) and *tipa* (*Macrolobium sp.*). This exploitation does not necessarily damage the trees or shrubs. The leaves of the herbs *malva* (*Malachra alceifolia*), *fortuna* and *paja cedron* (*Cymbopogon citratus*) can also be removed without damaging the plant. The intensity of this exploitation is usually low and enables regeneration.

Exploitation of the bark and exudates (latex or resin) of a tree is done by machete. Normally only small parts of the bark of a tree are taken for medicinal purposes in which case the damage to the tree is limited and regeneration takes place. Sometimes the bark is overexploited and the tree dies. Several orange trees in San Antonio were dying due to the continuous removal of large parts of their bark for the treatment of fever and headache. The trees and palms of which the bark is used as *pancho* for making rope usually die. The entire bark is ripped off, or the tree is cut down. In many cases the stem of the tree is also used for other purposes such as construction. According to the respondents the tree species that produce quality *pancho* are quite abundant in the forest but they grow slowly. Only small quantities of exudates are drawn from the trees and plants by making an incision in the stem with a machete, which does not endanger the survival of the trees.

Roots of trees or palms that have medicinal purposes are usually only partly removed, such as in the case of *patujú*. They are dug out and cut with a machete while the plant is left standing. Herbs such as *sujo*, however, are uprooted and removed entirely. Since the application of these medicines is limited and most of the species are abundant, this use does not endanger the resource.

The removal of seeds for medicinal purposes, making oil or for trading hardly affects the plants as well. The very intensive collection of the seeds of the Brazil nut may give the impression that it endangers its regeneration in the far future. However, studies of the growth dynamics of the resource by Zuidema (2000) have shown that this is not the case.³ Collectors only have to wait and pick up the fallen nuts and the high trees impede any

³ Indirectly, the natural regeneration of Brazil nut is thought to be endangered by an excessive hunting of agoutis, one of the only animals who is able to break the pods and help the seeds to disperse and germinate (Peres & Baider in Zuidema, 2000). However, the effect of lower densities of the agoutis is unknown.

other, more damaging technique (see Box 5.2). Since the collectors are not able to gather all the nuts, sufficient seeds are left for germination and reproduction of the species.

Box 5.2: The Brazil nut harvest

The large fruits of the Brazil nut tree ripen and fall from November until February. The woody pods have a diameter of between 6 and 12 cm and contain on average 20 in-shell Brazil nuts, which grow in the pod like the segments of an orange. The collection season lasts until March, when most of the nuts have been gathered and the annual crops in the *chaco* need to be harvested.

In the communities collection starts as soon as the first nuts are falling with the start of the rainy season in November. Since not all nuts are ripe at the same time and picking them from the high trees is impossible, the same trees have to be visited more than once. Early collection is favorable, because then the nuts are still dry, which gives them a high quality and price. It also prevents intruders from stealing nuts. *Campesinos* collect for a couple of hours per day, 2 to 4 days per week with a daily harvest of 2.5 *cajas* (55 kg).

In the *barracas* collection starts later (from mid December until mid March) when the *zafreiros* migrate to the area. At that time, most of the nuts have fallen and the collectors can gather them in a structured way, gradually moving further into the forest towards the more remote areas. *Zafreiros* normally spend six days per week gathering the nuts. Usually they leave early in the morning and return around noon with the first load of nuts. Depending on their energy and the distance to a new collection area, they may go for a second harvest in the afternoon. On average they collect eight *cajas* of nuts per day, each of 22 kg. They earned in 1996/97 an average of US\$ 4 per *caja*, which is roughly US\$ 30 per day. If the collectors wash the nuts in the river, they earn one *Boliviano* extra per *caja*. After cleaning, the contractor measures the harvest and places the nuts in the *payol* to dry. Per season, *zafreiros* in the *Barracas* collect on average more nuts (120 *cajas*) than the collectors in independent communities (78 *cajas*) (Stoian, 2000a).

To facilitate easier harvesting of the fallen nuts, the collectors clean the forest tracks between the trees as well as the ground below the crown of the trees. The pods are gathered by using a machete to search the undergrowth and a bag tied on the gatherers back in which to carry the nuts. The gatherers make a large heap of the pods, either close to the stem of the tree or far away from any Brazil nut tree and safe from the last falling pods. After having collected all the pods, they start opening the fruits with their machetes. Depending on his or her skills the collector either holds the pod in the hand or lays it down on the ground for opening. While the latter method is safer, it is more difficult to prevent damage to the nuts inside.

The extraction of the growing buds of a plant - such as with the exploitation of medicine from the *patujú* palm and palm heart from *asai* - has a significant impact on the plant. The plant itself dies and regeneration can only take place from other meristems (*patujú*) or young individuals (*asai*) of the species. The 15-25 meters high *asai* palm is felled with a machete and axe in order to harvest the palm heart from the upper 40 to 50 centimeters of the stem. Since the individual plants of this species have only one meristem and grow very slowly, sustainable exploitation of the species is difficult. It requires low harvest intensity, which is economically unattractive. Currently, the harvest intensity and frequency exceed the rate of regrowth, with the result that the density of reproductive individuals is

decreasing rapidly to very low levels (Peña & Zuidema, 2000; Zuidema, 2000). Over the last two years, IPHAE has introduced the cultivation of peach palm (*Bactris gassipaes*) as an alternative palm for the production of palm heart, as proposed by PROMAB (1998) (in Stoian, 2000b). The advantage of this species is that it is a fast growing, clonal palm, which is easy to cultivate and regenerates from new shoots after removal of the mature stem.

Timber extraction has until now not been sustainable. Excessive tree cutting of commercial species such as mahogany has led to local extinction in the most accessible forest areas, including San Antonio. Landowners and patrons have already sold most of these trees to sawmills, including immature trees with diameters below the 50cm prescribed by the Forest Law. The forest dwellers themselves do not have chainsaws to exploit timber and to hire one with an operator is too expensive.⁴ This means that they have to contract a logging company and to a certain extent lose control of the harvesting procedure. The current formulation of management plans is expected to have a positive impact on harvesting methods and the regeneration of timber species.

People also use different wood species for construction and the most preferred species such as *coco* are becoming increasingly scarce. Overexploitation of the forest for the purpose of firewood does not take place as trees that have already been felled in the agricultural fields are used. These trees are processed into pieces of about one meter long with machetes and axes at the same time as cleaning the *chaco* and facilitating a higher agricultural production.

Hunting equipment consists of different sorts of machetes, pocket lamps, rifles and munitions. In rare cases, an animal can be caught with just a machete or an axe when the hunter encounters an animal roaming around the house or while he is in the forest. For this reason, men are usually armed when they enter the forest. The hunting techniques used by forest dwellers are not sophisticated and do not appear to cause wildlife extinction such as, for example, trapping would do. More problematic are the seasonal concentration of nut collectors and loggers in certain areas and the indiscriminate killing of animals, including females that carry young. In addition, *zafreiros* often take home young animals that are not valuable as a source of meat, but serve as pets that usually die young. Another threat is the loss of wildlife habitat due to logging and conversion of forest vegetation into pastures and agricultural land.

Fishing does not seem to harm the resource base as long it is practiced with adequate equipment such as a line, hooks of different sizes, and some bait. In the dry season, however, the fish are trapped in small ponds of water in the dry riverbeds. In this situation, forest dwellers are tempted to over exploit fish resources and catch them with nets or with the poisonous resin of a liana, locally referred to as *barbasco* (*Clibadium sylvestre*). The latter method also kills immature fish and discussions were going on in San Antonio to stop its use. "It kills all the young fish (*cria*) and next year we don't have fish anymore". However, for centuries many Amazonian Indian groups have used different types of *bar-*

⁴ Average expenses for contracting a chainsaw operator with his chainsaw are USD \$13 per day, which is almost three times more than the average day wage.

basco poison (among which *Clibadium sylvestre* and *Lonchocarpus spp.*) as a highly effective poison that stuns and paralyzes fish, without apparently depleting fish resources (Peters, 1994). This illustrates that whether extraction is sustainable also greatly depends on the concentration of a given extraction mode in a certain area.

5.3.5 *Natural resource management in San Antonio, Teduzara and Trinidadcito*

The modes of forest exploitation described above show important differences and parallels in sustainable use between the settlements. Five important criteria explain peoples' way of extracting forest products and the impact this has on the resource:

- the characteristics of the product
- the control of the resources and future perspective of the exploiter
- the market value of certain products
- the capability to exploit
- the need for immediate cash.

(1) Forest dwellers treat Brazil nut trees with the most respect in both settlements, and the extraction is sustainable in the sense that gathering does not inflict damage on the resource base.⁵ The extraction of timber and palm heart is much more obtrusive and always implies destruction of the tree. In addition, peoples' lack of awareness of the slow regeneration of asai palms and their impatience in waiting for palm trees to become fully mature cause them to overexploit palm heart. The exploitation of fruits, leaves, exudates and roots in general does not undermine the sustainability of the resource. However, impatience and lack of resource control for long term benefits stimulate barraca laborers, *zafreiros* and 'urban labor gangs' to cut the palms and trees for these products, especially in the case of an economic product such as *majo*.

Another important characteristic of a product is its substitutability. In cases where several alternative species exist for the same purpose, such as for construction, forest dwellers are rarely concerned with the conservation of one of these species. Nevertheless, if a certain species has an exclusively high quality or durability such as the leaves of certain trees that are used for roofing, people handle it with more care. Popular wild fruit trees, which are scarce and without similar alternatives, are exploited more carefully.

(2) Of major influence is the ownership of the products and control of benefits. The inhabitants of Teduzara have less control of the resources and lack options and interest in the development of permanent agro-extractive systems. Their aim is to maximize their short-term production without concern for future benefits. They follow the orders of their patron and are mostly rewarded with day wages or piecework-wages that do not relate to the sustainability of their mode of exploitation. In the limited time they have for the ex-

⁵ The *granjeros* in San Antonio are the only group without respect for the Brazil nut trees. They clear the nut trees in order to make pastureland.

traction of products for household use they also reap the short-term benefits they can get from the natural vegetation, felling a palm or tree whenever it is convenient to do so.

This situation is even more pronounced for the *zafreiros* who temporally visit the *barraca*. Their short-term presence and need for cash induce them to intensively exploit the surroundings of the Brazil nut collection centers without concern for regeneration. They have permission from the *barraca* owner to hunt and gather in the forest as long as it is not for commercial purposes. They depend on meat and fruits from the forest for their survival, because the food provided by the patron is insufficient.

Trinidadcito is organized as an independent community, but its commercial resources are still controlled by the patron. Consequently, the inhabitants' control of commercial products is insecure, stimulating them to exploit as much palm heart as possible before the patron decides to send in his laborers. For fruit trees and other subsistence resources they do not need to compete with outsiders and pay more attention to sustaining these resources.

In San Antonio, households are in control of their land and in general extract products from trees such as the *majo* without destroying them. Their exploitation methods reflect their concern for short-term self-reliance as well as for the potential future market value. *Campesinos* that decide to settle down in the community and focus on the development of a permanent livelihood in the forest are especially interested in the maintenance of a diversity of products and vegetation types. The increasing resource control supports this attitude and brings about more sustainable agro-extractive strategies. A concrete example is their strong negotiating position with logging companies. Some inhabitants of San Antonio feel sufficiently secure about their land rights and the growing market for timber species that they decided to postpone exploitation of their timber- awaiting better prices.

(3) The economic value of a certain extractive products is not always linearly related to its sustainable exploitation. In the case of Brazil nut, the lucrative and secure market value stimulates protection of the tree both in *barracas* and in independent communities. In contrast, the booming market for palm heart and certain timber species have accelerated the destruction of the resource base in both the communities and *barraca* studied. Products without a market value are left alone, extracted on a small-scale for subsistence needs or destroyed in order to make space for *chacos*.

(4) One of the reasons that *barraca* inhabitants and *campesinos* are causing less damage to the resource base compared to *granjeros* is their lack of resources and equipment to fell trees and convert forest into pasture. If this were the only reason for them not to be involved in forest overexploitation and destruction, economic development and the availability of equipment in the settlements would imply resource degradation. However, if the forest dwellers have a long-term perspective on their resource use and recognize the (growing) future value of their resources, this would not be the case (see Chapter 8).

(5) The last mentioned scenario also depends on peoples' economic reserves and their need for immediate cash for the maintenance of their livelihood. Some inhabitants of San Antonio have more opportunities to save their natural resources and are less characterized by 'hand to mouth' strategies than others. Consequently, they can forego the direct cashing-in of resources such as timber in order to await higher prices when resources become scarcer.

In summary, some extraction activities lead to degradation of the natural resources and hamper future use of the products. The sustainability of the resource use practices increases with forest dwellers' growing concern with the continuation of production and with their ability to exclude others from exploiting the products. In this case they tend to use methods that are less damaging.

5.4 Conversion of forest into arable land

5.4.1 *The amount of cultivated land and staple crops*

In San Antonio, almost ninety percent of the households make a *chaco* every year. Only those who have recently immigrated or reside in Riberalta do not have access to land and work as caretakers on *granjas* or as seasonal laborers outside the community. All the inhabitants of Trinidadcito make a *chaco*, for they depend on agricultural production for their livelihood maintenance. In the *barraca*, less than half of the permanent inhabitants make a *chaco*, because they lack access to suitable land and are too busy working for the patron. The number is gradually increasing, because the patron stimulates them to produce their own food crops in order to make them more self-reliant. This is an illustration of the changing role of patrons who can no longer monopolize food supply, and want to concentrate on managing the exploitation of forest resources and attracting sufficient laborers.

Another important factor that influences the number of *chacos* made and the total area cultivated is the availability of the household's male labor force for forest clearance. Whether this land is cultivated depends on the availability of seeds and tools to ease the work (e.g. a sowing machine (*sembradora*)). Additional factors are men's' health status and their involvement in other activities such as casual labor.

The average area cultivated per household in San Antonio is 2.2 hectares, while in Trinidadcito it is 1.6 hectares and Teduzara it is only 0.5 hectare. The limited attention and time the *barraca* inhabitants have for agricultural activities and the absence of cash crop production can explain the difference. In San Antonio, the agricultural crops are grown for both subsistence and income generation. The data from these two case studies correspond with the findings of the regional survey, which indicate an average of 2 hectares of agricultural land in independent communities and around 1.4 hectare in *barracas* (Stoian, 2000a).

All households that cultivate land have rice and maize as staple crops (see figure 5.4). In San Antonio, farmers also have manioc and some plantains and bananas, while a

couple of households cultivate beans, groundnut, sweet potato or sugarcane on a limited scale (for each crop adding up to less than half a hectare for the whole community).

Apart from these differences, the main procedure of the agricultural cycle of the region is comparable in both *barracas* and independent communities. Since only dry agriculture is practiced, the cycle is related to the seasonal rainfall. After the first rains the staple crops are sown and planted, initiating a period of maintenance, including weeding, the chasing away of harmful animals and the prevention of pests and diseases. After a couple of months the crops are harvested and sold or consumed. In most cases, the field is planted for a second time with other crops and the cycle is repeated. The sections below will describe the different phases of the agricultural cycle in more detail, including the specific land use practices involved.

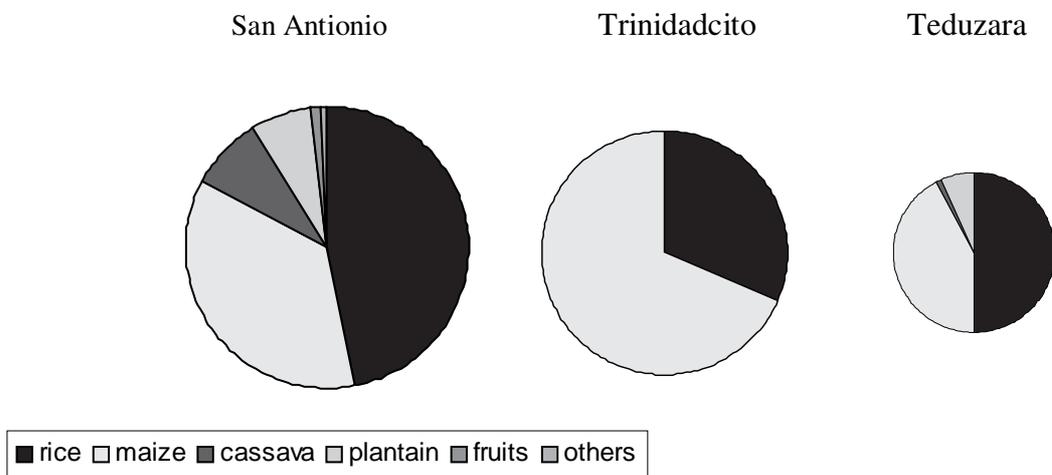


Figure 5.4 Relative importance of cropland and areas of different crops in the settlements

5.4.2 Preparation of the agricultural fields

The preparation of a new agricultural field starts in the dry season, between July and October. This activity consists of different stages and takes about three weeks (20 labor days) per hectare. However, *barraca* laborers usually only get 15 days unpaid leave to make their *chaco*.

The location of the field depends on a couple of criteria. (1) The soil type is the first important criterion. The different requirements for each crop and the heterogeneous nature of the forest vegetation result in the fact that most *campesinos* have 2 or 3 different *chacos* at different places and in different types of vegetation. Farmers estimate the potential productivity of the soil based on traditional knowledge and experience. A dark soil (*tierra negra*) is considered fertile and contains sufficient moisture while a white soil (*tierra blanca*) does not produce due to a lack of nutrients and moisture. The natural vegetation is as an indicator for the quality of the soil.

“White soil is hard and dry, it does not give space for the development of rice seedlings.”

Don Silvestre Huari, San Antonio

“The growth of patujú is a sign of good soil. If it thrives well and has a healthy green color, there is fertile soil. As a campesino you better stay away from sujo, it spoils your work and harvest, and multiplies as a pest.”

Don Juan Oliver, pioneer San Antonio

(2) Another criterion is distance. A close distance between the house and the *chaco* is of importance to facilitate easy maintenance and transport of the crops. (3) A dispersal of the fields along the boundaries of a property serves as a demarcation towards neighbors. (4) Trees that provide valuable products are saved as far as possible. Locations that are inhabited by such valuable trees are protected for as long as possible.

(5) The choice between clearing old-growth forest or an old-fallow field is based on the labor availability for clearing and weeding. Obviously, clearing a patch of old-growth forest requires more felling of large trees and more burning of vegetation residues than a *barbecho* field. This initial high labor input results in a more fertile and clean soil and a higher production of rice which is very sensitive to weeds such as *sujo*. Consequently, less weeding is necessary during the rainy season and that fits well with the limited available time in that period when Brazil nuts must be collected. However, a *chaco* in old-growth forest also has disadvantages. The large trees are difficult to burn and produce fewer fertile ashes than the fallow vegetation, which is a disadvantage for the production of maize. In addition, the remaining trunks and roots hinder sowing in straight lines and the use of a sowing machine, resulting in a loss of time and area. This is a particular hindrance for the growth of manioc and maize.

Making a *chaco* in a *barbecho* requires less labor force for felling and burning and gives a quick release of a large quantity of fertile ashes for the cultivation of maize. The disadvantage is that weeds with extensive root systems including *sujo*, and plants with thorns invade quickly. This requires more weeding during the growing season and an early abandonment of the field. The general trend is that most farmers are cutting less old-growth forest than before. There are three reasons. Firstly, older fallow fields, where weeds have already been shaded out have become more available. Secondly, the *campesinos* have a lack of time, energy and money to fell mature hard wood trees. Thirdly, there is a growing interest in potential timber/forest species and in the protection of old-growth forest. If the forest dwellers decide to cut old growth forest, they select the area carefully, making sure that the least valuable vegetation is destroyed. For the *barraca* laborers the above criteria are less important except for the labor requirement. For them it is more crucial to choose a location where the cows and the seasonal laborers of the patron can not easily gain access to the fields and destroy their crops.

Cleaning the undergrowth (rozar)

The first phase of the preparation of the *chaco* starts in July or August with the removal of the undergrowth of the forest vegetation. The machete is the most appropriate tool to cut down flexible and thorny lianas, herbaceous plants, and small diameter trees (>5 cm). Cleaning the undergrowth of an-old growth forest vegetation takes about 10 labor days (*jornales*) per hectare, while secondary vegetation in a fallow field takes a couple of days more. These figures correspond with data of the regional survey of DHV (1993d).

“Experience and a sharp machete are essential for cleaning a chaco. Other things required are long sleeves and trousers and a cap as protection against falling insects and branches. Crucial is a stone to sharpen the machete to ease the work and prevent blisters and a loss of energy”

Don Ruen Casilima , San Antonio

Felling the trees (tumbar)

After a couple of days when the felled vegetation has dried out, the trees with larger diameters are felled using an axe. If there is a lot of variation of the trunk diameters, a second round is made for the largest trees. Since it is rare that people can borrow or rent a chainsaw for this work, trees with a high diameter can take up to a day to cut down. In some cases, these trees are cut by two men at the same time, one each side of the stem. The clearing of a field is a very tough job that is only done by adult men. On average it takes eight labor days per hectare to clear a fallow field, while the clearing of old growth forest trees takes almost two weeks.

To ease the felling of the larger trees and save energy and time, *campesinos* usually use the ‘domino technique’. First, the falling direction of the trees is determined based on their natural balance and the wind. Second, all trees in a row are partly cut. Third, one big tree at the end of the row is entirely felled, so that it falls on top of the other trees taking them all to the ground.

Burning the field (quemar)

In August and September the agricultural fields are burned in order to remove the litter (creating space), release nutrients, and sterilize the soil of pests and diseases. This burning can be done in half a day, but takes more time in the case of old growth vegetation. On average two weeks after the felling, the vegetation is dry enough to be burned efficiently, but the activity can only take place in light winds and the presence and security of several people.

To prepare for burning and prevent the fire from entering the forest a path is made around the field. In the surrounding forest, some dry sticks are here and there covered with fresh green *patujú* leaves to stop the fire. For the actual burning, two or three people

walk to one of the corners of the field, equipped with some matches and a piece of rubber band fixed on a stick. They light the rubber and start walking on a diagonal path into the wind, while lighting dispersed heaps of dry leaves or sticks on the ground. If the fire has started over the whole surface of the field, the people check the boundaries for jumping sparks.

The fire is lit against the wind in order to prevent it spreading uncontrollably. It also burns more slowly and intensely against the wind. In this way it removes more of the litter, releases a high amount of nutrients, and gives a clean soil to cultivate. Despite the precautions taken, it often happens that the fires get out of control and spread into areas with valuable trees, crops and dwellings. Many houses have been destroyed in this way. Therefore, forest dwellers do not want to make the *chaco* too close to the house.⁶

Cleaning the field (basurar)

Normally, the cleaning of the burned tree residues - such as the trunks and larger branches - is part of the preparation of swidden agricultural fields. The larger trunks are removed to make room for the agricultural crops and are processed into fuel wood for subsistence use or for selling. This practice, however, is not always implemented due to a lack of time and tools to do so. The forest dwellers are not willing or able to spend their time and energy on this activity. The cleaning of the residues of secondary forest vegetation would take them about six labor days and for old growth forest leftovers, more than eight labor days (DHV, 1993d). Without a chainsaw, this activity is very laborious and the market for fuel wood is not interesting enough to make the investment of hiring one worthwhile. Most of the forest dwellers clean for one or two days and then just sow their crops in between the trunks. However, they process the trunks into fuel wood for subsistence on a daily basis.

5.4.3 *Planting and maintenance*

Sowing and planting crops (siembra)

In the most common and traditional system, the planting of rice, maize, manioc, plantains (*Musa spp.*) and some bananas is randomly mixed. All these crops can be sown or planted at the same time, during the rainy season, mainly between October and December. Other systems practiced are the planting in monocultures, or in alternate rows of rice, maize or manioc (*callajones*). The *callajones* are commonly sown with about three rows of rice alternated with one row of maize. Due to the increasing market incorporation of independent communities, rice and maize are becoming dominant and a shift can be observed from mixed cropping towards monoculture. The *barraca* laborers have limited access to planting material for plantains and manioc and for this reason they also depend mainly on

⁶ During the field research, one of the houses burnt completely down, while two others were just saved with the help of a group alarmed neighbors.

rice and maize. In San Antonio about three households cultivated beans (*Phaseolus vulgaris*) in the dry season around March/April, or a second crop of maize (winter maize).

The men and children usually sow and plant rice and maize with a stick (*punzón*) and increasingly with a sowing machine (*sembradora*). Sowing of rice takes about three times as long if done manually as it does with a *sembradora* (six instead of two labor days/ha) (DHV, 1993d). In order to spread the risk of crop failure due to dry periods after the first rains, people spread their sowing of rice. They sow first only part of the seeds and wait with sowing the second part, after a new period of rain.

The forest dwellers know and use about 20 varieties of rice and nine varieties of maize and manioc – mostly local varieties. The cultivators choose the crops and varieties based on their proven productivity, experience and the availability of seeds and tubers. The latter is often problematic, because the saved part of the previous harvest is often insufficient or turns bad. Thus, forest dwellers need to exchange seeds with neighbors and relatives or buy expensive seeds. Finding tubers for bananas and plantains is particularly difficult in the different settlements because few forest dwellers have been able to cultivate them or have lost regenerated tubers due to bad maintenance or pests and diseases. *Granjeros* and a few successful cultivators sell the tubers for a couple of *bolivianos* per piece. For those that want to plant only a few banana trees, this is a viable option, but for a larger production as cash crop, it is often too expensive. As a reaction, IPHAE has distributed tubers to its participants in order to start them cultivating plantains and bananas and develop a ‘tuber bank’, and has trained them in the propagation and maintenance of the crop.

The forest dwellers rarely buy seeds in the market, nor do they experiment with new or unknown crops, such as beans or vegetables. Several NGOs and former development projects have facilitated new seeds in order to diversify crops. The initiatives have failed, because there was no follow-up of the cultivation of the crops and farmers returned to their old habits. With the expansion of independent communities and the increased security of land tenure, *campesinos* have become more interested in perennial crops such as citrus trees. In addition, species introduced by IPHAE are popular, such as peach palm or *pupuña* (*Bactris gassipaes*) for its palm heart and *copuaçú* (*Theobroma grandiflorum*) for its marketable fruits (DHV, 1993d).

Weeding and cleaning (deshierbar, limpiar and basurar)

During the rainy season between November and January, herbs and brush invade the home compounds and the *chacos*. The fields with annual crops need to be weeded at least 2-3 times during the growing season. Rice is particularly vulnerable to weeds, and the land requires constant cleaning. Different families regularly cross the field with a machete and a stick, superficially removing the unwanted grasses and thorny plants. Vegetative residues that are thought to hinder the plants and attract pests are sometimes gathered on heaps and burned (*basurar*). However, only few *campesinos* invest time in proper maintenance, while the inhabitants of Teduzara do not have time for such investments at all.

Correspondingly, DHV (1993d) concluded that 30 percent of the *campesinos* in their regional survey did not make any effort to control the weeds, while the rest only removed the weeds once.

This neglect, together with the lack of experience in the maintenance of perennial crops, frequently results in production failures. The main bottleneck is the Brazil nut harvesting season, during which forest dwellers have to combine the maintenance of their fields with the collection of nuts. People in independent communities who migrate to *barracas* for harvesting nuts have to leave their fields behind without maintenance and risking a production failure.

Pest control

Throughout the entire growing season, several animals, insects and diseases undermine agricultural production. Animals that eat or destroy the crops are birds, rodents, lizards, and wild and domestic pigs. Rice and maize crops suffer most from birds and rats that eat the recently sown seeds and empty the ripening ears just before harvest. People do little to prevent it, although they know it is a serious problem. Some cultivators chase the animals away by frequently visiting the fields or by sending their children to make noise. Some people have learned how to prevent seed predation by using a mixture of kerosene and water for the impregnation of the seeds. But, due to the scarcity of kerosene and a resistance to experimentation, the practice has not become widespread.

Examples of insects that destroy and infect the crops are termites, caterpillars such as *tornillos* (*Cochliomyia hominivorax*), mosquitos and *petillos*, the secretions of which burn the plants black. In addition, several diseases that are unknown to the forest dwellers affect the crops. Often they have to watch helplessly their crops changing color and losing productivity. With the exception of some *granjeros*, farmers do not have the means to buy chemical pesticides and lack knowledge of organic ones that can be produced locally. IPHAE is one of the organizations that includes pest control in their extension program to improve the situation.

5.4.4 *Harvest and production*

Harvesting (cosecha)

The rice and maize is harvested between January and April, after four and three months respectively. The harvest of one hectare of rice takes about ten labor days. A special knife is used to remove the ears and they are fixed in bundles for transportation. At home, the bundles are put on the floor and the rice is removed with the feet. Maize cobs are removed from the plants by hand and hanged up to dry on the home compound. Premature or fresh maize is boiled for human consumption (*choclo*). Mature and dry maize cobs are de-grained and fed to the animals or processed into a homemade alcoholic drink (*chicha*). The timing of the harvest of rice and maize is very important. The seeds have to be left

until they are mature/ripe, but not so long that they are wasted or eaten by predators. In cases where sowing has been spread out due to irregular rains, the harvest needs to be spread over a couple of days or weeks. In many cases people wait until all the rice is mature and lose part of the production due to falling seeds and predators.

After the harvest of rice and maize, the old field is mostly used for the cultivation of manioc and/or plantain for one or two more years. Plantains and bananas can be harvested year-round when they are ripe. The fruit bunches are cut carefully with a machete. If they are not fully ripe, they are hung in a rice bag on the compound, protected from insects and birds. Manioc tubers are mature after six months and can be harvested continuously during 1-2 years. The tubers are dug out with a machete and lifted up from the soil with a stick to prevent them from breaking. The smaller tubers are used for food consumption, the larger ones as fodder to feed the animals or for the production of fried manioc crunch (*chive*) or flour (*albidon*). Some part is given away, exchanged (*cambalache, treque*), or sold.

Various other crops are harvested on a smaller scale, such as beans, sugar cane, sweet potatoes and yams (*valusa*). Harvesting can be practiced by any adult household member and is usually done by two to four people together.

Abandonment of the agricultural field

The forest dwellers abandon their fields after two to four years. They cultivate annual crops only in the first year and a half, and then leave the land fallow and only extract the remaining manioc, plantains and bananas. After the first productive period, the invasion of weeds (*sujo*) makes cleaning more time-consuming than clearing a new field. The fallow period ranges between five to 15 years. After five years the most resistant weeds lose their competition with pioneer tree species such as *balsa* and *amaibo*, and are shaded out. It is possible to cultivate this area again, but according to the interviewees, it is more productive to wait longer and let it become an old fallow. People claim that after 15 years of fallow the soil fertility is comparable with the soil of freshly converted *monte alto*. DHV (1993d) has calculated that for the realization of a sustainable agricultural system in the research area based on swidden agriculture, a household needs a forest area of at least 80 hectares. In combination with sustained extraction of forest products, however, an additional forest area of at least 200 hectares is required. Allowing for family expansion, PROMAB estimated that the forest dwellers in the region should have around 500 hectares per household. Only with such an area will they be able to secure sustainable livelihood development based on agro-extractive activities and prevent conversion of the entire family plot into agricultural land and secondary forest. Inhabitants of Brazilian extractive reserves such as the Upper Juruá Extractive Reserve in Acre, have access to a similar area per household (Ruiz Pérez and Almeida, 1998).

Other use options for the old agricultural fields are the creation of pasture or planting perennial crops. The development of pasture fields, however, is reserved to patrons and *granjeros* who are able to invest in seedling material and paid labor. The creation of im-

proved fallow systems by the plantation of perennial crops is a viable and lucrative option for *campesinos* within reach of NGO support.

5.4.5 *Agricultural development in the different settlements*

In the *barraca* Teduzara, several permanent inhabitants have never cultivated land and hardly know how to establish an agricultural field. Agricultural production and domestication of perennial trees have no priority today or any potential for them. They lack control of resources, time and a long-term vision of settlement and resource use. Although the women would be able to spend time on the planting, maintenance and harvesting of agricultural crops, they depend on male household members to prepare the fields. The establishment of a *huerta* with perennial crops only pays if the next generation decides to stay and intruders such as the *zafreiros* can be kept from stealing the products. Another constraint is the *barraca* laborers' lack of access to seeds, agrarian extension and other inputs for agrarian- and agroforestry development. Although the inhabitants of Trinidadcito have the freedom and time to invest in permanent cropping systems, their remoteness from an urban center constrains them as much as the *barraca* laborers.

In San Antonio, the inhabitants are dedicated to agriculture and need it for subsistence and income generation. They have secured access to land, a more permanent settlement, reasonable infrastructure and external support. Consequently, several households invest in agricultural development and in agro-forestry practices, increasingly focussing on surplus production for the market. They make efforts to improve their agricultural practices and production through better planning and structuring of the different phases of the production cycle. Organizations such as IPHAE and CIPCA assist them through extension services and the organization of training programs.

In all three settlements, the preparation of agricultural fields is the responsibility of men. After the burning, both women and children help with the sowing and planting, weeding and harvesting. In Teduzara, this is not so common. Several households have only very young children and lack adults who can help in the *chaco* or watch the youngsters. In addition, the roaming cows oblige the laborers to make their fields far from the house. For these reasons, and because they do not like to enter the forest, several women are very homebound.

5.5 **Animal husbandry**

Domestic animals are part of the forest dwellers' physical capital. The forest dwellers perceive livestock - in particular cattle - as a symbol of wealth and prosperity, showing their ability to invest in animals, reproduce them and accumulate capital. Only some *granjeros* have been able to build up a herd and they no longer live permanently in San Antonio. *Campesinos* in San Antonio do not have sufficient experience or capital and have no cattle at all. The only *campesinos* working with cattle are the caretakers who previously worked with cattle in the *pampas* and now tend the livestock of the *granjeros*.

“I have been working in my uncle’s granja for three years now, taking care of his cows, horses and pigs. Before, I lived for a long time at the river Mamore, in the pampas with large cattle ranches. There I gained a lot of experience with livestock, including the prevention of diseases, the making of cheese, and slaughtering.”

Caretaker of Molina’s granja, San Antonio

Campesinos and *barraca* laborers only keep some small animals such as chickens, ducks and pigs, which are often the responsibility of the women. Table 5.5 shows that almost all households have one or more pigs, a large number of chickens and a few ducks.

Table 5.5 Possession of livestock in the different settlements.

	Type of animal	No. of households	Total no. of animals	Avg. animals per household
San Antonio (n = 27)	Pig	16	87	3
	Chicken	25	903	33
	Duck	19	140	5
Teduzara (n = 8)	Pig	3	15	2
	Chicken	7	51	6
Trinidadcito (n = 3)	Pig	3	7	2
	Chicken	3	28	9
	Duck	2	17	6

Ducks are more expensive and difficult to raise, requiring sufficient water near the home compound. Although they prefer to let the eggs of chickens and ducks hatch, respondents also eat and sometimes sell the eggs. Small *campesinos* are not able to build up a significant livestock, despite the fact that domestic animals are highly valued for their meat and represent an important commodity for trading and exchange. The most important constraints are a lack of investment capital, the need to consume animals for their meat, high losses due to diseases, and a lack of knowledge and experience of tending animals. People show neither much dedication or expend much effort to feed them and to make fences. Consequently, animals roam around the home compound and become victims of predators such as bush cats and thieves. At the same time, the unfenced animals enter the *huertas* and *chacos* and damage crops.

In Teduzara, the patron is the only person owning cattle and inhabitants with domestic animals are an exception. A lack of means and transport for purchasing reproductive animals are the major constraints here. The few chickens people own get lost or are all consumed due to lack of other sources of proteins.

5.6 Concluding remarks

The forest dwellers' natural resources and stocks of crops and animals represent in both communities and *barracas* one of the main sources of livelihood capital. The utility of the forest for the *Cambas* is generally twofold: extraction of useful wild products and conversion of the vegetation into agricultural land for food crops and cash crops. This means that part of their livelihood activities depends on maintenance of the forest vegetation, while the other activities take place at the expense of the forest. The separate vegetation zones all have their function in the forest dwellers' livelihood system. Every zone supplies basic goods in the form of different plant and animal species and diversified qualities of products. Due to their different locations the three settlements have a slightly different resource base and different tenure systems cause divergent extraction and cultivation practices. Compared to *barraca* laborers, inhabitants of accessible communities such as San Antonio lack *bajío* and wildlife resources, but are able to compensate for this deficiency with produced capital in the form of domestic animals and cultivated (perennial) crops. This notwithstanding, the forest dwellers' general appreciation of the forest resources is very similar; it provides them with the *tranquilidad* of all kinds of basic needs, and at the meantime makes them suffer from harsh living conditions.

Monte alto is most valuable and provides the highest diversity of species, the best quality of products, and the largest number of potential uses. Forest dwellers without this old-growth forest, such as in some agrarian and peri-urban communities are considered poor in the sense that they do not have access to this natural bank with timber trees, Brazil nuts and other (potential) products. For this reason *campesinos* with secure land rights and a long-term interest in forest extraction try to spare this natural capital and tend to forego slash and burn of valuable high forest patches. Although the main interest of the forest dwellers is, their short-term benefit of the resources, *campesinos'* incentives for sustainable resource use are manifold.

However, the effect of the *campesinos'* livelihood practices on the forest vegetation is not always positive. Depending on the type of products extracted, their specific characteristics, and the intensity of the exploitation, products can reproduce (Brazil nuts) or deteriorate (palm heart). This implies for example, that livelihood development based on the intensification of Brazil nut extraction is more sustainable than specialization in palm heart collection or logging. At the same time *barraca* laborers use the forest in a more *ad hoc* and opportunistic way, without being able to improve significantly their livelihood based on forest extraction, and are not investing in future production.

The forest also clearly has its shortcomings as a natural resource base. In order to benefit from its products, forest dwellers have to cope with the risk of encountering harmful animals and diseases and suffer from pest plants and insects.

Campesinos and to a lesser extent *barraca* laborers, combine the extraction of natural products with the cultivation of crops for staple food and income generation. The diver-

sity of products can provide a year round security of food, fuel and other necessities. The agricultural and extractive activities that are part of the agro-extractive cycle are practiced in different parts of the year; both the agricultural crops and forest products have their particular growing- and harvest seasons. The cycle requires a continuous labor input and peak seasons exist in which different activities overlap in time - such as in the rainy season when rice has to be weeded and harvested, and Brazil nuts have to be collected.

The forest provides the resource base for harvesting forest products, for creating farmland and for raising animals. The forest dwellers' lack of agricultural tradition during the rubber era is reflected in the inefficiency of several of their practices, resulting in a limited variety of crops, bad maintenance of the cultivated fields and productive crops, and in low production figures. Within the limits of their knowledge, experience and labor time, the forest dwellers select productive sites for their agricultural fields, at the same time aiming to minimize the loss of valuable old growth forest resources.

The lack of maintenance of (perennial) plants and agricultural fields is symptomatic of a short-term mentality of the average forest dweller in the region and is a result of their hunting and gathering tradition. In addition, it can be explained by a lack of human capital in the form of labor power, health and technical education. However, the independent forest dwellers who are settled as *campesinos* prove they are interested in the development of a diverse agro-extractive production system and tend to better protect and manage their forest resources and crops. Moreover, the extension activities of several NGOs support these *campesinos* in accessible areas to improve their crop maintenance, resource diversification, and productivity.

Photo 5.2 Brazil nut gatherer





Photo 6.1 *Zafretero* carrying Brazil nuts

CHAPTER 6

**STRATEGIES FOR SUBSISTENCE
AND INCOME GENERATION**

“For poor and uneducated people like us, life is much better in the forest than in town. It is more ‘tranquilo’ and less expensive. You can grow your own food and extract Brazil nuts to sell. [...] Town life is good for people who have money. [...] We can buy and sell a diversity of products in town and some of our women find work.”

Don Rolando Alvarez, San Antonio

6.1 Introduction

Estimating the incomes of the people in San Antonio, Teduzara, and Trinidadcito is crucial for the understanding of their economic dependence on the forest and their incentives for long term resource management. This chapter analyzes the forests’ contribution to the household economy of the inhabitants of the selected settlements. It discusses the diversity of productive activities the forest dwellers perform in order to fulfill their basic needs and includes monetary as well as non-monetary values. All the findings are based on prices and production figures for the year November 1996- November 1997.¹

The productive activities performed by the inhabitants of San Antonio are diverse and lucrative and form the basis for this analysis, while the cases of Teduzara and Trinidadcito are often included for reasons of comparison. The purpose of this economic calculation is to determine to which extent the forest contributes to long-term interest in forest exploitation as a viable economic strategy. Such interest depends to a large part on the contribution of forest products to the households’ subsistence and income generation compared to other economic alternatives.

6.2 Productive activities and the household economy

6.2.1 Revenue analysis of the productive activities

The forest dwellers’ livelihood is based on a year-round agro-extractive cycle, which yields a large number of wild and cultivated products from the forest and agricultural fields. Only a limited number have a market value and provide the households with cash income or in kind, while the rest is for subsistence needs. To supplement this income, the

¹ The findings of this chapter are partly based on student reports from De Kam (1999) and Verkade (1998).

forest dwellers are also involved in wage labor. In San Antonio and to a lesser extent in Teduzara, we distinguish the following categories of productive activities:

- Agriculture
 - agricultural production from the *chaco*
 - horticultural production from the homegarden (*huerta*)
 - animal husbandry
- Extraction²
 - NTFPs and timber
 - hunting
 - fishing
- Wage labor such as
 - nut harvesting for a patron (*zafra*)
 - preparing *chacos* and harvesting crops on others' land
 - timber extraction in a logging team
 - palm heart extraction

Between November 1996 and November 1997 the average production benefits of the inhabitants of San Antonio were US\$ 3,500 per household (see table 6.1 and figure 6.1).³ The fact that these benefits ranged between US\$ 960 and US\$ 8,000 is illustrative of the economic differentiation of livelihoods within the sample of 27 households. Most production benefits are derived from agriculture (including fruit trees and livestock), followed by extraction and wage labor. One third of the total production benefits are derived from extractive activities, in which plant products largely dominate over hunting and fishing. Wage labor benefits cover only 20 percent of the total benefits and are gained as caretakers on a *granja*, as laborers in a neighboring farm, in extractive activities for a patron or in construction work. From this perspective, agriculture is the most productive and important activity for the community's households. It fulfills the larger part of their subsistence needs for food, while the surplus production contributes to a monetary income.

² A difference is made between independent extractive activities and wage labor related to extractive activities, which imply lower benefits and a lack of control.

³ 'Production benefits' are the estimated monetary benefits of the different productive activities – including the consumption benefits. This value was estimated by calculating the average market price of every product.

Table 6.1 Overall production benefits and commercialization in San Antonio

Product	Production benefits US\$	Share of total Production benefits US\$	Income US\$	Commercialization rate %	Share of total subsistence benefits US\$	Share of total income US\$
Annual crops	1,173		376	32 %		
Domestic animals	378		189	50 %		
Fruits	149	Agriculture 1,700 (50%)	75	50 %	Agriculture 1,070 (63%)	Agriculture 640 (36%)
Forest plant products	588		465	79 %		
Wildlife	356		52	15 %		
Fish	193	Extraction 1,137 (30%)	0,5	0,3 %	Extraction 620 (37%)	Extraction 517.5 (29%)
Wage labor	647	Wage labor 647 (20%)	647	100 %	Wage labor 0	Wage labor 647 (36%)
Total	3,484		1,804.5	+/- 50%	1,690	

Source: Adapted from De Kam (1999:33)

Half of the households' production is actually traded, providing them with annual revenues of approximately US\$ 1,800 that consists of cash money and of some bartered products.⁴ The share of all three main activities in the total revenue is around 30 percent (US\$ 600) with extractivism fetching less money (US\$ 517) than wage labor and agriculture (each US\$ 650).

The yearly revenues of the laborers in Teduzara are on average of a similar magnitude but are 70 percent based on wage labor and not supplemented with much subsistence production. Moreover, the labor days of these workers are often much longer than 8 hours. The economic situation of the inhabitants of Trinidadcito is much worse. These households only earned an estimated US\$ 477 in the year 1996-1997 (73 percent from extracting Brazil nuts and palm hearts). In addition, they lost part of their staple crops due to an inundation and had to rely largely on credits of a river trader and donations of the Red Cross.

⁴ This comes down to a small US\$360 per head, far below Bolivia's GDP per capita of US\$969 in 1997 (Bureau of Economic and Business Affairs, 2000: in Stoian, 2000b)

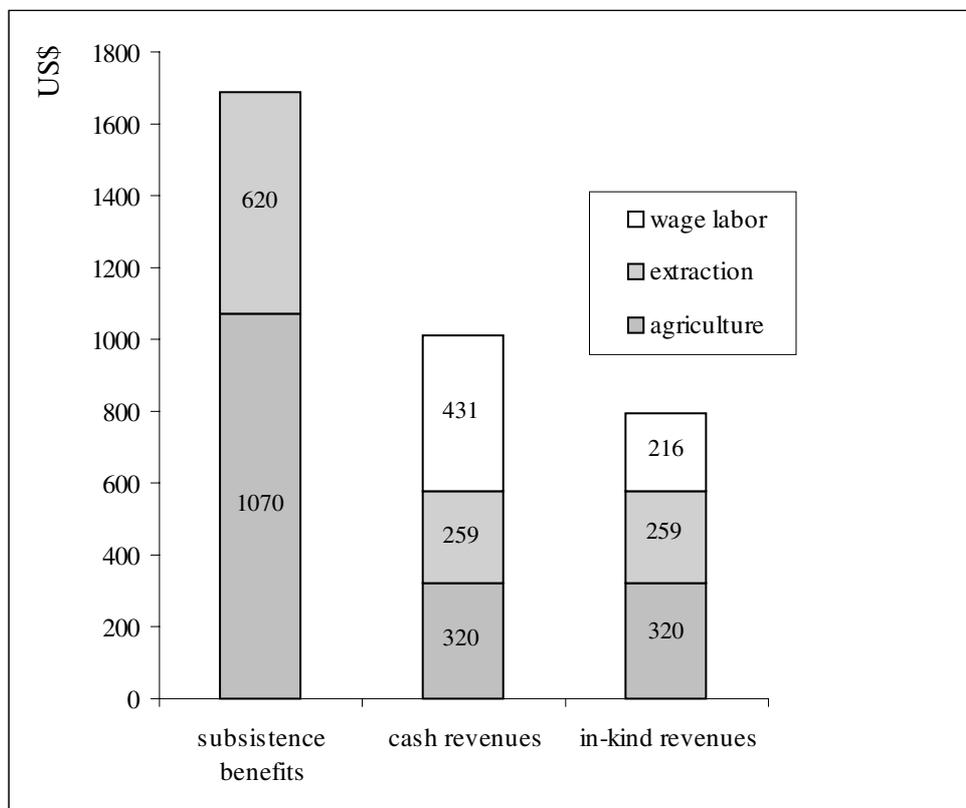


Figure 6.1 Average share of the three main economic activities in San Antonio divided for subsistence, cash and in-kind revenues.

The commercialization rate of the different activities and products and the concomitant monetary and in kind income shows a different division than the production benefits (see table 6.1, figure 6.1 and 6.2). Wage labor obviously has a high commercialization rate (about 100 percent), because its main purpose is cash or in-kind income generation. Extractive products - including timber and NTFPs – also contribute largely to the monetary revenues, with a 75 percent commercialization rate. Compared to its large production benefits, agriculture generates little cash, because two thirds of the crops and animals are for home consumption, while only a small amount is traded. As presented in figure 6.1 the revenues are only partly received in cash. An estimated two thirds of the wage labor is paid in cash and half of the revenues from extraction and agriculture. The rest is provided in the form of exchange labor, staple food or other commodities.

It is important to note that this analysis does not systematically quantify the different costs (labor costs, costs for equipment and collection) related to the exchange and production of products and services, but merely focuses on a calculation of the revenues. The reason is that the data are not accurate enough to determine the exact time allocation of all household members in San Antonio as well as shadow prices for wages.

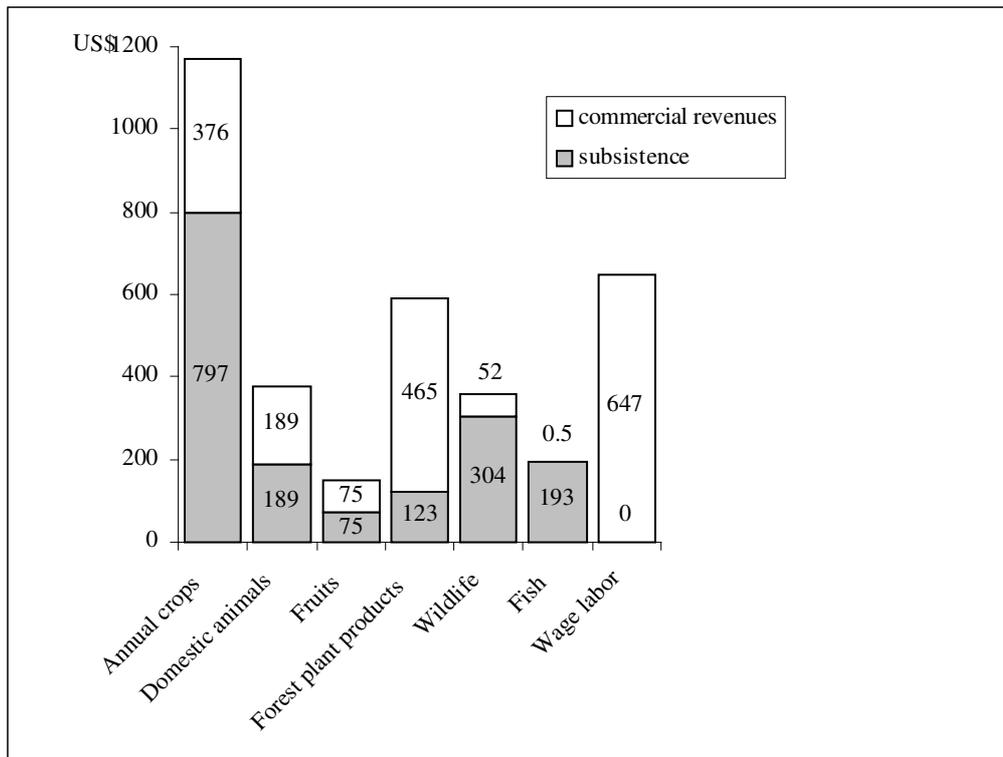


Figure 6.2 Breakdown of a household's annual production value in San Antonio divided into commercial revenues and subsistence revenues of different products.

Moreover, valuing labor costs according to general economic rules does not correspond with peoples' own appreciation. People appreciate labor relative to the work facing them, the time available, the specific activity and type of benefits, or the person for whom it benefits. These subjective criteria are variable and this fact endorses Chayanov's argument that peasants' value of labor costs does not always correspond with the economic opportunity cost of labor (Kerblay, 1987).

Wollenberg and Nawir (1998) have shown that a comparison of worldwide studies about forest dwellers' income generation is problematic due to different income assessment techniques. This is also true for the Bolivian Amazon, where several studies have made estimates of the economic value of the forest and the relative share of forest products in the overall income. Distinct methodologies are responsible for large differences of the estimated average incomes and the relative share of forest products. DHV (1993d) counts an average revenue of US\$ 1,752 and half of it realized from extractive activities. Assies (1997a) corrects the figures and presents an average value of US\$ 1,430 with only 33% gained from extractive activities. Based on an extensive rural survey Stoian (2000b) estimated the total rural household incomes in the region between US\$ 1,500 and 3,800. The limitation of these studies consists in the focus on purely market products and monetary values.

Comparative figures for forest dwellers in other parts of the Amazon enable the findings of San Antonio to be placed in a broader perspective. Anderson and Ioris (1992) have reported annual revenues of US\$ 3,172 for five households in the Brazilian lowlands from marketed NTFPs such as açai and rubber. Godoy *et al.* (1995) calculate an income per household of Sumi Indians in Nicaragua from US\$ 95 to 820 after deducting labor costs, while NTFPs represent 40 percent of the total. Padoch (1988) measures a large range between 2 to 85 percent of the income from forest and fallow products for 13 villages around Iquitos (Peru). Melnyk and Bell (1996) have found a net income with a range between US\$ 4,696 and 1,902 for Amerindian households in the Venezuelan Amazon.

These figures show that the revenues of San Antonio are relatively low in comparison to other findings in the Amazon. This discrepancy may be explained by the importance of semi-subsistence agriculture in San Antonio, particularities of the economy in the year 1996-1997, as well as differences in the methods used for data collection and analysis. The revenues from independent forest extraction are relatively low (33 %), because San Antonio is an agro-extractive community near an urban center (see chapter 3) with relatively small forest plots and a concomitant low extractive production. However, when extractivism in the form of wage labor is included, the figures raises to 50 percent and that corresponds with other extractive communities in the Amazon.

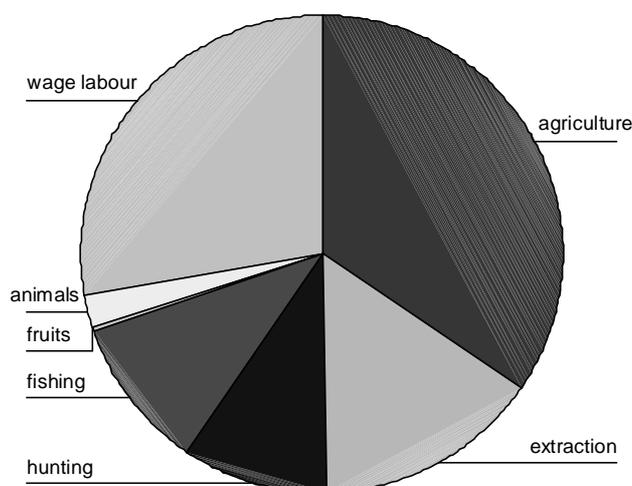


Figure 6.3 Family labor allocation to productive activities in San Antonio⁵
(source: De Kam, 1999:29).

⁵ Family labor comprises the labor force of the household, the assisting family, friends and neighbors, and hired labor. The household's labor force is classified in three groups according to Moll (1981 in De Kam, 1999): (1) elderly people of 65 years and older, (2) adults of 15 to 65 years and (3) children from 10 to 14 years. The first and last group is rated as a 0.5 man equivalent and the second group as a one-man equivalent. Children under 10 are not included in the work force.

If we estimate the households' time allocation, again we do not find large differences between the main activities. As shown in figure 6.3, the family labor time allocated to extraction (including hunting and fishing) covers almost one third of the labor time spent on economic activities during the year 1996-1997. More than 35 percent of the time is spent on agriculture, including fruits and animal husbandry, and less than 30 percent on wage labor. Of all labor allocated, an average of 10 percent is hired or contributed by non-family members in exchange for food and in some cases lodging.

Table 6.2 Gross returns to labor of economic activities performed in San Antonio (adapted from de Kam, 1999:30).

Activity	Gross returns to labor US\$ / labor day
Agricultural crops	7.7
Fruits	48
Domestic animals	16
Plant extraction	9.3
Hunting	8.8
Fishery	3.8
Wage labor	4.5

An estimation of the labor productivity of the different activities based on the overall production benefits shows that the labor spent on plant extractivism and hunting has a slightly higher profitability than the cultivation of annual crops (see table 6.2). In spite of this, people give priority to agricultural activities that provide subsistence food production and self-reliance. This choice can also partly be attributed to missing (affordable) food markets. Fruit trees and domestic animals give the highest rates of return due to a low labor investment.⁶ People only need to pick the fruits from the orchard during the season and sell them while animals roam around freely and do not receive any particular care. This is for many households a stimulant to become more involved with such activities. Fishery and wage labor have the lowest productivity. This shows that piece wages and day wages are low in relation to the labor invested. Among the main reasons for households to still allocate labor time to wage labor is their immediate need for cash money or staple foods, which they receive in exchange. In addition, several of the wage labor activities can be practiced in the off-season of other productive activities, especially before and after the agricultural season. The low productivity of fishing is no reason for the

⁶ The productivity of fruit harvesting or seems to be overestimated (or the time investment underestimated) by the *campesinos*. A possible explanation is the concentration of fruit picking and trading in only a few months, the high fruit production of some households, and the easiness of fruit picking with the whole family. Labor investment in planting and maintaining the fruit trees has not been included.

households not to invest in labor. It provides highly needed animal protein and children and adults enjoy doing it in their leisure time.

Notwithstanding its low productivity, all households in San Antonio are involved with extractive activities. One reason is that they supplement their food from agriculture with fish and forest meat, which are part of the extraction. Another reason is that they just need the cash to buy goods and products. Most forest activities (except for Brazil nut collection) are undertaken before or after the agricultural labor peak. The opportunity costs of labor are rather low this period, especially because most wage labor activities comprise of agricultural activities.

These general figures have given insight in the average production and revenues from the different activities in San Antonio. The next step is to analyze the place of these activities within the year round agro-extractive cycle and distinguish strategy groups in order to differentiate the community households based on differences in their economic livelihood strategies.

6.2.2 *Productivity and income division over the year*

People diversify and complement productive activities year-round to obtain economic security and cope with booms and busts of certain products. Agricultural crops and forest products have their particular growing- and harvest seasons (see chapter 5). This means that the agricultural and extractive activities that are part of the agro-extractive cycle are practiced in different times of the year. The diversity of products can provide a year round food security and income and require a continuous labor input. Peak seasons exist in which different activities overlap in time; such as in the rainy season when the rice has to be harvested and the Brazil nuts need to be collected.

During the three-month harvesting season, nut collection is a full time job for *bar-raca* laborers and *zafreiros*. However, the *campesinos* practice it only three days a week for a couple of hours. This time spreading is a consequence of the gradual ripening and falling of the nuts and the coincidence with the planting season of agricultural crops.

Table 6.3 shows the spread of the main income sources over the year. From January until February, Brazil nut is the main income source. Between March and May, rice and maize are harvested and can be sold at low prices. During this harvesting season, and with the agricultural preparation activities between July and December, men have most opportunities to perform paid labor. Income opportunities are rather slack between the Brazil nut season and the agricultural harvest season at the beginning of the year and the wage labor peak at the end of the year. To bridge this period, households can sell fruits, manioc, plantains and bushmeat if they have surplus production. Fishing and wage labor are practiced for food and cash, notwithstanding their lower rates of return to labor. Wage labor can provide income during the whole year, but is especially important between August and November, when the agricultural production has been sold and consumed, and the Brazil nuts are not yet ripe.

The main purpose of agricultural activities is the production of food and the generation of income to spend on market goods such as food additives, soap and clothing and on services such as education, healthcare and transport. A small portion of the production is neither consumed nor sold, but is bartered for products and services (*treque, cambalache*).

Table 6.3 Sources of revenues in San Antonio during the year

	J	F	M	A	M	J	J	A	S	O	N	D
<i>Extraction</i>												
Brazil nut	H	H	-	-	-	-	-	-	-	-	H	H
Fruits	L	L	L	L	L	-	-	-	-	L	L	L
<i>Agriculture</i>												
Rice	M	M	M	M	-	-	-	-	-	-	-	-
Maize	M	M	M	M	-	-	-	-	-	-	-	-
Fruits	-	-	-	-	M	M	M	M	-	-	-	-
Manioc/plantain	L	L	L	L	L	L	L	L	L	L	L	L
Animals	L	L	L	L	L	L	L	L	L	L	L	L
<i>Wage labor</i>												
Extr. Brazil nut	H	H	H	-	-	-	-	-	-	-	-	H
Extr. Palm heart	-	-	-	M	M	M	M	M	M	M	-	-
Agriculture	Weed	L	Harv	L	-	-	L	Prep	L	L	Sow	L

Relative revenue values L= low, M=medium, H=high

6.2.3 Inter-household variation in San Antonio

Similar to the overall production benefits, the benefits from each economic activity vary greatly between different households. The benefits derived from farming range from less than US\$ 30 to more than US\$ 4,000, while also the revenues from wage labor are close to zero for some households and above US\$ 3,000 for others. For the purpose of structuring and analyzing this differentiation the households are grouped into different categories. The data presented in table 6.4 show that four general groups can be distinguished in San Antonio based on their involvement in the different productive activities and the concomitant benefits derived.

People who have the highest production benefits from agriculture and the lowest extraction and wage labor benefits can be called *agriculturists*.⁷ This group of people invests most in cultivating crops. An explanation might be that several of the families originate from the neighborhood of Rurrenabaque, a small town on the lower Beni river, where they have grown up with the cultivation of cash crops and agroforestry practices.

⁷ Agriculture includes domestic animals and fruit trees. Extraction includes the activities hunting and fishing. Wage labor includes some remittances from family members working somewhere else.

Compared to the other groups of households, they have the lowest level of commercialization, which means that they consume a large part of their harvested produce. Due to their focus on agricultural development, these households tend not to spend time on wage labor. However, the commercial attitude of these people is illustrated by high costs in agriculture and extraction, including tools, transport and hired labor.

Table 6.4 Statistics of the four sub-categories of *campesinos* in San Antonio

	<i>Agriculturists</i> (n=9)	<i>Extractivists</i> (n=7)	<i>Wage laborers</i> (n=7)	<i>Generalists</i> (n=4)	<i>Average of all households</i> (n=27)
<i>Household characteristics</i>					
Age of the household's head	46	44.5	39	47	44
Household size	5.8	7.6	5.4	10	6.8
Number of men	1.8	1.7	1.9	4	2.1
Number of women	1.4	1.3	1.3	1.8	1.4
Number of children	2.6	4.6	2.3	4.3	3.3
Number of productive members	3.1	4.1	2.6	5.5	3.6
Dependency rate ⁸	2.0	2.1	2.4	1.8	2.1
Years of residence in San Antonio	7.1	15.1	6.1	9.6	9.3
Commercialization degree (%)	52.2	53.6	66	58.2	57.2
<i>Farm characteristics</i>					
Arable land (ha)	2.2	2.4	2	2.5	2.2
High forest (ha)	64.3	83.1	40.9	69	63.8
Total land (ha)	92.1	116.7	63	92	90.9
<i>Production benefits (US\$)</i>					
Agriculture	2,834	743	655	2,667	1,700
Extraction	823	1,625	1,085	1,073	1,140
Wage labor	129	349	1,207	1,406	660
Total gross benefits per househ.	3,430	2,785	3,305	5,250	3,500
Total gross benefits per capita	591	366	612	525	515

Source: Based on De Kam (1999:28)

The group that is by far the longest settled in San Antonio derives the largest share of their benefits from extracting and commercializing forest products. These '*extractivists*' have had the opportunity to obtain the largest forest plots consisting of *monte alto* and an ensuing high production of Brazil nuts and timber. Furthermore, they have large families and a high number of productive members. However, the total production benefits of this

⁸ The dependency rate is measured by dividing the household's size by the amount of productive members.

group are small in comparison with the other groups. A reason might be that several households in this subcategory have a passive attitude towards engagement in complementary economic activities such as agriculture and wage labor. Although their area of arable land is above average, the intensity of their cultivation is lower than for the agriculturists.

The third group consists of the youngest families recently settled in San Antonio and with the smallest farm plots and forest area. They derive the largest share of their benefits from wage labor. These ‘*wage laborers*’ with a small number of productive members do not (yet) focus on agriculture. Failing self-reliance in agricultural production obliges some of them to remain involved in wage labor. This again reduces their time and focus for agricultural development, especially if the labor involves seasonal migration for the *zafra* or palm heart extraction. The inhabitants of Teduzara and Peninsula can also be characterized as wage laborers, based on their labor for the patron, their small agricultural production and lack of independent extractive production.

Finally, there is a group of households that derives their benefits from an approximately equal combination of the different activities. The ‘*generalists*’ have by far the largest family size and the highest number of productive male and female members. Adult children contribute much to the agricultural activities and they have the largest farm plot of all strategy groups. This is the only group that does not make use of hired labor. These households are the most active and successful in multi-tasking with the highest production benefits per household and a high commercialization rate.⁹ However, when breaking down the households’ production benefits per capita, the productive advantage of this multi-tasking seems to fade away. The *generalists* end up with the second least income per household member after the *extractivists*, whose per capita income is remarkably low (see table 6.4). The conclusion could be that multi-tasking pay and that a main focus on wage labor and agriculture is most beneficial. But concluding this, we would ignore the importance of diversification of economic activities for the spreading of risk and for, for self-reliance/autonomy, and for the efficient utilization of the divers skills and interests of the household members.

6.2.4 *Decisive criteria and investment costs*

The categorization indicates that a households’ phase in the life cycle and their access to (forest) land are decisive criteria. Newly arrived young households in the community start in the wage labor group as caretakers or day laborers, because they have no access to land and have not yet prepared *chacos*. Once the family has access to land and grown-up children are able to contribute their labor force, the household becomes part of the ‘*generalists*’ with a high productive family labor capacity. The above statistics imply for agricul-

⁹ This grouping of households is based on an approximate calculation of their productive benefits. Its significance was affirmed by observation of the households’ productive activities, as well as by the characterization community inhabitants apply themselves, such as “hunter”, *palmitero*, and *agricultor* (farmer).

ture that its probability increase significantly when the amount of males and females in the household increases. Indeed, Godoy *et al.* (1997) point out that many researchers have found that larger households clear more forest because they have more workers and more mouths to feed. In the research area, with Brazil nut as an important economic product, the excess of productive labor that is allocated from agriculture to non-agricultural activities, is largely invested in extractive activities. The probability of wage labor decreases with a larger forest-farm plot, which is a logical outcome, since agriculture and extraction become more interesting then. Whether households become agriculturists largely depends on the quantity and quality of their forest resources for the purpose of extraction and their agricultural skills and interest.

Peoples' formal education does not seem to play a significant role in their choice of productive activities. Most of the activities, including wage labor - comprise of agricultural and extractive activities for which no education is needed. However, age seems to negatively affect the hours invested in wage labor. In the literature, it is found that wage labor is physically more demanding than agriculture and their potential employers therefore regard older men as too prone to injury or illness (Chibnik, 1989). Therefore, the older the head of a household is, the less time he will spend on wage labor. In contrast with the agriculturists, households within the group of generalist have sufficient young and productive males to be involved in wage labor.

Most productive activities are performed in such a manner that they require low capital investments, but some differentiation is found. The highest financial input costs are made in agriculture and by the group of agriculturists. These households spend US\$ 232 on agricultural inputs such as hired labor, tools, seeds, and transport. In addition, in extractive activities, the agriculturists spend more financial inputs than the average household does. In contrast, the households focused on diversification of their activities invested only US\$ 43 of their financial capital in agriculture and US\$ 12 in extractive activities, which is far below the average of US\$ 151 and US\$ 60 respectively. The extractivists and the wage laborers had average expenses on both agriculture and extraction.

6.3 Extractive products

6.3.1 The main forest products and their relative production value

The economic importance of extracted forest products is still considerable for the forest dwellers in the Northern Bolivian Amazon and that is reflected in the revenues that people earn in all three studied settlements (Table 6.5). No expensive tools are used to exploit and collect forest products. A machete, an axe, a bag and a rifle compose the main equipment of the extractivists. Figure 6.4 shows the overall production benefits of the main extraction products, illustrating the dominance of Brazil nut.

In San Antonio, the income derived from trading timber and NTFPs accounts for about one third of the overall household revenue.¹⁰ Households earn the most with Brazil nuts, palm heart and timber, which are only extracted for commercialization. Hunting and fishing are usually performed to supplement food consumption and are hardly traded. Other forest products including forest fruits, firewood and palm leaves have a small market and a low market price and are mainly for own use (Figure 6.4).¹¹

Households in Teduzara hardly earn any income from trading forest products, because the forest resources are owned by the patron and they collect the forest products as day laborers. The patron does not allow them to sell independently commercially interesting products from his forest and they lack time and skills for trading other products. The inhabitants of Trinidadcito can sell forest products independently with exception of Timber.

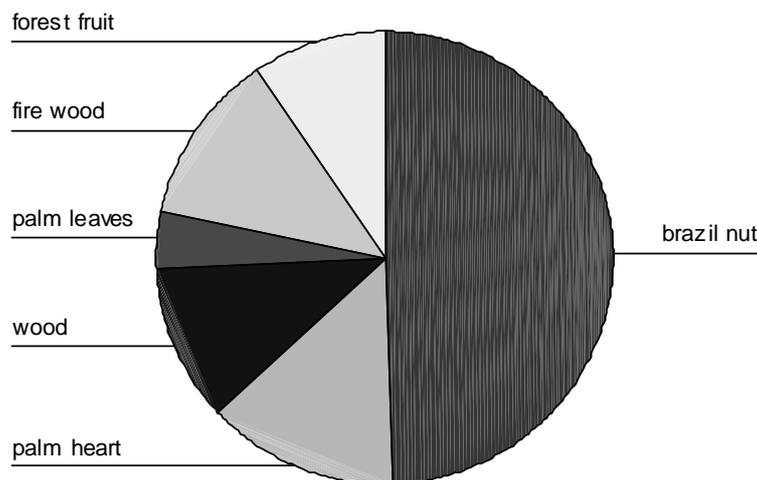


Figure 6.4 Production benefits of main extractive products in San Antonio
Source: De Kam (1999:33)

¹⁰ This percentage reaches 50 percent if we add the revenues derived from collecting these products in the form of wage labor to the extractive revenues.

¹¹ Products that stay invisible in these calculations are medicinal plants and several construction materials, because of a lack of proper production data and valuation methods.

Table 6.5 Commercialization of plant and tree products in the different settlements

<i>Settlement</i>	<i>Product *</i>	<i>No. house-holds</i>	<i>Avg. sale / unit</i>	<i>Avg. Price (US\$)</i>	<i>Unit</i>	<i>Avg. Revenues (US\$)</i>	<i>Min. Revenues</i>	<i>Max. Revenues</i>
<i>San Antonio</i>	Brazil Nuts	26	46	6,5	Box	300	36	780
	Timber	9	33	15	Log	490	44	550
	Palm heart	13	569	0,3	Shoot	170	11	815
	Leaves	5	4.7	17	1000 leaves	80	23	282
	Fruits	3	70	1,5	Kilo	100	7	288
	Fuel	2	115	1	Meter	120	6	364
<i>Teduzara</i>	Fruits	2	3	1,6	Kilo	5	5	5
	Palm heart	2	1,930	0,2	Shoot	380	155	393
	Fuel	1	11	1,5	Bunch	16	16	16
<i>Trinidadcito</i>	Nuts	3	111	6	Box	670	454	807
	Palm heart	3	3,247	0,3	Shoot	974	628	1963

*The extraction of products as an employee is categorized as paid labor and discussed in section 6.5

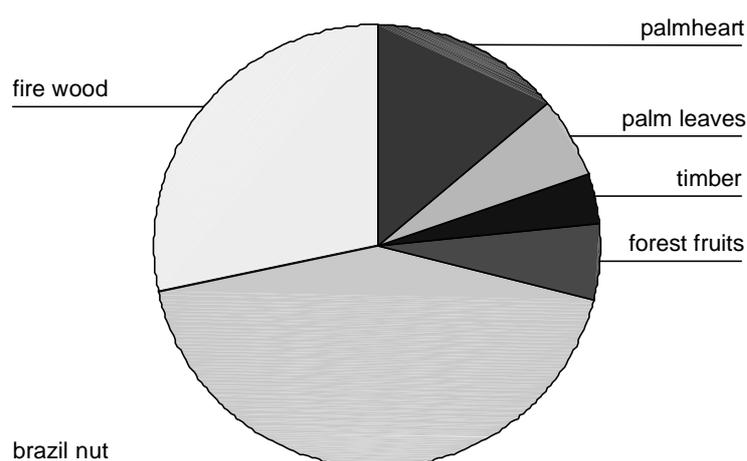


Figure 6.5 Relative time allocation for extractive products in San Antonio
Source: De Kam (1999:31)

Most of the labor time (40%) is allocated to Brazil nut collection, followed by fire-wood, palm heart and other minor products (Figure 6.5). A trade-off exists between involvement in Brazil nut and agriculture, which in some cases forms a constraint for peoples' self-sufficiency in food production.

Other marketable forest products are of lesser importance due to the small and fragmented market for these products. Although the forest dwellers tend to combine different income generating activities, *campesinos* who have a certain product in abundance in their forest plot are more likely to specialize in its trade, such as is the case with timber and palm leaves. Additionally, this trading depends on human factors such as household composition and experience with the products and timing. In San Antonio, this specialization has gradually developed throughout the years and individual households have developed fame as hunters, farmers, palm heart cutters or casual laborers.

6.3.2 Brazil nuts

Almost all the households in San Antonio and Teduzara are involved in the extraction and commercialization of Brazil nuts, which is the backbone species of the forest extraction system. Since the level of home consumption of Brazil nut is negligible, the main purpose of the nut exploitation is income generation. Brazil nuts have in general a stable demand on the international markets and form the most important pillar of the forest dwellers' household economy next to agriculture.

In San Antonio, people trade the nuts they collect from their forest plots independently. They sell on average 46 boxes per household and earn on average US\$ 300 or 16 percent of their annual revenues from Brazil nuts, more than ½ of their revenues from forest extraction. The group of extractivists has a large and highly productive *castañal*, producing 130 boxes (generating a maximum of US\$ 780). Agriculturists collect just a few boxes (the minimum revenue of this group was US \$ 36). The reasons why this group is not able to earn more from Brazil nuts are sickness, theft, or a lack of nut trees in their forest plot. The large variation in revenues exists due to factors such as (1) the type of access to forest with Brazil nut trees (*castañal*) and control of the benefits; (2) the productivity of the *castañal*; the time spent on nut collection; (3) the number of productive household members involved; (4) the price paid per box of nuts; (5) and personal skills including familiarity with the production area.

During the collection season 1996-1997, prices that farmers received in San Antonio ranged between US\$ 5 and 9 per box. Early in the season, the price is normally higher because most of the harvest has not yet reached the *beneficiadoras* that no longer have stock. The quality of early nuts is also higher, while at the end of the season moisture and fungi such as aflatoxine deteriorate the quality (see section 3.1.2).

The nuts are either sold to merchants at the farm gate, to the representative of the *cooperativa 'el campesino'*, or transported to Riberalta and sold directly to one of the processing plants. For people who find cheap transport, direct sale in Riberalta is the best op-

tion, where farmers can look for the highest prices that processing plants offer. However, for many households the transport is difficult to organize and too expensive. Moreover, collectors must sell part of their harvest to the *cooperativa*, which pays in the community a middle price compared to the processing plants and merchants. By selling their harvest, collectors reimburse the cooperatives credit that they have received in the form of cash or goods at the beginning of the harvesting season. Farmers need credit at that time of the year, which is the most difficult period with lacking cash and food stocks. Moreover, during the collection season, the *cooperativa* pays the Brazil nut largely in kind (e.g. rice, flower, sugar, cans, oil and soap) from the small shop in the warehouse (situated in the *payol*). Collectors who still have a positive account after the season - something that seldom is the case - receive their credit in cash money.

Obviously, middlemen from Riberalta who buy nuts at the farm gate offer the lowest prices. Next to the absence of risks for the farmers, the advantage of trading with these merchants is that they barter useful goods such as meat and clothing from Riberalta at the doorstep. Sometimes, they even pay cash in advance to certain collectors who promise to collect for them and who are considered trustworthy. Farmers also prefer to trade with middlemen because it generates revenues directly after harvesting instead of selling independently and obtain money after weeks of transport and waiting.

The laborers of Teduzara do not commercialize Brazil nut independently but are involved in collection as day laborers. For the purpose of this analysis, the revenues of those activities have been included in the wage labor component of the livelihoods, discussed in section 6.5.

6.3.3 *Timber*

In contrast to Brazil nuts, the commercialization of timber is only viable for a limited number of households in San Antonio and generates income every five to ten years. This is due to the naturally and human-induced low density of mature trees with commercial value in the region and a lack of official permits to commercialize the timber. In San Antonio, the most valuable species - mahogany and cedar - have become scarce in the areas accessible by road, and only a number of secondary species are still available in certain forest plots. In 1996-1997, one in every three households sold on average 33 logs with a range of 5 to 100 trees and the largest sellers belong all to the extractivists group that possesses the largest forest tracts with *monte alto*. The other households do not have valuable timber trees in their forest plot or do not own the trees on the land that they manage as caretakers.

For extraction of timber, most forest dwellers and communities depend on contracts with logging companies. They do not have the capital and machinery for independent commercialization of this resource. Organizing the transport and processing of timber is not viable for *campesinos* due to lack of a chainsaw and the necessary skills. Therefore, the

standing trees are sold to one of the logging operators. The result is low expenses in labor time (2 days), but also a low income and added value. The average price per log is only US\$ 15 with a large range due to different species, diameter and quality. In 1997, it generated an average revenue of US\$ 495 for those households involved.

Currently the sale of timber is strictly regulated by the new Forest Law and requires a forest management plan, transport permits and the payment of taxes. Together with some other communities near Riberalta, and supported by the IPHAE and BOLFOR, San Antonio has developed a long-term contract for timber extraction with a sawmill operator. Together they made an inventory of the community's valuable timber and developed management plans for the individual plots. About 14 commercial species are identified that fetch prices between US\$ 5 and 30 per tree.

Wood for construction is usually extracted from peoples' private plot. In some cases community members provide good quality construction wood to neighbors in exchange for goods or services. In exceptional cases, an urban constructor orders wood and leaves for the construction of an urban dwelling.

In Teduzara, the commercialization of timber is only practiced by the patron, but it indirectly provides the inhabitants with income opportunities in the sawmill. Most of the households are in one way or the other involved in prospecting, exploiting and transporting logs and sawn timber.

From these data, we can conclude that the direct economic benefits of timber products are only reachable for part of the *campesino* households. The households who sold timber derived a small 27 percent of their revenues from this product. For *barraca* households it is a growing source of labor opportunities, providing them with a low, but secure day wage during half a year – good for 40 percent of their income.

Some *granjeros* and *campesinos* in San Antonio have already sold their mature timber trees at the first opportunity when an entrepreneur offered them money. They wanted to cash this natural capital as soon as possible and are afraid that the new forestry law will restrict further log selling in the future. Others wait for higher prices before they sell and want their children to benefit from the timber. They also hope that they will be able to make more money out of the timber when they can rent a chainsaw and do not have to pay for a laborer.

“The wood price is currently too low so we wait for better times to sell our trees. We also do not want to make the forest empty and useless for the future”.

Don Leoncio Tomicha, San Antonio

6.3.4 *Palm heart*

Palm heart extraction around Riberalta is a typical illustration of the boom-to-bust characteristics of forest products. It has had its peak around Riberalta in 1994 and thereafter has gradually gone into a bust due to resource depletion and market stagnation (see chapter 3).

In San Antonio, almost half of the households exploited palm heart in 1997, collecting between 30 and 2,560 shoots and selling them for less than US\$ 0.5 to the processing plants in Riberalta or Guayaramerin. That year was the last time that palm heart collection was profitable and they earned between US \$11 and US\$ 815 (with an average of US\$ 170). Some families also extracted palm hearts as contract laborers and worked on average 25 days for a salary of US\$ 125. For those involved in palm heart extraction, it represented the second best extractive product after Brazil nuts – a small 10 percent of their annual revenues.

In 1996, the palm heart factory of the patron in Teduzara was operational and several families collected around 2,000 shoots – fetching US \$275. Those, who worked in the factory (*palmiteria*), cleaning, cooking and canning the palm hearts, earned about US\$ 3 a day during 165 labor days, resulting in an income of US\$ 470. Benefits of the product were for some laborers very lucrative, covering 25 percent of the average year revenues. After the closing of the factory, wood extraction and processing has taken over as the main activity in the *barraca*. However, this activity is less profitable for most of the permanent laborers. The inhabitants of Trinidadcito also profited from the processing plant in Teduzara earning that year on average more than US\$ 970, more than 50 percent of their year earnings.

6.3.5 *Palm leaves*

Palm leaves are exploited for subsistence and income generation. Although palm leaves are a basic material for roofing in the region, the abundance of the product prevents the development of a market. Near urban centers there is a small demand for leaves for the roofing of houses by urban dwellers without access to forest areas surrounding Riberalta. However, the price paid is very low. In San Antonio, more than half of the interviewees harvest leaves during the year, spending on average four days with several persons. These households exploit about 3,000 leaves (i.e. *palla*, *motacú* or *patujú*) from their own forest plot or from a neighbor if allowed. Most of the leaves are for subsistence use within the household or for communal constructions. In 1997 five households sold on average 4,700 leaves to buyers from Riberalta, gaining on average US\$ 80 with a price of US\$ 17 per 1,000 leaves. The price had an extremely wide range between US\$ 4.5 and US\$ 45. The latter price - paid by a contractor from Riberalta - was exceptional. He preferred the relatively durable *palla* leaves and had the resources to pay 18 collectors. Around Teduzara,

not any market exists for palm leaves. The laborers purely exploit the leaves for domestic use and for constructions of the patron.

This product provided a limited number of households with 5 percent of their year income. Its main value, however, is for subsistence, providing the forest dwellers with a secure and cheap shelter, a roof above their heads. The product is free of charge, preventing the households from making the expenses of galvanized iron, which is used in urban centers.

6.3.6 Wild fruits

Wild fruit collection in San Antonio is mainly for home consumption, while four households sold fruits on the market in Riberalta or to visiting merchants in the community. Income generating fruits are mainly *majo*, *motacú* and some *cocoa*, while small quantities of *pacay*, *chonta* and *asaí* fruits are bartered within the community. Households that exploit wild fruits for trading earn an average of 6 percent of their year income from this forest product. The trading of *motacú* is most lucrative due to its high density in some parts of the forest and an existing demand in Riberalta. Other forest fruit products are scarce with little demand and hardly worth the effort to commercialize. In addition, the scope for market expansion for such products seems very limited. In general, markets for wild fruits are fragmented and not reliable. During the harvesting season, the supply of these products is abundant and the (urban) market is easily saturated. The households tend to dedicate themselves to the sale of one particular type of fruit, mostly depending on its availability in their forest plot.

One household earns US\$ 260 with the sale of around 170 kilos of *motacú* fruits. The two collectors spent a total of 4 labor days (one hour each day during 30 days) collecting the fruits from the ground in a plot with wild *motacú* (*motacusal*).

Another household collected *majo* fruits during 15 days with two persons. They had to search, climb or even cut the trees in order to have a lucrative harvest. The household sold 37 small cans (*lata* = kilo) of *majo* for a price of US\$ 1.8 - earning a total of US\$ 67.

A third household earned US\$ 218 with the sale of 150 kilo of *motacú* and *majo*, which three persons collected during one week.

In Teduzara, fruits are not commercialized because formally, laborers are not allowed to sell any products from the patron's forest. Notwithstanding, some women manage to process and sell wild cacao for cash money. They earn US\$ 6 by selling chocolate balls made of cacao. Although these amounts are very small, any cash is very valuable in Teduzara. It provides people with some purchasing power and the opportunity to order and buy some special goods from a river trader such as medicine or seeds for the vegetable garden. With the equivalent of a single dollar in *Bolivianos*, inhabitants can buy a can of sardines, which is an important meal with the necessary animal proteins.

6.3.7 Firewood

Firewood is a daily basic need for every rural household as well as for the inhabitants of the popular urban neighborhoods. In the *campo*, collection takes place near the house and does not involve any economic transaction. Its availability is high and it takes little time to process the product domestic use. The market for firewood is very small, even around the urban centers. The reason is the product's abundance in nearby forests and fallow fields as well as the large amounts of waste from sawmills, which is sold or given free to laborers.

Only a couple of households take the effort to process and trade the wood, earning around 6 percent of their yearly revenues. Two households from San Antonio sell together 230 cubic meter of firewood with a price of US\$ 1 per m³. Cutting and piling the firewood with only the use of a machete takes them altogether 12 labor days (several hours a day during 100 days). The remuneration per day equals less than half of the average wage of US\$ 4.5. For those households the US\$ 115 is a welcome contribution to their cash revenues (6%), but without much perspective or development potential.

In Teduzara, the patron and the administrator were the only buyers of firewood before the sawmill was established. One woman earned US\$ 16 by selling bunches (*hases*) with a unit price of US\$ 1.5. That revenue has dried up since the sawmill has become operational and enough waste is available to provide free firewood for all households in the *barraca*.

6.3.8 Bush meat and fish

Most people in Teduzara and San Antonio hunt regularly. The majority of the caught wildlife and fish is for own consumption, representing their main source of protein. Some successful hunters barter meat for foodstuffs with neighbors and, occasionally, sell it for cash to them. A small amount is sold to merchants and town people, but this bushmeat trade to towns does not represent a large volume. Hunting and fishing require bullets or cartridges and fishing hooks.¹² The average expenditure for such ammunition is US\$ 50 and for hooks and fishing wire *campesinos* spend on average US\$ 10 for the whole year. To buy these inputs from merchants, people need cash and only in special cases, merchants accept bartered products.

Teduzara is a forest area with significantly more hunting potential than San Antonio, because this isolated forest area still has abundant wildlife (see chapter 5). The commercial value of bush meat in San Antonio is higher than in Teduzara where mainly small parts of the animals are given for free or exchanged. The animals that are most easy to hunt and sell are a type of rodent (*agouti*), peccary and deer (Table 6.6). The average value per traded piece is US\$ 5, which is mainly paid in kind, with staple food or goods

¹² Cartridges cost on average US\$ 0.5 per piece and with the same amount of money 6-9 bullets can be bought.

from the warehouse. The average annual revenue from hunting in San Antonio has a value of US\$ 63 per household and US\$ 40 in Teduzara, about four percent of their revenues.

Men go alone or in couples to hunt at night, or in the early evening or morning, totaling 8 hours per week. Hunters do not value this time the same as day labor in the *chaco*, because hunting is partly considered as distraction and the time of hunting does not interfere with other productive activities. Much the same counts for fishing. It is a favorite activity of men and children during weekends and free hours, and people do not care about the low returns to labor.

Table 6.6 Bush meat trade in San Antonio and Teduzara

	<i>Species</i>	<i>Avg. quantity sold per household</i>	<i>Average value in US\$ (Per animal)</i>
	Armadillo	6	6
	Jochi	8	11
	Deer	2	30
	Bird	3	2
	Peccary	3	20
			(Per piece)
<i>Teduzara</i>	Tapir	19	1
	Peccary (wild)	5	0.8
	Deer	15	1.4
	Jochi	33	1.4
	Monkey	9.5	1.4
	Wild duck	8	1.9
	Peccary	30	1.7
	Armadillo	7.5	1.7

Fishing is a subsistence activity of which only a small surplus is sold or exchanged. The fish caught for sale comes from larger rivers, while the fish from the small streams has a low value. In San Antonio, only a few households sell small amounts of fish that have a value of only US\$ 1,4 per fish. In Teduzara, half of the households are selling fish with some earning as much as US\$ 150 per year from fishing. Most people sell some fish to river traders, visiting *zafreiros* or the patron.

From the data presented above it has become clear that apart from Brazil nut relatively few products have a reliable market providing a significant income to all the forest dwellers. A large variation exists in the number of households involved, their production, and the actual cash revenues derived. This makes people search for other and often more specialized income sources, whether they are lucrative or not. Therefore, several people perform specialized activities of forest extraction and primary processing (Box 6.1)

Box 6.1 Creative initiatives for forest based income generation

Señor Cuani from San Antonio fabricates wooden basin (*tacus*) for food processing, such as the pounding of rice. He has become a specialist in making *tacus* during his residence in Riberalta and is still benefiting from the urban linkage for his market outlet. A consequence of his settlement in San Antonio is the abundance of the raw material, because he can cut wood easily. He spends about 80 working days of the year making *tacus* of different sizes and earns approximately US\$ 23 per day. This part-time job provides him with an income of US\$ 1818, which equals the total year income of a whole household.

Señora Huaris living in San Antonio collects and processes regularly wild cacao into balls of chocolate (*pasta*) and sells them at the market in Riberalta, where they fetch a price of US\$ 1 each.

Señor Apana, the caretaker of Peninsula started a small furniture workshop. He can make part of his living from selling and bartering simple chairs and tables with the inhabitants of Teduzara and Trinidadcito. Because he cherishes his independence, he did not accept the invitation of señor Castedo to develop a furniture business in Teduzara.

6.4 Agricultural production

6.4.1 Production, home consumption and sale

The three components of households' agricultural production (i.e. staple crops, horticulture and animal husbandry) have both a commercial and a subsistence value. In San Antonio, all households seek self-reliance in staple food in order to reduce their dependence on buying foodstuffs and their expenditure on market goods. Nevertheless, many households are not self-sufficient because they plan poorly their production and the amount they sell, or lose part of their harvest due to insufficient maintenance, pests, and theft.¹³ This poor management results in the forced purchase of food crops at high prices.

People earn monetary revenues from the sale of the surplus of staple crops, domestic animals and horticultural products of an average of US\$ 640 per year. The amount of traded crops (mainly rice, manioc and maize) represents one third of the total staple crop production and fetches average revenues of US\$ 376 per year. The sale of horticultural production provides an average revenue of US\$ 75 and the commercialization of domestic animals US\$ 189.

¹³ Just before the harvest season, many households run out of food and have to buy staple food (mainly rice) in the market or obtain it through barter or wage labor.

6.4.2 Staple crops

The production value of agricultural crops is relatively high, compared to the other productive activities. If we give a monetary value to the production, the average total production per year per household has a value of US\$ 1,174 in San Antonio. From figure 6.6 we can see that most attention is given to the production of rice, which covers almost half of the overall agricultural crop production. This is followed by the production of cassava (30 %), and maize and plantain (both 15 %). Other food crops such as beans cover only 5 percent of the total production.

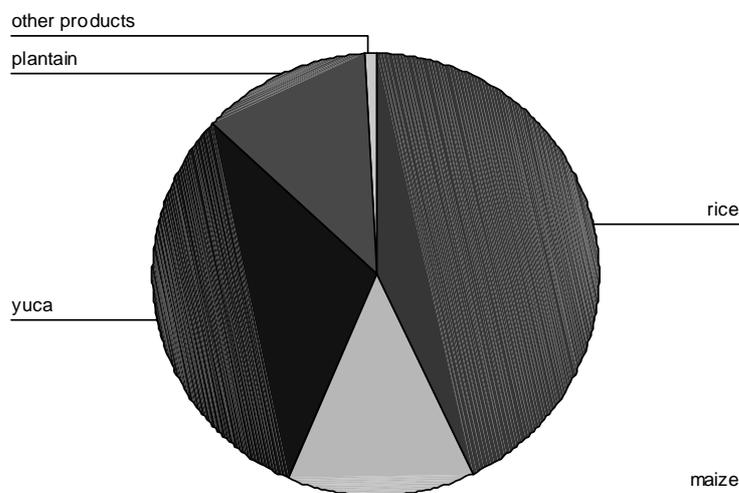


Figure 6.6 Relative distribution of the production value of agriculture in San Antonio
Source: De Kam (1999:33)

Households in San Antonio cultivate on average 2.2 hectares per household (ranging from 0.5 to 5 ha). A few households do not practice agriculture, because they lack access to land or work as caretakers. In Teduzara, six of the laborers made a *chaco*, together cultivating only 1.5 hectares, while the *chacos* of the three households in Trinidadcito added up to 3.5 hectares. Based on the average production of staple crops per hectare of land as calculated for the region by DHV (1993d), the minimum area of land required for subsistence production is about 2.5 hectares (Table 6.7). Several households cultivate less than two hectares and are not self-sufficient in their food production, while those who are above the average can sell part of their surplus production for cash. However, some of these cash crop producers sell too much of their production after the harvest, which forces

them to buy staple food and maize (at higher prices) at the end of the year before the next harvest comes available.¹⁴

Table 6.7 Staple crop need and agricultural area required in the region

<i>Staple crop</i>	<i>Avg. Production/ha (kg)*</i>	<i>Subsistence need for 5 persons (kg)**</i>	<i>Minimal area required (ha)</i>
Rice	1,253.5	900	0.7
Maize	471.5	730	1.6
Manioc	20,700	1,000	0.05
Plantain	7,187.5	750	0.1
			Total: 2.5

*DHV (1993d)

** Field data: estimated by respondents

Farmers in San Antonio cultivate on average 1.6 hectares of rice and 1.2 hectares of maize (ranging from 0.5 – 4 ha) and about half a hectare of manioc (Table 6.8).¹⁵ Twelve households also have each half a hectare of plantains or bananas. Only a few households cultivate beans, groundnut, sweet potato or sugarcane, for each crop adding up to less than half a hectare for the whole community. The group of agriculturists obviously tends to have larger areas planted with staple crops and practice more intensive cultivation. The other groups focus more on mixed cropping for subsistence.

In Teduzara, five households cultivate half a hectare of both rice and maize. One household has an area with plantains and bananas and another household plants a small plot with cassava. The inhabitants of Trinidadcito only cultivate rice and maize on 1.3 and 0.6 hectares respectively, ranging between 1/3 and 2 hectares. The caretaker family in Peninsula grows its own rice and some maize and relies for additional food to the patron of Teduzara.

¹⁴ In the beginning of the season the prices are still low, but the people are in need of cash for school fees and other expenses. Another reason to sell the harvest early is lack of experience with adequate stocking methods and fear of theft and burning of the stock.

¹⁵ These two crops are in most cases intercropped, which means that the hectares mentioned by the farmers are an overestimated.

Table 6.8 Agricultural production in the different settlements

<i>Settlement</i>	<i>Crop</i>	<i>Avg. ha</i>	<i>Total ha</i>	<i>Production kg.</i>
<i>San Antonio</i>	Rice	1.64	41.05	2,415
	Maize	1.2	28.8	746
	Manioc	0.42	7.25	3,864
	Plantain	0.54	5.4	3,360
	Sweet potato	0.18	0.35	1,207
	Beans	0.13	0.25	63
	Groundnut	0.12	0.24	126.5
	Sugar cane	0.3	0.6	181
	Pineapple	0.2	0.2	100
<i>Teduzara</i>	Rice	0.62	1.24	437
	Maize	0.58	1.74	184
	Plantain	0.4	0.4	3,150
<i>Trinidadcito</i>	Rice	1.28	3.83	2,024
	Maize	0.58	1.74	552

According to several respondents an average household of five persons consumes about 900 kilos rice a year (2,5 kg per day). Together with some domestic animals the household consumes on average 730 kg of maize a year (2 per a day) and 1,000 kg of manioc a year (3 kg per day). Plantain producers consume on average 1,500 kg plantain (100 racemes) a year, while others need to buy some 750 kg (50 racemes) a year.

As shown in table 6.9 the average production of the households in San Antonio in the year 1996-1997 outweighed the subsistence needs. These averages hide the large differences in the production per household and the fact that many households are not self-sufficient for the staple food crops. The least productive household harvested, for example, only 690 kg of rice, while the most productive farmer produced 12,535 kg.¹⁶ Except for some agriculturists, most households are not self-sufficient in the production of plantain and maize.

The production figures of Teduzara and Trinidadcito of the same year show that the laborers in the *barraca* are no self-reliant agricultural producers, while the inhabitants of Trinidadcito are by necessity self-reliant in rice production and grow a considerable amount of maize as well. Manioc is very scarce in those settlements due to a lack of planting material and only one laborer produces plantains. In the *barraca*, households produce far less than they consume and need to buy food products in the patron's store or from his *chaco*.¹⁷

¹⁶ The average rice production per hectare is 1,475 kg. This is lower than the potential production that campesinos themselves reckon between 1,725 and 2,875 kg for 1 ha of pure rice. An explanation is the fact that the rice is mixed with maize.

¹⁷ The patron owns hectares of manioc and plantain in his *chaco* and supplies most of the consumed rice from Riberalta or Cobija.

Table 6.9 Self-reliance in staple crops in the different settlements

Staple crop	Avg. Prod. Teduzara (kg)	Avg. Prod. Trinidadcito (kg)	Avg. Prod. San Antonio (kg)	Subsistence need 5 persons (kg)*	Surplus San Antonio (kg)
Rice	440	2,025	2,400	900	1,500
Maize	184	552	750	730	20
Manioc	0	0	4,000	1,000	3,000
Plantain ¹⁸	3,150	0	3,360	750	2,610

*Estimations made by several *campesinos*

Table 6.10 confirms that in San Antonio the average production of staple crops is highest within the agricultural group and lowest for extractivists. The agriculturists seem to be self-reliant in all the staple crops and the different groups appear to be self-reliant in the production of rice, but for reasons explained before, that is not the case. Many households lack rice at the end of the year. Moreover, the extractivists and wage laborers do not produce sufficient maize, while the first do not produce sufficient manioc and plantains either. In addition, the wage laborers have to buy manioc.

Table 6.10 Average production of staple crops per strategy group in San Antonio

Products \ groups	Agriculturists	Extractivists	Wage laborers	Generalists	Subsistence need 5 persons (kg)*
Rice	3,520	1,507	2,151	1,851	900
Maize	958	403	522	1,245	730
Manioc	5,600	1,392	828	4,956	1,000
Plantain	3,570	840	1,560	2,670	750
Total (kg)	13,648	4,142	5,061	10,722	3,380

In contrast to the other groups, agriculturists are aware of the importance of field maintenance and invest around 10 days in this activity per year. They also spend 6 to 8 labor days on the cleaning of the burned residues in the *chaco*, an investment that pays back through an increased production.

By selling the surplus staple crops, the *campesinos* in San Antonio derive more than one third of their monetary income. The main crops sold are rice, maize and manioc. Between 1996 and 1997 more than 30 percent of the staple crop production were sold, resulting in a

¹⁸ One *raceme* weighs on average 15 kg.

revenue of approximately US\$ 376. Only some households sold plantains, sweet potato, beans and groundnut, earning about US\$ 200 extra.

In Teduzara, the sale of agricultural products is negligible. The households produce far less than they consume and depend for a large part of their staple food on the store and the *chaco* of the patron. In addition, in Trinidadcito the commercialization of crops is very small (Table 6.11).

Table 6.11 Sale of farm products in the different settlements

SETTLEMENT	Crop	No. of households	Avg. Quantity sold (kg)*	Avg. price/kg (US\$)	Avg. Income (US\$)*
Antonio	Rice	20	1,070	0.22	235
	Maize	17	357	0.22	80
	Manioc	9	2,495	0.15	263
	Plantains	4	2,025	0.11	222
	Sweet potato	2	345	0.3	104
	Beans	1	35	0.1	4
	Groundnut	2	22	2.5	56
Teduzara	Plantain	1	195	0.05	10
Trinidadcito	Rice	2	81	0.18	15
	Maize	2	630	0.03	

* calculated only for the households who actually sell the crop

These figures give a rough estimation of the forest dwellers crop production, self-reliance and monetary revenues. The categorization of strategy groups provides some insight into the variation between households, but still such average figures hide the wide range that exists and the strategies of particular households. The most successful agriculturist produces more than 10 times the crop harvest of a dedicated extractivist, and the most commercially oriented generalist sells more than 50 times the amount of staple crops the wage laborer sells who has just enough for his subsistence. For this reason, the income derived from the sale of agricultural crops ranges between US\$ 60 and 3,500.

In conclusion, the forest dwellers in the accessible community of San Antonio can produce sufficient staple crops for their subsistence and - notwithstanding the low prices for agricultural crops - have the option of earning considerable revenues from these crops. Some specialists make large use of this option to produce for the market, others sell part of their harvest whenever they need cash. Some households sell 40 to 60 percent of their crop production in order to derive an income or barter products, but by doing this they reduce their stock and undermine their subsistence. Maize is a popular product to sell, while the production is already not that high. In the remote areas commercialization of the crops is hardly viable and in the *barraca* inhabitants still depend on the patron's warehouse for their subsistence.

6.4.3 Livestock

Meat consumption is considered a very important issue by the forest dwellers, since it not only adds to a healthy diet, but also provides status to the family. Households in San Antonio consume an average of 36 chicken, 2 pigs and 5 ducks, per year providing them with meat for at least 60 days. The rest of the year they derive meat from hunting and purchasing from merchants or at the market in Riberalta.

Possession of livestock gives status and the security of savings to the owner. However, it also involves the risk of losing such capital to diseases and thieves. In need of cash, many households sell about 50 percent of their valuable livestock during the year. The average annual revenue earned from animals and byproducts such as eggs is US\$ 189.¹⁹ Almost everybody keeps chickens and there exists a lively trade, because they do not require much care and are easily tradable to neighbors, visiting merchants and at the market in Riberalta when people go to town (Table 6.12). One third of the households sell eggs, while most people prefer to let them hatch. The price per dozen is US\$1.5 representing an annual revenue of US\$20. The number of ducks and pigs per household usually does not exceed what is required for their own consumption, but these are also sold, especially around days of celebration such as Christmas. During the year more than half of the households sold several ducks for the low price of US\$2. Less than 1/3 of them were able to sell some pigs, fetching an average price of US\$28. In coherence with the data on the selling of crops, the figures below show a specialization of certain households in the trading of animals, while others have insufficient surpluses for this purpose. The most successful livestock traders belong to the group of agriculturists and generalists.

Table 6.12 Sale of domestic animals in the different settlements

SETTLEMENT	Animal	No. households	Avg. price (US\$)	Avg. no. sold	Min. no. sold	Max. no. sold
<i>San Antonio</i>	Pig	8	28	6.5	1	16
	Chicken	20	3	28	2	150
	Duck	16	2	8	1	20
<i>Teduzara & Trinidadcito</i>	Pig	3	18	5	2	9
	Chicken	5	2	9	3	15

In the *barraca*, people only consume eight chickens a year and some households eat two pigs raised by themselves. Other sources of meat are bushmeat and beef from the cows of the patron. They consume meat every three days and fish or egg on the days in-between. People sometimes barter a few chickens or pigs to neighbors or visiting traders and some

¹⁹ Interviewees could not tell exactly how much meat/eggs and fruits the household had consumed during the year. Based on observations and counting, the number of domestic animals and fruits for the own consumption is estimated to be the same as the amount traded.

households buy exceptionally a chicken or pig. Efforts to raise animals in the *barraca* have often ended in predation by wild animals or theft by *zafreiros*. In Trinidadcito, some more pigs and animals are raised and bartered with river traders.

6.4.4 Horticultural products

In San Antonio, households consume almost all mangos, papaya and biriba fruits themselves, because they are so abundant that no market exists. Moreover, these fruits are very perishable and therefore difficult and expensive to transport to town. In contrast, citrus fruits such as oranges, lemons, grapefruits and mandarins are mainly produced for the market in Riberalta. Half of the households derive revenues from this activity, with an average price of US\$ 0.5 per kilo. Secondary fruits (i.e. pineapple, guava, papaya, *achachairu*, melon and *urucu*) are only transported to urban markets if the prices guarantee profit. Otherwise, they are consumed at home or left wasted. People organize transport by bicycle, motor-taxi, hitch-hiking or hiring an entire truck for large loads.²⁰ Especially the group of the agriculturists commercializes fruits in large quantities.

Vegetables form another category of traded products from the *huerta* such as cucumber, avocado, tomatoes, onions, red peppers, cabbage squash and lettuce. Less than 20 percent of the inhabitants of San Antonio sell such products now and then and their average production is low, due to a lack of experience and maintenance. The average revenue from the *huerta* is per household US\$ 75 per year and equals the amount that the household consumes for subsistence needs.

In the *barraca*, people consume almost all fruits themselves except some limited exchange of onions, *urucu* and melon grown in the *huertas*. The only demand comes from neighbors, the patron and river traders. The laborers hardly invest in the plantation or management of fruit trees and exploit the ones that are left by the patron and former inhabitants.

Although the forest dwellers highly appreciate the value of livestock raising and horticultural production, they lack the required skills and investment capital for success. Livestock is expensive to purchase and maintain with intensive care (including vaccinations) and fruit trees and vegetables need special treatment and prevention from pests and diseases as well. Moreover, transport is expensive for bulky fruits and vegetables.

6.5 Wage labor

6.5.1 Labor opportunities

In San Antonio, paid labor does not differ largely from the activities people deploy on their own farm and consists of weeding, making a *chaco* (*chaqear*) and collecting Brazil nut, timber exploitation, house construction and tending cattle. However, peoples' moti-

²⁰ A return trip to Riberalta with one bag (+/-70 kilos) of fruits costs about a day wage (US\$4.5) and renting an entire truck US\$45.

vation is much more short-term if they work for a boss and the extraction of products such as timber and palm heart is much more ruthless without taking into account regeneration. In addition, the benefits of such wage labor activities are usually lower and less durable than in the case of autonomous production. Therefore, this analysis has separated revenues gained through farmers' independent productive activities (see section 6.3.2) from the wages gained as employees working in agriculture, extraction and construction. The difference is important because the purpose of this study is to reveal forest dwellers' incentives and viability to develop and sustain an independent forest livelihood and manage their forest resources. On the one hand, wage labor activities complement such independent activities with additional revenues, but on the other hand, they distract people from developing such livelihoods – with the *barraca* livelihoods as an extreme case.

Households in San Antonio earn on average US\$ 647 per year from casual labor, representing 35 percent of the total revenue (see figure 6.1). The division between remuneration in kind and in cash is estimated at 30/70 with paid cash outweighing payment in food products or exchange labor. Mostly young men go after this source of cash that enables them to buy expensive goods such as a bicycle or radio, to save some money, or to pay off debts. Important disadvantages of wage labor are the large dependency on employers and the neglect of their own farm where people abandon *chacos* and do not invest in assets that can improve their natural, financial and physical capital in the long-run.

The employers either are fellow *campesinos* who can afford to hire labor force, or enterprises and *granjeros* close-by the community. An important job is that of caretaker, which includes the protection of the forest plot from intruders, cultivation of crops and the tending of cattle. During the *zafra*, several *campesinos* work for a *patrón* and/or processing enterprise. Several households also receive remittances in cash or in kind from family members working (part-time) in urban centers. They are employed by *beneficiadoras*, sawmills, and construction enterprises or in the transport sector by owners of cars and motorcycles who attract mostly young men as taxi drivers. Women and children perform seasonally nut cracking (*quebradoras*) in the nut factories.

The most common wage labor jobs are weeding and the preparation of a new agricultural field, respectively providing an average US\$ 35 and US\$ 90 to the ten households involved. Some four households had a lucrative income as caretaker, as representative of the cooperative, or as contractor of *zafreiros*, earning between US\$ 300 and US\$ 400. However, the amount of time they spent was considerable, namely between 80 and 125 days. Than working as a chain saw operator was more productive for one of the households, providing US\$ 11 a day. Other activities that resulted in a considerable amount of income for a couple of households were the exploitation of palm heart and the preparation of pasture for an absent landowner.

In the Brazil nut season of 1996-1997 eight households (24%) from San Antonio, worked as *zafreiros* in a *barraca*, earning more than 40 percent of their yearly revenues (Box 6.2). The cracking of nuts in one of *beneficiadoras* can give a stable income of US\$

4 a day during the rest of the year but implies working in town. Only one woman performed this activity, spending almost half a year in Riberalta, earning US\$ 600.

Campesino wage laborers receive a mix of fixed wages, piece-wages and exchange labor. The official piece and day wages are negotiated by the syndicate for rural laborers (*Federacion sindical unica de trabajadores campesinos de la provincia Vaca Diez*). The official daily wage for 8 hours of labor is US\$ 5.5. Usually, the employer offers different services such as a meal, lodging, and transport in order to lower the amount of cash to be paid.

In Teduzara, the patron and his family are the only employer and labor exchange between inhabitants is rare, because the other inhabitants do not have the time to work on their own agricultural field or for fellow laborers. Each household performs about five different activities during the year, spending around 50 labor days on every activity. For the men these activities include agrarian activities, extraction of nuts and timber, construction and maintenance of buildings, roads and pasture fields, and herding cattle. Women are involved in some services.

Casual labor activities are seasonal and as such only practiced during part of the year. In the dry season of 1997 and 1998, most of the laborers performed activities related to logging (i.e. timber prospecting (*rumbeador*), chainsaw operator (*motosierista*), or driver (*marinero de camion*). Some of the temporal laborers in Teduzara work in the dry season in Riberalta in the nut-processing factory (*beneficiadora*).

Before the *zafra* and with the first rains, some of the permanent *barraca* laborers prepare the agricultural field of the patron, mainly cleaning the area and planting manioc and plantains. During the *zafra* they work either as Brazil nut collectors (referred to as *castañoero*), or in the measuring, drying or transport of the nuts.

Job opportunities have changed according to the developments in the *barraca* over the years. When the palm heart factory was operational in 1996 and 1997, most permanent laborers worked in the exploitation, transportation and processing of palm heart. The opening of the sawmill in 1998 followed the closure of the palm heart factory and the patron now employs people in timber exploitation and processing in the sawmills. Most of the sawmill workers are recruited in Riberalta. Their arrival has created opportunities for cash revenue for women, who engage in laundry doing and cooking for the technicians. For the women who collected fuelwood for the patron and the hostel, the establishment of the sawmill has signified the loss of their job, because the sawmill produces sufficient waste that can be used as fuelwood.

In the *barraca*, the job of chainsaw operator pays the best monthly wage followed by truck driving which is largely paid in cash. This is in contrast with the day labor, which is still part of the *barracas habilito* system and does usually not involve any cash payment. The daily earnings of only US\$ 4,5 are added to the laborers' account in the store for

which they can buy consumer goods. According to the laborers, their consumption surpasses in many cases their earnings and makes them chronically indebted

The laborers that are contracted on a monthly basis, such as the chainsaw operators and the chauffeur of the logging truck, have a more regular and stable job and income. The chainsaw operator has the most lucrative job, earning more than US\$ 2,500 in less than a year. In 1997, the patrons' main driver earned US\$ 650 in 1/3 of the year. The transporters of timber and Brazil nut had a high daily wage of US\$ 8, but only during 20 days. Other fairly stable and lucrative jobs were the identification of trees, preparation of the patrons *chaco*, all for a US\$ 4,5-US\$ 6 a day. Only some of the women make the effort to earn some money by doing laundry and tailoring, earning US\$ 250 and US\$ 45 respectively.

6.5.2 *The zafra*

Almost one third of the households in San Antonio were involved in the *zafra* of 1996-1997, collecting Brazil nuts as *zafreiros*. The revenues they earn with this job vary between a minimum of US\$ 220 and a maximum of US\$ 1,781 per household (see box 6.2). Decisive factors are the number of household members involved (between 1-4 persons), the length of stay in the *barraca* (between 25 and 78 labor days) and the price paid per box. Most of them go without family, reside in the *barraca* during an average of 50 labor days, and collect with two men 240 boxes per household. Despite the fact that the price paid per box is much lower than in San Antonio (on average US\$ 3.5), they derive an average revenue of US\$ 840 per household. This equals to a daily wage of US\$ 8 per person, which is much more lucrative than the regular daily wages of US\$ 5.5. This figure confirms the forest dwellers' statement that the collection of Brazil nuts is their best option for obtaining cash in a relatively short period. Disadvantages of the work, however, are the distance from home, long days and heavy loads.

Zafreiros receive part of the money as an advance payment (*habilito*) in cash and kind before going to the *barraca*. The households with the highest income are those who have the position of contractor (*contratista*) and recruit *zafreiros* for whom they receive a percentage per box collected. Not many people, however, are capable and trusted to bear the responsibility of a contractor. Peoples' expenses during the *zafra* differ largely varying from high transport costs to reach the *barraca*, medical expenses and costs for taking care of the house and the children who remain at home.

Box 6.2 Revenues from the commercialization of Brazil nuts**Inhabitants from San Antonio:**

- Three members of the Cassilima family went to a *barraca* during the *zafra* of 1997. Together they collected 550 boxes of Brazil nut gaining US\$ 1,700 in three months. They incurred costs for food, hunting equipment and travel expenses.
- Huaris junior collected 82 boxes during the *zafra* and earned US\$ 221.
- Oliveira collected with his wife and son 149 boxes earning US\$ 489 in one and a half months. He received half of the amount as advance payment before he left for the *barraca*.
- Franco went with his whole family for one and a half months to the *zafra*. They received US\$ 273 as advance payment and US\$ 191 in goods during their stay in the *barraca*. At home, they spent US\$ 55 for a housekeeper (*empleada*).
- Macedo was a *contratista* in a *barraca* for two and a half months and employed 8 *zafreiros* who collected 1,210 boxes. He received a commission per box as well as 10 % of the income from goods sold. In addition, he collected together with two other family members 490 boxes of Brazil nuts. His total income was US\$ 2,339.

Laborers in Teduzara:

- Justiniano Camacho collected Brazil nut for three months during the *zafra*. Additionally, he dried Brazil nuts in a payol, transported and measured nuts. Altogether, he earned about US\$ 964 in a period of seven months.
- Cerato and his wife collected Brazil nuts only during the *zafra* gaining US\$ 432 in two months. As a driver he earned US\$ 660 with transporting Brazil nuts.
- Takana Justiniano worked six days a week as a chainsaw operator, giving him the comfortable income of US\$ 3,278. During the *zafra* he interrupted the work for a two-week period, for which he gained US\$ 196.

Box 6.2 illustrates the diversity of income generating activities that are related to the *zafra* in the *barracas*. In Teduzara, some of the permanent inhabitants are involved in the collection of nuts or provide services during the *zafra*. The family heads who collect Brazil nuts spend on average two months in the distant collection centers like the *zafreiros* do. They also earn a similar amount of US\$ 8 per day, resulting in an income of US\$ 420 per household, which is 25 percent of the average year income. This is half of the income earned by the *zafreiro* households in the same period, because most *barraca* households have only one male family member who is involved.

Compared to their day-labor activities this daily income is for them also much more lucrative. Because they know their way in the forest, they work fast and collect many nuts. In the meanwhile, however, they have to take care of feeding their family in the center of the *barraca* and sometimes are sent by the patron to do other work. At least every weekend they come to the main *barraca* center to buy goods from the patron's store (*habilitar*). Although the women are also able to get the food from the store, men usually claim this responsibility.

In conclusion, for *barraca* laborers as well as *campesinos* the *zafra* is a lucrative business. The latter produce on average less than half of the amount of Brazil nuts from their own forest plot than they can collect as *zafreiros*. Consequently, they derive - in spite of a better price per box - less income from the product. The main reason is a lack of Brazil nuts in the family forest plots. As a *zafreiro*, one can earn twice as much, but spend double the amount of time.

Despite the high income in a relatively short period, work as a *zafreiro* has several disadvantages: (1) One has to travel with or without the whole family, leaving the homestead and the agricultural field untended and must spend time and money on transport and expensive food in the forest; (2) one has to work full time to make the activity lucrative, suffering a lack of time to invest in other productive activities such as agriculture.

For these reasons *barraca* laborers hardly cultivate agricultural crops and *campesinos* who went to the *zafra* at the end of 1996 complained about low production levels of the *chaco*. Therefore, several *campesinos* decided not to go to the *zafra* in 1997, which causes a loss of income from the *zafra*. For some households, however, this loss was compensated by income derived as laborers, collecting Brazil nut in the forest plot of an absent land owner from San Antonio.

6.6 Subsistence and income security in the different settlements

6.6.1 *The viability of extractivism for people's income security*

A crucial question is whether sustainably harvested forest products are a sufficient source of revenue for forest dwellers. The answer is definitely no. Both in *barracas* and independent communities, people must diversify in order to make a living. The forest dwellers income from forest extraction is not sufficient for a subsistence living including the purchasing of staple food. Therefore, agricultural production and wage-labor activities compose an indispensable part of sustainable forest livelihoods in the region.

However, the extractive products form an important pillar for the forest livelihood and the income derived from Brazil nut and timber are an incentive for sustaining this livelihood. Moreover, all these products together prevent the *campesinos* from indiscriminate conversion of forest vegetation. During the Brazil nut harvesting season, collectors can earn on average twice as much as an average day wage. If calculated in cash, independent collectors earn almost 20 percent of their yearly revenues from the product, *barraca* laborers 25 percent and *campesinos*, who in additionally work as *zafreiros*, almost 50 percent.²¹

Forest dwellers have mentioned 160 plants, of which only few have currently a market value and people themselves reckon that a quarter may have a potential market in the future (e.g. several secondary timber species; the fruits *paquio*, *pacay*; three types of leaves for roofing *patujú*, *hoja redonda*, *palla*; two species for construction poles *chileno*, *ca-*

²¹ This is an overestimation of the cash income share, because a large part of the earnings of *zafreiros* is in kind.

betillo). However, most of these potential products will not provide a regular source of income due to their seasonal character and limited market outlet. Especially the current stimulation by NGOs to harness natural medicines from the forest may stimulate the trade of medicinal plants such as *uña de gato*, *cafecillo* and *sangre de grada*. If this trend continues, it might stimulate people to learn how to process and use the medicine for a small existing niche market.

Several organizations stimulate the commercialization and domestication of forest products. Moreover, they are introducing agro-forestry systems with perennial crops that produce alternative, marketable fruits, such as *urucú* (*Bixa orellana*), *jatata* (*Geonoma spp.*), and *cupuazú* (*Theobroma grandiflorum*).

6.6.2 *The rural-urban interface*

Another important pillar for the economic viability of sustainable forest livelihoods is the existence of a rural-urban interface that provides demand, markets, jobs and infrastructure both in the forest and in the towns. Due to the Brazil nut and timber industry people in Teduzara have year-round labor opportunities and basic needs from the patron's store. Based on this system, their subsistence is secured. Their disadvantage is, however, the lack of cash income and opportunities to upgrade their hand-to-mouth existence and invest in livelihood improvement. Independent commercial forest extraction and agriculture does not belong to the available options in the *barraca*.

In the regional towns, between 35 and 50 percent of the workforce in the urban neighborhoods derives income from the exploitation of the main forest products: Brazil nuts, timber and palm hearts. Part of these labor opportunities are only for people with a particular education, skills or experience but also unskilled labor is (seasonally) available for both men and women (Verheule, 1998; Stoian, 2000b). During the Brazil nut season, however, many of these jobs become limited. The processing industry of Brazil nut closes down due to a lack of supply of raw material. In this period, the focus is on Brazil nut collection, resulting in a massive out-migration towards the *barracas*. The schools close down and the activities in the town decrease strongly, making taxi drivers and other urban workers jobless. In this season, many of the urban households are forced to go to the *zafra* or to bridge the income gap with wage labor, performing agrarian activities in the rural areas.

A disadvantage for the urban dwellers is that they do not have the option of choosing agricultural production or animal husbandry due to their lack of land. For this reason, some of their household members must work part-time in an agricultural field outside the urban area and/or buy staple crops and livestock from rural dwellers.

In the agro-extractive and agrarian communities that have good roads to urban areas, the households have the largest range of options. They have the option of selling certain products and can more or less decide until what extent they become involved in the market economy. As is shown with the example of San Antonio, in these communities agriculture, extractive activities and casual labor are undertaken and have a contribution of

50, 30 and 20 percent to household maintenance respectively. Apart from their monetary revenues, these activities provide food security and other subsistence contributions that make the forest dwellers independent from market products. The collection of firewood, for instance, does not provide an income, but it prevents the households from spending money on fuel.

6.6.2 *Economic tranquilidad and hardship*

While the *barraca* laborers' economic security depends mainly on their patron and his labor requirement for extraction activities, most of the *campesinos* directly depend on the forest products and services in their quest for economic well-being and *tranquilidad*. In San Antonio, *campesinos* consider a farmer to live in *tranquilidad* when he is able to plan his own work that provides his family with its basic needs. For his self-esteem, every *campesino* strives for independence and self-sufficiency. Life in a forest community is more *tranquilo* compared to that in town, because people do not constantly have to worry about money and food. At the same time, it is more *tranquilo* than in the *barraca* because they are not commanded by a patron. Their agricultural and extracted products serve as alimentation and the surplus can be sold in the market. It is not so important to have money in the forest; you can exploit products, borrow goods from others, or exchange products.

"In town, you have to buy everything and nothing is a gift like in the forest. Without a proper job and money you starve in town".

Doña Chella Alpire, San Antonio

They perceive their forest plots and farmland as an economic security for their family (irrespective of their lack of resources to invest in lucrative forest exploitation or development of arable land).

The lack of confidence in the regional economy and the low and insecure salary of jobs in urban centers make most forest dwelling families cherish the forest and agricultural land. In fact, many inhabitants of Riberalta have a *granja* (farm) for food production and gain additional income from family members who earn money in the forest as seasonal laborer or caretaker. Job opportunities in regional urban centers are mostly short-term contract labor and insecure casual labor, both low paid (Verheule, 1998). As a result the income of unskilled urban dwellers is not much higher than that of forest dwellers, while their expenses are (Stoian, 2000b). In addition, the small plots in the urban neighborhoods are not suitable for the cultivation of food crops or for the raising of domestic animals. To secure year-round fulfillment of basic needs, many urban dwellers are forced to join 'urban labor gangs' and migrate seasonally into the forest for the Brazil nut harvest in a *barraca* or palm heart exploitation along the rivers.

The advantage of possessing a forest plot as an independent forest dweller is more profitable. In the participants' strategy to develop a life in *tranquilidad* it seems the best compromise to settle in an independent community close to an urban center, and to devel-

opment a diversified livelihood system - based on forest extraction and agro-ecological production. A forest plot with several development options is a highly valuable asset if one wants to live in *tranquilidad*.

“Land is life; selling my land would be as if I would amputate my arms, without land you have nothing.”

Don Leoncio Tomicha, San Antonio

Campesinos who care for their land and know how to develop it for their self-reliance are highly respected. Based on these values successful agriculturists in San Antonio are referred to with mixed feelings of respect and envy, and extractivists are perceived as no real *campesinos*. The last are not generally self-reliant in food and have to buy staple crops or barter their labor. They rarely work to improve the land and as such do not become settled in the community as reliable *compañeros*. Mainly young families and large families with adolescents with a low education want to secure land titles and develop a farm with a diverse production system with extractive and agricultural components.

In the settlements, the forest and the *chaco* always supplies them with food and forest products and there is no need to have cash in contrast to the towns (*“en el pueblo todo es del bosillo”*). Life in town seems to be more interesting and luxurious, but only if you are a professional and have money. Uneducated people like them, who live in the popular neighborhoods do often not have enough to eat and are not able to provide their family with meat. In the *campo*, the *chaco* and the forest guarantee them basic alimentation and autonomy, enabling them to maintain their family with staple food, meat and some cash. The NGOs involved in rural development tend to underestimate this importance of peoples' self-reliance in staple food.²²

Meanwhile, this economic valuation of the forest also brings about conflicts and new concepts. These former rubber tappers are hardly used to individual property after a life in a *barraca*. Therefore, the development of a concept of ownership and a commercial mentality is part of the gradual process of commoditization. The value of a piece of forest is now measured in terms of the production of Brazil nuts, timber, palm hearts and other products that can be sold, and by the area under cultivation. Products used for subsistence are of less importance in the valuation and control of a forest plot. In practice, this means that informal tenure arrangements and agreements on use rights differ per product, and depend on the (economic) value and scarcity (substitutability) of the product. As such, mangos and *motacú* fruits are often taken for free, while confiscation of Brazil nuts is considered as theft. Friction exists between the common view of sharing and the development of a more commercial mentality with barter and sale for cash. Households that

²² IPHAE aims at diversifying the *campesinos*' sources of cash income through cash crop production such as certain fruit trees. Although this aim in itself is very relevant, they consider it as an alternative for staple food production and hope as such to reduce the need for slash and burn activities. However, according to this study having to buy their food crops is not a secure alternative for the *campesinos*, in the light of both their wish to be self-reliant and their inexperience with managing sums of money for such purposes.

develop a more commercial attitude by storing and selling products experience jealousy and a lack of respect in the community.²³ This is sour, knowing the hard physical labor and other effort these people perform to produce in the forest environment.

The question is if this economic reliance on the forest and development of the forest livelihood goes along with sustainable management of the resources. As discussed in chapter 2, one of the most important conditions for such management is peoples' long-term dependence on forest resources for their livelihood. Although the *campesinos* prefer to make their agricultural fields in the *monte alto* due to its higher suitability for the production of food crops, in practice they often reuse fallow fields (see chapter 5). When *campesinos* do decide to cut the high forest, they are increasingly careful when selecting the area, to ensure that no valuable forest species (e.g. Brazil nut, timber or fruit trees) are destroyed. In contrast, *zafreiros* and urban dwellers who enter the forest cut wild fruit trees in order to ease the harvest. *Campesinos* also think in many cases that most species are abundant and therefore do not need special treatment to prevent them from becoming extinct.

It is not only the lack of interest and experience that prevents the *campesinos* from cultivating more perennial crops, but also the absence of a long-term vision or plan (people are *andante*, used to migrating), and insecurity regarding the results and control of the benefits. If a plantation becomes lucrative, the caretakers could be deprived of benefits by their patron, and other settlers without land rights might be surprised by the renewed interest of absent landowners.

Nevertheless, current changes in access to natural resources and the growing market for a diversity of forest species (e.g. timber species) are making *campesinos* aware of the potential value of their forest, and discourages them from carrying out non-selective deforestation. In addition, they learned from the boom and burst cycles to be flexible, expect new opportunities and be careful with their natural resources. Especially the pioneer settlers of a community – whose settlement is relatively consolidated and permanent – have more control of and knowledge about their natural resources. They are to a higher extent involved in the commercialization of forest products and the cultivation of a variety of agricultural and horticultural crops. In addition, their investment in perennial crops, which provide long-term production, is more pronounced.

6.7 Concluding remarks

The different households in San Antonio perform “multi-tasking” by combining the extraction of timber, NTFPs, agriculture production and wage labor to generate subsistence production as well as income, cash or in kind. Agriculture generates the highest production benefits - with a subsistence value that is very important for the *campesinos*' livelihood security - and is followed by extractivism and wage labor. However, the share of

²³ These people are sometimes called *Kollas*, after the highlanders who are in general considered a-social moneymakers by the *Cambas* (See chapter 7).

actual monetary revenues is equal for these three activities, because the latter two have a much higher commercialization rate than agriculture.

The average annual revenues of US\$ 1,800 per household are low, compared to those of other extractive communities in the Amazon, but this is compensated for by the *campesinos*' subsistence production of agriculture and by wage labor. Only 30 percent of the revenues are derived from the sale of Brazil nuts and timber, which is relatively low for an extraction-based community. However, if complemented with the revenues gained with nut collection for a wage during the *zafra* it reaches 40 to 50 percent. Wage labor has a relatively low return to labor compared to other activities such as fruit collection and livestock raising, but is appreciated for its immediate cash or benefits in kind such as food products.

Independent Brazil nut trading is for the majority of the forest dwellers their most lucrative economic activity, especially for those who poses a *castañal* with a high production. Timber has been lucrative to several households, but is a sporadic and slowly regenerating. The boom for palm heart benefited half of the inhabitants of San Antonio, but this source of cash income has dried up in the community. Only contract labor in remote palm heart extraction areas can still provide some profit. The other extraction activities, including hunting and fishing, are more of subsistence level and benefit fewer people with monetary returns.

Some products are of minor importance in terms of time spent or income derived, but altogether they contribute to a livelihood in the forest. Although everybody is aiming to "catch a big fish", they appreciate the small ones they are able to trap in the meantime. Not least they appreciate the forest products that do not have a market (yet), but that are used for subsistence and prevent them from incurring costs buying fuelwood, building materials and medicines.

Most of the *campesinos* produce enough staple food to be self-reliant and inhabitants of accessible communities such as San Antonio have the option of commercializing crops in urban markets. On average, households sell 40 to 60 percent of their crop production, which in many cases undermines their subsistence. The *campesinos* also sell a considerable part of their domestic animals and horticultural products. Although they highly appreciate the value of this type of production, they lack the required skills and investment capital for success. In this respect the expectations of NGO support are high. The casual labor activities performed in San Antonio, are an important source of immediate cash as well as in kind. Like the income of the *zafra* it enables people to invest in more expensive goods, such as tools. Important disadvantages of wage labor are the large dependency on employees and neglect of their own farms. *Campesinos* in the wage labor group often abandon their *chaco* temporally and do not invest in assets that can improve their natural, financial and physical capital in the long-run.

The average annual income of the *barraca* laborers of Teduzara is similar to that of the *campesinos*, however, the laborers are not able to complement it with subsistence agriculture. In addition, they have to buy foodstuff and other consumer goods at elevated prices. Consequently, their living conditions are much poorer. For their job opportunities,

these forest dwellers largely depend on the forest and its products, especially income generated during the Brazil nut *zafra*. Palm heart had a comparable importance, but lost its market in the *barraca*. Timber has partly taken its place as a growing source of labor opportunities, providing them with a low, but secure day wage during half a year. Hunting and fishing is very important for subsistence and barter. The remoteness of the *barracas* makes commercialization of agrarian produce not viable and people still depend on the patron's warehouse for their subsistence.

The inhabitants of Trinidadcito suffer from extreme poverty. In regular years, they are just able to fulfill their subsistence needs, but in the year 1996-1997 they lost part of their staple crops due to natural calamities and had to rely on donations of the Red Cross. Although this situation makes it difficult for them to survive in the remote settlements and leads them into frustration and alcoholism, they are determined to stay and find some *tranquilidad* in their independent livelihood.

The data in this chapter show that extractive products form an important pillar for the forest livelihood and an incentive for sustaining this livelihood. However, extractivism is not a sufficient source of revenue for forest dwellers. Both *barraca* laborers and *campesinos* must diversify in order to make a living. The forest dwellers income from forest extraction does not quantify and qualify for a subsistence living, including the purchasing of staple food and payment of social services such as education. Therefore, agricultural production and wage-labor activities are an indispensable part of sustainable forest livelihoods in the region.

Another important pillar for sustainable forest livelihoods is the existence of a rural-urban interface that provides demand, markets, jobs and infrastructure both in the forest and in the towns. In the agro-extractive and agrarian communities that have good roads to urban areas, households have a range of products that can be sold to intermediaries or directly commercialized at urban markets.

Although the urban services attract rural people, a life in a forest community is perceived as more *tranquilo*, because people do not constantly have to worry about money and food. They realize that urban life is more interesting and luxurious, but that everything has a price in town. Therefore, the forest plays an important role in their quest for economic well-being and *tranquilidad* and people perceive their forest plots and farmland as an economic security for their family and prefer independence and self-sufficiency. Likewise for the *barraca* laborers' the forest provides economic security through job-opportunities and some subsistence production. However, largely mediated by a patron who keeps most of the benefits and obstructs economic development and independence of the laborers.

The fact that *campesinos* refrain from domesticating and cultivating more perennial crops is caused by a lack of experience with tree maintenance, absence of a long-term vision and insecurity regarding the results of such investments and control of the benefits. This tendency is being somewhat reversed by current changes in access to natural resources and the growing market for a diversity of forest species (e.g. timber species) and

agroforestry products. It increases the *campesinos'* awareness of the potential value of their forest, and discourages them from carrying out non-selective deforestation. The NGOs involved have a positive influence on this process, but at the same time underestimate the importance of staple food production for peoples' self-reliance. What they do not underestimate is the cultural-historic value of the forest for the development of the region and for the well-being of forest dwellers. This value will be explored in the following chapter.



Photo 7.1 Audience of a sports event in San Antonio

CHAPTER 7

**THE CAMBA IDENTITY
AND
SOCIAL LIFE IN THE FOREST**

"The ruling system has deprived us, Cambas, of our real identity and made us peoples without history. It has always portrayed us, Cambas, as diseased peoples and presented the colonizers and rubber barons as heroes who in reality were betrayers."

Translated from Urey (1983:93-94)

7.1 Introduction

The *Camba* people that originated from Eastern Bolivia have now inhabited the northern Bolivian forest for nearly one and a half-centuries. The long-standing interaction between the indigenous and non-indigenous forest dwelling populations and the forest environment in the region has gradually established a kind of *Camba* socio-cultural identity that is largely based on a forest livelihood.¹ This chapter will analyze the most important components of the human and social capital of this *Camba* livelihood, which is marked by extractivism and hardship in the forest and by a strong quest for *tranquilidad*. The role of the historical and cultural background, actual challenges and social changes, and external influences are major determinants to understanding what it means to be a *Camba* today living in the northern Bolivian forest. Forest dwellers describe their identity of 'Camba living in the forest' as the antithesis of life in urban centers. By doing so, they also reveal the innumerable links and constant interface between these two different living environments. In the following sections it will become clear that this interface is able to explain many of the current challenges that the young generation is facing in determining their future. A crucial question is whether this identity based on a forest livelihood with urban linkages is solid and durable enough as a basis that can withstand forest conversion and the lure of permanent migration to an urban area.

¹ The previous chapters have discussed the aspects of *Camba* forest dwellers' livelihoods that mainly concern the household level. For analyzing peoples' common identity and social capital, the following chapters will gradually focus more on the community level and beyond.

7.2 *Camba roots*

7.2.1 *Indian blood*

The formation of the *Camba* identity in the northern Bolivian Amazon goes back to the colonial time when Indians who were indigenous to the region assimilated with extra-regional migrants. An important milestone was the immigration of more than 8,000 extra-regional rubber tappers in the late 19th century, which drastically changed the culture and identity of the indigenous population. Today, regional inhabitants are complex ethnic mixture and often refer to themselves as *Pandinós*, *Benianos* or more generally as *campesinos*. Their ancestry and culture is a blend of Indian origin from the region as discussed in chapter three, mixed with ancestry from other lowland Indians, such as Tacana, Mojeños, Chiquitanos and Guaraní as well as non-Indian *Cruzeños* from Santa Cruz. Most of the Indians who came to the region were already acculturated and lived and worked as small peasants or as peons on the *granjas* and *estancias* of the elite *blancos-mestizos* (Riester, 1975). On the national level, they are referred to as *Cambas*. This identity is the result of 350 years of contact and exchange with lowland and highland ethnic groups, Jesuit and Catholic missionaries and European colonizers (CIDOB 1979b:267, 288; Stearman, 1985; Heath, 1994).² At least one of the first-generation forefathers of the majority of the population investigated in this study has an extra regional background, having immigrated from the departments of Beni, Santa Cruz and La Paz, or from Brazil or Peru. Their other ancestor was indigenous to the area or belonged to the Tacana forest people who migrated towards the north from Iturralde province.

The early history of these regional *Camba* is one of oppression, forced assimilation, violence and fear. Pressed and brought to the region almost as slaves, the migrants were forced to work for the rubber entrepreneurs (Bolivian *blancos-mestizos* and Europeans) and fight to defend their territory with the local Indians who refused to be assimilated. Thousands of people did not survive the wars or the harsh living conditions in the remote forest areas.

“These deaths were due to working conditions, malnutrition, diseases such as malaria, beriberi, and scurvy, and the overall exploitative practices of the whites. Bolivian and foreign capitalists used any means to get Indians into the rubber forests. They were contracted in debt, threatened with force and rented from other capitalists on whom they were dependent.”

Riester (1975: 21)

Those who survived the rubber system merged with the indigenous population after the rubber boom and adapted to the living environment by exchanging knowledge and values.

² The term ‘*Camba*’ can refer to different categories of people depending on the particular distinction one wishes to make. Albó (1989:159-160) recognizes the following applications of the term: referring to (1) all the inhabitants of the Bolivian Lowland, in contrast to the highlanders; (2) the original inhabitants of the lowlands in contrast to Andean people or *Kollas*; (3) lowland *blancos-mestizos* (*ladinos* in other Latin American countries) in contrast to lowland *indios* who maintain their cultural identity; (4) the class of peons working on *granjas* and *estancias*, in contrast to independent producers.

For the indigenous inhabitants the Amazon forest was a familiar home and spiritual sanctuary, while the immigrants from the *pampas* (savannah) and Santa Cruz found themselves confronted with a hostile wilderness. During a long process of adaptation, they internalized skills for coping with the forest environment. Moreover, indigenous people helped them to gradually discover the merits of the forest, such as medicinal plants, food crops and caring spirits. After three generations these different cultural backgrounds have merged into a multi-ethnic civilization, now generally referred to as '*Camba* culture'.³

7.2.2 *A rubber tappers' soul*

During the rubber era, the *Camba* identity became associated with the rubber tappers' livelihood and its' particular way of living. Around these activities a rubber tappers' culture developed with certain rituals, folk stories and songs. Several stories picture the rubber tapper as a courageous and proud inhabitant of the forest who defy the dangers of the forest such as tigers, wild river streams, falling trees and evil spirits (see box 7.1). Rubber tappers derived their image and self-esteem from hard work, a high production of rubber and brave encounters with wild animals. The forest was mainly regarded as a wilderness that had to be fought, controlled and exploited. A successful rubber tapper considered himself the proud manager of a well producing rubber tapping territory (Quirago, s.a; Villanueva, 1989).

"My life as a siringuero was tranquilo. Early morning I went to the estrada to carve the rubber trees and collect the leche. With the collected latex, I made bolachas (boles) of rubber and sold them to the patron. I also had a small chaco and some chickens and some pigs. I worked hard and for every meal, I could afford something tasty to eat. In this area we know that he who works will be taken care of by God."

Villanueva (1989: 123)

Notwithstanding heroic stories about the rubber tapper livelihood, former *barraca* laborers display ambiguous feelings about their past in the interior of the forest and their identity of indebted workers. Many oral and written anecdotes about abuses and *sufimiento* show the dark side of the Amazon's Golden era. Most peons lived a poor life, working hard, enduring a lack of basic needs and various (fatal) diseases, indebted to their patron, threatened by him for their lives, and struggling with the forest environment. They eased this difficult life somewhat by telling heroic folk stories with an happy end or social or environmental moral.

³ I use the term *Camba* in order to distinguish the regional inhabitants with mixed origin from Indian groups as well as from highland *campesinos* or *Kollas*.

Box 7.1 Siringuero folk tales**The tiger baby**

One day Carmen walked to the *chaco* to fetch some manioc. She was used to doing so when her husband was busy tapping rubber, but this time it was a large burden for her. She was heavily pregnant and had to drag herself along the small path into the forest. She managed to uproot some large manioc tubers and started to walk home. Half way along the path she was suddenly surprised by the appearance of a tiger who blocked her way. She stood paralyzed on the spot and started trembling and sweating over her whole body. She knew she would attract the tiger with her panic, but could not hide the fear for her life and that of her child. She started screaming and held her machete in front of her. Alarmed by this reaction the tiger jumped on top of her and a heavy struggle followed. Her husband, who had heard her screaming, started running in the direction of the sound. He found Carmen next to the tiger while both gave their last breath. However, due to her brave fight with the tiger Carmen saved the life of their son who was born on the spot. The *siringuero* walked home, filled with grief for the loss of his wife, but also proud to have a son born in the heat of the fight with a tiger.

Based on *El Pintao* (story told by Radio San Miguel)

The Yabebirí or “river of the electric eels”

The rubber tappers along the Yabebirí river were used to fishing with dynamite instead of using their fishing equipment. But one *siringuero* was convinced that they were destroying their own source of fish by killing all the small fish. He managed to change the habit of the other fishermen and in the eyes of the fish became their friend and protector. One day the electric eels were resting in the mud, while a rook landed on the riverbank and warned them about a fight between their hero and a tiger. At that moment, the man came out of the forest and the eels saw how bad he was wounded and was still followed by the tiger. When the man walked into the water, the eels carried him to the small island without hurting him with their stings. The tiger tried to follow the man to the island, but when he touched the water, the eels attacked him with all the power they had and stung him until he screamed of pain and fled into the forest.

Based on *El Paso de Yaberí* (Quiroga, s.a.)

The regretful tiger

The roaming tiger had already been terrorizing the *barraca* Conquista for a month. Juan was one of the strongest and bravest men of the barraca and did not know if he should believe all the stories he heard. As normal, he went rubber tapping and sat down for lunch below a tree. He was just about to eat his fried manioc when he felt as if somebody was watching him. His breath stopped and his hair raised when he looked right into the eyes of the tiger, some meters in front of him. Another shock went through his body when he realized that he was not carrying his gun today. He grabbed his machete and slowly moved towards a tree, but the tiger reacted immediately and jumped into his direction. Juan tried to step aside behind the tree, but he stumbled over a log and lost his machete. He knew he was defenseless, but did not lose his self-confidence. Quick and smart as he was, he jumped towards the tiger, grabbed its tail and started swinging the tiger around like a lasso. The tiger was heavy and made terrible noises, but Juan used all the force he had and did not let go. After several minutes turning around, he became dizzy and the tiger seemed to slip out of his hands. Suddenly, he fell down and all that was left in his hands was a piece of its tail, while the tiger landed hard in the bushes and was never seen again.

Based on *El Tigre Arrepentido* (Villanueva, 1989).

Despite the fact that a rubber tappers' identity and culture developed during that era, this did not result in autonomy nor in a strong social cohesion or organization. The economics and the social security of the *barraca* laborers was dependent on the patron and dominated by the *habilito* system. Consequently, the *Cambas* were subordinated and forced to follow orders, a position that undermined their self-esteem and self-respect. Additionally, the isolated life in the dispersed rubber plots (*colocaciones*) and the lack of opportunities for organization and education forced forest dwellers to focus on their own households. The tappers only met each other at weekends or on special occasions and the patron prevented them from organizing. For this reason, social cohesion was low and they had little power to develop a group spirit and to command respect and rights. This generated an individualist attitude and the *Cambas*' lack of a strong communal or group identity with no stimulus for establishing independent forest livelihoods..

Rubber tapping did not imply diversified resource use strategies. Rubber tapping in the *habilito* system was labor intensive and hardly provided time for peoples' engagement in agrarian production. As such, the *Camba* tradition and identity has its roots in forest extraction and less in cultivation. The original inhabitants of the region made their living from hunting, fishing and forest product extraction and only recently started practicing swidden agriculture (CIDOB, 1979a:11). Moreover, the migrants entering the region came for the purpose of forest extraction and not for the colonization and cultivation of land. This is still reflected in the *Cambas*' lack of agricultural tradition and experience with the maintenance of (perennial) crops.

Over the past few decades, the production system has changed towards a more multiple-use agro-extractive system and people are now increasingly linked to urban centers. Due to evolving livelihood options in the 1980s, many people continued migrating and were unable to concentrate on the development of a permanent home and land use system. Symptomatic as well as causal for a restless life and undefined home of many *Cambas*, was their recurrent (circular) migration within the region. *Cambas* have had a life marked by temporal or seasonal moving between the forest and the town or between the *barraca* and the community. Their movements were instigated and are by economic activities in one place or another, undermining their need for a stable home. On the one hand, harsh living conditions in the forest (e.g. debts, conflicts with the patrons, or inundation) prevent them from settling down and developing long-term agro-extractive systems (CIDOB, 1979b: 239). On the other hand, the high costs of living, lack of jobs and subsistence production in the urban centers drive them back to the forest.

Consequently, many *Cambas* until recently had not made up their mind on where to settle and develop their livelihood, and rarely invested in a permanent house or production system. While they are collecting Brazil nuts in a *barraca* their agricultural field in the community is invaded by weeds, insects and rodents, preventing a good harvest and activating the viscous circle of migration for the fulfillment of basic needs. However, the current trend in accessible communities is that an increasing number of *campesinos* - supported by development agencies - tries to settle down and develop a more permanent agro-extractive production system.

That the socio-cultural identity of independent *Camba* forest dwellers is still not associated with a successful and modern image is reflected in the peoples' low self-esteem and their persisting negative (self) image as backward, lazy and unsuccessful producers. Together with their skills in rubber tapping, the laborers' culture and identity as *siringueros* has become outdated. The daily activities, cultural practices, ceremonies, songs and stories related to rubber have lost much of their value and are now not much more than 'historical capital'.

However, things are evolving slowly. The actual identity of agro-extractivists in communities provides them with the security of independence, of belonging to a recognized group, and of external support. They are becoming organized into syndicates and other grassroots organizations and the development of independent communities provides them with a social network for defending their rights and exchange knowledge, work and goods. This tangible structure can increasingly count on the support and external funding of government institutions and NGOs, concerned with the well-being of the forest dwellers as well as their sustainable use of forest resources.

Evidently, the *Cambas'* dependence on a patron-client relation as the dominant production relationship is one of the main factors that have shaped their identity and social ties. For more than a century this suppressed position prevented them from developing farming practices and becoming independent agro-extractive producers. The rubber era failed to provide them with the opportunity to develop and organize themselves into autonomous agro-extractivists. Their self-image was backward, dependent and stagnant, making them now long for another future for themselves and their children, such as in a more civilized community or in urban life. On the one hand, this experience made them passive, timid and dependent people, but on the other hand it made them develop a strong desire and quest for autonomy.

7.3 Beliefs and ethics

7.3.1 Folk stories and spiritual beliefs

The northern Bolivian *Camba* culture entails Christian elements as well as animism. It has largely been based on traditions, legends, folk stories and beliefs related to the forest. Like their indigenous ancestors, *Cambas* believe in the existence of good and bad spirits embodied by humans and by nature and in the possibility of exorcising the evil ones. These beliefs imply certain fears and taboos on peoples' movements and activities in the forest. However, the *Camba* forest dwellers' perceptions of the forest are only to a limited extent based on spiritual experiences or beliefs. The process of migration and acculturation made the *Cambas* lose most of their cosmological ties with the natural environment including their belief in - and contact with the spiritual world of nature. What they also largely lost is their traditional code of behavior towards nature, something which previously regulated Indians' hunting, fishing and extractivism (Wentzel, 1987). This involved

the habit of performing ceremonies for the protection of natural resources and of different agricultural activities.

Despite the attempts of colonial authorities and missionaries to eradicate indigenous beliefs, people today are still influenced by them. Hidden rudiments of indigenous cultural traditions mark their daily life and forest-related beliefs. Although a thorough analysis of these original cultures and their habits and beliefs lies outside the scope of this study, some insight into these will benefit our understanding of the contemporary *Cambas*, their perceptions and forest use.

Several traditional institutions do persist, one of these being that of traditional healers. People who suffer from unknown and persisting diseases or psychological problems are in many cases brought to a *curandero* (traditional healer) who usually has his practice and business in town. Cases of sickness or of the disappearance of cursed people are often related to bad spirits, who reside in the forest or in people with evil minds.⁴ The *curandero* is able to cure such evils with traditional medicines and ceremonies (Wentzel, 1987).

Camba forest dwellers also have a vivid series of beliefs and superstitions related to the forest as their natural environment with the spirits and animals that live there. Like the people, these beliefs are of mixed origin; from the department of Santa Cruz, from the interior of the Beni river or from the locale. Most of these beliefs are related to the dangers of the forest and the constant threat of death. References to the lowland Indians' beliefs in the bad and good spirits of the forest give some more insights into the origin and implications of these beliefs (López & Zolezzi, 1985). Legends exist about men that transform themselves in tigers or snakes, about *duendes* and other forest spirits protecting forest resources and misleading and bewitching people (Box 7.2). Some particular sounds of birds announce the death of someone, and reincarnations of the devil as animals can threaten people in different circumstances in the forest.

Every animal has a story about its creation. For example, the story goes that the Guajojó bird with his penetrative call is the incarnation of a woman who lost her husband and her way in the forest and calls for help. The *siringuero* bird embodies a *siringuero* who lost his life in a fight with a wild animal and who now accompanies forest dwellers in the forest and warns them for approaching dangers. Moreover, every type of tree has an owner, good or bad, such as the *siringa* or rubber tree, which has a woman as owner "*la dueña de la goma*" (see also Kimura, 1981). A spirit from another small tree is told to make hunters and other forest exploiters lose their way in the forest in order to teach them a lesson. If they pass by, they walk in a circle and come back to the same spot without finding their way. They have to solve the problem by putting a devil's cross made of a *patujú* leaf on the tree.

⁴ In San Antonio, two families explained the severe illness of their sons as an act of jealousy of neighbors about the progress of the young men, who worked hard and were successful in business.

Box 7.2 Folktales about the *duende*

The magic owner of the *Mapajo* tree

Roberto and his brother went to finish their new *chaco* and had already cut all the big trees of the *monte alto* except one, a *Mapajo* in the middle of the field. As soon as they approached the tree with their axes in their hands, they heard suspicious noises. They had never believed the stories their parents told about *duendes* living in *Mapajo* trees. Notwithstanding, they started cutting nervously. After the first stroke, the tree started squeaking and trembling as if there was an earthquake. While Pedro tried to convince his brother that it was due to the wind and the strokes, branches and seeds started falling down on their heads. Their fear was growing and they postponed the tree cutting and started lighting the mulch in a corner of the *chaco*. When they arrived at the *Mapajo*, Pedro put some firewood in the hollow stem to burn it from inside. With the first smoke rising, branches, fruits, stones and animal dung were falling down accompanied by terrible noises. The *chaqueros* ran away and when Roberto looked up he saw a glimpse of what they did not believe in. An outraged *duende* with a large hat was throwing anything he could towards the brothers. As soon he realized he was seen, he disappeared in the hollow tree, which remained untouched in the middle of the *chaco* from then on.

Story told by Alejandro Chavez, Riberalta

The hostage of the *duende*

A young boy was playing alone in the *huerta* behind the house, while his mother was busy cooking. Suddenly, he saw a man calling him by his name with a nice and familiar voice. The boy recognized him as his grandfather who was said to be far away in heaven. The boy was so happy his *abuelo* was back and gratefully accepted the offered sweets. He followed the man into the forest for a walk, as they used to do. Talking and eating sweets, the man took the boy deep into the forest, to a place where humans rarely came, full of lianas and thorns. Before changing back into his real appearance, the *duende* placed the boy in a cache of tree roots and lianas, where the tired boy fell a sleep peacefully, dreaming about his *abuelo*. The next morning, he woke up in a frightening wilderness next to a strange creature that made incomprehensible noises. Two days later the boy was found naked, hungry and in deep shock, screaming and hitting anybody who came near. A *curandero* tried to cure him from his shock (*asusto*) with forest plants and a ritual exorcising the *duende's* spirit. The boy calmed down, but no longer was the joyful kid he was before.

Story told by doña Maria, Porto Rico

The *duende* of Lecheria

Every day the *lavanderas* (washing ladies) went to a small stream close to Riberalta, called la Lecheria, to wash clothes. One of the women was a very beautiful girl, a "*Cambita presiosa*" who everybody new as *Perla* (pearl). She always came with her little son of whom nobody knew the father and sat down further upstream, away from her gossiping colleagues. One day she had forgotten soap and had to leave the child for a minute to borrow some soap from the others. When she came back, her son was gone. They searched for days with the whole community the river, but could not find the child. When *Perla* realized her son was dead, she entered an apathy from which she never recovered. Everyday one could find her along the river, calling his name. Nobody could help her or distract her attention from the terrible experience, and finally she was found dead floating on the Lecheria. Since that day, strange things have happened at the river and children who almost drowned or who were grabbed by an anaconda, were miraculously saved by a mysterious force in the river. *Perla* had become a *duende* who prevented any other child from drowning in the stream where she lost her son (Villanueva, 1995).

People have ambivalent attitudes towards this traditional animism when they hunt or cut trees. Based on their Christian conviction most forest dwellers want to believe that these protectors of the trees and of the animals do not have any meaning or power. On the other hand, they are not convinced of their power as a human and are on their guard for the subtle revenge of forest spirits.

“We rule over nature due to the law of God. Yet, we can be scared by the natural owner of a tree while cutting it down. A snake can appear from under a tree’s roots and make a person sick just by its appearance, resulting in high fever and even someone losing his mind. Only a ‘curandero’ can cure him by using coca and other medicines from the forest.”

Don Juan, San Antonio

A notorious forest spirit in the Amazon is the ‘*duende*’, who can take the shape of an evil dwarf with a cowboy hat and feet that point backwards. This *duende* is believed to protect forest trees and animals by obstructing people from cut trees or hunting wildlife. His footprints -- that are reversed and magical - confuse people walking on trails in the forest and make them lose their way back. He is able to transform himself in the appearance of a family member or someone’s best friend, after which he lures people deep into the forest where they get lost when he suddenly disappears. Several women stated that they had seen the *duende* who attempted to lure them together with their child deep into the forest.

According to several stories and interviewees, the Mapajo tree (*Ceiba pentandra*) is home to the *duende* (see box 7.2). The tree makes noise while there is no wind and can fall on top of you when you pass.⁵

“The duende is protecting a treasure of gold and diamonds hidden in the forest by ancestors who lived during the time of the Incas. Therefore, he does not want human beings to enter the forest and come too close. He tries to let people lose their way and become afraid in the wilderness. He steals children and keeps them in the forest for his company.”

Doña Maria, Porto Rico

Forest dwellers are ambiguous about their belief in forest spirits and *duendes*. They use them in an opportunistic way, whenever they need to explain certain strange or sad phenomena or to influence or control someone’s behavior. Although several people say they do not believe in *duendes* and other forest spirits, the stories are often told by people to frighten their children to keep them from entering deep into the forest and going out at night (being *andante*).

⁵ Many of the mysteries and sounds around the Mapajo tree might be related to bats that like particularly its fruits and live in the high tree (Rumiz and Wood, 1995:3).

7.3.2 Religion, social norms and values

The lack of an articulated ethnic identity and historical roots offers a weak social basis of skills and rules for community building and social organization. In addition, it impedes the formulation of norms for behavior, the raising of children, and proper communication. Peoples' valuation of their surroundings, fellow men and events, is largely based on fear and mistrust including evil spirits and devils as explanatory devices. Again used in a pragmatic way, religion offers many people a basis for explanation, and for sharing or escaping responsibility for what happens.

Camba people have in general a passive and fatalistic attitude towards current problems and trends, and this is typical for people lacking capital and power to make choices (see also CIDOB, 1979b). Most people hand over responsibility about their future to God, a patron, an external organization, or another authority. The more they live in the forest, the more their life is guided by nature and by God. In the *barraca*, the patron has a sort of intermediary function and replaces the Almighty while people do not take their own responsibilities. This attitude is also reflected in peoples' productive activities in the forest. In general, Camba people have not learn to interfere in and manage natural processes. Many of them hardly know what it means to take care of plants and animals, maintain them and limit the factors that can affect production.

Although religion seems to contribute to a passive attitude, it forms an important binding element between community inhabitants, and helps to raise social awareness. While San Antonio does not have a church, religion as an institution is to a certain extent alive among the inhabitants with regular masses and ceremonies. The Catholic religious leader, referred to as a *líder*, serves as a mediator between the community inhabitants and external religious bodies. In general, *líderes* have an important role as organizers of social meetings and masses during which people reflect together on their community and their personal life. In practice, religious leaders often need a lot of effort to get respect and support for their mission. They have a hard time trying to be taken seriously and respected. The fact that they can make mistakes and have weaknesses as does anyone else is something community members find hard to accept.

"We stopped going to the mass of the Catholic 'líder', because he drinks and gives a bad example. We have become Evangelic and have our own ceremonies."

Wilfredo Cassilima, San Antonio

Religion or a church plays an important role in the establishment of social relations in a settlement. Religious activities mainly focus on celebration of life stage ceremonies (e.g. weddings, baptism and death memorials) and, to a lesser extent, community building and social and personal awareness. *Compadrazgo* (god-parenthood) relations pave the way for

inter-family relations and the exchange and social control of norms.⁶ Through these contacts norms and values are implicitly communicated and established. Religion forms a basis for personal, social and environmental awareness.

People mention stronger social links between inhabitants of a settlement and between families through *compadrazgo* relations as positive results of religious formation. Women often experience an improvement in the behavior of their husbands, who reduce their drinking and related domestic violence, and enhance their care for the family.⁷ In addition, in religion they see a basis of norms and values on which they are able to raise their children and reflect on adult relations. Notwithstanding the binding element of religion, one should also be aware of the fact that in many settlements, differences in religion as well as political alliance form an obstacle for the formation of a communal unity and this leads to conflicts and antagonism.

Forest dwellers, for whom the Catholic Church does not give enough guidance, often become members of an Evangelical Church. Characteristic of the Evangelical community is the small size of the church groups and the groups' intimacy and solidarity. Social gatherings of these groups provide better opportunities for in-depth and individual attention and personal reflections. Members of the Evangelical church have often made a more conscious and personal choice and show a stronger and more enterprising personality than Catholics, for whom the Catholic church is part of the family tradition (cf. CIDOB, 1979b).

In general, patrons in *barracas* do not support the establishment of churches since they undermine their power and give people too many alibis for not working. During the rubber era, however, Teduzara had two churches due to active inhabitants and visiting missionaries from the regional towns. As has happened with many facilities, these churches disappeared with the decreasing population after the crash of the rubber market.

In urbanized areas, the large size of the church often fails to bring people together and it does not function very well as an institution for norm standardization and social control. The recent establishment of churches in *barrios* and their cooperation with neighborhood councils (*juntas vecinales*) has been an improvement, but religious cohesion remains low (rev. Isaac Oyola, pers. comm.). Another obstacle for the urban development and continuation of religious social binds is the seasonal migration of the poorer inhabitants as forest laborers.

⁶ *Compadrazgo* - literally co-paternity - is a system of ritual co-paternity that links parents, children, and godparents in a close social or economic relationship of mutual benefit.

⁷ *Camba* people are known as notorious drinkers of pure alcohol (Heath, 1994:358).

7.4 *Camba identity and social prestige*

7.4.1 *The emerging contemporary Camba identity*

Forest dwellers in northern Bolivia are looking for a new group identity now that rubber tapping no longer provides a common ground. They state that life in an independent community provides more social security and independence, which means a major break with the *barraca* history for those who are able to leave the patron.

Along with the diversification and independence of the rural livelihood, the forest dwellers' interaction with their natural environment has changed, as well as their valuation of the forest and their identification with its use and management. They became aware of the value of the forest for self-reliance and as such for their autonomy. Therefore, the forest dwellers begin to identify themselves more positively with forest extraction and agro-forestry practices, supported by a stable market for Brazil nut, a growing market for timber species and increasing prices.

Camba forest dwellers in the Bolivian Amazon identify themselves as Bolivian *campesinos*, but feel very different from their highland nation-members, who are referred to as *Kollas* and live mainly from intensive agriculture and trading.⁸ The northern Bolivian *Cambas* identify themselves as lowland *campesinos*, which are independent agro-extractivists with a forest livelihood based on a combination of forest extraction and agricultural production.

Camba campesinos regard the Agrarian Reform of 1952 as a milestone in their development. It provided them with a new way of life with rights to land - their basis of existence. It also gave them a political voice by providing them with the right to vote and it triggered a governmental program for rural education which provides them with opportunities to settle in the *campo* and with education for their children (Don Juan, pers. comm.: personal communication; c.f. CIDOB 1979a). The founders of the independent communities were the ones who fought for their rights, guided by "*sindicalists*" such as Don Juan, the previous community leader of San Antonio. United by their struggle, they were the first to benefit from the movement and paved the way for the new generation of independent *campesinos* and their organization. However, the death and emigration of these pioneers from many communities and the constant moving in of new migrants from the *barracas* undermined the continuity of this powerful syndicalization.

Each day *barraca* laborers decide to leave the *barraca* and move to town or to an independent community. There they struggle with the transition that took and takes place in their livelihood and social relations. They are confronted by their lack of technical and communicative experience and the skills needed for a new life as *campesino* or urban dwellers. For several reasons, their adaptation is a slow process especially with the above

⁸ The term *Camba* has become a category for lowlanders to demonstrate their cultural and geographical distance from highlanders. "*The separatist philosophy of the Camba began and was cultivated during colonial times and continues to present day*" (Stearman, 1985: 22). Compared to the aggressive and migratory traders mentality of the *Kollas*, the *Cambas* are usually depicted as more easy-going, homebound and sometimes "lazy" people (Green, 1998). For them the home and family have a high value as does having *siesta* in a hammock.

mentioned lack of a common socio-cultural roots to fall back upon and to empower them in their organization.

Strikingly, in this search for a new identity and way of living, several old values and customs tend to be thrown over board. For example, the *Cambas* knowledge of plants and their use is extensive, but they rarely consider it as something valuable. Compared to modern alternatives, natural products - such as forest medicine - are in general seen as poor and backward. Religious missions, 'rubber colonists' and peoples' quest for modernization have had a negative influence on the traditional heredity of local beliefs and knowledge. However, efforts of NGOs to reinforce this knowledge and tradition have considerable success.

7.4.2 *The Camba through outsiders' eyes*

Forest dwellers' self-esteem depends much on the way other groups in Bolivian society look upon them. Ignoring other social divisions as well as numerous gradations and nuances, the three-stranded scheme of *blanco*, *Camba* and *bárbaro* serves to broadly classify the human element of the Oriente. Although less uncivilized than tribal Indians, *Cambas* in the highlands are mainly perceived as pitiful people, living in the tropical wilderness, without much control of their environment, patronized by entrepreneurs or "whites", and suffering from laziness due to a hot climate and tropical diseases.

"Highlanders refer loosely to lowlanders as Cambas and have traditionally considered most of the Oriente as a wild frontier, a land where uncivilized Indians stalk jaguar-infested forests, and where caimans and serpents everywhere bask ominously in the humid heat."

(Jones, 1984:63)

More recent and modern is the image of the *Cambas*, as hedonistic people, who prefer *fiestas*, eating, drinking, singing and dancing to working, and spend much time at home in a hammock, taking *siesta*. The women are perceived as beautiful, but homebound and lazy compared to women in the highlands (cf. Heath, 1994).

Within the region, the general image of *barraca* laborers is very negative nowadays. Many urban dwellers and community inhabitants see them as losers who did not manage to take their lives into their own hands and become independent. And when they migrate to a community, they have problems adapting.

"They are not used to working for themselves and planning for tomorrow. They rely entirely on the account of a patron, which gives what they need for the day. They do not know how to clean a chaco or cultivate crops."

Don Zenon Chao, San Antonio

Patrons often treat their laborers or talk about them as if they are poor, dirty and stupid. In the eyes of the patron of Teduzara, the permanent inhabitants are born to be dependent.

Some may wish to leave and to try life in town because they are *muy andante*, used to moving and searching for change, but the older people probably cannot accustom themselves anymore to an independent (town) life.

“They are good people ”humilde”, but born to be commanded. They do what they are told to do. They do not have the ambition to change their life, improve it.”

Señor Castedo, patron of Teduzara

Most of them are also indebted to the patron and need to pay back everything and then save some money before they can leave. The patron will not encourage them to do so, since he intends to keep a permanent labor force in the *barraca*. According to several *campesinos* and *zafreiros* from Riberalta the inhabitants of Teduzara are timid. They have too much respect for the patron, considering him higher in status than themselves. The people in the *barraca* do not organize themselves, this is why there is no school anymore and no church “*para una comunidad un poco mejor*”.

Due to their independence and social organization, *campesinos* are more respected, but professionals and town people are negative about their status and mentality. They think they are incapable of managing their own life, producing sufficiently and living up to commercial promises they make. One of the consequences is that *campesinos* are not trusted and they do not receive credit because nobody expects them to pay back.

Another consequence is that employers (e.g. owners of *granjas*, palm heart factories, and sawmills) prefer to work with town people rather than with *campesinos*. Their experience shows that *campesinos* are less dedicated working for a boss. They have their agriculture and rural household to maintain and do not want to depend totally on paid labor, which often makes them less reliable for these jobs. In contrast, when town people are in the forest, they are only there to work and earn as much as possible and do not have many household worries.

7.4.3 *Camba forest dwellers’ self-esteem*

In general, the *Camba* forest dwellers assess the quality of their life largely in reference to the low value outsiders attribute to the forest livelihood. They do not feel respected due to their low education, ignorance and backwardness (*credulo, humilde*). It seems a self-fulfilling prophecy that they refer to themselves as incapable and lazy and in that way many lose their motivation to be productive extractivists and farmers. The permanent *barraca* laborers in Teduzara show resignation concerning their image and subordinate position, but hope their children expose themselves to other environments and knowledge, developing a better reputation and compelling more respect.

Campesinos in the communities struggle more with their inferior reputation and tend to excuse themselves by explaining about their difficult environment and socio-economic situation. They are ambivalent about the advantages and disadvantages of their livelihood and about their status. Despite their reputation, they are proud of their independence and

hard work. However, some other *campesinos* express that being a *campesino* is not a free choice and is nothing to be proud of.

“As a farmer you are poor, you have to work very hard. We do that ‘por necesidad, no del corazón’ (out of necessity, not with love for your work).”

Daercio Espinosa, San Antonio

They identify their life and work in the forest and *chaco* with *sufrimiento* and sacrifice, which is reflected in the hard labor and meager results, lack of labor opportunities, and poverty in general. The forest livelihood is a battle with the natural elements, weeds and poverty. Within this suffering, the women consider themselves to suffer even more due to their responsibility for the feeding and health of the family in such difficult circumstances (Coemans and Medina, 1997).

In addition, many *Camba campesinos* feel exploited and badly treated by merchants and entrepreneurs with capital, who force them to sell forest products for low prices and buy consumer goods for high prices. They feel misunderstood by those people who never lived as a *campesino* and do not experience the many obstacles and limitations of such a livelihood. Those outsiders complain that *campesinos* are not trustworthy and do not know how to produce, while they have never produced and sacrificed themselves in the forest.

If they had the money, most of the forest dwellers would choose to work less hard and let other people work for them, like most professionals do. They would have a house in town and a nice *granja* with plantations and cattle and laborers to do the heaviest work. In their eyes, that is progress. If they had the choice, they would choose to learn and ‘work more with their head’ and command other people. Therefore, the average *campesino* wants his children to study in order to develop a better life (*bien preparado*) with work that is more relaxed (*mas descansador*) and respected. Such a job is obviously more rewarding and facilitates the maintenance of the family in a good way without reason to be ashamed, ignorant, and exploited by a patron or merchants. Knowledge will help them to do so and parents have to produce and sacrifice to be able to let their children make that progress. Despite their suffering, *campesinos* are more positive and proud about themselves now, compared with the life they had in the *barraca*.

“We, campesinos, should be proud, because we are independent and have our production in our own hands. We do a tough job in the chaco, but sow the seeds for a valuable harvest.”

Don Leoncio Tomicha, San Antonio

They are proud to do honest work, for themselves, with their own power and responsibility, producing their own food. They suffer, physically working and struggling with the soil, but this portrays them as strong men able to endure hardship. “*Saber trabajar*” (knowing how to work) is a compliment and the only way to gather respect from fellow *campesinos*.

7.4.4 External support for identity and community building

Several recent trends in the region are supportive to the formation of a group identity of *campesino* forest dwellers and to a more positive identification with the forest and the forest livelihood. Nowadays organizations for development and environmental management nurture and stimulate knowledge and use of natural products with a positive result on forest dwellers' self image. Gradually, an identity of small agro-extractive producers is emerging, giving the *campesinos* hope and expectations for the development and improvement of their livelihood and status. Government agencies and NGOs are showing a growing interest in the daily life and cultural background of forest dwellers, and are creating a platform for communication and exchange of experiences and information. Special attention is given to knowledge, products, beliefs, and songs and stories that are typical to the region and its history.

For the forest dwellers, the radio plays a very important role as a source of information exchange. Radio programs provide human capital in the form of information about the world outside the community, market issues, political matters and other informative issues. Regional radio channels, such as *Radio San Miguel*, have news and educational programs of interest for community members and to a lesser extent for *barraca* laborers. In San Antonio, the *campesinos* spend a lot of time listening to the radio and discussing the topics raised. In addition, there is an announcement service by which forest dwellers in the whole region can try to find and reach each other. This service is often used to contact family members in cases of emergency. Due to the dispersed location of the houses, the circulation of information and announcements within communities is, in some cases, more effective via the radio than by sending oral messages.

Accessible communities benefit from meetings and workshops organized for the purpose of the *campesinos*' empowerment and information exchange. Remote communities such as Trinidadcito hardly benefit from such support and have difficulties receiving information and organizing themselves. Although the inhabitants of Trinidadcito actively try to organize themselves in an OTB, they do not have enough families to organize a community, nor the experience to perform the required formalities. The vicious circle that is the result of a lack of school facilities, and of out-migrating families, makes community organization even more unthinkable. With mutual support and the establishment of *compadrazgo* relationships, the inhabitants try to strengthen their social ties and organization. In addition, access to information via radio is very limited, because they have few radios and no money for batteries. The inhabitants of *barracas* such as Teduzara have even less perspective for progress and social organization. Initiatives that are taken in this direction face multiple obstacles, the patron's obstruction and a lack of support.

In summary, in the last decade, *Camba campesinos* have gradually found more dignity and respect in independent agro-extractive production with the help of NGOs. This evolution goes along with a gradual evolvement of a regional public image as a forest pro-

duction region, making itself distinct from the rest of Bolivia. As discussed in section 3.6, these processes are slow and confronted with countervailing forces and bureaucratic obstructions. At the same time, organizations suffer from a lack of means and capacity to accomplish their mission. The question is how these processes of identity formation relate to other organizational factors and shape the forest dwellers' social life and capital.

7.5 Social bonds in the different forest settlements

7.5.1 *The extended family*

In line with the isolated life of former rubber tappers in the rubber centers, *Camba* people still rely more on their family than on friends and neighbors. Family members exchange labor, products, care and knowledge with self-evidence, while relations between different families are often disturbed by slumbering conflicts. Examples of mutual exchange between family members are the sharing of bush meat, cooperation in rice harvesting, and the provision of free transport, food and lodging.

In Teduzara and San Antonio, family-ties are among the most important social bonds and sources of social security.⁹ The main social units in their daily life are (1) the nuclear family and (2) the extended family. However, these families units are for many reasons not very strong and stable. Firstly, they are weakened by broken relations, adultery, and children born out of wedlock, undermining the role of family-ties in peoples' social security. Secondly, peoples' high mobility often frustrates these ties and obstructs communication and mutual support. Young adults become independent and travel to other settlements in order to find their luck elsewhere. Partners make different choices and go separate ways. Consequently, other family units in the region include: (3) families with adult daughters that have several children born out of wedlock; (4) grandparents that take care of their grandchildren as if they are their own (*hijos-nietos*); (5) families that raise children that are adopted, or accepted as gift (*los regalados*); (6) and female-headed households.

An important dimension of *Camba* livelihood strategies is their effort to keep the family united, in spite of the many factors that may cause their separation. Therefore, family relations represent a strong decision-making factor concerning livelihood activities and movements. Several temporary male inhabitants of Teduzara refer to the advantage of having their family near to them in the *barraca*. Formerly, as urban inhabitants, they had to work as temporary laborers in *granjas* or in the forest, leaving their wife and children behind in town, alone or with relatives. In that situation, they were worried about their family's maintenance as well as the security of their children and faithfulness of their wives. All types of forest dwelling families have to cope with the moving out of the younger generation in search of education and work.

⁹ In the Bolivian Amazon, the concept of household or family refers in more than half of the cases to nuclear families, less than a quarter are extended families, and a quarter are female-headed households or other social units (INE, 1993 in Coesmans and Medina, 1997:17).

In order to reinforce the household's social capital the forest dwellers need to expand their social network outside the family relations. The *campesinos* particularly invest a considerable part of their financial gains in social celebrations and ceremonies in the community for this reason. In addition, they are increasingly stimulated to play a social role in the community and join meetings. The *barraca* laborers have even less security of financial savings and physical capital, and social capital is an essential asset for their livelihood security. While in former times, the patron provided such security with the *habilito* and in some cases as godfather, currently they depend largely on other sources of social support.

7.5.2 *Habilito relics in the barraca*

Today, the large majority of people already live in independent communities, but some people remain in the *barracas* and choose the security of a long-term bond with a patron and mutual dependence. Those who have a good patron taking care of them enjoy the advantages of a life organized for them with basic socio-economic security in a *barraca*. The advantage of having a patron are that labor opportunities are secured and responsibilities and risk can be shared. The price for this is that the patron receives the largest part of the benefits, while the laborers do the work and get the worst of it when there are debts.

Many of these permanent inhabitants have grown up in the *barraca* and have inherited their social-economic bond with the *barraca* owner from their parents. They feel respected by the patron due to their faithfulness and their valuable knowledge of the area and experience with the forest and its exploitation. The patron secures them at least with some basic needs and, in some cases, the dependence relationship is sealed with the patrons' commitment as godfather (*padrino*) of one or more of the laborer's children. Formerly, this enabled the laborers to ask social and economic favors of their patron. However, nowadays such strong ties of mutual responsibility are less common.

"If your patron is good and you work hard, he will treat you well, feeling the obligation to help you when you are sick and providing you with a secure job."

Don Pastor, Teduzara

Good patrons, however, are becoming scarce these days and not every laborer has a good relationship with his patron. In many *barracas*, the *habilito* relationship has lost most of its social commitment and has become purely economic. Older inhabitants of *barracas* have seen the patrons' transformation towards mere merchants who no longer take responsibility or care of their laborers. This was the result of the changes in the *barraca* economy (see chapter 3), which all contributed to the fact that patrons were no longer able to control the inhabitants. Consequently, permanent *barraca* laborers have gradually lost the social security provided by the patron and this has made life hard in a *barraca*. At

the same time, the laborers did not get more room for self-development and social organization in return.

“ It is not good to work for a patron. He controls your life and makes you work and live as he pleases and does not help you to improve. You become very dependent, and remain ignorant about planning your own life, working your land and commercializing your products”

Don Eucebio Duri, Trinidadcito

Barracas are experienced as isolated places, but urban people opt for (temporary) migration of the whole family to a *barraca* to earn cash and keep the family together. Usually this is the choice of the male family head. Temporarily in the *barraca*, the women miss town life with their family, mothers, and friends who supported them and diverted their attention from daily problems. They find it difficult not to be able to communicate with home. The fact that they do not have their roots, relatives or *compadres* there makes it clear to them that they do not belong there. *Camba* women are used to having their close family around in order to share their activities, reproducing the family and caring for the children. Since the women are often in the *barraca* without their mothers, elder daughters or sisters, they have to take care of their children on their own. This makes them immobile and unable to go out. They also find it difficult to be pregnant in the isolated *barraca* and feel more secure to have their delivery in Riberalta accompanied by their mother or mother-in-law.

With the erosion of the patron-client relationship, people have been stimulated to move to independent communities. Under the influence of the agrarian revolution of 1952 and the syndicate movement, they have become more aware of their subordinate position and possible alternatives. Dependence on a patron has become synonymous with limitation and backwardness that makes laborers feel weak and vulnerable, confirming their image as poor, timid and incapable dependents.

For *zafreiros* the contemporary *barraca* and related *habilito* system has its advantages. They receive a considerable advance payment and have no other compromises than collecting as many Brazil nuts as possible. According to several *campesinos* from San Antonio, another advantage of the *zafra* period in the *barracas* is the social exchange and networking. The *zafra* functions as a social event, during which *zafreiros* get to know other people, hear other stories and learn from each other's experiences. The *zafreiros* experience some kind of a group identity during the stay together in the collection centers. Often they make contacts that help them to improve their social network. In addition, they can revive old times enjoying hunting and eating bush meat. For the permanent and temporary forest dwellers living in the isolated *barraca*, the *zafra* means a real distraction from the monotony of forest life. Apart from the conflicts that sometimes develop about the distribution of scarce resources they enjoy living and working with the *zafreiros* two months per year.

7.5.3 *Mutual support in the communities*

Due to their history with patrons, most *campesinos* have a high resistance to authorities that tell them what to do and they try to establish horizontal organizational structures working on a consensus basis. Forest dwellers today consider autonomy as an important value that contributes to their self-esteem and, indirectly, to a positive identification with their forest livelihood. Independent smallholders receive all the benefits of their work themselves, but have to bare all the risk as well. *Campesinos* are not used to having this liberty of choice and feel the burden of responsibility for their own life and that of their family. They have food, but often lack the infrastructure and capabilities to take care of themselves and to plan and develop a better livelihood.

An intermediate stage for young recently immigrated *campesinos* in independent communities is to work as a casual laborer or as a permanent caretaker for *granjeros*. Older farmers who have become completely independent after a ‘process of awakening’ – as they regard it themselves – know that working for *granjeros* is a waste.

“Granjeros pay when and what they like to give. You are completely dependent. You have nothing of your own, not even your own food you can grow, or free time to go to meetings. It is much more ‘tranquilo’ to work for yourself.”

Don Zenon Chao, San Antonio

In general, the *campesinos* feel the need to organize and realize that they have to take their own development into their own hands in order to reap the benefits themselves. As pioneer inhabitants of San Antonio the Tomicha family favors the community and their organization above the situation in a *barraca* where they worked long ago:

“In a community, you have to learn to have company, exchange things, ideas, plans and work. The new people coming recently from a barraca are very antisocial and still have to learn everything”.

Don Leoncio Tomicha, San Antonio

Maintenance of the *chaco*, home compound and public areas and infrastructure of a community is time and energy consuming, and the awareness grows that this burden can be lightened with social co-operation and organization. During their holidays school children and students cooperate with their parents in the collection of forest products and the development, maintenance and harvesting of the agricultural fields. In addition, neighbors cooperate with each other and exchange and provide products and goods.

Campesino households are relatively more dependent on cooperation and on community organization than *barraca* inhabitants who can rely on their patron. As cultural institution *compadrazgo* forms an important aspect of social life in the community. Godfathers and godmothers are supposed to support the parents of their godchild in the upbringing and

education of their child. This creates a bond of mutual respect and support between both families and the adults in particular.

Visits to neighboring households are rarely for pure socializing. People mostly pay someone a visit when they are in need of food, fuel, tools, information or labor. Another hidden motive for a visit is often to observe and copy somebody's agricultural work. Consequently, people rarely leave their house without a gift, something borrowed, or without an appointment for labor exchange. Community members borrow and lend items from and to each other. They are selective in their choice of exchange partners and they know whom they can trust in settling their debt, providing cash, goods, or other favors in return. Relations of kinship and *compadrazgo* are the main basis for trust. The community members find it normal to have debts and to have people indebted to them. The accounts are settled during the harvesting season with the exchange of labor.

Nonetheless, this co-operation and interdependence between the community members gives ground for conflicts, mistrust and disillusion. Due to peoples' lack of social skills, the cooperation often does not live up to one of the parties expectations. Recently migrated families in San Antonio, who lived for a long time in a *barraca*, demonstrate a particularly problematic integration within the community. They admit that it is difficult for them to get used to meetings and cooperation with neighbors.

It is a general complaint that many families only show up during specific community meetings, such as with logging companies or NGOs, or only during parties. The socially active families are demotivated by such lack of commitment. Also young people complain about community organization and the meager support this provides for members. However, they themselves are part of the problem. They often migrate, lack a vision on their future, and need leadership that can unite them. Because of this, they do fail to take initiatives to improve the communities' organization.

Lack of mutual trust is another obstacle to organization. People often accuse fellow *campesinos* or *barraca* laborers of stealing, exploiting forest products from their forest plot without permission, and of not supporting/helping in moments of need.¹⁰ Several caretakers in particular are not considered trustworthy and do not contribute to community organization. They are in many cases perceived as irresponsible and unpredictable outsiders. *Granjeros* often attract caretakers from outside the community and these people rarely become affiliated into the village syndicate or participate in community activities. Most of the caretakers stay for a limited time on the landowner's property, and do not have the time or the desire to participate in community matters. A minority of *granjeros* collaborates in road improvement and provides *campesinos* with paid labor and with information and knowledge.

The out-migration of active community members in the past undermined the social structure and stability of San Antonio. Those who stayed behind had difficulties continuing the syndicate and needed external support from the government or NGOs. A current trend is the partial (regarding time and number of family members) re-migration of for-

¹⁰ *Campesinos'* most common complaints are the theft of rice, chickens, nuts, timber, palm leaves, and seedlings.

mer inhabitants to the community in order to claim land under the new land reform law. These families have realized that the urban livelihood was not sufficient, and that they require access to forest resources and land to carry out agriculture and animal husbandry for subsistence and income generation.

7.5.4 *Rural-urban linkages*

In comparison with community life, respondents consider town life as more anonymous and therefore difficult, insecure and dangerous. Life in the community is considered more secure and with more solidarity, because people rely on each other and know each other well. There are many dangers associated with the urban centers such as traffic accidents, robberies, and addiction to drugs and alcohol. Especially youngsters are vulnerable and susceptible to become victims of bad habits and bad company (*mala vivencia y compania*).

In peoples' minds, a *Camba* household needs to be an autonomous and respected social unit in order to build a secure livelihood and maintain a family with dignity. The forest with its multipurpose vegetation types and plants provides the *Camba* forest dwellers with independence and socio-cultural security. This socio-cultural *tranquilidad* stands for their autonomy and independence from capitalist landowners, urban employers and oppressive labor relations. On the other hand, town life is appreciated for its educational facilities, markets, additional labor opportunities and entertainment. Participation in town life and access to the services of an urban center makes the *campesinos* feel part of progress in the modern world. For this reason, several inhabitants of San Antonio prefer to live with one leg in "*El pueblo*".

One of the sons of the Tomicha family lives part-time in San Antonio and in Riberalta and works as a taxi driver in town. At the same time he transports his family members and buys agricultural products in the community in order to exchange them (*Cam-balache*) for bread, meat, clothing and luxury goods from Riberalta. Another son lives with his family in Santa Cruz and has a job as chauffeur for a factory. Sometimes, he sends money or goods to his family, or lends money. In the planting season, he usually comes to San Antonio to help his family and clear his own *chaco*.

A disadvantage of such a split life is that families are less united, social relations are more difficult to maintain, and continuous participation in the communities organization is more difficult, resulting in complaints by other members. However, fellow community members can also benefit from the links of their neighbors with town, in the form of social networks, information sources, products and transport.

7.6 Gender differentiation

The ways *Camba* men and women conceive the role of both sexes and fine-tune their mutual relationship helps our understanding of labor division in the forest and of the interdependence between men and women. On the other hand, the particularities of the tropical forest and the forest extractive activities have brought about a traditional pattern that resembles that of hunting-gathering societies. Both elements, the environment and the socio-cultural layer, have mutually influenced each other and determine *Camba* gender relations in the forest today. However, that is not a static constellation and role determination is constantly re-addressed with socio-economic changes challenging traditional patterns, while other elements stay much the same.

7.6.1 Cultural and historical roots of gender relations

Male forest dwellers tend to experience the forest wilderness easier than women, as challenging and adventurous. Men have to protect their family from the dangers of the forest and take pride in their macho status that enables them to control the outside world. At the same time, women feel the threat of the forest when they seek to control the health and well-being of the household. Women living in isolated forest areas have to rely on their husbands for protection and the provision of basic needs more than in town where services and family are present. Ideal-typically, but also practically, men should be the “*jefe de la casa*” (head of the household) who rule the household and women are “*ama de casa*” (housewife) and have a supportive and serving role (cf. Coesmans and Medina, 1997).

This is an illustration of a typical feature of Latin American culture grasped by the concept of the *machismo-marianismo* complex, which also reigns in this part of the Amazon. The *machismo* and *marianismo* cults are two interrelated components of an ideal-typical complex that gives meaning to and legitimizes gender relations in Latin America. *Machismo* stands for the male dominance in daily life and *marianismo* embodies women’s spiritual superiority (Steenbeek, 1986). It is a stereotype construction of how a good man and a good woman ought to be. If a male is able to live according to the ideal image of a good male and *jefe de la familia* (patriarch), he compels respect from his surrounding and lives *tranquilo*. Women taking care of the human and socially well-being of the household and its members embody the image of the holy Mary, pure and morally superior.

Life is hard in isolated forest areas, deprived of information and transport. Especially during the rubber era, women were homebound and men had to gather the rubber on a daily basis. An important change has come with the Brazil nut boom and the need for labor to break the nuts. Women have started to work as *quebradoras* and a whole new professional role for women has emerged, earning money in *beneficiadoras*, first in *barracas* and later in urban centers (CIDOB, 1979a; Coesmans and Medina, 1997).

7.6.2 *Division of labor in the different forest settlements*

In the regional forest settlements, responsibilities and activities are in general strictly divided between men and women. It is an ideal and a constructed image that females are homebound, and caring for reproduction of the household, while the males are the ones who leave the house in order to collect or produce the households necessities. It is the responsibility of the male to bring in unprocessed food and goods and cash from the agricultural field, from hunting, fishing, or purchased in town. In addition, the males build the house and other constructions needed by the household.

Generally, women are in charge of managing the household. They are in the house as much as possible, responsible for forming a caring, secure and healthy home base. The task of a woman is to maintain the home compound, clean the house, take care of the children, safeguard the health status of the household members, and process and cook the food provided by their husband. In addition, she takes care of the *huerta* and the domestic animals. Women sometimes help and support their husband fulfill his tasks, but more common is that the sons help their father. The other way around, women are seldom supported by their husband and prefer not to have male interference and comments from them concerning household issues (cf. Coesmans and Medina, 1997). It is also the ideal of the man that his wife can be an *ama de casa* who does not have to work outside the household and does not need to be involved in productive activities and the making of money.

As mother of the family it is crucial for a woman to establish and maintain a private and secure household. In fact, for most women it does not matter where they live as long as they have a proper home to fulfill their duties. Depending on their background, experiences and character, some like to live in the *campo* where they can benefit from the natural resources and contribute to expanding the agricultural fields and food crop production. Others feel afraid and insecure in the forest and prefer the household in town as long as they have sufficient food and income. As a disadvantage of life in a town, many women mention the lack of space and land for the production of food and the raising of domestic animals (safeguarding of food supply). In addition, they find it difficult to protect their children from dangerous traffic and bad influences, and their husbands from themselves – spending their income on alcohol.

Women's traditional roles as *ama de casa* lies encapsulated in the extractive activities in the forest and is dominant in Teduzara, Trinidadcito and San Antonio. Rubber tapping was a typically male occupation, while men also dominate Brazil nut gathering and agriculture. Women who combine domestic activities with productive activities in the forest are few: For example, women who stay behind in the community when their husband and older sons go to the *zafra*. In addition, young couples tend to work together in Brazil nut gathering and agricultural activities. Opportunities for more independence and emancipation remain limited now that agriculture is gaining importance in the communities, because the preparation of the *chaco* and carrying heavy loads are too tough for most

women. Moreover, males do not want them to do such work or to leave the house too often and give priority to women's reproductive tasks.

In Teduzara the gender roles are even more conservative. Several women are for most of the time in the house or at the well nearby. They usually do not leave the house and *barraca* center, do not work outside the house, and do not have access to the shop (to *habilitar*) without permission from their husband.

Women depend mostly on males to prepare the *chaco*. As several women in San Antonio expressed, their husbands should concentrate on their work in order to provide them and their children with food:

“Men have to work (gesturing as if using a machete) and make a chaco for crops. Nothing else! All their endless meetings and playing football do not give any result.”

The preparation of a full meal, including meat, is women's daily concern and requires a male household member who is skilled in fishing and hunting. To be assured of a supply of meat women raise small animals, which belong to their domain and function as savings and an independent income source when they are sold. Women consider a lazy husband as particularly damaging for their position, because a lack of sufficient food from the household's own production is a disgrace for the family and obliges them to ask for external help. According to women in Teduzara, the patron does not leave their husbands enough time for hunting and gathering, agriculture and maintenance of the house. The work for the patron and his *chaco* always gets priority and is the only available source of cash income needed to *habilitar*.

Since the males perform most of the productive activities, they also receive and control the benefits in cash or in kind, and women often lack decision-making power on what to do with these benefits. In most decision-making processes, the *jefe de la casa* has the main responsibility and decides about expenditures. Women's decision-making power and influence depends on the particular situation in each household.¹¹ The lack of social and communicative skills mentioned before in combination with economic problems, often causes conflict and, in the worst cases, domestic violence.

Also, at community level, the women have less voice than men do. Despite their involvement in community work - such as for the school and meetings and celebrations - and affiliation to the syndicate, their participation is often very passive and observatory. Traditionally they are not used to taking a lead in organizational matters outside their household, expressing their opinion, and traveling in order to represent the community. On the one hand, they do not have the self-confidence, and on the other hand they are afraid to break with traditional social norms (see also Coesmans and Medina, 1997). In this situation, they risk being accused of neglecting their household and of unfaithfulness.

¹¹ Striking is that in San Antonio it often are the women who have the best overview of the household's economy and have to be consulted by their husband.

In contrast with the urban situation, rural women's organizations are poorly developed in the region. The *clubes de madres* that were founded in the beginning of the nineties by ADRA fell apart as soon as the extension workers left. This situation is illustrative of the typical lack of solidarity and organizational skills in the region, but also of the lack of vision and initiative of rural women on how to improve their living conditions and their position in decision-making.

The only exception to the male-dominant economy are the young and single mothers who live with their parent and leave San Antonio seasonally to work as *quebradoras* in one of the *beneficiadoras* of Riberalta. They continue to be part of the households that reside in the communities and contribute cash to the household's budget for maintaining their children and they contribute to the study costs of younger brothers and sisters.

7.7 Concluding remarks

The melting together of multi-ethnic migrants and indigenous inhabitants has resulted in a hybrid *Camba* culture in lowland Bolivia, entailing a blend of Christian elements, animism, patron-client relations and communal rules of reciprocity. Like the *caboclos* in the Brazilian Amazon, these *Camba* inhabitants of northern Bolivia have lived for several generations in the forest and internalized skills for coping with the plants, animals and spirits of the forest environment. In the *barraca* system in which they lived and worked, they became courageous rubber producers and found a fairly secure livelihood in the *habilito*, but they did not develop the skills and social values to take their life into their own hands.

In the current post-rubber era, forest dwellers face today the necessity to give shape to an independent forest livelihood based on agro-extractive production and community organization. This is particularly challenging for those forest dwellers who have started a new life in an accessible independent community and seek to integrate aspects of an urban lifestyle into their forest livelihood. Apart from the development of new activities, this transition has brought about a rediscovery and redefinition of their social and cultural norms and values as well as their identity. This is a gradual process in which both men and women have to find their way and explore new options and responsibilities within the limits of the ruling cultural complex of *machismo-marianismo*.

The *Camba* forest dwellers' identity of small and independent agro-extractive producers, which is evolving today, forms a basis for a sustainable forest livelihood including extractivism and agriculture. However, it needs to be complemented with elements of an urban life such as, markets, education and consumer goods as well as the skills to make use of these options. NGOs involved have an important role in supporting these processes and make people proud and confident about social-cultural norms and values of a forest livelihood, in which *tranquilidad* is of major importance. In the following chapter, the notion of *tranquilidad* will be further conceptualized. Moreover, it will discuss the viability of social fencing based on the social aspects of the *Camba* livelihood described above.



Photo 8.1 *Tranquilidad in the campo*

CHAPTER 8

TRANQUILIDAD AND SOCIAL FENCING

“Life in the forest is ‘tranquilo’, you can live independently and grow your own food, but it also involves a lot of ‘sufrimiento’ to work the land and sustain a family.”

Don Rolando Alvarez, San Antonio

“We do not trust outsiders such as town people who enter our forest for fishing and hunting. During the Brazil nut season they steal our nuts and fruits. We have sent a message to the local radio station to warn intruders that we will not tolerate them entering our community.”

Don Juan Oliver, San Antonio

This chapter is a synthesis in which the concepts of *tranquilidad* and social fencing will be discussed as two essential elements of forest livelihood development in the northern Bolivian Amazon. For a better understanding of the viability of sustainable forest livelihoods and forest management in the region, the issues encountered at the household level and at aggregate social levels of the community and the group of *Camba* agro-extractivists will be brought together. The concepts of *tranquilidad* and social fencing will be analyzed in relation to the future development strategies of the *Camba* forest dwellers and reveal their establishment of norms and social controls that enhance sustainable forest use and protect the forest from degradation by outsiders...

8.1 The concept of *tranquilidad*

8.1.1 Forest dwellers’ sufrimiento and tranquilidad

Camba people express their perceptions and feelings about their livelihood and living conditions with the central dichotomy of *tranquilidad* and *sufrimiento*. Their main objective is to reduce their suffering (*sufrimiento*) and increase their tranquility (*tranquilidad*). Forest dwellers suffer from many inconvenient conditions in their natural and socio-economic environment, but at the same time find tranquility in an increasingly independent, productive and socially organized life in forest communities.

The *campesinos’* *sufrimiento* is reflected in their economic poverty, the harsh living conditions, and physical labor. The forest dwellers experience *sufrimiento* in overcoming the weeds, insects, diseases and dangerous animals and spirits of the forest to make a living. The harsh physical labor is a great strain on the households’ human capital and the peoples’ health condition, while their access to health services and tools to ease the work is limited. The dangers of the forest, the insecure outcome/harvest of the agro-extractive production processes, and their concern of the control of these, consume another part of

peoples' energy. In addition, the forest dwellers suffer from their underdeveloped status and identity, and a backward reputation. Women perceive themselves as the ones who suffer most. They are already very occupied with their reproductive tasks in the household, caring, raising and feeding their children and domestic animals in difficult circumstances with a lack of economic resources and often dangerous environment. On top of that, their help is needed for productive activities such as the weeding and harvesting of crops (see also Coesmans and Medina, 1997).

However, the suffering does not only have a negative connotation in which it leads to nothing. It is through hard work, sacrifice and *sufrimiento* that poor forest dwellers can improve their *tranquilidad*. If they know how to suffer and sacrifice themselves through physical labor, utilizing their natural resources and creating products and employing development options, they, or at least their children, will live in more *tranquilidad*. *Cambas* commonly use this term to express their security and satisfaction about their livelihood assets, activities and relations. They are *tranquilo* if their basic needs are secured, including staple food, meat and additives; proper and secure housing; safety; secure income; a social life and social security; future development potentials to improve the livelihood; autonomy/independence; status and respect.

8.1.2 Conceptualizing *tranquilidad*

Livelihood strategies and positive attitudes of forest dwellers hinge on the recurrent concept of *tranquilidad*. The direct translation of this term would be "tranquility", which means rest or calm. However, such translation does not cover the broad sense in which the Bolivian forest dwellers use the term and its multiple meanings. They use the term to express several different positive feelings, perceptions and values, including those of well-being, safety, being content and at ease, and living quietly and peacefully. Consciously or unconsciously, the *Camba* forest dwellers strive to increase their *tranquilidad* and evaluate products, people, relations and situations based on their contribution to a household's *tranquilidad*.

For this reason, a definition of the concept in the local context should include the range of objectives people have for their livelihood. From analysis of the campesinos' perceptions, a perfect blend of *tranquilidad* for them consists of the following components (1) access to and control of natural resources for secure and healthy food and housing (natural and physical capital); (2) healthy, educated and self-confident family members (human capital); (3) income generation from independent productive activities, or from rewarding wage labor (financial capital); (4) mutual support, respect and social organization within the family and wider community (social capital); (5) infrastructure, transport and markets to interact with urban and rural areas (physical capital).

Fulfillment of these needs provides the participants with *tranquilidad*, that is, with contentment and with fewer worries. In fact, the main household objective of the forest dwellers is to be able to live in *tranquilidad* whether it is with a forest livelihood or an urban livelihood. This quest for *tranquilidad* seems to be people's main motive for deci-

sion-making of where to go, what to do, and how to relate to the social and natural environment.

Analogous with peoples' livelihood objectives, the concept includes material as well as immaterial aspects. The material aspects are recognized in their concern for food, housing, production and income, while the immaterial aspects are related to their social and human capital, including relations with trustworthy people and a positive status and (self)-image. As one can notice, the five vital components for a *Camba* livelihood in *tranquilidad* mentioned above are largely related to the five capitals discussed in chapter two. Finding such livelihood implies a trade-off between the various assets and exploration of the advantages and disadvantages of different settlements and livelihood activities. On a daily basis, this means that forest dwellers are occupied with fulfilling basic needs (i.e. alimentation, shelter and safety). When these needs are safeguarded – as is basically the case with most of the studied households - they seek greater autonomy in their decision-making and a higher status. For his self-esteem, every *campesino* strives for independence from a boss and self-subsistence.

The total of natural capital found in the forest is considered to contribute to the overall *tranquilidad* of the forest livelihood since it provides food security and a basis for generating cash income. However, access to such capital usually implies distance from social-economic infrastructure and services and increased suffering from inconvenient aspects of nature. In economic terms, *tranquilidad* is obtained when people are not too dependent on the cash economy, but earn enough cash to buy the goods and services they need. A higher involvement in commercial activities such as wage labor increases peoples' financial capital, but tends to reduce their human capital in the form of autonomy and self-esteem. For this reason, independent agro-extractive activities and animal husbandry are considered better alternatives, creating valuable products in the form of physical capital. People also tend to improve their *tranquilidad* by investing in the households' human capital with good food sources including meat and fruits, and children's education. The fact that sometimes valuable natural resources such as trees with high-priced timber have to be sacrificed for this purpose, has to be taken for granted. In addition, increased *tranquilidad* is found in the social security obtained through family cooperation and mutual support between neighbors in the rural communities.

Tranquilidad is a gender-sensitive and has a different meaning for men and women, related to the *machismo* and *marianismo* complex as described in 7.6.1. Important values for the *Cambas* are *dignidad* (dignity), *respecto* (respect) and *honor* (honor), values which are connected to the ideal-typical construction of men and women in the macho culture (Steenbeek, 1995). In the *Camba* identity with its macho characteristics, the honor of one's family, wife and daughters is highly important to any male. They, as head of the family, need to receive respect in order not to lose the dignity or integrity of the family, and to live in *tranquilidad*. Consequently, for the heads of households in San Antonio, some of the prerequisites for achieving *tranquilidad* are independence, autonomy, and the ability to

take care of their family according to the prevailing social norms and values based on the above cultural complex. If a male is able to live according to the ideal image of a good man, he commands respect from his surrounding and lives *tranquilo*.

Analysis of the perceptions of female forest dwellers reveals that *campesinas* in the northern Bolivian Amazon perceive their quality of life along a continuum between the extremes of *tranquilidad* (easy life) and *sufrimiento* (hardship) (see also Coesmans and Medina, 1997). Their *sufrimiento* is inevitable as mother of a poor family which has to struggle for its maintenance. However, her ability to suffer is at the same time the symbol of her honor as a strong *campesina* who is not seen as “*floja*” (lazy) in the eyes of other people. In general, they perceive their life as *tranquilo* if the family is healthy, their husband provides the household’s basic needs (by working independently, hunting and cultivating a *chaco*, or through other honest work), and they themselves can stay at home and maintain the household, supported by their children.

These norms and values are handed down by the adults while bringing up and educating their children. However, *tranquilidad* is also an age-sensitive concept and has a distinct meaning for young and elderly people and for different generations (see Section 8.2). It is by no means a static norm, but changes in accordance with processes of modernization and change in the society and local culture.

8.1.3 *Tranquilidad: the contribution of the forest*

The concept of *tranquilidad* seems to be the most suitable ‘measure’ for the tangible as well as intangible value of the forest livelihood for the northern Bolivian forest dwellers and to understand their perceptions and attitudes. The forest and forest products have an important role to play in their quest for *tranquilidad*. A piece of forestland with several development options is highly valuable if one wants to live in *tranquilidad*. *Campesinos* perceive their forest and cultivated farmland as a socio-economic security for their family, irrespective of their lack of resources to invest in lucrative forest exploitation or development of cultivated land. On the other hand, most of them wish to make their children professionals who do not depend on extraction of forest products and the cultivation of land. They would like them to work independently in a professional job, with less physical work, better labor conditions, and with a stable income. However, ideally, such a professional life would be combined with the maintenance of a *granja* for the families’ livelihood security and withdrawal from town life when wanted.

In addition to the material and economic importance of the forest - reflected in the products consumed, exchanged and sold - the forest dwellers attribute a non-material, intangible value to the forest and to a livelihood in the forest. Various quotations of local people in previous chapters have indicated that there is a trend towards a positive attitude towards the forest and a forest livelihood, due to its contribution to the peoples’ *tranquilidad*. The forest and the forest livelihood function as a vehicle to reach more *tranquilidad* in the form of the fulfillment of basic needs, social norms and values and future expectations.

In spite of the image of the forest as a wilderness with dangerous creatures, diseases and spirits, life in the forest and in a community has several emotional advantages over living in a town or a *barraca*. Especially for *campesinos*, the forest has a high non-material value as a place to live and work independently; it is different from a *barraca* or an urban area without trees, where their livelihood depends entirely on a patron or on market forces and reduces their status to pure laborers. Control over forest resources and land has not only a material value for productive purposes, but gives them the chance to be autonomous and respected, providing them with a self-reliance and independence that makes life more easy and valuable. The *campesinos* often implicitly refer to this function of the forest with the expression *tranquilo*. They perceive life in the rural area and the forest as less complicated, commercial and hasty than in town. It is more independent and informal, and based on the collection of necessities from the forest, independent agricultural production, and exchange and co-operation with neighbors.

A piece of forestland with several development options is highly valuable if one wants to live in *tranquilidad*. In San Antonio, a *campesino* lives *tranquilo* if he is a smallholder who is able to plan his own work as it suites him and provide his family with its basic needs. For his self-esteem, every *campesino* strives after independence and self-sufficiency. Young families particularly have the ambition to secure land titles and develop a farm. They opt for the development of a diverse production system with extractive and agricultural components without the dependence on a *granjero*. They get their food from the *chaco*, which they have produced independently. In the rural area, the agricultural fields and the forest guarantee them basic foods and enable them to maintain their family with dignity. They do not have to be afraid that they are deprived of an income that is the basis of their daily life such as often happens in town. In addition, in the community they benefit from the support of organizations that work on the empowerment of *campesinos*, and help them to construct a new group identity as small agro-forestry producers. This trend gives them hope and expectations for the development and improvement of their livelihood and status. A supportive development is the increasing appreciation of the forest and its products and services at different levels of human society.

8.1.4 *The urban-rural interface in the search for 'tranquilidad'*

The place where *tranquilidad* can be found is crucial for understanding people's migration patterns and future strategies. For the *Camba* the home as place to live in *tranquilidad* is of high importance (cf. Green, 1988). The *campesinos* refer often to the fact that life in town seems to be more interesting and luxurious, but can only be stable if you are a professional and have money. Uneducated people like them, who live in the popular neighborhoods, are often poorer than anyone else. If they do not have land, they often have to travel (seasonally) to find work, do not have enough to eat and are not able to provide their family with meat. Although in town males and females can find a job and receive a salary in cash, they are never secure of income and have to pay with their independence. They have to work for a boss who dictates their daily life, and with the female family members

working, they are not able to live according to the ideal typical norms of a *Camba* household. Some *campesinos* wonder what are the benefits of living in town if those are the circumstances. Others however, stress the modernity of town and the availability of social services.

In their strategies for livelihood maintenance and improvement, the forest dwellers attempt to optimize the advantages of both the uncontrolled nature of the forest and the comfort of the urbanized civilization with available services. For this optimization the options are: 1) settlement in town and regular, seasonal or *ad hoc* migration to the forest to profit from the resources, job opportunities and income; or 2) settlement in a forest community that has the potential and ambition to urbanize and develop itself as the perfect match between human civilization and the forest. Ancient *barracas* resembled this match being highly developed town-like settlements in the middle of the forest. In difficult times, the forest dwellers tend to idealize the *barraca* system as it was during the rubber era. They agree that those times in a *barraca* were not so bad after all: Economically; due to a secure daily job for the males, food, and a good price for the rubber product: Socially; due to the high population density of the *barracas* and the social events en services. This is the type of life the people strive for, with the difference that now the *barracas* have deteriorated and they have the opportunity to be independent from a patron and to try to copy the ideal *barraca* in an independent community.

Searching for this match of different activities and types of livelihoods, many people keep migrating between different settlements and between the forest and urban areas. Others opt for permanent settlement, hoping to develop a secure livelihood at a chosen location. The nomadic life many people have is in contrast with the high value *Camba* people attach to a stable home as a place to live in *tranquilidad*, and shows an important dilemma the forest dwellers are struggling with. People would like to settle and develop their livelihood in one location, but often need to support their family with activities performed somewhere else. Although their migration is not always out of poverty and need, it seldom results in the improvement one is hoping for. Young people especially want to travel for the experience and adventure and hope to have luck and save money. As many examples prove in Teduzara, this is often a pipedream when they end up in isolated *barracas* after a *zafra*, indebted and dependent on a patron without any option to leave until they have reimbursed their debts.

Several inhabitants of San Antonio think they have found the perfect match, combining their life in the community and agro-extractive production with a second house in Riberalta, from where their children can study and work. It is a common strategy of the forest dwellers who strive after a livelihood with more *tranquilidad* to educate their children and try to build strong social security relations both in the community and in the urban center.

8.2 Future aspirations

8.2.1 Searching for a life in tranquilidad

For the forest dwellers an important component of a livelihood in *tranquilidad* is the perspective of a secure and better future based on opportunities to improve their knowledge, income and social security. A lack of development opportunities makes them suffer and insecure, especially in *barracas* and communities in remote areas. Although most forest dwellers do not have a clear vision of their future, in general they strive to reduce their *sufrimiento* and enlarge their *tranquilidad* through ‘development’. They consider ‘development’ to be any change towards a life which is more *tranquilo*, with less worries, more comfort, and more status. It is associated with elevation of their income, access to services, less unskilled and harsh physical work, and more honor and respect from other social groups and outsiders. At community level both men and women can think of a list of necessities for development including facilities for transport, communication, sanitation, education, economic diversification and social organization. Box 8.1 summarizes the priorities for community development set by the inhabitants of San Antonio in sequence from highest to lower priority.

Box 8.1 Priorities for development in San Antonio

- **Sanitation**
 - Improved health post (medicines and a nurse)
 - Drinking water (wells or pump)
- **Education**
 - School equipment (furniture and study books)
 - Creation of a college (teacher and building)
- **Commercialization**
 - Market development
 - Road maintenance
 - Added value (rice mill and cassava processor)
 - A communal truck
- **Cultivation**
 - Diversification (seeds)
 - Tools
 - Technical support (cultivate and combat pests and insects)
- **Animal husbandry**
 - Financial support (buy chickens, ducks and build shed)
 - Technical support (feeding, treatment diseases)
- **Social capital**
 - Church (building and visits from urban *lider*)
 - Radio for communication
- **Electricity**

The key to a life in *tranquilidad* lies for the *campesinos* in de more opportunities to improve their knowledge, income, status and social security. The creation of facilities such as mentioned above contribute to this end, but in addition the *campesinos* want to development activities with a higher status, independence, satisfaction and labor productivity. In this context the cultivation of cash-crops in an agroforestry system is more appreciated than the collection of wild products. It addition, it is important for the *campesinos* to gain higher valued knowledge and learn skills which enable them to communicate and express themselves in different social environments, and defend their rights. For this reason, *campesinos* are extremely interested in participating in workshops and courses offered by development agencies, and are willing to invest in education of their children and in their social organization.

That *tranquilidad* is an age-sensitive concept is illustrated by the specific livelihood objectives strived after by different generations of *Camba* forest dwellers. Adults often make a difference between their own future and that of their children (see box 7.4). Most parents are convinced not much will alter in their own lives, but their children will make the change. They themselves will stay *campesinos* or laborers and sacrifice themselves working in the *campo* for their children to have a better life. All the hope for real progress is directed towards the next generations, embodied by their children. The children have many more opportunities to learn and to become professionals. Education is considered essential and a main vehicle for livelihood improvement. Adults as well as children want to learn and advance. Parents want their children and grandchildren to become professionals who can work independently and do not have to struggle to maintain their livelihood. They are expected to study and improve their own life and that of their parents in their old days. The older generation's ideal is that their children develop their human capital mainly in town but invest part of it in the development of physical capital, in the form of durable production systems, in the community. This would provide them with a safety net for contingencies and at the same time support their parents.

Most of the *campesinos* wish to help their children become professionals who do not depend on forest extractivism and agriculture. They would like them to work independently in a professional job, with less physical work, better labor conditions, and with a stable income. This would make life for the whole family easier and give them more status and *tranquilidad*. This search for progress often goes along with migration, seasonal with the whole family or part of them, or structural from a *barraca* to a community or from a community to town. Often, mothers live with adolescents in Riberalta to facilitate their study period, while fathers stay in the forest and work in the *chaco*. In the weekends and holidays, the whole family comes together and joins the work in the *chaco*.

Box 8.2 Peoples' future perceptions

Doña Cerato in Teduzara does not associate her future with the *barraca*. She would like to go to Riberalta and educate her children there:

“My mother-in-law in Riberalta can support us and there we will be less afraid of the forest with all its dangers. My husband, however, likes to work in the campo and to hunt in the forest. To find a job in town is difficult for him”.

Most inhabitants of Trinidadcito do not want to leave:

“If we have a school for the children, everybody will surely stay. The children are also used to living here, but need and want to go to school and learn. They would not feel relaxed in town without a house, a job and money. It is better to live in the campo, where we have the chaco and can produce for our basic needs” (Don Duri).

The inhabitants of San Antonio seek the best of both worlds:

“My children should not only become campesinos, but find other work with a reasonable income. It is good that they maintain the granja and have some food and income from it, in order not to die from hunger because in town everything is expensive.”

(.....)

“My children should study and have a profession. This will give them a better and more comfortable life with a house. I want them to become honorable persons. Some have already a bachelor degree and they will start working soon and make progress and be independent” (Don Leoncio, Tomicha)

His children confirm that they do not want to live permanently in the community or in town, but at both places. His adult sons want to work with companies involved in logging and road construction.

Don Alpire and his wife are not sure yet what to do in the near future:

“We become old and are getting tired of living and working in the forest and making our chaco. We might go to Riberalta to rest and have more comfort “para descansar, mas acomodado”. However, we can not depend on our children. We need to produce as long as possible.”

The young president of San Antonio's syndicate is ambitious:

“I want my children to learn and be independent and develop themselves. I am planning to let my daughter go to college in Riberalta if the community does not get a teacher at college level. We will buy a house there for the children and their mother. I will stay to live and work in San Antonio and will travel up and down to Riberalta.[...] To develop and ‘urbanize’ the community with a good school, church, drinking water and electricity, we need to cooperate better and make plans”.

Although education and professionalization is very important for them, the *campesinos* do not see a future without a *granja*. Imaginary drawings they made of their future include beautiful and well organized productive agro-forestry plantations, Brazil nut- and timber trees, livestock, and transport facilities. These are similar to the drawings made by IPHAE participants of different communities, which display nice clean agricultural fields with annual crops and tree crops in agro-forestry configurations or trees around the house. In addition, they show domestic animals rooming around; a road to town; a car and or motor-cycle; nice houses of brick-stone and with tiles; streaming water with fish and ducks; and flowers.

In the independent communities the forest and the *chaco* also seem to keep their importance for finding *tranquilidad* in a future livelihood. The *campesinos* value their own forest and land as an important and secure resource they can exploit, develop, or keep safe for future speculation. They want their children to keep the rural base as a security to fall back upon whenever necessary.

“Land is life! Selling my land would be as if I would amputate my arms, without land I have nothing to rely on.”

Don Leoncio Tomicha, San Antonio

The *campo* is like a refugee place for people who do not manage to develop a business in town, who went bankrupt, or who want to change their life, situations that can emerge any time. The forest offers a safety net consisting of land for agriculture, and potential products that can be exploited when you need them. Safeguarding it means that one can benefit from it anytime now and in the future.

Children themselves are highly focused on learning and keen on getting access to the knowledge, services and development opportunities of what they consider the modern urban world. In their current situation most of them suffer from the lack of a teacher, school material and other options to learn about the world. While they have to help their parents in the field and the household, children in town are in the school and learn, *tranquilo*. In Teduzara, the children of the *barraca* laborers are almost obsessed with learning new things and say they would like to study all day long if they would have the chance. For that reason, they want to go to town and live and study there. They are obviously worried about meeting other young people and finding a partner when they are older. Teduzara is an isolated and boring place to their opinion.

The younger generation in San Antonio has more insight in what an urban life means and can see the relativity of its advantages above life in a community. They as well would like to live and study in Riberalta but, in addition, appreciate the resources and development options in San Antonio. Some of them think it should be possible to have progress in agr-extractive production and commercialization by working hard and developing a clearer vision on farm development.

“As a campesino you have to work very hard. If you don’t, you won’t have anything! Many of us are lazy and for that reason ‘poor’. We lack a vision about what we want and only work for our subsistence, ‘por necesidad’. We invest little in a permanent plot and see little result or improvement.”

Pedro Tomicha, young adult San Antonio

Drawings the children made of their favorite future indicate their aspirations and at the same time the enormous gap between their actual reality and what they want to achieve. When asked directly, none of the school children (8-16 years) in San Antonio wants to become a *campesino*, especially not the boys. Obviously, the teachers, parents and outsiders have convinced them that they go to school for the reason to become something else than *campesino*. If they would become a farmer, this would be because they fail to study and learn, and do not become smart and professional. The favorite professions of the children are journalist, lawyer, doctor, football player, artist, nurse, secretary or at least teacher. All these professions are associated with high incomes and status. Some of the girls, however, draw a nice farm and house with fruit trees, flowers, domestic animals. They want to live in the *campo* and be *campesina (ama de casa)* like their mothers. Most of the children want to have at least a garden and some domestic animals, even when living in town.

Although the school children of Teduzara want to study and explore urban areas, their drawings show that they do not know how to imagine such a future. They visualize more or less the life they currently live with a house in the *campo*, trees, fruits, animals, water, a boat and a school with a flag and a football field.

8.2.2 *Future scenarios*

It might look like a universal truism that the current generation considers their opportunity to make real changes has disappeared, while their children represent their hopes for a better life. However, what is interesting in *Cambas'* future perspective is the particular roles that the forest and the urban linkage play. For one group of peoples their search for social and economic progress goes along with seasonal or permanent migration between urban centers and the forest. Those who do not have luck in a certain settlement or environment, easily give up and move to the next place with new opportunities. The group of people that has realized that this migration does not facilitate the development of permanent production systems and livelihood development have decided to settle down either in the forest or in a town and search for an optimal rural-urban link.

For the aging generation of adult forest dwellers, an independent livelihood in one of the accessible independent communities is the best option. This generation has experienced the wealth of rubber, but subsequently suffered from the difficult living conditions in remote forest areas where they could not survive without a patron. Over the last few decades, they have witnessed a transition of their society and livelihood and tasted the advantages of independent peasantry and of the urban livelihood. However, they also experience the hardship of the existence as independent but non-professional rural dwellers,

struggling to take part in the urban cash economy and, at the same time, harness the natural resources in the community. Most of them realize that their generation will not be able to leapfrog to the position of successful professional urban dwellers or well-off *granjeros*.

“Our children should get to know life in town, and get a proper job. Not as us, always working in the forest making our hands dirty.”

Don Rolando Alvarez, San Antonio

Those of a younger generation who finish school often do not find the resources for further professional development. In town, they have to be content with a job as a laborer or try to set up a business in the informal sector. Since the urban labor markets can not absorb all, many choose to migrate seasonally to the forest and work as laborers or invest in the production of cash crops in independent communities (Verheule, 1999). For this generation, the rural-urban interface is of major importance, and their strategy is to combine the advantages of both spheres. This means that the communities near to urban centers are most attractive to them, especially agro-extractive and agrarian communities where the land and forest resources provide a basis for diverse livelihood strategies.

The young generation of forest dwellers will be the avant-garde in taking up new economic opportunities that are already emerging. The production of valuable perennial crops in agro-forestry fields and the raising of domestic animals are increasingly considered as economically viable and at the same time status-improving. This also means that when the necessary economic conditions and a favorable policy environment become available, cattle raising or cash crop production may boom in the region. The high investment costs of these forest-devouring activities imply the involvement of large estate owners and might threaten the ‘tranquility’ of the forest and endanger the continuity of the actual forest livelihood of small *campesinos*. Only if forest products such as Brazil nuts continue to have a stable market and are sustainably exploited, will extractivism stay part of their livelihood strategies and rational forest management will have a future. Otherwise, the *castaños* may disappear in the course of the following decades and be converted into pastureland just as has happened in neighboring Brazil.

Another threat for peoples development of sustainable livelihoods based on forest management may be the acquisition and degradation of their resources by large landowners or urban intruders. As discussed in chapter two such external factors can be combated by forest dwellers development of formal or informal social controls to defend their tenure rights and their resources against outsiders. Based on the characteristics of the *Cambas* social identity discussed in the previous chapter, the next section will discuss the viability of such social fencing processes in the research area.

8.3 Social Fencing¹

8.3.1 Social organization against forest degradation

The findings in the previous chapters have demonstrated the role of time and experience, and the increasing interest of settled, independent forest dwellers in the development of sustainable agro-extractive systems. This information underpins the importance of long-term access to the forest and its resources, and control of the benefits. The more diverse the utility and role of the forest in the forest dwellers' livelihood, the stronger the incentive to exploit it without causing irreversible degradation. In the last decades, NGOs have taken initiatives to conserve existing knowledge and stimulate the exchange of plant knowledge and plant use, while at the same time supporting the security of *campesino* land rights and improving their income generation.

Forest dwellers depend on social cohesion for maintaining their infrastructure, deriving access to external services and support, and for defending their resource base and their rights to exploit and manage these. This section will discuss the viability of such processes of "social fencing" in today's independent communities, based on the theoretical discussion presented in Section 2.4.7, where the following prerequisites for social fencing were stated: (1) forest dwellers' positive identification with the forest and their reliance on long-term forest resources; (2) a strong group identity of the group members; (3) shared agreement and decision-making on tenure arrangements and resource management; and (4) rights and measures to exclude outsiders.

8.3.2 Positive identification of the forest dwellers with the forest livelihood

The viability of CPR management and social fencing largely depends on a positive identification of the forest dwellers with the forest livelihood, a cultural link with the forest and its products, and a (collective) vision on the future use of resources. Forest dwellers need to be settled and to believe in the future development of their forest livelihood. The foregoing sections described a lack of vision among young forest dwellers, but also a growing awareness of the potential value of the forest vegetation demonstrated by permanent forest dwellers. This awareness is stimulated by their independence, their experience with the repeated booms and busts of forest product markets, and by the diversification of species of interest to the timber and NTFP industry. Compared to a jobless person or laborer in a marginal neighborhood, or a dependent worker in a *barraca*, a *campesino* with a forest plot feels himself a "rich" man. Such awareness contributes to a changing attitude towards the forest and its use, resulting in more rational forest exploitation.

Although the commercial and subsistence value of the forest is considerable for forest dwellers, they also attribute a growing non-material value to it and to the livelihood it provides. Especially for *campesinos*, the forest has a high non-material value as a place to live and work independently. Together with the agricultural field it guarantees them basic

¹ This section is largely based on Henkemans (2000).

foods and enables them to maintain their family with dignity. The forest livelihood in the community gives them the chance to be autonomous and respected, and provides a self-reliance that makes life more secure and valuable. In other words, it provides them with *tranquilidad*.

8.3.3 *Group identity and social cohesion*

Another important pillar of social fencing is a feeling of unity among forest dwellers and an organizational structure that supports communal decision-making and common understanding among insiders about the benefits of forest management. Such social cohesion enhances social control mechanisms to exclude outsiders who threaten their resource base. However, the foregoing has shown that several social attributes for social cohesion and social fencing – as formulated by Ostrom (1998) - are only weakly developed in a community such as San Antonio. Although the leaders, meetings and activities of the syndicate and support of NGOs favor an equal distribution of interests, responsibilities and benefits, the community members and organizations lack prior organizational experience, social skills and mutual trust for proper conflict management, autonomous decision-making and community development.

Also favorable to a strong social cohesion are historical bonding processes and communal traditions (norms and values), including a strong mutual trust and a habit of pooling (Richards, 1997). The historical background of the *Camba*, however, does not contribute to such a strong identity due to the diverse migration backgrounds and the inheritance of the *barraca* system. The latter clearly did and still does not stimulate processes of social organization or social fencing of forest resources. The debt-peonage system (*habilito*) that still prevails in the *barracas*, has strongly marked forest dwellers' lack of social cohesion and internal leadership.

In today's *barracas*, the social infrastructure has largely eroded and in most cases has not been replaced by another social structure. As demonstrated with the case of Teduzara, the *barraca* owners have lost their capital and their interest to invest in peoples' social organization and well-being, while the laborers themselves lack the capacity to organize themselves. In addition, laborers in this system do not have the rights or incentives to manage or protect the natural resources. The permanent inhabitants are not able to stop seasonal invaders from exploiting their forest resource base, since it is not their property. Consequently, *barraca* laborers do not perceive the benefits of investment in long-term forest management.

In contrast, independent communities are characterized by a higher political, economic and social autonomy than the *barracas*, although many do not display an egalitarian structure (SNDR, 1995). This condition enables forest dwellers to generate organizational experience and develop a commonsensical and collective decision-making structures (Stoian and Henkemans, 2000).

8.3.4 Agreement on natural resource tenure and management

In addition, one of the main prerequisites for social fencing of forest resources is a secure control of the benefits gained from these resources. In a frontier forest area, characterized by a weak legal control of forest resources, capitalist forest exploitation threatens to result in forest degradation.² In this situation, it seems that self-governance of forest resources by a united group of forest dwellers is most promising as a fence against forest degradation (Ostrom, 1998). In San Antonio such informal agreement has gradually been established in the *campesinos*' common struggle to make a living on community land that is constantly under threat of reclamation by absentee landowners and / or converted into grass land, unproductive to the forest dwellers' livelihoods.

Although current legalization of land rights favors the livelihood security of the *campesinos*, at the same time it awakens other claimants and raises conflict (see the case of San Antonio). Enterprises and other capitalist claimants that often have an extra-regional base, have the advantage of time, capital and personal connections, so they can hasten the processing of their claim or produce fake papers. Even if they do not work the land or pay tax, absentee landowners are still able to claim the land.

8.3.5 The viability of social fencing by *campesinos*

Although it is clear that not all conditions for successful social fencing – as proposed by Ostrom (1998) – are met, there are several trends supportive of the self-governance and management of community forests. Richards' (1997) factors that erode and foster CPR management and social fencing are all present in this area, and a positive outcome can be expected from their interplay.

The privileged position of the *campesinos* compared to other categories of forest users underpins their potential for managing a CPR and for developing a social fencing mechanism. They live permanently in the forest with a livelihood that depends on a multiple-use forest system and in a social group with fairly common forest use strategies and benefits. The patronized laborers in the *barracas* and *zafreiros* are not concerned with forest resource management or the development of sustainable agro-ecological systems; their short-term view results in little concern for a sustainable harvest of forest products. At the same time, forest industrialists are mainly interested in the short-term benefits of a selective number of commodities, and *granjeros* destroy such valuable resources as Brazil nut trees when converting forest into arable land. *Campesinos* in the more accessible communities have started organizing themselves in order to demarcate and protect their resource system; this has been stimulated by legal reforms, growing pressure on forest resources and the improving status of agro-extractive production. *Campesinos* depend on each other and their community organization to prevent and combat the degradation of their resources by outsiders as well as insiders. The legalization of communal land rights supports this

² Capitalist forest exploitation refers to logging companies, palm heart enterprises and larger private landowners such as *granjeros*.

unity and the construction of a group identity. The result is an increasing feasibility, visibility and predictability of the benefits of forest management.

The *campesinos'* strongest incentive for community organization and forest resource management is their growing recognition of the forest's value for their livelihood. Although their dependence on Brazil nut as the main income source is very high, current trends in product diversification and the revaluation of the forest's subsistence value broaden their livelihood base. The fact that the forest provides *campesinos* with the basic conditions for a life with *tranquilidad* is too often underestimated, due to the lack of status of forest products and the lack of support to materialize this value of the forest.

Although fluctuating markets make the value and benefits of non-commodity forest products less predictable, the waste of potential forest products – such as timber species that later become commercially interesting – is gradually evolving into a situation where conservation of the resource pool becomes interesting, in expectation of new commercial potentials.

The awareness that the forest livelihood is their best option stimulates *campesinos* in the development of a long-term vision of integrated, multiple forest product management. Although most *campesinos* want their children to become professionals, they perceive cultivated farmland as an indispensable socio-economic security for their family. A lack of confidence in the regional economy and the low and insecure salary of professionals make most forest dwelling families cherish their forest and agricultural land, especially those who have had bad experiences living with a lack of resources in one of the urban centers.. Moreover, the lack of lucrative commercial land use options prevents them from converting forestland into pasture and agricultural land.

The lack of mutual trust and organizational experience are the most prominent obstacles to community organization and hence to social fencing in the communities. These shortcomings result from the *campesinos'* background as dominated laborers, the short organizational history of the communities and the inhabitants' prevailing individual livelihood concerns. Time, good leadership and external support in community organization, however, can induce mutual trust, create organizational experience and increase the success of social fencing. Governmental agencies and environmental NGOs are important institutions for empowering *campesinos* to overcome their deficiencies inherited from the past, through organizational, educational and (some) financial support.

In the northern Bolivian Amazon, the legalization of tenure arrangements seems to favor CPR management and social fencing, providing communities with rights and measures to exclude outsiders and stimulating their self-esteem and feeling of unity. The increasing internal and external recognition of the status of community syndicates or OTBs is strengthening the authority of these organizations, and fostering democratic processes and consensual decision-making in the communities. At the same time, the struggle against exploitative *granjeros* and logging companies, and the support from external organizations, is empowering communities and their leaders.

In contrast to the consolidated communities where social fencing is promising, the viability for this mechanism is low in the more isolated forest settlements, such as Teduzara and Trinidadcito. There, the limiting factors are an unorganized and small population combined with the vast tracts of forest and a lack of support for community organization. Capitalist forest exploiters and urban labor gangs have free play in these areas, while independent communities in the accessible areas along roads and near urban centers are becoming consolidated. In fact, in these accessible areas social fencing is most urgent, due to the higher pressure on natural resources. The fact that the region lacks colonization programs to induce forest conversion and the privatization of land, entails the regional economy's long-term dependence on extractivism, making forest dwellers indispensable actors in the exploitation and management of the forest.

8.4 Concluding remarks

Camba forest dwellers explicitly strive after a livelihood with *tranquilidad*, which fulfills their basic material needs, deludes their worries and, in addition, provides them with autonomy, respect, economic independence and social acceptance. As such, *tranquilidad* is an inherent part of the *Camba* mentality and is the local variant of concepts such as security, welfare and happiness. A livelihood in *tranquilidad* is associated with a life in dignity, according to the ruling social norms and values, with respect as an autonomous family, head of the household and mother of the family.

The relative lack of perspective in the remaining *barracas* justifies the shift from a *barraca* structure towards independent communities as a solution for many livelihood restrictions found in the forest. Settlement in communities close to an urban center combined with a production system based on forest extraction and agriculture is considered the best option of seeking a life in *tranquilidad*. It provides *campesinos* with sufficient autonomy to produce enough food for themselves and for sale at the market. At the same time, it offers them access to basic services in nearby urban centers. Education and fixed labor are considered as the most important requirements for future success and, therefore, households invest heavily in urban linkages that provide young members with access to schools and jobs. Youngsters are expected to increase their involvement with the urban society, but – for the sake of their *tranquilidad* – they want to continue their linkages with the forest and the *granja*.

The development of sustainable livelihoods in the forest depends largely on social organization, which is still very limited in most independent communities. Gradually, people are starting to realize the importance of collaboration and formulate common goals in order to control their forest resources and improve infrastructure and social services in the community. The social cohesion and common interests are largely boosted by forest dwellers' concern for preventing outsiders such as *granjeros* and urban labor gangs from exploiting their forest resources. Through a process of trial and error, many communities are developing a 'social fence' that protects their forest resources and enables them to make sustainable use of them.



Photo 6.1 Scope for sustainability

CONCLUSIONS

The preceding chapters have analyzed the different livelihood capitals, objectives and strategies of *Camba* forest dwellers in the northern Bolivian Amazon. In this final chapter I will return to the research questions posed in Chapter 1 and draw conclusions about the potentials for sustainable forest livelihoods and forest management in the region. My aim is to estimate to what extent the actual forest livelihoods in the region represent a basis for the fulfillment of peoples' development objectives while at the same time safeguarding the sustainable use of forest resources. Based on this understanding I will generate recommendations for the further harnessing of such synergy in the region. In addition, this chapter aims to promote and improve the use of livelihood studies to understand the livelihoods, motives and development strategies of forest dwellers.

9.1 The 'Sustainable Livelihood' approach and peoples' self-defined objectives

The SL-approach used in this study has proven to be adequate for an holistic and diachronic analysis of forest dwellers' livelihoods. It is a valuable tool for highlighting and understanding the major components of peoples' livelihoods and revealing the potentials and constraints for their development within the boundaries of sustainable resource use. Of special importance is its recognition of the economic rationality of forest dwellers' livelihoods - securing basic needs and economic development - as well as the socio-cultural norms and values that play a role, such as family relations and prestige. The assets pentagon can be used as a dynamic model to analyze the use and transformation of different capitals in peoples' livelihood strategies and for understanding the future role of the forest as a natural capital for forest dwellers.

The results of this study confirm that, to be sustainable, the livelihoods should be developed according to peoples' self-defined needs and livelihood objectives, issues that differ in the distinct settlements and between groups of households. Therefore, the self-defined livelihood objectives of the households or people studied should be given greater attention and be taken into account when distinguishing the vital capitals for local peoples' livelihood development (see Section 2.2). In other words, the SL-approach and related discussions should become less normative and involve greater efforts to include the cultural and *emic* values and objectives of those 'living the livelihood' as well as their perceived potentials and opportunities. These are largely based on peoples' identity and socio-cultural norms, aspects of their human and social capital that should be included in the livelihood analysis.

Peoples' (cultural) identification with the forest livelihood and their objectives concerning the maintenance or transformation of this livelihood are especially determinant for

the viability of long-term forest extraction. In line with the recent work of Arnold (1998) and Byron and Arnold (1999), the current study has focused on complementing the product-focussed economic analysis of forest extraction processes with an holistic and people-focussed dimension. Contrary to that suggested in many political ecological studies, forest dwellers are no passive players of markets and politics, but make their own decisions based on their different assets and livelihood objectives (Henkemans *et al.*, 2000). Their development and resource use strategies can be better recognized and influenced when their perceptions of the forest environment and its specific contributions to their identity and social well-being are understood. The different scenarios of forest livelihoods discussed in Chapter 2 and the results of my fieldwork underpin the crucial role of peoples' image of forest products and activities to their attitude towards the forest and their decisions on forest livelihood development. The challenge is to find tools to capture this image and relate it to peoples' livelihood objectives and the management of their capitals.

My understanding of the *Cambas'* development objectives and their identification with the forest livelihood benefited most from the conceptualization of some expressions that are closely related to the local situation and culture. The notion of *tranquilidad* turns out to largely represent the livelihood values that *Camba* forest dwellers strive after. As such it is an inherent part of the *Camba* mentality and is the local variant of concepts such as security, welfare and happiness. The use and conceptualization of this notion helps us to understand their particular objectives and strategies for livelihood maintenance and development. Peoples' use of this notion in different contexts reveals their perception of the positive aspects of their current livelihood as well as of alternative livelihoods. It also gives insights into their identification with the forest and its most valued products and services. At the same time, peoples' use of the notion of *sufrimiento* discloses the inconvenience of forest dwellers' current livelihoods and the lack of several assets and forms of comfort they wish for themselves. It also shows the extent to which people are prepared to sacrifice and suffer for the benefit of their livelihood development and the fulfillment of their objectives.

Camba forest dwellers explicitly strive for a livelihood with *tranquilidad*, which fulfills their basic material needs, deludes their worries and, in addition, provides them with autonomy and respect. More concretely, such a livelihood consists for the *Cambas* of the following components: (1) access to and control of natural resources for secure and healthy food and housing (natural – produced capital); (2) healthy, educated and respected family members (human capital); (3) infrastructure, transport and markets to interact with urban and rural areas (physical capital); (4) income generation from independent productive activities, or from rewarding wage labor (financial capital); (5) mutual support, respect and social organization within the family and wider community (social capital). The question is unto what extent the different types of settlement in the region facilitate the development of such livelihoods and in synergy with forest management.

9.2.1 Livelihood capital and development in the region's forest settlements

From the results of this study it becomes clear that the livelihood assets of the *barraca* inhabitant in the region are insufficient for the development of sustainable forest livelihoods. Although they have access to a rich resource base and benefit largely from the forest for their subsistence, they lack the property rights, entitlement and autonomy to profit from this natural capital for improvement of their livelihoods. They are restricted in their socio-economic development through their isolation and lack of infrastructure which makes them dependent on a persisting patron-client system. Moreover, they lack options for developing their livelihood beyond the subsistence level due to the out-migration of family members, an inadequate diet and medical care, and a lack of self-confidence and inventiveness. In fact, these people would not be able to fulfill their subsistence needs without the presence of a *habilito* system. In addition, their isolation and lack of autonomy restrains their options for internal organization and for extra-settlement alliances to receive external support.

Together with the inhabitants of more remote extractive communities, these forest dwellers are expected to have a limited future outlook on livelihood development, marketing of their products and external support from state agencies or NGOs. This lack of options for the development of profitable and durable production systems causes dependent and isolated forest dwellers to perform short-term oriented resource-use strategies, boarding out the commercialization of the forest resources to a patron or to merchants and logging companies. As a consequence, the forest remains underutilized for the development of rural livelihoods and concession holders have free play in (over) exploiting or converting its resources. The following subsections reveal a different development potential in independent forest communities such rural boom settlements, agrarian- and agro-extractive communities.

9.2.1 *The merits and drawbacks of the forest as a natural capital*

For the region's inhabitants natural resources represent one of their main sources of livelihood capital. For the *campesinos*, the forest largely contributes to their livelihood assets and the fulfillment of their objectives for subsistence and family maintenance, ingredients for a livelihood in *tranquilidad*. However, their natural environment also represents various obstacles for livelihood development, in the form of weeds, insects and diseases. As a consequence, the *Cambas* distinguish useful and non-useful plants and animals in the forest and in their agricultural fields, and tend to maintain and domesticate the features of the forest that benefit them most and combat the drawbacks as far as they are able.

The result is an agro-extractive system, which changes the forests' composition and production potential, but only on a small scale. *Campesinos* with secure tenure rights and long-term interest in forest extraction convert part of the vegetation into agricultural land for food crops and cash crops, but tend to forego slash-and-burn of valuable old growth forest areas. Such forest areas provide them the highest diversity of species, the best qual-

ity of products, and the largest number of potential use functions. In this respect, the Brazil nut tree has a valuable role to play in the preservation of these forest areas by forest dwelling people, as well as the growing number of commercial timber species. However, the exploitation of timber and palm heart, which is not practiced in a sustainable manner, requires more restrictions and proper management practices that are not yet in place. Whether the forest dwellers are able to manage their natural capital for long-term livelihood development largely depends on their human capital in the form of labor and knowledge.

9.2.2 *Constraints for human resource development*

The results of this study show that the forest dwellers' lack of human capital is one of their main bottlenecks for livelihood development. The harsh physical labor and peoples' weak health condition is a daily concern for them. Many households lack the reliable labor, health and determined workmanship, required to convert their rich natural capital into consumable goods and commodities. Main causes are unhealthy living conditions, (temporal) out-migration of family members, and a lack of education and specific skills for planning and management of their livelihood activities. The *Cambas* have a rich knowledge of the forests' plants and animal resources and experience with their utilization, largely based on their historic identity as forest extractivists. But the complex agro-extractive cycle they currently need to develop and maintain for their livelihood security requires another type of labor, experience and identity. The cycle requires continuous labor input in extractive, agricultural as well as wage labor activities, while peak seasons exist in which different activities overlap in time. It also requires the specialized input and experience of men and women in different moments of the production process.

Improving the households' human resources through education and training is an important aspect of the forest dwellers' livelihood strategies. According to the *campesinos* their *tranquilidad* and livelihood development relies largely on such improvements, including education and professionalization of the children. It enlarges their livelihood opportunities and status. For this reason stagnant school facilities are often decisive for peoples' migration to an urban center or more developed community. Notwithstanding, the urban life style is not satisfactory for many *Cambas*. It does not facilitate food production for self-reliance and makes former forest dwellers feel inferior due to their lack of skills to negotiate and thrive in the urban society.

9.2.3 *Physical capital and durable production systems*

Despite the limits of their human capital, most *campesinos* succeed in developing considerable produced capital in the form of crops, animals and physical constructions for shelter. When properly planned, the different combinations of households' agricultural and extractive activities provide a year-round security of food, fuel and other necessities. The possibility of developing this form of capital is, according to the *campesinos*, one of the

main advantages of the forest livelihood over life in a town. It is striking that most of the inhabitants of San Antonio increasingly reckon the contribution of long-term agro-extractive cropping systems to their security and *tranquilidad*, but hardly domesticate or plant perennials. Apparently, a lack of custom and experience with the cultivation and maintenance of perennial crops and limited insight into the markets results in a weakly developed vision on farm development and permanent production systems. Due to the relatively central location of agrarian and agro-extractive communities, their physical capital in the form of infrastructure and school facilities is much better developed than in remote area, but does need to improve constantly in order to comply with peoples' development objectives and to prevent out-migration. Of crucial importance is the development of market information and relations that provide the forest dwellers with opportunities for commercialization of their physical capital.

9.2.4 *The forest's contribution to the household economy*

The transformation of physical capital into financial capital is for most of the *campesinos*, a difficult challenge. Forest products and services play an important role in their quest for economic wellbeing and *tranquilidad*. Independent Brazil nut trading and nut extraction in the form of wage labor gives most *campesino* households interesting revenues and palm heart and timber extraction as well benefit many of them financially. Though other products with a reliable market are scarce, unto date, forest extraction is expected to have increasing economic potentials. However, for livelihood development and improvement of living conditions and income, households seek, in addition, other labor opportunities, cultivate cash crops, and support the young generation to become professionals. *Campesinos* perform complex strategies of multi-tasking, combining the extraction of timber and NTFPs with agriculture and wage labor. Their engagement in multiple activities in varying combinations gives way to a livelihood differentiation and specialization inside the communities, which confirms the variety of development options people have in agro-extractive communities such as San Antonio.

However, all types of forest livelihoods require that extractive production is complemented with a considerable subsistence production of agriculture and income from (extraction-based and agrarian) wage labor activities. Agriculture provides the *campesinos* on average with the highest production benefits and contributes to peoples' food security. At the same time wage labor is appreciated for its direct contribution in kind or immediate cash, revenues which are indispensable for buying consumer goods and gaining access to basic services. Important disadvantages of wage labor experienced by the *campesinos* are the large dependency on employers and neglect of development of their own farm. For this reason, many *campesinos* consider wage labor as a short-term solution but not a basis for a livelihood in *tranquilidad*. In order to develop such a livelihood and transcend the subsistence level *campesinos* wish to develop their forest plot into a commercial agro-extractive system.

In accessible communities, this strategy is compatible with partial and part-time migration to the town, which offers access to urban services, jobs and finance schemes. For young adult family members the combination of urban wage-labor, seasonal Brazil nut gathering and the maintenance of agricultural fields is currently the most preferred combination of income generating activities. In this mixed urban and rural livelihood the opportunities and securities of both living environments complement each other and provide the best blend of *tranquilidad*.

9.2.5 *Camba forest dwellers identity and social capital*

This “living in two worlds” has far-reaching consequences for peoples’ social capital and entitlement to resources and services. A positive result is the development of social networks both in town and in the forest and the related access to mutual support, services, job opportunities and assistance of development agencies. Another benefit for both the household and the settlements is the exchange of information and goods between the two living environments.

A negative consequence, however, is the loosening of family ties and social bonds and lower cooperation in the community due to the part-time absence of community members, while in town the same level of social cohesion cannot be reached. According to several forest dwellers the urban society largely stands for individualism and their interaction with this society increases their confrontations with criminality and with restless and depressed adolescents who are not sure where to belong and how to develop their lives. Their challenge is to combine the advantages of both the urban and the rural way of life.

The *Cambas*’ lack of social cohesion is typical and related to their complex and dynamic historical background, which involved, isolated living, dependency on a patron, repeated migration, and the formation and crumbling of their socio-cultural identity as rubber tappers. Although the revolution of 1952 laid the basis for an independent *campesinato* (peasantry), it failed to create a new identity for the regions’ forest dwellers and a durable social cohesion among them. There is a felt need among the *campesinos* for a social identity that is largely based on a common livelihood and understanding as forest dwellers, but that at the same time can make them part of current processes of commercialization and modernization. They are sensitive to the public/social opinion and the prevailing backward status and image of their forest livelihood and activities, and want to become respected citizens. For this purpose their forest livelihood needs to be complemented with elements of an urban life that includes access to markets, education and consumer goods, and people want to develop the skills to make use of these options.

NGOs have an important role to play in supporting these developments and in integrating the socio-cultural norms and values that are at the basis of peoples’ behavior and decisions. Peoples’ sense of *sufrimiento* and *tranquilidad* is of particular importance in this respect. Based on the advantages on the one side and the drawbacks at the other side, *Cambas* developed a ‘love and hate’ relationship with the forest and city life. To which

side the balance goes depends largely on the improvement of their living conditions in the forest and the image of their livelihood and activities. Based on several regional and international trends I observe and expect that these conditions and the image of forest dwellers are improving.

9.3 Regional trends that support sustainable forest livelihoods

When assessing the image of forest extraction in the northern Bolivian Amazon and the viability of sustainable forest livelihood development, it is important to realize that forest production is the regional specialty in the national and international context. The highly preserved forest and its products form not only the main basis for the historical and socio-economic identity of the regions' inhabitants, but also for the region as a whole. The region has developed a reputation as a forest product region, including valuable cultural-historical and agro-ecological features and forest products increasingly form the trademark of the region. Up until the present time, the region has represented one of Bolivia's most important export zones based on its Brazil nuts and timber commodities. This regional specialization is important for attracting political attention and financial support of state organizations as well as NGOs. In addition, this image of a forest product region draws the attention and funding of international donors and might attract eco-tourists.

The region's success in promoting and commercializing forest products also benefited the collectors of these products. It improved forest dwellers' income from extractivism and the development of their livelihoods. *Camba* forest dwellers have experienced a true process of democratization during the last two decades, resulting in an improved division of extractive revenues in the region. The development of independent communities has made them less dependent on patrons and has gradually provided them with a larger share of export values. Moreover, the diversification of their forest production and income has made them less reliant on the unstable market of a single commercial forest product (such as rubber or Brazil nuts). From the previous boom-to-bust cycles they learned that dependence on a single commodity does not provide a basis for the development of stable livelihoods and communities. It made them dependent on powerful entrepreneurs and their livelihood became subject to the whims of the fluctuating markets.

Therefore, forest dwellers have started developing forest livelihoods based on an agro-extractive cycle with a diversity of products and have gained flexibility to adapt to changing markets. This process is supported by a growing market for forest products and agroforestry products and by the *campesinos'* improved market information and benefits due to NGO intervention. These developments increase their awareness of the forest's value, and encourage them to maintain their natural resources. Based on the ongoing conversion of *barracas* into independent communities and the improvement of infrastructure and accessibility of communities, it can be expected that this process will continue and that the number of independent forest dwellers interested in and benefiting from long-term forest management will increase. In addition, the rural exodus that resulted from the collapse of the rubber market and the traditional *barraca* system has stabilized and seems to

change into a reverse trend. Poignant living conditions in the popular neighborhood result in a gradual re-valuation of the forest livelihood and (part-time) re-migration to the rural settlements. This trend is supported by the joint efforts of several regional development organizations and institutions involved in improving forest dwellers' living conditions.

The lack of financial and human capacity and *Cambas'* lack of development vision, identity and social organization remain large drawbacks. Next to technical support development workers give attention to such deficits through 'farmer to farmer' extension, relevant radio programs and the organization of large meetings for small agro-extractive producers. Such events stimulate exchange and strengthen the social identity of *Camba* forest dwellers that is evolving today. This identity is based on the *Cambas* historical roots in extractivism and makes them identify with a livelihood of agro-extractive producers. It implies a positive attitude towards the forest and constitutes a basis for a sustainable forest livelihood including extractivism and agriculture. It seems to be adequate, both for the forest dwellers' social organization and for their management of forest resources.

Another crucial issue which influences forest dwellers' interest and ability to develop sustainable forest livelihoods is the land rights situation in the region. As discussed in Section 3.7.1, current property rights are unclear and unequal, which has detrimental consequences for forest dwellers' tenure security and their long-term perspective on forest use. Although this constraint is currently dealt with by several organizations, it has to be seen how successful a formalization and redistribution of land can be in this isolated region with powerful landowners and weak state agencies.

9.4 Regional scope and principles for sustainable forest livelihood development

The above sections show that livelihood development based on sustainable forest extraction is a viable option in the region if current trends carry on and bottlenecks can be solved. Independent *Camba* forest dwellers have several incentives to maintain most of their forest vegetation while developing their livelihood and managing their natural resources for extraction as well as agricultural purposes. Their control of the resources is increasingly assured; their livelihood depends to a large extent on forestland and products; they are supported by a social identity and movement of agro-extractive producers; and they gradually develop a long-term perspective on forest exploitation and farm development. In order to support the long-term viability of sustainable forest livelihood development in the region one has to understand and act according to seven principles.

Firstly, irrespective of their economic viability and their ecological soundness, extraction-based livelihoods are only socially acceptable when basic goods and services are accessible and social values are respected. Without facilities such as adequate roads and transportation, access to education and health care, and options for autonomic resource management and commercialization, forest dwellers lose their ability and willingness to develop sustainable forest livelihoods. This means that the current *barraca* system is not suitable for the development of sustainable forest livelihoods and that the reinforcement of

the community system and the development of *barracas* into communities has to be stimulated.

Through the process of community development the forest dwellers gain access to urban-based markets and development agencies, and become more independent and creative in their livelihood development. In addition, in remote areas where the *habilito* system forms currently the only viable production relation, greater interest of urban-based institutions in the permanent forest dwellers and cooperation and negotiation with the concession holders could improve the living conditions of the laborers and their share of benefits in the production system. Supported by a gradual process of certification of Brazil nuts, efforts should be taken to make the regions' *barraca* laborers shareholders of the concessions and give them access to individual forest plots.

Secondly, sustainable forest livelihoods in the region depend on secure tenure rights for forest and agricultural land. *Campesinos'* interest and ability to benefit from long-term forest extraction and management depends on their access to old growth forest with a diversity of species and on the right to convert part of this forest into arable land. Consequently, more attention should be paid to property rights and land distribution within and between communities. The current process of land reform as well as the creation of additional forest reserves for communities or ASLs is an important step in this direction and should improve the distribution of land and high forest. Since the forest dwellers' agro-extractive livelihoods require an integral and cross-sectoral approach, the law for land reform and the new forest law have to be synchronized and conflicting elements have to be adapted.

Thirdly, multi-tasking is the underlying principle of forest dwellers' livelihood systems. In the region the sustainability of such a livelihood depends on the combination of extractivism, agricultural and wage labor for subsistence and income generation. Policy makers and development workers have to recognize the crucial interrelationship between NTFP extraction and small-scale agriculture as a basis for sustainable forest livelihoods in the region. Extractive products form an important pillar for the forest livelihood and an incentive for sustaining this livelihood, but are not a sufficient source of food security and revenue for forest dwellers. Consequently, one of the forest functions perceived by forest dwellers is its potential conversion into land for cultivation. Independence based on agricultural production on a private *chaco* is of major importance to *campesinos*, and one of the main reasons for migration (back) into the forest is the need for food and agricultural land.

Agricultural production, though, is not only orientated towards meeting subsistence needs, but is increasingly directed to urban markets. This means that more attention should be given to agricultural development and more efficient production. Sustainable livelihood development must allow for conversion of a small part of peoples' forest into arable land and forest dwellers have to be supported in maintaining the production of this land through improved fallow systems and agroforestry. In addition, the forest dwellers need

for lucrative and secure wage labor activities should be recognized and supported with the formulation and control of norms for proper labor relations.

Fourthly, the viability of sustainable forest livelihoods in the region depends on the existence of a strong rural-urban link. Such a link provides demand for forest products and agricultural produce, markets, jobs and infrastructure both in the forest and in the towns. In the agro-extractive and agrarian communities that have good roads to urban areas, the households have the largest range of options for livelihood development. They have access to the urban (labor) market and receive the support of urban-based syndicates and NGOs. Although young people are expected to increase their involvement with the urban society, for the sake of their *tranquilidad* they wish to continue their linkages with the forest and the *granja*. This link provides them food security, self-reliance and independence from the cash-economy. Moreover, it provides options for production of (potential) commodities. Development agencies have to recognize this rural-urban link, refrain from tying people to a rural livelihood and integrate the urban relation into their development programs through support in infrastructure development, information flow, transport, and marketing.

Fifthly, the organization of forest dwelling people should produce strong community councils and, on a more aggregate level, a social movement of agro-extractive producers. The creation of such common identities and social alliances provides them with better access to livelihood capitals and services. In addition, it prevents outsiders from exploiting *el campesinato* with low prices and unfavorable labor conditions and from degrading the forest dwellers' natural resources. One should recognize and support the process of social fencing that tends to take place in the better-organized communities where people are capable of and willing to perform informal social action towards management of their communities' resources and protection against destructive outsiders. It is important to explicitly relate processes of social organization, conflicts with outsiders and formation of a group identity to the development of informal resource control and regulations for forest protection.

Sixth, long-term development of forest livelihoods based on forest management in the region depends on external support and the continuous exploration of new products and services. This requires research and experimentation, resulting in the diversification of forest product use, the improvement of processing techniques, and the development of new (green) markets and production systems. This involves the assessment of local knowledge, education of product experts, establishment of databases and samples, exploration of market chains, certification of products, and the protection of (intellectual) property rights. Possibilities have to be found to increase the value of forest dwellers' forest plots and related income, based on products, but also on alternative services such as ecotourism, carbon sequestration and biodiversity protection.

The viability and success of such activities and programs depends on the assistance of local NGOs and state agencies. In addition, it requires the outside support of consumer markets and development projects, and the wide spread respect for forests products and forest dwellers. When Western consumers believe in the sustainability of tropical forest and their inhabitants, they should support and pay for an increased appreciation of forest products and services. This means that in turn consumers should be provided with accurate information on the origin and quality of the products and on the beneficiaries, for example through certification of the products.

Finally, policy makers and extension workers need to understand the *Camba* quest for *tranquilidad*, including self-reliance, autonomy, respect and development options, and should help them clarify and implement their livelihood strategies to fulfill their development objectives. Such support needs to include technical and organizational extension and facilitate *campesinos'* positive identification with their new independent livelihood, enlarge their awareness of their rights and responsibilities, and enhance their social cohesion and community development. The stimulation of a group identity of independent agro-extractive producers is an important means to this end. These capacities are decisive for forest dwellers' success to manage natural resources and defend them against outsiders. Until today, mediation of NGOs between the forest dwellers, authorities and the private sector has been necessary to guarantee an equal share of the communities' benefits from commercialization and access to official funding. In order to become more independent and gain *tranquilidad* the forest dwellers request for the future support in acquiring basic skills in communication, social cooperation, negotiation, and planning of community development.

In conclusion, based on this study I am optimistic about the *Camba* forest dwellers' profit from forest products and the viability of sustainable forest livelihoods based on forest management. Although I do not disregard the negative effect of political economic processes on forest dwellers and their natural resources (see Section 1.2.3), from the perspective of the forest dwellers' livelihood development and supporting trends in the region, I believe that the glass is half full and not half empty. This study reveals that forest dwelling *campesinos* attach a high value to their natural resources as a source of current and future household necessities and security and provided that they receive the required support, they are able to develop a satisfactory livelihood and manage the forest resources on a long-term basis, preventing degradation of the regions' forest.

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Demography of exploited tree species in the Bolivian Amazon. *PROMAB Scientific Series 2*. Riberalta, Bolivia.

PROMAB scientific series

This study is the fifth publication in the PROMAB scientific series. The contents of existing publications in this series are briefly outlined below:

1. Seedling growth of Bolivian rain forest tree species in relation to light and water availability (Poorter, 1998). The influence of light and water availability on seedling growth is evaluated for a number of economically important rain forest tree species. Knowledge of the environmental requirements of tree species provides the ecological basis for the selection of species for, and design of, silvicultural treatments, forest enrichment activities, tree plantations and agroforestry systems.
2. Demography of exploited tree species in the Bolivian Amazon (Zuidema, 2000). Three tree species yielding non-timber products are investigated: the "castaña" tree (*Bertholletia excelsa*) of which Brazil nuts are collected; the "asai" palm (*Euterpe precatoria*) of which palm heart is harvested; and the "jatata" palm (*Geonoma deversa*) of which leaves are used for thatching. The demography and the impact of exploitation of these species are analyzed. Models for population dynamics - matrix models - are used to evaluate the sustainability of different exploitation regimes.
3. Secondary forests in the Bolivian Amazon: processes that affect the regeneration of tree species (Peña, 2001). Conversion of tropical forest into agricultural fields has increased over the last decades. When these fields are abandoned, vegetation recovers by secondary succession, and secondary forests are formed after some years. This study reports on processes that effect the course of secondary succession in the Bolivian Amazon. Processes such as seed predation, germination, seedling survival and growth are studied in detail. In this way insight is gained into the processes limiting the regeneration of tree species in secondary forests differing in age. In addition, this study reports on a method for enrichment planting with *Bertholletia excelsa* seedlings in secondary forests.
4. Balance is beautiful, assessing sustainable development in the rain forests of the Bolivian Amazon (Bojanic, 2001). This study evaluates and explores the tension between economic development and environmental impacts of commercial forest use in the northern Bolivian Amazon region. To obtain larger economic growth rates there is a need to intensify the extraction of forest products and hence to increase the degradation of natural resources. The dissertation studies and explains the economic and social implications of such interactions.

Additionally, the publication of the following study carried out by the University of Freiburg and CIFOR, in collaboration with PROMAB, is available:

Variations and dynamics of extractive economies: the rural-urban nexus of non-timber forest use in the Bolivian Amazon (Stoian, 2000b). The importance of marketable NTFP is determined at the levels of rural and peri-urban households as well as the regional economy. The study of the marketing chain of Brazil nuts and palm hearts elucidates the distribution of benefits accruing from their processing and sale.

GLOSSARY

Spanish, unless marked with (P) when Portuguese

<i>almendra</i>	Seeds of the <i>almondro</i> or Brazil nut tree (<i>Bertholletia excelsa</i>); synonymous with <i>castaña</i>
<i>ama de casa</i>	Housewife
<i>andante</i>	Term used for someone who is restless, wanders around and lacks stability
<i>arroba</i>	Ancient Spanish unit of measure (@) equal to 11.5 kg
<i>aviamiento</i> (P)	System of advance payment in cash and/or kind in return for the future supply of forest products; synonymous with <i>habilito</i> in Bolivia
<i>bajío</i>	Floodplain along river banks that becomes inundated during the rainy season
<i>barbecho</i>	Forest fallow land
<i>barraca</i>	Former rubber estate that today forms a unit for forest extraction under the control of a <i>patrón</i>
<i>barrio</i>	Neighborhood in an urban center
<i>barrio marginal</i>	Marginal or peripheral neighborhood; synonymous with <i>barrio popular</i>
<i>beneficiadora</i>	Processing plant for Brazil nuts and, to a lesser extent, palm heart
<i>Beniano</i>	Person originating from the Beni department
<i>bolacha</i>	Ball of smoked rubber typically weighing 30 to 70 kg
<i>boliviano</i>	Bolivian currency with an exchange rate of 5.5 <i>bolivianos</i> = 1 US\$ in 1998
<i>bosque de altura</i>	Forest growing on an Amazonian upland area or <i>terra firme</i> (P)
<i>Caboclo</i> (P)	Mestizo descendants of Iberian and Amerindian forest dwellers living along the rivers of the Brazilian Amazon
<i>caja</i>	Wooden box that is the unit of measure for in-shell Brazil nuts. Depending on the moisture content of the nuts, it varies between 20 and 27 kg with an average of 22kg
<i>caja de emergencia</i>	Community-based collective fund to be used in case of (medical) emergency
<i>Camba</i>	Designation for an inhabitant of the Bolivian lowlands, as opposed to <i>Kolla</i>
<i>cambalache</i>	Local term for exchange of goods and labor; synonymous with <i>treque</i>
<i>campesino</i>	Self-designation of the inhabitant of an independent community; often translated as 'peasant' but here referring to 'agro-extractive small producer'
<i>cascarilla</i>	'Peruvian bark'; quinine-yielding bark of <i>Cinchona</i> spp.; also referred to as <i>quina</i>
<i>castaña</i>	Seeds of the <i>castaño</i> or Brazil nut tree (<i>Bertholletia excelsa</i>); synonymous with <i>almendra</i>
<i>castañal</i>	Brazil nut stand
<i>centro gomero</i>	Formerly rubber collection center situated in the interior of the <i>barraca</i> , typically accommodating 4-10 rubber tappers (<i>siringueros</i>) and their families
<i>chaco</i>	Agricultural field of typically 1-2 hectares, cleared through slash-and-burn
<i>chaquear</i>	Preparing a new <i>chaco</i> between July and September
<i>chicha</i>	Fermented beverage made of maize or manioc
<i>club de madres</i>	Formerly association of mothers in communities and urban neighborhoods
<i>club deportivo</i>	Local sports club
<i>colocación</i>	A production unit of a rubber tapper which typically contains three <i>estradas</i> totaling 300-600 rubber trees
<i>comité de salud</i>	Community-level committee concerned with local healthcare
<i>compadrazgo</i>	A system of ritual co-parenthood that links parents, children, and godparents in a close social or economic relationship of mutual benefit

<i>contratista</i>	'Middleman' contracted by a patron who mediates in the recruitment and payment of <i>zafreiros</i> for the extraction of forest products
<i>Cooperativa</i>	Cooperative, locally used to refer to the CAIC
<i>corregidor</i>	Conflict manager who has a police function at community level and remits complicated conflicts to the urban court
<i>cuidante</i>	Caretaker on a <i>barraca</i> , <i>granja</i> , <i>estancia</i>
<i>curandero</i>	Folk healer
<i>duende</i>	'Goblin', dwarf-sized mythical creature with a big hat and reversed feet living in the forest and luring people into the forest
<i>empatronado</i>	<i>Barraca</i> laborer who works under the control of a <i>patrón</i>
<i>empleada</i>	Housekeeper
<i>enganche</i>	Enlistment system under which rubber tappers were recruited in the late 19 th century and transferred to the forest without liberty to settle as independent producers
<i>estancia</i>	Cattle ranch
<i>estrada</i>	Trail with on average 100 to 200 rubber trees that the <i>siringuero</i> used to follow for extracting rubber, and nowadays used for the collection of Brazil nuts
<i>galpón</i>	Shed used for the drying and storage of Brazil nuts
<i>goma</i>	Rubber from the rubber tree (<i>Hevea brasiliensis</i>)
<i>granja</i>	Farm focusing at cash crop production
<i>granjero</i>	Often urban based owner of a <i>granja</i>
<i>habilito</i>	Credit system established by the rubber industry supplying in advance utensils, food products or cash in exchange for the future supply of forest products; synonymous with <i>aviamento</i> (P) in Brazil
<i>huerta</i>	Homegarden with vegetables and fruit trees
<i>humilde</i>	'Humble', characterization of poor and modest people
<i>jornal</i>	Daily wage with or without a meal
<i>jornalero</i>	Day laborer or occasional laborer
<i>leche</i>	Latex of the <i>Hevea</i> tree that is processed into rubber by smoking
<i>jefe de la casa</i>	Male head of household
<i>Kolla</i>	Designation of Highland Bolivians, mainly of <i>Aymara</i> or <i>Quechua</i> origin
<i>lider</i>	Religious leader at community level
<i>machismo</i>	Sturdy, masculine behavior typical for male dominant society; a stereotype construction of how a good man ought to be
<i>mapajo</i>	Large forest tree (<i>Ceiba pentandra</i>) though to serve as a home base for the <i>duende</i>
<i>marianismo</i>	Pious, feminine behavior; counterpart of <i>machismo</i> representing women's moral and spiritual superiority in society; a stereotype construction of how a good women ought to be
<i>Mestizo</i>	Person of mixed Amerindian and European ancestry
<i>monte alto</i>	High forest or climax forest
<i>naturista</i>	Local expert in natural medicines including medicinal plants
<i>palmito</i>	palm heart; apical meristem of several palm species; in Bolivia mainly referring to acaí (<i>Euterpe pretoria</i>) if from natural forests, or to peach palm (<i>Bactris gasipaes</i>) when cultivated
<i>palmitero</i>	harvester of wild palm heart
<i>pampa</i>	Savannah
<i>pancho</i>	Rope made of tree bark from <i>pancho</i> (<i>Eschweilera coriaceae</i> and <i>Couratari macrocarpa</i>) and <i>cabeza de mono</i> (<i>Apeiba membranacea</i>)

<i>Pandino</i>	Person originating from the Pando province
<i>pasear</i>	Touring, exploring
<i>pasto</i>	Pasture field
<i>patrón</i>	Formerly rubber baron and today owner of a <i>barraca</i>
<i>payol</i>	Platform with elevated floor and palm thatch roof for storage of Brazil nuts and used as accommodation for the <i>zafreiros</i>
<i>pueblo/peublito</i>	Village or small town, commonly used by forest dwellers to refer to the town of Riberalta
<i>puesto castañoero</i>	Brazil nut collection center
<i>puesto gomero</i>	Rubber tapping center
<i>pulpería</i>	Merchandise store in a <i>barraca</i> , where the <i>patrón</i> sells consumer goods
<i>quebradora</i>	Female worker in a <i>beneficiadora</i> cracking the Brazil nut kernels manually with nut-crackers
<i>quina</i>	Peruvian bark, quinine-yielding bark of <i>Cinchona</i> spp.; also referred to as <i>cascarilla</i>
<i>raia</i>	Carved lines in the bark of the rubber tree to extract the <i>leche</i>
<i>rastrajo</i>	A <i>barbecho</i> of 1-2 years with remains of rice or maize plants
<i>reintegro</i>	Reimbursement to members of the cooperative CIAC at the end of the Brazil nut season in case the market price surpassed the price paid by the cooperative
<i>Ribereño</i>	<i>Mestizo</i> descendants of Iberian and Amerindian forest dwellers living along the rivers of the Peruvian Amazon
<i>sanetario</i>	Person responsible for state financed health centers
<i>siringa</i>	Rubber tree (<i>Hevea brasiliensis</i>)
<i>siringuero</i>	Rubber tapper
<i>siesta</i>	Afternoon nap
<i>sufrimiento</i>	Suffering, hardship
<i>sujal</i>	Man-made grassland or wasteland invested by de weed <i>sujo</i> (<i>Imperata brasiliensis</i>)
<i>tacu</i>	Wooden basin for the pounding of food
<i>tapique</i>	Walls made out of sticks covered with a layer of clay
<i>terra firme</i> (p)	Amazonian upland area which is not inundated during the rainy season
<i>tranquilidad</i>	A state of feeling at ease; peacefulness
<i>treque</i>	Exchange trade
<i>zafra</i>	Harvest; in northern Bolivia harvesting period for Brazil nuts lasting from December to March
<i>zafretero</i>	Seasonal laborers hired for harvesting Brazil nuts during the <i>zafra</i>

ABBREVIATIONS AND ACRONYMS

ADRA	Agencia de Desarrollo y Recursos Asistenciales
AOS	Ayuda Obrera Suiza
ASPROGOAL	Asociación de Productores de Goma y Almendra
ASL	Agrupaciones Sociales del Lugar
BOLFOR	Proyecto de Manejo Forestal Sostenible
CAIC	Cooperativa Agrícola Integral “ El Campesino”
CEDLA	Centro de Estudios para el Desarrollo Laboral y Agrario (Bolivia)
CEDLA	Center for Documentation of Latin America (Netherlands)
CEJIS	Centro de Estudios Jurídicos e Investigación Social
CDF	Centro de Desarrollo Forestal
CFV	Certificación Forestal Voluntaria
CIDOB (1)	Centro de Información y Documentación de Bolivia
CIDOB (2)	Confederación de los Pueblos Indígenas del Oriente de Bolivia
CIFOR	Center for International Forestry Research
CIPCA	Centro de Investigación y Promoción del Campesinado
CIR	Coordinadora Inter-institucional Rural
CIRABO	Central Indígena de la Región Amazónica Boliviana
CFV	Certificación Forestal Voluntaria
CNF	Cámara Nacional Forestal
CORDEBENI	Corporación de Desarrollo del Beni
CPR	Common Property Resources
CPTI	Centro de Planificación Territorial Indígena
DFID	Department For International Development
DGIS	Dutch Ministry of Development Cooperation
DHV	Dutch consultancy company
FAO	Food and Agricultural Organization
FDC	Fondo de Desarrollo Campesino
FIS	Fundo de Inversión Social
FSC	Forest Steward Council
FSUTCPVD	Federación de Sindicatos Únicos de Trabajadores y Campesinos de la Provincia Vaca Diez
GTF	Grupo de Trabajo Forestal en Comunidades
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
IBTA	Instituto Boliviano de Tecnología Agrícola
INE	Instituto Nacional de Estadística
INRA	Instituto Nacional de la Reforma Agraria
IPDS	Institución Privada de Desarrollo Social
IPHAE	Instituto Para el Hombre Agricultura y Ecología
IRFA	Instituto Radiofónico Fe y Alegría
IWGIA	International Work Group for Indigenous Affairs
LDA	Ley de Descentralización Administrativa
LPP	Ley Participación Popular
MDSMA	Ministerio de Desarrollo Sostenible y Medio Ambiente
NGO	Non Governmental Organization
NTFP	Non-Timber Forest Product
OAS	Organization of American States

ODI	Oversees Development Institute
OMED	Organización de la Mujer en Desarrollo
OTB	Organización Territorial de Base
PROMAB	Programa Manejo de Bosques de la Amazonia Boliviana
SERFOR	Servicio Forestal
SL	Sustainable Livelihood
SNDR	Secretaría Nacional de Desarrollo Rural
SNRA	Ley del Servicio Nacional de Reforma Agraria
SNV	Dutch Organization for Development Cooperation
SSL	Salut Sin Límites
USAID	United States Agency for International Development
UNDP	United Nations Development Program
UTB	Universidad Técnica del Beni
WRM	World Rainforest Movement
WWF	World Wide Fund for Nature
ZONISIG	Proyecto de Zonificación Agroecológica y Establecimiento de una Base de Datos y Red de Sistema de Información Geográfica en Bolivia

Nederlandse samenvatting

De ontwikkeling van duurzame bosgebruikssystemen in de Amazone wordt vaak beschouwd als een oplossing voor het probleem van ontbossing en de onderontwikkeling van de bewoners. Met name de extractie van niet-hout-bosproducten (NTFPs) heeft in het verleden bewezen een belangrijke economie te zijn en is ook vandaag nog een manier om bos duurzaam te exploiteren en tegelijk een inkomenstenbron te zijn voor de lokale bevolking.

Deze studie onderzoekt het bosgebruik van multi-ethnische (*Camba*) bosbewoners in de noordelijke Boliviaanse Amazone en hun interesse en capaciteit voor het ontwikkelen van een solide bestaansbasis gebaseerd op duurzame bosexploitatie. In de noordelijke Noord-Boliviaanse Amazone is de graad van ontbossing nog relatief laag vergeleken bij andere delen, maar dat gaat wel gepaard met een onderontwikkeling van de rurale gebieden. Lokale overheden en Niet-Gouvernementele Organisaties (NGOs) proberen dan ook de ontwikkeling van de nederzettingen in het bos te stimuleren en hun economie te baseren op duurzame agro-extractieve systemen. De hoofdvraag van deze studie is of de *Cambas* interesse en mogelijkheden hebben om dergelijke systemen te ontwikkelen en op basis daarvan hun levensonderhoud te voorzien en hun welzijn en levensstandaard te verbeteren. De deelvragen spitsen zich toe op de soorten hulpbronnen van hun bestaansbasis en hun percepties van de toekomst. Daarbij is de vraag welke stimulansen en obstakels de bosbewoners ondervinden om een duurzaam bestaan op te bouwen in het bos.

Het '*Sustainable Livelihood*' (duurzaam levensonderhoud) raamwerk vormt het conceptueel kader voor de analyse van de bestaansbasis van boeren en bosbewoners. Het is gebaseerd op vijf typen hulpbronnen of 'kapitalen' die voorwaarden zijn voor de ontwikkeling van een menswaardig en duurzaam bestaan. Het tweede hoofdstuk bespreekt dit raamwerk voor de specifieke context van tropische bosbewoners en de karakteristieken van natuurlijk kapitaal, fysiek kapitaal, menselijk kapitaal, financieel kapitaal en sociaal kapitaal.

Een van de belangrijkste voorwaarden voor een duurzaam bestaan in het bos is dat de bosbewoners hun levensonderhoud en ontwikkeling van de kapitalen baseren op een veelzijdig bosgebruikssysteem. Tevens is het belangrijk dat ze zich op een positieve manier met het bos identificeren, al dan niet vanwege een culturele band met het bos als leefomgeving. Andere voorwaarden zijn: lange termijn toegang tot land en bos; controle over de baten van het gebruik en beheer; en sociale cohesie en organisatie als groep bosbewoners ten behoeve van communaal beheer van hulpbronnen en bescherming tegen degradatie door andere bosgebruikers.

Veel voorkomende obstakels voor een duurzaam bestaan gebaseerd op bos exploitatie zijn o.a. onstabiele markten, substitutie of overexploitatie van commerciële bosproducten, en een lage waardering voor en primitief imago van bosexploitatie als bestaansbron. Tevens is het moeilijk voor geïsoleerde bosbewoners om zich te organiseren en betere sociaal-economische voorwaarden te creëren.

De Noord-Boliviaanse Amazone is getekend door de rubberextractie en de indeling in oude rubberconcessies en exploitatiecentra (*barracas*) bepaalt tot de dag van vandaag het eigendomssysteem. Vroeger werkten rubbertappers onder een patronage systeem (*habilito of aviamento*) dat nog voortleeft in de huidige *barracas* en de afhankelijkheid bepaalt van de verzamelaars van Paranoten (*Brazil nuts*). Het systeem van *barracas* staat op dit moment onder druk en vele worden getransformeerd in dorpsgemeenschappen waar de rubbertappers onafhankelijke agro-extractivisten worden. Het contrast tussen beide nederzettingvormen wordt het duidelijkst in twee case studies in Hoofdstuk 4 waarin Teduzara een afgelegen *barraca* representeert en San Antonio een agro-extractief dorp dichtbij de stad. Naast de verschillende ontstaansgeschiedenis en achtergronden van de bewoners, zitten de verschillen ook in de toegang tot hulpbronnen en andere kapitalen, en de infrastructuurle en institutionele context.

Hoofdstuk 5 geeft een beschrijving van de natuurlijke hulpbronnen waartoe de *Cambas* bosbewoners toegang hebben en waarvan ze gebruik maken. Het bespreekt de verschillende vegetatietypen die de mensen onderscheiden en de producten die deze zones opleveren voor voedselvoorziening, constructie, ziektebestrijding, brandstof, verkoop en andere gebruiksvormen. Tegelijkertijd bespreekt het hoe de *Cambas* een deel van de bosvegetatie omzetten in landbouvvelden (*chacos*) voor de productie van voedselgewassen en marktproducten. Maar het bos heeft ook negatieve waarden en associaties in de vorm van insecten, ziekten en onkruiden die de bosbewoners ervaren als obstakels voor het ontwikkelen van een goed bestaan.

In het zesde Hoofdstuk wordt een analyse gemaakt van de economische productie van de bosbewoners en de materiële en economische waarde van het bos voor zelfvoorziening en inkomstenwerving. Het analyseert de wijze waarop verschillende activiteiten zoals bosextractie, landbouw en loonarbeid worden gecombineerd en berekent de productieve en economische waarde van de activiteiten. Het analyseert de rol van het bos in de huishoudeconomie van de bosbewoners en het potentieel voor economische ontwikkeling.

Hoofdstuk zeven definieert de sociaaletnische identiteit van de *Cambas* en bespreekt de historische achtergrond van deze bevolkingsgroep. Vervolgens analyseert het de sociaal-culturele karakteristieken van de *Cambas* en de sociale consequenties van hun leven in het bos. De vraag is in hoeverre en op welke manier het sociaal-culturele kapitaal, welzijn en de sociale cohesie van de *Cambas* wordt beïnvloed door het bosleven. Tegelijk behandelt het hoofdstuk enkele belangrijke begrippen die karakteristiek zijn voor de percepties van hun eigen identiteit, hun manier van leven in het bos en de verbetering van hun levensstandaard.

Het achtste Hoofdstuk vormt een synthese van de voorgaande hoofdstukken. Het conceptualiseert de begrippen '*tranquilidad*' (zielenrust) en '*social fencing*' (sociale afscherming van bos) als determinanten voor een duurzaam bestaan in het bos. Het communiaal afschermen van natuurlijke hulpbronnen tegen degradatie is een belangrijk element in de sociale actie in de dorpen om duurzaam bosbeheer daadwerkelijk vorm te geven. De huishoudstrategieën en activiteiten van de *Cambas* in het bos zijn over het algemeen gebaseerd op hun streven naar een bestaan in '*tranquilidad*' met zo min mogelijk

zorgen, ontberingen en onzekerheid. Dit streven is gerelateerd aan de manier waarop mensen hun 'lijden' en moeilijke levensomstandigheden in het bos ervaren. Toch is het juist ook in het bos en het dorp dat de mensen *tranquilidad* vinden in de vorm van voedselzekerheid en onafhankelijkheid.

Een leven in *tranquilidad* bestaat voor de *Cambas* uit de volgende elementen: (1) toegang tot en controle over natuurlijke hulpbronnen voor voedselzekerheid (inclusief de consumptie van vlees), een goede gezondheid en beschutting (natuurlijk – geproduceerd kapitaal); (2) gezonde, opgeleide en gerespecteerde familieleden (menselijk kapitaal); (3) infrastructuur, transport en markten voor de interactie tussen de urbane en rurale gebieden (fysisch of geproduceerd kapitaal); (4) inkomsten van onafhankelijke productieve activiteiten, of van lonende en respectabele loonarbeid (financieel kapitaal); (5) wederzijdse ondersteuning, respect en sociale organisatie binnen de familie, het dorp en de wijdere sociale samenleving (sociaal kapitaal).

De natuurlijke hulpbronnen van het bos zijn essentieel voor de gemiddelde *Camba* familie om een bestaan in *tranquilidad* op te kunnen bouwen. Toegang tot land en bosvegetatie betekent voedsel, sociaal-economische zekerheid en onafhankelijkheid. In alle nederzettingen is er voldoende natuurlijk kapitaal voor een duurzaam bestaan, maar de werknemers in de *barraca* zijn niet in staat om het natuurlijk kapitaal aan bos en andere hulpbronnen te beheren en te benutten. Anderzijds blijkt dat de agro-extractieve dorpen wel een groot potentieel hebben voor diverse economische activiteiten en voor de ontwikkeling van een leven in *tranquilidad*, gebaseerd op een combinatie van bosexploitatie, landbouw en loonarbeid.

Bosbewoners ondervinden verschillende obstakels voor hun ontwikkeling op alle terreinen. Gebrek aan menselijk kapitaal is een van de belangrijkste belemmeringen voor de huishoudontwikkeling. De zware fysieke arbeid en de zwakke gezondheid van bosbewoners is een dagelijkse zorg. Toch slagen de meeste *campesinos* erin om een redelijke basis aan geproduceerd kapitaal te bewerkstelligen in de vorm van gewassen, kleinvee en constructies, maar 'het te gelde' maken hiervan blijft een moeilijke uitdaging. Bosproducten en diensten spelen een grote rol in hun zoektocht naar economisch welzijn en *tranquilidad*, maar vervoer en winstgevende verkoop van producten vereisen ervaring en contacten. Deze thema's zijn belangrijke aandachtspunten voor de betrokken ontwikkelingsorganisaties.

Extractie van bosproducten moet gecomplementeerd worden met een landbouw productie voor zelfvoorziening en loonarbeid in de landbouw en de extractie. De economische analyse laat zien dat extractie de ruggengraat vormt van de huishoudeconomie, met Paranoten als de belangrijkste inkomsten bron. Landbouw heeft echter de hoogste productiewaarde voor de *campesinos* door de zelfvoorziening en voedselzekerheid die het verschaft. Tegelijkertijd wordt loonarbeid gewaardeerd voor z'n directe contributie in natura producten of geld. Cashinkomsten zijn onontbeerlijk voor het verkrijgen van consumptie goederen, onderwijs en transport.

Campesinos ontwikkelen hun bosterrein in een multifunctioneel en commercieel agro-extractief systeem. In nederzettingen met goede transportmogelijkheden gaat deze strategie samen met een circulaire migratie naar de stad van enkele familieleden, die het huishouden toegang verschaffen tot informatie, diensten, arbeid en onderwijs. In dit gecombineerde bestaan complementeren en compenseren de urbane en rurale leefwereld elkaar, worden verschillende levensbehoeften van de *campesinos* bevredigd, en vindt een huishouden *tranquilidad*.

Bosbewoners hebben een haat-liefde verhouding opgebouwd met zowel het bos als de stad. Ze proberen zich te distantiëren van de negatieve aspecten van het bos en het *bar-raca* leven met de zware fysieke arbeid zonder noemenswaardig profijt en de afhankelijkheid van een patroon zonder zelfvoorziening en respect. Het zelfimago van bosbewoners en de waardering van bosextractie is in het algemeen niet overtuigend positief door de moeilijke omstandigheden. NGOs spelen een belangrijke rol in het ontwikkelen van sociale cohesie, een positief imago, en een identiteit van agro-extractieve producenten. De sociaal-culturele normen en waarden van bosbewoners die hun huishoudstrategieën en bosgebruik bepalen, moeten onderkend en geïntegreerd worden in ontwikkelingsplannen en activiteiten.

Op dit moment profiteren de bosbewoners en de regio van een groeiende waardering voor bosproducten en van een verbeterde inkomstendeling tussen de belangengroepen in de bossector. De trend kan versterkt worden door de certificering van bosproducten en het ontstaan van nieuwe markten (bijvoorbeeld secundaire houtsoorten, medicinale planten en tropische vruchten). Dit kan een stimulans zijn voor de bosbewoners om zich meer te specialiseren in extractie en het bos meer te waarderen. Het feit dat de regio rijk is aan primair bos en zich slecht leent voor landbouw en veeteelt geeft bosproducten een enorm comparatief voordeel. Het geconserveerde bos en z'n producten kan zo een basis blijven voor de sociaal-economische identiteit van de regio en de bevolking.

Het resultaat moet zijn dat de *campesinos* in toenemende mate een bestaan kunnen opbouwen gebaseerd op een complex, divers en flexibel agro-extractief systeem dat opgewassen is tegen de grillige 'boom-to-bust' cycli van niet-hout bosproducten. Dit betekent dat de bosvegetatie beheerd moet worden als een bron van huidige en toekomstige producten, die enkel selectief gekapt en gebrand kan worden voor landbouw.

Om deze positieve trends in rurale ontwikkeling en bosbeheer te ondersteunen, zijn de volgende punten van belang voor de beleidskeuzes van overheden en NGOs:

Afgezien van de economische haalbaarheid en de ecologische duurzaamheid, kan een bestaan gebaseerd op bosextractie alleen sociaal acceptabel zijn als basale goederen en diensten zoals infrastructuur, educatie en gezondheidszorg toegankelijk zijn. In de meeste situaties voldoen de *barracas* niet aan deze eisen en ondergaan dan ook een continue uitmigratie. Anderzijds bevordert de ontwikkeling van onafhankelijke dorpen de toegang tot urbane markten en tot ontwikkelingsinstanties die ondersteuning bieden in sociale organisatie en services.

Een duurzame bestaansbasis is, vanzelfsprekend, afhankelijk van duidelijke gebruiksrechten op land en bos. Ondanks de pogingen tot landhervormingen blijft de landrechten situatie onduidelijk en is het bos niet gelijk verdeeld. Aandacht zou besteed moeten worden aan de verdeling van land binnen en tussen dorpen en het proces van legalisering van landrechten zou versneld moeten worden. De ontwikkeling van duurzame agro-extractieve systemen door bosbewoners vereist een integrale crosssectorale aanpak voor welk doel de land hervormingswet en de nieuwe boswet gesynchroniseerd dienen te worden en conflicterende elementen moeten worden aangepast.

Er is een cruciale relatie tussen kleinschalige landbouw en extractie van bosproducten als een basis voor rurale ontwikkeling. Dat betekent dat diversificatie van economische activiteiten en producten (*'multi-tasking'*) een noodzakelijke voorwaarde is voor een goed en duurzaam bestaan in het bos. Huishoudens moeten extractie combineren met landbouw en loonarbeid om voldoende voedselzekerheid, inkomen en ontwikkelingspotentieel te hebben. Dit betekent dat er aandacht nodig is voor agrarische ontwikkeling en een meer efficiënte productie. Duurzame ontwikkeling in het bos vereist het converteren en cultiveren van kleine bospercelen ten behoeve van voedselproductie en marktgewassen. De *campesinos* hebben ondersteuning nodig om de productiviteit te behouden door middel van verbeterde braaksystemen en het verbouwen van meerjarige gewassen in combinatie met voedselgewassen (*agroforestry*).

Een sterke ruraal-urbane link is van groot belang voor de haalbaarheid van een duurzaam bestaan in het bos. Deze interactie creëert vraag en aanbod voor bos- en landbouwproducten en verschaft markten, banen en een infrastructuur zowel in de stad als in het bos. Dat geldt het meest voor agro-extractieve dorpen in de buurt van urbane gebieden, waar het platteland voldoende basisproducten zoals voedsel voorziet, terwijl de stad educatie, gezondheidszorg en vertier biedt. Voor ontwikkelingsorganisaties is het onderkennen van deze link belangrijk en de complementariteit betekent dat bosbewoners toegang moeten hebben tot deze diensten en voorzieningen. Cruciaal in deze wisselwerking zijn infrastructuur (met name transport), educatie, informatievoorziening, en de commercialisering van bosproducten.

Een hoge mate van organisatie in de dorpen zelf en onderling vergroot hun macht en verbetert hun toegang tot de nodige hulpbronnen en diensten. Een gezamenlijke identiteit en sociale allianties bieden weerstand tegen de uitbuiting door buitenstaanders met lage prijzen, onvoordelige werkrelaties, en degradatie van hun natuurlijke hulpbronnen (*social fencing*).

Commercialisering van het potentieel aan bosproducten vereist externe ondersteuning, marktonderzoek en experimenten die kunnen resulteren in de diversificatie, productverbetering en de ontwikkeling van nieuwe markten. Mogelijkheden moeten worden gevonden om de economische waarde van de bospercelen en het gerelateerde inkomen van *campesinos* te vergroten gebaseerd op de verkoop van bosproducten, maar ook door de economische waardering van alternatieve diensten van hun bos zoals ecotoerisme, CO² absorptie en de bescherming van biodiversiteit.

Beleidsmakers en voorlichters moeten de *Cambas'* zoektocht naar *tranquilidad* als uitgangspunt nemen bij hun beleidsmaatregelen inclusief het streven naar zelfvoorziening, autonomie, respect en een voortdurende interactie met urbane gebieden. Dat vereist technische, maar vooral organisatorische ondersteuning en het stimuleren van *campesinos* om een positieve identificatie met hun nieuwverworven onafhankelijke bestaan in het bos op te bouwen. Deze positieve waardering bevordert hun bewustwording van hun rechten en plichten als agro-extractieve producenten en versterkt hun sociale cohesie en de dorpsontwikkeling.

De conclusie is dat *Camba campesinos* een grote waarde hechten aan natuurlijke hulpbronnen voor hun zekerheid en ontwikkeling en met de nodige ondersteuning zijn ze capabel om een bevredigend en duurzaam bestaan in het bos op te bouwen en het bos in de regio op een duurzame manier te beheren en te beschermen.

Resumen en español

Sistemas para el uso sostenible del bosque en la Amazonía están considerados como soluciones para los problemas de la deforestación y el subdesarrollo humano. Sobre todo la extracción de Productos No Maderables han mostrado ser de gran importancia económica y además tiene un gran potencial para la explotación sostenible del bosque.

Este estudio investiga el uso del bosque por los Cambas, un grupo multi-étnico de campesinos al norte de la Amazonía Boliviana, y su interés y capacidad para desarrollar un modo de vida estable basado en una explotación sostenible del bosque. Por el momento, la tasa de deforestación en el norte de la Amazonía Boliviana es moderada en comparación con otras regiones amazónicas, pero el subdesarrollo rural es omnipresente. Las instituciones y las Organizaciones No Gubernamentales (ONGs) intentan estimular el establecimiento de comunidades en el bosque que basen su economía en sistemas sostenibles de agro-extractivismo. El tema principal del presente estudio es determinar si los Cambas tienen interés y oportunidades para desarrollar aquellos sistemas y si son capaces de sostenerse y mejorar su bienestar.

El concepto de 'los modos de vida sostenibles' (*sustainable livelihood*) constituye el marco para este análisis y en el Capítulo segundo se investiga la operatividad de este marco en pueblos del bosque, dando énfasis en las características de los recursos básicos tales como capital natural, físico, humano, financiero, y social.

Una de las condiciones más importantes para un modo de vida sostenible en el bosque es la diversidad del sistema de producción de los habitantes. También es importante que la gente se identifique de una manera positiva con el ambiente del bosque. Condiciones adicionales son un acceso a largo plazo a la tierra y bosque; control sobre los beneficios del uso y manejo; cohesión social y organización de la gente en grupos que manejen los recursos naturales y eviten la degradación causada por invasores.

Algunos obstáculos para un manejo sostenible son mercados inestables; sustitución o sobreexplotación de productos comerciales; una baja autoestima de los extractivistas; y una imagen primitiva de la explotación del bosque como actividad económica. También es difícil para moradores del bosque organizarse y crear mejores condiciones de vida por vivir aislados.

La región ha quedado marcada por la extracción del caucho y la división del bosque en concesiones y barracas ha determinado hasta el día de hoy el sistema de propiedades. En el pasado, los sirigueros trabajaron dentro de un sistema de habilito o *aviamento* que aun existe en las barracas y determina la dependencia de los zafreros. Hoy, el sistema de la barraca está en vía de extinción y muchas barracas son transformadas en comunidades donde los sirigueros se han convertido en campesinos o agro-extractivistas independientes. El contraste entre ambas formas de asentamiento está documentado en dos estudios de caso en el Capítulo cuarto, donde Teduzara representa una barraca aislada y San Antonio una comunidad agro-extractiva cerca de la ciudad de Riberalta. Las diferencias entre estos asentamientos se sitúan en la diferente génesis de los sitios, la historia de sus habitantes,

en el acceso a los recursos naturales y otros capitales, y también en la infraestructura y el contexto institucional.

El Capítulo quinto da una descripción de los recursos naturales accesibles a los moradores de los asentamientos y utilizados por ellos. La gente distingue diferentes tipos de vegetación que proveen un gran número de productos vegetales y animales utilizados en alimentación, construcción, medicina, combustión, y en comercialización. Además, los Cambas transforman una parte de la vegetación natural en chacos, tierras aptas para el cultivo de productos agrícolas de primera necesidad y como mercancía. Mientras tanto, el bosque también tiene valores y asociaciones negativos en forma de insectos, enfermedades y malas hierbas que son considerados como obstáculos para el desarrollo de una vida confortable.

En el Capítulo sexto hay un análisis de la producción económica en San Antonio y Teduzara y del valor material y económico del bosque para el autoabastecimiento y como fuente de ingresos. El enfoque de este análisis es en la forma como diferentes actividades tales como extracción en el bosque, agricultura y trabajo por jornal se combinan y en el cálculo del valor productivo y económico de estas actividades. El objetivo final es aclarar el rol del bosque en la economía de las familias y su potencial para el desarrollo económico.

El Capítulo séptimo define la identidad socio-étnica de los Cambas y analiza su fondo histórico, sus características socioculturales y las consecuencias sociales de su vida en el bosque. La cuestión es hasta qué punto el capital sociocultural, el bienestar y la cohesión social de los Cambas han sido influenciados por la vida en el bosque. Algunos conceptos son muy importantes en este sentido y en el Capítulo octavo se conceptualiza “tranquilidad” y “protección social del bosque” (“*social fencing*”) como determinantes de una vida sostenible en el bosque para los Cambas. La acción social en las comunidades es un elemento importante en la protección comunal del bosque y da estructura al manejo sostenible y su defensa contra invasores.

Una vida en tranquilidad consiste para un Camba de los elementos siguientes:

- (1) Acceso y control sobre recursos naturales para garantizar su alimentación, incluso el consumo de carne, una buena salud y vivienda (capital natural y producido).
- (2) Parientes con buena salud, educados y respetados (capital humano).
- (3) Infraestructura, transporte y mercados para la interacción entre las zonas urbanas y rurales (capital físico o producido).
- (4) Ingresos económicos provenientes de actividades productivas y autónomas, o de un trabajo por jornal gratificante (capital financiero).
- (5) Apoyo mutuo, respeto y organización social dentro de la familia, la comunidad y la sociedad (capital social).

Los recursos naturales del bosque son indispensables para lograr una vida en tranquilidad para cada familia Camba en la región. El acceso a la tierra y el bosque significa alimentación, seguridad socioeconómica y autonomía. En ambos tipos de asentamientos estudiados hay suficiente capital natural para una vida sostenible, pero los habitantes de la barraca no son capaces de manejar y controlar su capital natural. En cambio, las comunidades agro-extractivistas tienen un gran potencial para efectuar diversas actividades económicas y

para el desarrollo de una vida en tranquilidad, basada en una combinación de explotación del bosque, agricultura y trabajo por jornal.

Los campesinos en el bosque encuentran diferentes obstáculos como la falta de capital financiero y trabajo físico muy agotador. Además, el estado de salud siempre es una fuente de inquietud. No obstante, la mayoría de los campesinos logran crear una base de capital producido en forma de cultivos, animales, y construcciones; pero la comercialización de productos sigue siendo un problema. Los productos extractivos son muy importantes para encontrar bienestar económico y tranquilidad, pero el transporte y la comercialización de estos productos requieren experiencia y contactos, que muchas veces faltan. Por eso, estos asuntos son prioritarios para las organizaciones de desarrollo en la región.

El extractivismo debe ser complementado con agricultura para el autoabastecimiento y con trabajo por jornal en la agricultura o en el extractivismo. El análisis económico muestra que la extracción de castañas es el pilar de la economía familiar. Pero la agricultura tiene el valor productivo más alto y ofrece autoabastecimiento, seguridad alimenticia e ingresos al mismo tiempo. Trabajo por jornal es estimado por su contribución directa en forma de dinero o especie. Sobre todo, una remuneración en efectivo es necesario para tener acceso a productos de consumo, educación y transporte.

Los campesinos desarrollan sus terrenos en el bosque en un sistema agro-extractivo multidimensional y comercial. En comunidades con buenas formas de transporte esta estrategia está combinada con una migración circular entre la ciudad y el bosque de algunos miembros de la familia. Esto abre a toda la familia la puerta para obtener información, servicios, trabajo y educación. La zona urbana y la zona rural se complementan y se compensan y pueden satisfacer las necesidades de los campesinos para una vida en tranquilidad.

Los campesinos han construido una relación ambigua de amor y odio con el bosque y la ciudad. Ellos tratan de distanciarse de los aspectos negativos del bosque y de la vida en la barraca, en la cual existe la dependencia total del patrón y el trabajo duro sin mucha recompensa. Los campesinos sienten la falta de una unidad e identidad social definida y respetada como un obstáculo para alcanzar su tranquilidad. En consecuencia, su autoestima y el valor atribuido al extractivismo no son positivos. Las ONGs juegan un papel importante en establecer una identidad agro-extractiva, una (auto)imagen positiva y una cohesión social. Su desafío es reconocer los valores y normas que dan dirección a las estrategias de sustento y desarrollo de los Cambas, tanto como sus opciones y motivaciones (incluso para su uso del bosque). Un segundo desafío para las ONGs es integrar los valores y normas de los Cambas en la formulación e implementación de planos y proyectos de desarrollo rural.

En este momento los campesinos disfrutan de un mejoramiento de la imagen de los productos forestales y de una distribución más equilibrada de los beneficios en el sector forestal. Esta tendencia puede ser fortalecida por la certificación de productos forestales y la creación de nuevos mercados (por ejemplo por especies secundarias de madera y plantas medicinales), y puede ser un estímulo para que los campesinos se dediquen más al extractivismo y valoricen más el bosque. Los productos forestales tienen una ventaja consider-

able en la región por la razón que esta zona todavía tiene un alto porcentaje de bosque primario y no es apta para la agricultura y ganadería comercial competitiva con el resto del país. En este sentido, el bosque protegido y sus productos pueden ser una fuente continua para la creación de una identidad socioeconómica de la región y su población.

El resultado es que los campesinos buscan cada vez mas una vida basada en un sistema agro-extractivo complejo, diverso y flexible que puede resistir los ciclos “de auge y depresión” que son característicos para la economía de los productos no maderables. Esto significa que manejan la vegetación en el bosque como una fuente de productos actuales y futuros y aplican la agricultura de tala y quema de forma selectiva.

Para reforzar estas tendencias en el desarrollo rural y manejo de bosques, unidades gubernamentales y ONGs deberían tomar en cuenta los siguientes puntos de atención:

Una vida basada en la extracción del bosque solamente es aceptable cuando ofrece un bienestar social a través de recursos y servicios básicos como infraestructura, educación y atención sanitaria, con lo que la factibilidad económica y la sostenibilidad ecológica del aprovechamiento forestal alcanzan su verdadera significación. En general las barracas en la región no cumplen con estos requisitos y sufren una emigración continua. Por otro lado el desarrollo de las comunidades libres fomenta el acceso de los habitantes del bosque a mercados urbanos y a organizaciones de desarrollo dedicadas al servicio y organización social.

Un modo de vida sostenible en el bosque, sin duda, depende de una clara tenencia de la tierra y derechos para el uso del bosque. No obstante, los esfuerzos para la reforma agraria, en la actualidad la tenencia de la tierra es confusa y desigual. La distribución de tierra entre comunidades y entre los hogares debería recibir mas atención y el proceso de legalización de la tierra debería ser acelerada. El desarrollo de sistemas agro-extractivos y sustentables requiere un planteamiento multi-sectorial. Por esta razón la reforma agraria y la nueva ley forestal deberían ser sincronizadas y despojadas de elementos conflictivos.

Existe una relación crucial entre la agricultura familiar y la extracción de productos forestales como base para el desarrollo rural. Eso significa que la diversificación de las actividades económicas y productos (“*multi-tasking*”) es una condición ineludible para un modo de vida humana y sostenible en el bosque. Los hogares necesitan combinar la extracción con la agricultura y el trabajo por jornal para tener seguridad alimentaría y de ingresos económicos, y además para dejar abierto todo las opciones de un desarrollo potencial. Significa que la atención para el desarrollo agropecuario y una producción agrícola mas eficiente es indispensable. El desarrollo sostenible en el bosque requiere la conversión de una pequeña parte de las parcelas familiares en tierra agrícola para la producción de cultivos de primera necesidad y para la venta. Los campesinos deberían recibir apoyo en el mantenimiento de la productividad de su tierra por medio de un sistema de barbecho mejorado con cultivos perennes en combinación de cultivos anuales de alimentación (agroforestería).

El enlace rural-urbano es de mucha importancia para la factibilidad de un modo de vida sustentable en el bosque. Esta interacción facilita la creación de una demanda y oferta de productos forestales y agrícolas y provee mercados, empleo e infraestructura en la ciudad tanto como en el bosque. Estas ventajas valen más específicamente para las comunidades agro-extractivistas en el alrededor de áreas urbanas donde el campo provee las necesidades básicas como alimentación mientras el centro urbano ofrece educación, atención médica y diversión. Es importante que las organizaciones de desarrollo reconozcan este enlace crucial y sepan que la ciudad y el campo ofrecen servicios complementarios que deben ser accesibles por los campesinos.

Un alto nivel de organización en las comunidades mismas y entre ellas aumentará su poder y mejorará su acceso a recursos y servicios. Una identidad colectiva y alianzas sociales ofrecen resistencia a la explotación de los campesinos por personas externas relacionados con precios bajos para productos (intermediarios), relaciones laborales desventajosas (patrones), y degradación de recursos naturales (invasores, granjeros).

La comercialización del potencial de los productos forestales requiere apoyo externo y estudios de mercado y experimentos que pueden resultar en diversificación y mejoramiento de productos y el desarrollo de nuevos mercados. Se necesitan buscar opciones para aumentar el valor económico de las parcelas familiares, no solamente en base de comercialización de productos, sino también por medio de la valoración económica de servicios alternativos del bosque como el ecoturismo, secuestro de carbono, y protección de la biodiversidad.

Políticos y extensionistas deberían tomar en cuenta en su trabajo la búsqueda de la tranquilidad por los Cambas, incluso su aspiración al autoabastecimiento, autonomía, respeto y una interacción permanente con el área urbana. Eso requiere apoyo técnico, pero además capacitación para organizarse y fomento de una identificación positiva con su modo de vida nueva e independiente en el bosque. Esta valoración positiva promueve una concientización de la gente sobre sus derechos y obligaciones como productor agro-extractivista y fortalece la cohesión social y el desarrollo comunitario.

La conclusión es que los campesinos Camba dan alto valor a sus recursos naturales en el bosque para lograr una vida segura y mejorar sus condiciones de vida. Con un apoyo adecuado serían capaces de vivir una vida digna, manejando y protegiendo el bosque de una forma sostenible.

Curriculum Vitae

Ariënné Bernadette Henkemans was born in Bathmen, the Netherlands on March 12th 1969. She completed high school in 1988 and took a 'sabbatical year' to broaden her views by traveling and working in different parts of the world. On the basis of her observations in a reforestation project and Social Forestry program in south India she decided to study tropical forestry and entered the Wageningen Agricultural University (AUW) in Wageningen, the Netherlands (AUW) in 1989.

During her studies she carried out two main research projects. The first took place in the northern Sierra Madre mountain range, the Philippines, within the framework of the joint research Program on Environment and Development of the Isabela State University and the Centre of Environmental Science (CML), Leiden University, the Netherlands. This study took place during a nine-month fieldwork period and with a team of Dutch and Filipino students. The main outcomes were an analysis of several agroforestry projects in the country and a MSc. thesis on local initiatives towards the development of appropriate upland farming technologies in the forest fringe. This thesis was rewarded with the CML student award of 1994. In the meantime she was active on the boards of several student organization related to forestry and development cooperation.

Her second research project was conducted in Cameroon, in the Korup project, a joined forest conservation initiative of the Cameroonian state and the international development agencies ODI, WWF and GTZ. Over a six-month period she studied the issue of gender cooperation and conflicts related to the collection, processing and trade of NTFPs. In 1995 she graduated with her masters in Agricultural and Environmental Science, specialized in tropical forestry, social forestry, agroforestry, rural development and gender issues.

In 1996 she joined the Programa Manejo de Bosques de la Amazonía Boliviana (PROMAB) as project member and Ph.D. student in social sciences. Between May 1996 and December 1998 she spent a period of two years in the northern Bolivian Amazon and in the PROMAB office in Riberalta, where she carried out research on the livelihoods and perceptions of forest dwellers. During that period she supervised Bolivian and Dutch BSc. and MSc. students, collaborated with other researchers of the team in the creation of a socio-economic database on the region's forest settlements and population, and participated in the formulation and implementation of a social forestry course given to students of the local university. She also assisted in the (logistic) management of the project.

In December 1998 she returned to Utrecht to finish her Ph.D. thesis at the department of Cultural Anthropology, Utrecht University. During this period she was an active member of the board of the Dutch Society for Tropical Forests (VTB) and coordinator of the Dutch Network for Environmental Anthropology (MILANTRO).

In October 2000 she participated in a training workshop on sustainable management and processing techniques for small-scale bamboo enterprises in Hangzhou, China at the invitation of the International Network for Bamboo and Rattan (INBAR). In January 2001 she accepted a position as Program Officer within the Livelihood Program of INBAR.

Currently she is jointly responsible for running INBAR's regional office for Latin America and the Caribbean in Guayaquil, Ecuador, including its regional Technology Information Center (TIC) for bamboo and rattan. From this office she coordinates the formulation and implementation of several rural development projects in Latin America based on the production, processing and commercialization of bamboo and rattan.

List of publications

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