


Commercialization of non-timber forest products

Factors influencing success



Lessons learned from Mexico and Bolivia
and policy implications for decision-makers



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Foreword

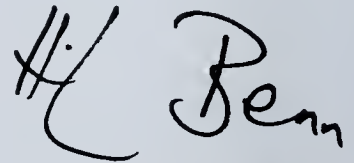
The challenges of addressing global poverty in a sustainable way are greater than ever. The well-being of more than half of the 1.2 billion people who live in poverty depends to a significant degree on the availability of non-timber forest products (NTFPs). Such products are used to meet daily subsistence needs, making a significant contribution to food security, and also provide a valuable source of building materials and medicines. In addition, trade in NTFPs often provides an important source of cash income for the rural poor. Populations in forested areas are increasingly being subjected to changes brought about by economic growth and are being presented with new opportunities to engage in trade. This is transforming the way that forests are used. The opportunities for low-income producers to use natural assets to reduce poverty are significant, but this potential can only be realized if the right support is provided.

The potential contribution of NTFPs to poverty reduction through sustainable trade and income generation is not being fully realized. There are many obstacles to subsistence farmers, local processors and traders securing a reliable and fair market for their harvested products. The capacity of the poor needs to be increased to fully benefit from the variety of services and goods that sustainable use of biodiversity can provide. Effective local governance and an enabling policy environment are needed to protect the natural resource base upon which rural livelihoods rely so heavily. Also, access is needed to information on how successful NTFP commercialization can be achieved in practice, so that external support and donor investments can be targeted more effectively.

This research project, funded by the UK's Department for International Development through its Forestry Research Programme, has examined the key factors that influence successful NTFP commercialization.

This collaborative venture between UK institutions and project partners in Bolivia and Mexico provides a deeper understanding of how marketing networks are structured, and how NTFP commercialization can contribute to wider goals.

Results of the research indicate that successful NTFP commercialization can reduce poverty, and can provide women with a greater sense of self-confidence and improved status within the household and the community. However, there remains a need to help the rural poor overcome the various challenges that constrain successful NTFP commercialization, including securing a sustainable resource supply, accessing market information and developing ways of overcoming uneven power and barriers to market entry. This publication summarizes the results of the project, in a way that should provide direct support to decision-making. Our hope is that the findings and recommendations of this work will help policy-makers direct their work and target their resources to help meet the United Nations Millennium Development Goals of reducing poverty and ensuring environmental sustainability.



The Right Honourable Hilary Benn MP
Secretary of State for International Development
Government of the United Kingdom

Executive summary

Commercialization of non-timber forest products (NTFPs) has been widely promoted as an approach to rural development in tropical forest areas. However, donor investments in the development of NTFP resources have often failed to deliver the expected benefits in terms of poverty alleviation and improved conservation of natural resources. In order to ensure that NTFPs fulfil their potential contribution to sustainable development, it is important to understand the reasons for success and failure, and the conditions under which NTFP commercialization can make a positive contribution to the livelihoods of the poor.

This publication presents the findings of the CEPFOR project (Commercialization of non-timber forest products in Mexico and Bolivia: factors influencing success), a multi-disciplinary research initiative involving partners drawn from the UK, Mexico and Bolivia. The research team critically examined the factors influencing successful NTFP commercialization and tested and further developed theory relating to the commercialization of NTFPs and rural development. Socio-economic and market research examined the impact of different NTFP commercialization networks (value chains) on poverty reduction, women's livelihoods, natural resources and rights and access of the poor, in eight communities in Bolivia and 10 in Mexico. The structure and function of 16 NTFP value chains were analysed, enabling identification of the attributes that make a chain successful. The main findings of the CEPFOR project are presented below.

SUCCESSFUL COMMERCIALIZATION MEANS DIFFERENT THINGS TO DIFFERENT PEOPLE

Success cannot be summarized by a single variable, and community perceptions of success need to be assessed and incorporated in project planning and evaluation. Key findings include:

- ▶ There is a need to engage directly with communities and other stakeholders in the NTFP value chain, to jointly identify criteria of success and discuss the trade-offs that might be needed.



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Flying from La Paz down to the rubber and cocoa communities located in the Bolivian Amazon.

- ▶ Success should not simply be defined at the product level; success should be defined in relation to the needs of people.
- ▶ Different actors along a product value chain may have very different perceptions of what constitutes success.
- ▶ Success can usefully be considered at different levels, including households and the individuals within them, communities, and at district or national level.
- ▶ At each level there are social, economic and environmental aspects of success.
- ▶ Definitions of success may be dynamic, changing in response to variations in socio-economic circumstances and the behaviour of the market.

NTFP ACTIVITIES PROVIDE AN IMPORTANT OPPORTUNITY FOR POVERTY REDUCTION

NTFPs are important in the lives of the rural poor, and income varies greatly even between households engaged in the same activity. Key findings include that NTFP activities:

- ▶ contribute between 7 per cent and 95 per cent of a household's annual cash income;
- ▶ regularly provide a safety net for the poor to fall back on when other activities – such as subsistence agriculture or cash crops like coffee – fail to deliver as expected;
- ▶ sometimes provide a stepping stone to a non-poor life, and never lead to an increase in poverty.

NTFP ACTIVITIES OFTEN INVOLVE POOR PEOPLE BUT MAY ALSO INVOLVE THE LESS POOR

- ▶ The importance of NTFPs in household livelihood strategies is closely linked to their seasonality and the way they may be combined with other income-generating activities.
- ▶ The more months a product can be traded, the more favourably households view the activity. Conversely, households involved in seasonal products are more likely to switch from NTFP activities to other livelihood options, reflecting their desire for a more consistent and year-round source of income.

NTFP ACTIVITIES CAN PROVIDE WOMEN WITH A GREATER SENSE OF SELF-CONFIDENCE AND IMPROVED STATUS WITHIN THE HOUSEHOLD AND THE COMMUNITY

NTFP activities are one of the few cash-generating opportunities for women in marginalized rural communities. Key findings include:

- ▶ Few product value chains involve only women. The involvement of both men and women can make an activity economically viable at household level because skills and time are shared.
- ▶ Women are more likely than men to be involved in processing and cultivation activities.
- ▶ Labour-saving technical innovation can improve the low returns to labour of women's NTFP activities.

IN THE MAJORITY OF CASES, INCREASED COMMERCIALIZATION INITIALLY LEADS TO OVEREXPLOITATION OF THE RESOURCE

Tenure is a key factor in determining community and individual strategies to mitigate overexploitation and ensure that NTFP supply is sufficient to meet the demands of increased commercialization. Key findings include:

- ▶ In the case of communally owned resources,

improved management of the natural resource and better harvesting practices are common.

- ▶ If land is held privately and the plant can be easily propagated, individuals begin to engage in small-scale domestication.
- ▶ There is no evidence that NTFP commercialization reduces access rights to the wild resource for the poor.
- ▶ Industrial plantations can displace harvesters of the wild resource as well as small-scale collectors/cultivators.

THERE IS LITTLE POLICY OR LEGISLATION SPECIFIC TO NTFPs IN EITHER MEXICO OR BOLIVIA

Improved cross-sectoral coordination would help ensure that poor producers, processors and traders are better placed to meet the legislative and institutional requirements for successful NTFP commercialization. Key findings include:

- ▶ Communities are often obliged to trade NTFPs in the informal sector because they lack the capacity to comply with the legal requirements for formal-sector commercialization.
- ▶ NGO involvement can be important, but currently most NGO support is provided through donor-funded projects, which are rarely coordinated with government programmes.
- ▶ Increased national policy interest in NTFP commercialization is justified on the basis of its contribution to national economic development, local livelihoods and conservation.
- ▶ All the products studied could benefit from being marketed as speciality (e.g. organic or community-traded) products. However, certification costs could place trading beyond the reach of small-scale producers.

NTFP VALUE CHAINS ARE HIGHLY DYNAMIC

Producers, processors and traders show a remarkable degree of resilience to external shocks and a great ability to adapt to changing contexts. Regardless of the governance of a value chain, the ability to negotiate prices and define the rules of trade is vital in determining the satisfaction levels of poor producers, processors and traders in NTFP value chains. Key findings include:

- ▶ Innovation, both in terms of resource management and product processing and marketing, is often critical to maintaining market share.
- ▶ A specialized market niche and product quality can help protect against substitution.
- ▶ Most NTFP value chains are demand driven, and establishing a new one solely on the basis of existing supply is unlikely to succeed.

- ▶ The viability of a particular NTFP value chain may also depend on demand for another product.
- ▶ Entrepreneurs can play a key role in facilitating access to markets by providing information, skills and financial support.
- ▶ Concentration of power in the hands of a few is most likely in the value chains of highly processed or perishable products for an international market.

LACK OF MARKET INFORMATION IS THE KEY BARRIER INTO NTFP TRADE

Information about markets, together with the capacity to act upon it, is an important prerequisite for entering, and maintaining a hold in, new markets. Key findings include:

- ▶ A lack of market contacts and knowledge, followed by lack of financial capability and poor infrastructure, consistently constrains poor producers, processors and traders from advancing within NTFP value chains.
- ▶ The real value of market information lies in ensuring that the commercialization process is equitable, efficient and sustainable.
- ▶ Good organization of NTFP producers and processors contributes to improved product quality and quantity, more cost-effective transportation and increased negotiating ability.
- ▶ Access to credit can enable poor people to improve their NTFP-based income generation through increased volume of trading.
- ▶ General improvements in market, transport and communications infrastructure would facilitate commercialization of many products, including NTFPs.
- ▶ There is no significant difference in formal education between households engaged in NTFP commercialization and those that are not, although NTFP traders often have significantly higher levels of education than producers.
- ▶ Traditional knowledge can be very important in determining a community's interest and capacity to successfully commercialize an NTFP.

IDENTIFYING COMMON FACTORS INFLUENCING SUCCESS

A key achievement of the project has been to develop an analytical framework to compare the factors determining successful NTFP commercialization across a range of case studies. These factors form the basis of the CEPFOR decision support tool (CDST). This allows users to compare the potential success of different NTFP development options, to diagnose the reasons for failure of current NTFP

initiatives, and to investigate the potential livelihood impacts of different policy options.

In summary, the research findings lead to a definition of successful NTFP commercialization as a transparent, equitable and sustainable activity that has a positive impact on poverty reduction, gender equality and resource access, tenure and management. On the basis of the CEPFOR case studies, it is possible to make the following recommendations for interventions to improve the contribution of NTFP commercialization to sustainable development. Promising government-level interventions include:

- ▶ Rural livelihood support policies that go beyond a narrow focus on one product or sector (e.g. agriculture, livestock or forestry) and support NTFP activities as part of a diversified livelihood strategy.
- ▶ A clear statement of which laws apply to NTFPs under which circumstances and who is responsible for implementing them.
- ▶ Encouraging lending institutions to recognize the commercial potential of NTFP enterprises and make credit provision accessible to the rural poor and small-scale entrepreneurs.
- ▶ Policy interventions that improve access to education and information, thereby increasing opportunities for more people to take on an entrepreneurial role.
- ▶ General improvements to transport and communications infrastructure that will facilitate market access.

Key options for direct assistance at community level through government, NGOs or private sector intervention include:

- ▶ Enhancing community organization to increase the market power of NTFP producers and processors and decrease their vulnerability to external shocks.
- ▶ Provision of opportunities for greater involvement of women in NTFP activities that accommodate the constraints of traditional domestic duties.
- ▶ Building the business capacity of potential entrepreneurs.
- ▶ Provision of technical know-how and organizational skills to ensure sustainable resource management and harvesting, domestication where appropriate and product processing.

All key project outputs including the CDST, its user guide and a methods manual for field/market-based research are provided on the accompanying CD-ROM and can also be downloaded free of charge from the project website: www.unep-wcmc.org/forest/ntfp.

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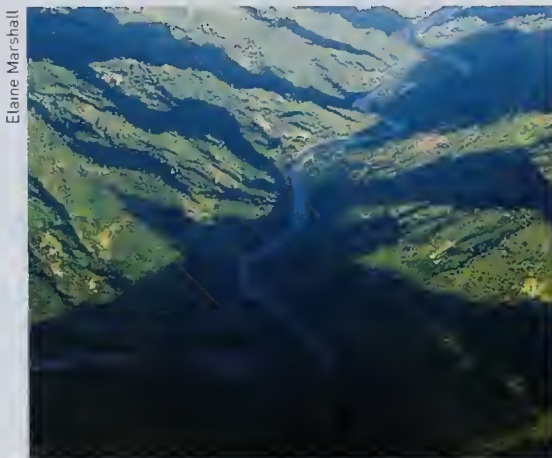
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1. Introduction and research context

Elaine Marshall, Kathrin Schreckenber and Adrian Newton

During the past 20 years, the commercialization of non-timber forest products (NTFPs: see Box 1.1) has been widely promoted as a contribution to the sustainable development of tropical forest resources (de Beer and McDermott 1989; Nepstad and Schwartzman 1992; Arnold and Ruiz Pérez 1998; Neumann and Hirsch 2000). This interest is based on earlier perceptions that forest exploitation for NTFPs can be more benign than for timber (Myers 1988), together with a growing recognition of the subsistence and income generation contribution made by many NTFPs to rural livelihoods (Ruiz Pérez et al. 2004). Within the context of new international commitments to address rural poverty, such as the Millennium Development Goals, NTFP commercialization is recognized as having the potential to achieve dual conservation and development goals by increasing the value of forest resources to local communities (Wollenberg and Ingles 1998; Neumann and Hirsch 2000; Angelsen and Wunder 2003).

Reviews of experience gained during the past 15 years indicate that approaches to NTFP commercialization have not been universally successful (Godoy and Bawa 1993; Neumann and Hirsch 2000; Sheil and Wunder 2002). Expectations of local income generation potential have frequently been unrealistic and not achieved in practice. Many NTFP resources have been harvested in an unsustainable manner, resulting in the degradation of forest resources (Boot and Gullison 1995; Peters 1996; Wollenberg and Ingles

1998). This has led to calls for further research to determine the circumstances under which NTFP commercialization might indeed meet the objectives of contributing to improving the livelihoods of the rural poor while simultaneously ensuring the sustainable management of forest resources.

In response to this need, the Forestry Research Programme (FRP) of the UK Department for International Development (DFID) commissioned research under the theme *Winners and Losers in NTFP Commercialization*. The project *Commercialization of non-timber forest products in Mexico and Bolivia: factors influencing success* (CEPFOR) was funded between 2000 and 2005 to define under what conditions NTFP commercialization is likely to make a positive contribution to both human livelihoods and forest conservation. CEPFOR selected 10 NTFPs for detailed analysis in 18 forest-dependent communities in Mexico and Bolivia (presented in Chapter 3). A multi-disciplinary team involving specialists in social science, resource management, agriculture, economics and forest ecology undertook the research. CEPFOR was a collaborative venture between seven partner organizations: the UNEP World Conservation Monitoring Centre, the Overseas Development Institute and Bournemouth University in the UK, CARE Bolivia and, in Mexico, Methodus Consultora, Grupo de Estudios Ambientales and Grupo Mesófilo.

This chapter sets the scene with a brief review of the issues surrounding poverty and the potential of forests, and

Box 1.1 Definitions of key terms

The term non-timber forest product (NTFP) encompasses a very wide range of forest products and marketing systems, and has been defined variously by different people (Belcher 2003). This study uses the definition provided by de Beer and McDermott (1989), which states that 'NTFPs encompass all biological materials, other than timber, which are extracted from forests for human use.' This research was conducted in regions of tropical montane, rain and dry forest, including relatively intact primary forest, secondary regrowth and more managed field and fallow environments. Examples of NTFPs

include fruits, nuts, seeds, oils, spices, resins, gums and fibres, which contribute, in a raw or processed form, to rural livelihoods by improving food security and health. Many NTFPs are commercial products that can make a significant contribution to the cash economy of households. Individual forest products may be processed into one or more marketed products, and traded through a variety of different value chains. Commercialization is defined as the entire process from production, through collection or cultivation, to sale of a product in exchange for cash, or sometimes for barter, resulting in the product leaving the community of origin.

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Project interviewees, Oaxaca, Mexico.

specifically NTFPs, to contribute to the goal of poverty reduction. This provides the context for a more detailed discussion of NTFP commercialization and a description of the project’s key research hypotheses.

Full details of the research results are provided on the accompanying CD-ROM, together with a decision support tool aimed primarily at decision-makers wishing to evaluate the relative potential of different NTFPs for successful commercialization. The CD-ROM also contains a manual designed for use at field level that provides tools for successfully developing NTFP resources (see Appendix for CD-ROM contents page).

THE GLOBAL GOAL OF POVERTY REDUCTION

International efforts to understand, research and combat global poverty have received increasing attention over the past 20 years. The lack of progress in poverty reduction led, in 2000, to the signing and adoption of the United Nations Millennium Declaration by 189 countries (United Nations 2000). The declaration was translated into eight Millennium Development Goals (MDGs), of which the eradication of extreme poverty and hunger presents a great and present challenge. Other goals relate to empowering women, improving education and health and ensuring environmental sustainability.

Targets of the MDGs have been set for 2015 and provide a global policy framework for sustainable

development. The MDGs explicitly recognize the contribution that developed/industrial countries can make through trade, development assistance, debt relief, access to essential medicines and technology transfer. Progress to date in the achievement of the MDGs has been limited. For example, in Bolivia, it is only considered slightly probable that the objective of Goal 1, of halving the number of people living in extreme poverty by 2015, will be achieved (UNDP 2004).

The current terminology used to describe poverty is diverse, and includes absolute and relative, objective and subjective terms. For ease of measurement, income poverty is most frequently discussed using the per capita ‘dollar a day’ as a benchmark poverty line (Maxwell 1999). However, poverty is also recognized as being a dynamic state, with people moving between chronic poverty (those who are consistently below the poverty line), transitory poverty (those who fluctuate above and below the poverty line) and a non-poor state (those who are always above the poverty line) (CPRC 2004).

While economic growth is still considered central to achieving poverty reduction, there is intense debate about what kinds of growth are most likely to help the greatest number of poor people (Poulton and Poole 2001). Broadly speaking, approaches to achieving pro-poor growth – defined as growth that benefits the poor – operate either directly, by increasing demand for assets with which the poor are endowed, or indirectly, by channelling to the poor an increasing share of the benefits from economy-wide growth (Cord et al. 2003). The World Bank (2000) emphasizes the importance of promoting opportunity, facilitating empowerment and enhancing security in order to achieve poverty reduction. This recognizes poverty as a multifaceted phenomenon, encompassing issues of security, self-esteem and belonging, and power and control, as well as income and wealth considerations (Poulton and Poole 2001).

One approach that has proved particularly valuable for understanding the complex issues surrounding poverty reduction is the sustainable livelihoods framework (Carney 1998, see Box 1.2), which has been strongly promoted by DFID. Developed from initial work by Chambers and Conway in the late 1980s to help understand and analyse the livelihoods of the poor, the sustainable livelihoods framework places people at the centre of development. In its simplest form, the framework views people as operating in a constant context of vulnerability within which they have access to certain assets – categorized as human, social, natural, financial and physical – on which they can draw to generate an income or otherwise maintain their livelihoods. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets, both now and in the future, while

not undermining its natural resource base (Chambers and Conway 1992).

The sustainable livelihoods framework has been particularly promoted in rural areas, where poverty is still acute, despite an increase in urban poverty. Here agriculture is still considered to be the main driver for poverty reduction. At the same time, there is increasing recognition of the growing importance of the rural non-farm economy, which, in Latin America, already accounts for about one-third of full-time rural employment (Haggblade et al. 2002).

FORESTS AND POVERTY REDUCTION

The potential contribution of forests to poverty reduction is the subject of some debate (Mayers and Vermeulen 2002; Oksanen et al. 2003; Bird and Dickson 2005). At one level, industrial forest operations can contribute to poverty reduction through national economic growth and, more directly, by providing employment for poor people. At another level, forests can be an important source of subsistence support for low-income households living in and adjacent to forests. Many studies document the fact that forest-dependent people often have few options except to gather and hunt NTFPs for their food, medicines and cash income (FAO 1995; Falconer 1996; Ros-Tonen 1999). Nevertheless, our understanding of the role of forests in rural development remains limited, and it is not clear whether a high level of current forest dependence necessarily corresponds with a high potential of using forests to reduce poverty in the future (Angelsen and Wunder 2003).

What is certain is that there are many emerging opportunities for pro-poor forest activities to complement and strengthen key components of livelihoods and poverty reduction. These are not without their challenges. There is a pressing need to facilitate specific interventions that enable forest resources to play a greater role in livelihoods through improved local forest governance. Forests can only contribute to poverty reduction when poor people have secure long-term rights to their resources, coupled with the capability to defend them against more powerful actors (Mayers and Vermeulen 2002). In addition, the dynamics of poverty suggest that multiple agencies need to be effectively engaged, and insufficient coordination between different sectors coupled with unnecessary duplication of support initiatives continue to result in inefficient action.

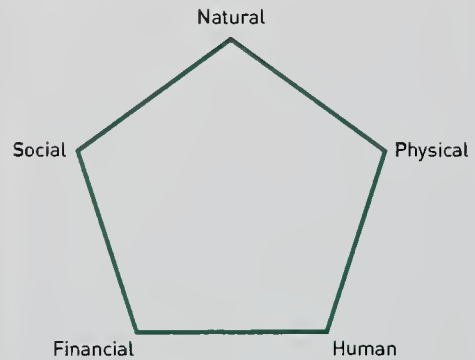
SPECIFIC RESEARCH CONTEXT: NTFPs AND POVERTY REDUCTION

There has been a great deal of research on the role that NTFPs play in rural development, but much of it consists of detailed investigations of individual case studies, with relatively little attention given to synthesis or comparison

Box 1.2 The sustainable livelihoods framework

[Carney 1998]

The sustainable livelihoods approach is founded on a belief that people need a range of assets to achieve positive livelihood outcomes. These assets are visually presented in the form of a pentagon, which allows inter-relationships between the various assets to be visualized.



1. **Natural capital:** includes the natural resource stocks from which products and services useful for livelihoods are derived.
2. **Physical capital:** comprises the basic infrastructure and producer goods needed to support livelihoods (e.g. shelter and buildings; tools and equipment used for farming or forest management; transportation, energy and communications).
3. **Human capital:** includes the skills, knowledge, ability to work and level of health that people need to pursue different livelihood strategies and achieve their objectives.
4. **Financial capital:** includes the financial resources that people use to achieve their livelihood objectives, including savings in various forms, access to credit, earnings and remittances.
5. **Social capital:** refers to the social resources that people draw upon to help meet their livelihood objectives, including networks and connections between people, and the rules, norms and sanctions associated with different institutions.

between cases (Ruiz Pérez et al. 2004). The development of generalizations has been hampered by the lack of an analytical framework within which to integrate and compare the results from case studies with highly diverse ecological and socio-economic characteristics (Arnold and Ruiz Pérez 1996). As a result, there is no easy way to identify NTFPs

with high potential for commercialization success or failure at an early stage to facilitate more effective government and donor investment. The CEPFOR project addressed this gap by developing a methodology (see Chapter 2) that was used to carry out a comparative analysis of case studies, enabling general principles to be recognized. Although the case studies were diverse, they had sufficient contextual similarities – for example being from marginalized areas in Latin America and involving trade outside the community – to allow for identification of more specific and targeted findings about factors important in determining successful NTFP commercialization in particular situations.

Arnold (2004) argues that while much is known about the characteristics of individual NTFPs, less is known about their commercial performance and developmental linkages. NTFP contributions to household livelihoods, and trade and market issues, have also been identified as priority areas for future research by Angelsen and Wunder (2003), who suggest that studies to date may have been unduly optimistic about the potential contribution NTFPs can make to poverty alleviation. Until now, NTFPs have tended to be researched in isolation, but there is growing recognition that they need to be set within the context of other rural activities (Ros-Tonen and Wiersum 2005). Vosti et al. (1997) argue that the general level of market development in areas where NTFPs are promoted is the most important factor determining NTFP market potential. This is supported by a Center for International Forestry Research (CIFOR) project – working over the same period as

the CEPFOR project – which has defined three categories of NTFP activity: coping, diversified and specialized, based roughly on the level of integration into the cash economy and the proportion of household income contributed by the NTFP (Ruiz Pérez et al. 2004). NTFPs as raw materials can be considered part of the agricultural economy, and Vosti et al. (1997) suggest that, other than the fact that these are often collected from the wild, NTFP markets are not very different from those for non-essential agricultural products. Those NTFPs that require processing, however, are considered part of the rural non-farm economy (Haggblade et al. 2002), which, while linked to the agricultural economy, has its own constraints and opportunities. In addition to these socio-economic issues, there is still concern about how best to promote sustainable forest management, which is widely accepted as an important policy goal at both national and international levels.

CEPFOR RESEARCH HYPOTHESES

The CEPFOR project selected six research hypotheses (see below) that have been neglected by previous research, or for which currently available evidence is conflicting. All six hypotheses contribute to understanding what constitutes 'success' in the context of NTFP commercialization (Marshall et al. 2003, and see Chapter 4), and how such success might be achieved in practice. The project does not consider the subsistence use – or direct consumption – of NTFPs, as the explicit focus of the research was sustainable development through commercialization, usually in exchange for cash. The broad context of the research was set by DFID's goal to achieve poverty eradication and FRP's focus on sustainable forest use.

The first four hypotheses are based on the assumption that successful commercialization should not have negative effects, particularly on vulnerable groups or the environment. They are predominantly concerned with the impact of NTFP commercialization on different groups of participants in the commercialization process – both within communities and along the market chain – as well as on the resource base. They require consideration of the impacts of changes in the commercialization process, including changes in the volume, value or quality of the product, in resource productivity and in the product's legal status – formal or informal, such as community regulations. The final two research hypotheses focus on understanding the sustainability and equitability of the different types of market structure that exist for NTFPs.

Taken together, the six hypotheses define successful NTFP commercialization as a transparent, equitable and sustainable activity that has a positive impact on poverty reduction, gender equality and resource access, tenure and management.

Hiking in to harvest incense and copal resin. The collectors view the forest as a savings bank and NTFPs as the interest accrued.

Charles Veitch



1. Successful NTFP commercialization has a positive impact on poverty reduction for the poorest producers, processors and traders

The importance of NTFPs in sustaining people's livelihoods is widely accepted (Falconer 1990; Scoones et al. 1992) and is one of the two main driving forces behind donor support to NTFP commercialization initiatives, the other being resource conservation. The increasing focus of development policy on poverty reduction has, however, brought with it a need for unequivocal and more differentiated evidence about whether and how much NTFP commercialization can contribute to poverty reduction.

NTFP harvesters are typically people who live at the margins of economic and political systems (Shanley et al. 2002). NTFP activities are considered to be attractive to such resource-poor people, despite the fact that these activities are characteristically labour intensive, because they generally have low technical entry requirements, they can provide instant cash in times of need and the resource is often freely accessible (Neumann and Hirsch 2000). Paradoxically, it has been suggested that the same characteristics that make NTFP activities attractive to poor people also make them economically inferior activities (Angelsen and Wunder 2003). Not only do they yield low returns and offer little prospect for accumulating sufficient capital assets to escape poverty (Ashley et al. 2003), but the arduous nature of the work may mean that people will not engage in them if there are alternatives, NTFPs may be vulnerable to substitution by cheaper synthetic or industrial alternatives, and ease of entry may lead to excessive competition and inability to generate a surplus from production and sale. This has led to NTFP activities being labelled a potential 'poverty trap' that keeps people in chronic poverty. In spite of the abundant evidence that NTFP activities can help people survive poverty, therefore, the big debate now concerns whether NTFPs can make a significant contribution to poverty reduction by providing people with pathways out of poverty (Wunder 2001; Arnold 2002).

A limitation of much NTFP literature is that it does not sufficiently differentiate the impacts of NTFP activities on different forms of poverty. This hypothesis therefore explores the extent to which NTFP commercialization activities can help make people more or less poor. Adopting terms that are used with increasing frequency in the NTFP literature, though often with no clear definition, the CEPFOR project distinguishes three types of NTFP activity with respect to poverty reduction:

- ▶ 'Safety nets' prevent people from falling into greater poverty by reducing their vulnerability to risk. These are particularly important in times of crisis and unusual need (e.g. during family illness or natural disasters, such as drought).

- ▶ 'Gap-filling' activities are carried out regularly, often during the non-agricultural season. They play a key role in income-spreading and generally make poverty more bearable through improved nutrition or higher income but do not make people less poor. There is a large body of evidence suggesting that although many NTFP-based activities generate only small amounts of income, the timing of this income during the non-agricultural season may increase its relative importance (e.g. Alexiades and Shanley 2004). Such seasonal income can play a key part in reducing the vulnerability of the poor through a decrease in the variance of their annual revenue (Farrington et al. 2004).
- ▶ 'Stepping stone' activities help to make people less poor. Where they can permanently lift people out of poverty, this is termed poverty removal or elimination (Sunderlin et al. 2003). Ruiz Pérez et al. (2004) suggest that it is only in areas that are well integrated into the cash economy that some NTFP producers are able to pursue a 'specialized' strategy in which the NTFP contributes more than 50 per cent of total household income and collectors and producers tend to be better off than their peers.

Sunderlin et al. (2003) group the gap-filling and safety net activities together as 'poverty avoidance', which, together with poverty elimination, constitutes poverty reduction.

Chapter 5 considers what makes NTFPs so attractive to poor people, and specifically addresses the following questions:

- ▶ How widespread is engagement in NTFP commercialization?
- ▶ How poor are NTFP households?
- ▶ Are all actors in NTFP value chains equally poor?
- ▶ How much do NTFP activities contribute to household income?
- ▶ Do poor people rely more on NTFP incomes?
- ▶ Do people engage in NTFP commercialization out of necessity?

It concludes with an examination of the kinds of changes in NTFP commercialization that have the greatest impacts on the poor.

2. Successful NTFP commercialization has a positive impact on women's livelihoods

This hypothesis explores the relationship between NTFP commercialization and gender, specifically examining

the circumstances in which women are involved in NTFP activities and what benefits they obtain. NTFP commercialization typically involves small-scale activities that require few skills and low capital investment and combine well with traditional domestic roles, and that are therefore particularly attractive to women (Falconer 1996; Fontana et al. 1998). The importance of these activities for women's well-being may even help to offset inequities that may arise within the agricultural sector (Haggblade et al. 2002). Too great a dependence on NTFPs may, however, make women more vulnerable to changes in NTFP production systems. Economic and environmental pressures affect access to and use of forest resources, and the dynamics of these over time affect men and women quite differently (Brown and Lapuyade 2002). Increased NTFP commercialization aided by new mechanized technologies has in some cases resulted in men taking over control of processing and income, which were previously the role of women (Neumann and Hirsch 2000). Chapter 6 evaluates how important NTFPs are to women by asking the following questions:

- ▶ What is the involvement of women in NTFP activities?
- ▶ What determines whether or not women are involved?
- ▶ Can the introduction of new technology displace women?
- ▶ What changes in NTFP commercialization have the greatest impacts on women?

3. Successful NTFP commercialization does not have a negative impact on the resource

Early interest in NTFPs was encouraged by the belief that NTFP commercialization that added sufficient value to forest products could contribute to forest conservation (Nepstad and Schwartzman 1992). Where NTFPs are harvested in a sustainable manner, this may indeed be the case (Belcher and Schreckenber 2003). However, baseline ecological data on many NTFP species is limited, and other areas critical to sustainable management remain poorly understood, including harvesting techniques, sustainable yields and monitoring (Shanley et al. 2002). Sustainable yields vary considerably between different species and are influenced by which parts of the organism are harvested, as well as by the ecological and demographic characteristics of the species (Peters 1996). In addition, security of tenure may influence harvesting intensity. Open access to a resource can result in no specific group assuming management responsibility for the resource (van Dijk 1999). Consequently, it remains a challenge to assess whether the harvesting impact of NTFPs on the resource is sustainable.

Resource depletion can prompt different responses, including moving to different harvesting areas or initiating new management regimes. Homma's (1992) widely cited theory proposes that increasing commercialization will inevitably result in overexploitation of the wild population, leading to two possible scenarios: domestication or synthesis/substitution of the product. Domestication involves cultivation, which is typically associated with private tenure, higher NTFP trade values both locally and nationally and higher household incomes in absolute and relative terms (Ruiz Pérez et al. 2004).

A third possible scenario resulting from resource depletion is improved resource management (Shanley et al. 2002), or 'landscape domestication' (Ruiz Pérez et al. 2004). This can be achieved by management of the natural resource and through agroforestry systems, which occupy an intermediate position between natural forests and plantations and may reduce harvesting impacts on wild populations. Chapter 7 evaluates the impact of commercialization on the natural resource base by considering the following questions:

- ▶ How can sufficient resource supply be ensured to support increased commercialization?
- ▶ Can NTFP production compete with alternative land uses?
- ▶ What impact does the resource have on commercialization strategies?

4. Successful NTFP commercialization does not have a negative impact on rights/access to natural resources for poor producers

NTFPs are often gathered across large geographic areas and from marginal lands over which legal tenure and access are uncertain. Many collectors do not own the land where they gather the product, are entirely landless or lack legal rights over resources (Shanley et al. 2002). Although successful NTFP commercialization and market expansion by rural communities may be constrained by limited access to land from which to harvest NTFPs (Shackleton 1996), less is understood about the impacts of NTFP commercialization on the tenure of natural resources and on traditional regulations governing access.

It is very difficult to separate the direct effects of NTFP commercialization from larger social, political and economic forces influencing the transformation of tropical forests and societies (Neumann and Hirsch 2000). Increases in the volume and value of NTFP commercialization may increase interest in an activity, resulting in more powerful actors exercising access rights over poorer people who lack security of tenure. Commercialization can benefit community property regimes by providing incentives for organizing and strengthening communal action. However,



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Calle Sagarnaga, La Paz, Bolivia: the central street market for local trade of fresh produce and much more.

McElwee (in Neumann and Hirsch 2000) also recognizes that there are many potential disadvantages to commercialization, including increased disputes, privatization, encroachment by outsiders, dependence on outside institutions and state interference, among others. There is therefore a need to better understand what conditions determine these potential outcomes, and specific questions considered in Chapter 7 are:

- ▶ How important is tenure in determining successful NTFP commercialization?
- ▶ Has commercialization led to a change in access rights for the poor?

5. Successful NTFP value chains function in an equitable, transparent and sustainable manner

NTFPs are linked to final consumers through value chains, which describe the full range of activities required to bring an NTFP from collection to consumer (Kaplinsky 2000). Value chains consist of a number of different actors specializing in various functions. These actors are linked by the way they cooperate with one another, which is

determined by power relations in the chain, and this influences success for various actors in a chain (te Velde et al., forthcoming). Little is understood about how the demand for specific services at each link in the chain will change as NTFP volume increases, nor is it generally known to what extent markets can identify and compensate for gaps in labour and skills at any stage in the chain (Vosti et al. 1997). Markets for NTFPs are often complex, diverse, opportunistic and marginal (Tomich 1998). Lack of proximity to markets is considered one of the most limiting factors for NTFP commercialization initiatives (Neumann and Hirsch 2000).

Vosti et al. (1997) argue that the main difference between NTFP value chains and those of non-staple agricultural products is the fact that, as forest products, NTFPs are subject to more stringent government interventions particularly related to restricting supply. Analysis of value chains is required for the design of appropriate policies and development interventions, which are often based on the assumption that poor and politically powerless extractors suffer from high levels of exploitation by intermediaries (Neumann and Hirsch 2000). Yet some

studies suggest that the role of ‘middlemen’ has been underestimated (Padoch 1992), and that it is a mistake to try to bypass them (Corry 1993, cited in Neumann and Hirsch 2000).

Humphrey (2000) and Maynard et al. (2001) emphasize the need for a better understanding of NTFP value chain governance, particularly relating to the roles of intermediaries and their relationships with other actors. With respect to global value chains, Gereffi et al. (2005) have distinguished five types of global value-chain governance and argue that the form of governance can have an important impact on the ability of different actors in the chain to innovate and improve their activities.

NTFP commercialization takes place within a policy, legal and institutional framework, which is presented in Chapter 8. Questions asked include:

- ▶ Why are governments interested in NTFPs?
- ▶ Does the legal framework support NTFP commercialization?

Chapter 9 then goes on to address the different components of successful NTFP value chains, specifically:

- ▶ Are NTFP value chains predominantly supply led or demand led?
- ▶ What elements are needed to ensure establishment, and what does it take to maintain market share?
- ▶ How important are key entrepreneurs, and what is the role of innovation?
- ▶ What is the impact of different governance structures, such as horizontal integration (cooperation of all actors undertaking similar roles) and vertical integration (successive stages in the value chain placed under the control of one enterprise)?

6. Successful NTFP value chains allow for easy access by poor producers, processors and traders

Once value chains are established, what are the factors that enable different people and/or communities to access them and advance within them? Lack of market information is commonly recognized to be a major constraint to NTFP commercialization (Neumann and Hirsch 2000), as is lack of basic infrastructure. Haggblade et al. (2002) contradict much previous literature in their assertion that lack of credit provision is often not a barrier to entry for producer communities into the value chain, while New Institutional Economics (Williamson 2000) emphasizes the barriers imposed by transaction costs. Policy interventions can also present barriers to entry for small-scale producers, processors and traders. Supply restrictions may include constrained forest access,

transport controls, and so on, increasing supply costs and risks, thus reducing market volume and limiting market development (Vosti et al. 1997). Chapter 10 considers strategies for overcoming barriers to entry into value chains by poor producers, processors and traders, and explores capabilities for successful commercialization. The following questions are asked:

- ▶ What are important barriers to entry?
- ▶ What individual and community characteristics, including different types of organization, are important to success?

RECOMMENDATION DOMAINS AND POLICY IMPLICATIONS

An important issue for any project taking a case study approach is how widely its findings can be applied, or its recommendation domain. The CEPFOR study has two recommendation domains. The data collection focused on specific NTFPs, examining their entire value chain from the various source communities to the final consumer, or a clearly defined intermediary point in the case of internationally traded products. Conclusions (see Chapter 11) and recommendations (see Chapter 12) relating to these products and how successfully they are traded relative to other products could therefore potentially be relevant to the whole area in which each particular product is being marketed.

In addition, the integrated analysis of all the project’s data has identified issues and processes that are important throughout the entire suite of case studies. While caution is advised in extrapolating results from a single group of NTFPs (Belcher 2003), the aim of the analysis of the CEPFOR case studies was not simply to make broad generalizations but rather to highlight issues and trends of NTFP commercialization and evaluate under what conditions these apply. These findings are, therefore, likely to be of relevance to many other communities in regions of Latin America sharing similar key socio-economic and geographical characteristics, such as poverty level, dependence on forest resources and access to markets.

A key objective of CEPFOR was to examine the implications of the research results for policy development and implementation. NTFPs tend to be neglected in national policies, in part because they are relevant to both forestry and agricultural sectors but are rarely considered explicitly by either. The development of an appropriate policy context and legislative framework is essential if NTFPs are to fulfil their potential contribution to sustainable development. Policy-relevant issues that were identified during this research are highlighted throughout this report, and specifically in the final Policy Options chapter.

2. Research methodology

Integrating qualitative and quantitative data collection and analysis

Kathrin Schreckenber, Jonathan Rushton, Adrian Newton,
Elaine Marshall and Dirk Willem te Velde

This chapter outlines the way in which the CEPFOR project collected, analysed and integrated different types of data. In developing a methodology, the project had three underlying premises.

Combining qualitative and quantitative information. NTFP commercialization is an activity involving a complex interaction of people, markets and natural resources that can only be thoroughly investigated by drawing on a combination of quantitative and qualitative information.

Joint research with NGO partners. The NGO partners were active in developing NTFP resources with local communities and had substantial experience, thereby providing a suitable research basis for the project. Collaboration with NGOs provided an informed entry point into communities and, by involving potential end-users in the research, ensured relevance of the project outputs. The project invested heavily in capacity building to ensure that all NGO partners, some of whom had limited research experience, collected both quantitative and qualitative information in a rigorous and consistent manner.

Participatory research in communities. To meet the development objectives of the NGO partners, community-level research was carried out in a transparent and participatory manner, with communities highly involved throughout. This approach meant that many of the case study communities were able to work with the project's partner NGOs to improve their NTFP commercialization activities while the project was under way.

KEY HYPOTHESES AS AN INTEGRATING TOOL

The project was implemented by a large international research team, including researchers from a range of disciplines – social science, forestry, agriculture, economics and ecology – and development NGOs. To ensure that all were working towards the same research aims, six key hypotheses [see Chapter 1] were identified at an early stage. For each hypothesis, a set of research questions [see Schreckenber et al. 2005] was devised. The hypotheses and questions proved to be a valuable tool for focusing



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Field testing the household questionnaire with a jipi japa weaver. Candelaria, Bolivia.

the different components of the research on the same issues, and facilitated integration of the information generated by the research activities. The hypotheses were refined and research questions dropped or added as research progressed and raised new issues. For the purposes of this book, the hypotheses have been slightly reworded to facilitate a coherent presentation of the findings.

DATA COLLECTION TOOLS

The project used several data collection tools [Schreckenber et al. 2005]. All were developed in discussion with NGO partners.

Community reports

The aim of the community reports was to present information on NTFP commercialization and to carry out a preliminary assessment of the relevance of the research hypotheses within each case study community. A



Participatory resource mapping in the community of San Silvestre, Bolivia.

secondary aim was to provide sufficient contextual background to allow for the development of a precise and locally acceptable survey tool [see below]. A common structure for the community reports was developed with NGO partners, as were detailed guidelines on how to obtain the necessary information to complete the reports [Schreckenberget al. 2005]. These included suggestions on the use of secondary data and on how to implement a range of participatory research techniques, including collecting community histories, resource mapping and diagramming information flows and product market chains. One report was written for each community by the NGO partner working in that community. Interim versions of the community reports were discussed at a full project workshop in April 2002, which served to highlight missing information. Reports were further revised when information gaps were identified during the cross-community analysis [see below], and were finalized in 2003.

Market reports

During 2001-2002, the NGO partners wrote a market report for each of the products on which they were working.

These reports focused on describing the value chain for the products, concentrating on the elements of the chain located outside the case study communities. A common structure, including qualitative and quantitative information, was developed for the market reports [Bojanic et al. 2001], and NGO partners received two days of training in key concepts and methods.

Questionnaires

Four questionnaires were developed, all with the same basic structure. Two were directed at community members, one targeting households involved in NTFP commercialization, and a second targeted at a control group of households not involved with NTFPs. A third form of the questionnaire was targeted at people outside the community – mostly processors and traders – who were involved with the case study NTFP, while a fourth version targeted a control group of non-NTFP traders outside the case study communities. The questionnaires were used to interview households within and outside selected communities regarding their NTFP activities, including cultivation, collection, processing, storage, transport and sale. Questions related to:

- ▶ individual characteristics such as education, access to assets, gender, experience in other subsistence and income-generating activities, etc.;
- ▶ quantitative information about costs and benefits of typical transactions by households at each stage of the value chain;
- ▶ quantitative and qualitative information about the importance and success of NTFP commercialization to households;
- ▶ access to market and technical information;
- ▶ qualitative barriers to entry to NTFP or other trade.

Particular attention was paid to obtaining information on any changes that had occurred in the last 10 years. The questionnaires were developed together with the NGO partners in an iterative manner, followed by field testing in several communities before final revision and application.

Policy studies

The project commissioned a policy study each for Bolivia (Bojanic 2002) and Mexico (García-Peña Valenzuela 2002). These studies outlined the legal and policy context within which NTFP commercialization was taking place. They also highlighted questions that needed to be explored at community level to determine the degree to which existing regulations were being enforced.

Information-needs assessment

To inform the design of the project's outputs, a final data-collection exercise was carried out by project partners in Bolivia and Mexico, as well as by a consultant in Central America. This involved interviewing representatives from a range of government and non-government development and research organizations, which both finance and implement projects, to determine:

- ▶ the key questions they were asked by communities about NTFP commercialization;
- ▶ the main queries they themselves had about NTFP commercialization;
- ▶ the format in which they would most like to receive any information resulting from the CEPFOR project.

SAMPLING STRATEGIES

The following criteria determined product selection:

- ▶ Available resources limited the total number of products per country to between four and six.
- ▶ Products had to be currently undergoing commercialization, defined as being exchanged for money, and had to leave the community of origin as a result of trade. In Bolivia it was specifically decided to exclude Brazil nuts and palm hearts, both of which had been the subject of extensive

previous research (Bojanic Helbingen 2001; Stoian 2004a and 2004b).

- ▶ The project's donor specifically excluded consideration of fresh fruit.
- ▶ Each product had to illustrate some of the factors identified from the literature as being important for ensuring successful commercialization, including distance to consumer (local, national or international markets), level of processing, degree of vertical and horizontal market integration, involvement of men and women, and source of product (e.g. forest, farm, varying types of land tenure).
- ▶ Each product had to be commercialized in two potential case study communities (see below).

Ten forest products were selected, some of which were traded in more than one form, giving a total of 16 separate value chains. Chapter 3 provides an overview of the products and some of their principal attributes.

Community selection

This was carried out as follows:

- ▶ Once the products were finalized, each NGO suggested a number of communities that were representative – in terms of social homogeneity, resource tenure and market access – of the wider set of communities in which the product was commercialized, and that might be interested in participating in the research.
- ▶ The project team pre-selected at least two communities per product on the basis of differences in socio-economic attributes, e.g. manner in which they commercialized the product, access to the resource and/or the market.
- ▶ Consultation meetings were then arranged in all the pre-selected communities to discuss their information needs and how the project might help meet them.
- ▶ Final decisions were taken by the project team on the basis of the community-meeting reports.

A full list of the communities and the products commercialized in them is provided in Chapter 3. In all but two of the case study communities, the total size of the community was either fewer than 100 individuals, or the number of people involved in the selected NTFP activity was small enough that the whole community could be involved in the study. In the two exceptions – Topiltepec and La Esperanza in Mexico – the majority of the 350–400 people in the communities were involved in the NTFP activity, so research focused on a single district of the community. This was done with the help of local authorities and key informants,

with the aim of finding a district in which the population was relatively homogeneous and representative of the whole community in terms of wealth and livelihood activities.

Household selection within communities

The project aimed to assess the full range of variation with respect to NTFP commercialization activities in the producer communities. In each community, households were selected using a stratified sampling approach, beginning with an exercise to rank them into different well-being categories as described in Pretty et al. (1995), with well-being acting as a proxy for a multifaceted definition of poverty. This goes beyond financial wealth and, depending on the key informants, can include other assets such as labour, health and education, as well as personal characteristics like perseverance or laziness. In addition to providing an opportunity for exploring the concept of livelihood status and how this might be related to NTFP trade, the resultant grouping of households into four to five well-being categories ensured that interviewees were selected across the poverty spectrum. Households were selected to represent all the NTFP commercialization activities carried out in the community, i.e. collection from the wild, cultivation, processing and trade. The project aimed to interview two to five households for each combination of well-being status and NTFP activity in the community. For the control group, the project attempted to identify households that 'matched' the NTFP sample in all respects except engagement in NTFP activities. In addition, special efforts were made to include people who were no longer involved in NTFP activities, but had been in the past.

Trader selection

Research objectives included following the value chain from the community to the consumer, or, for internationally traded products, the last point of national exchange. Data from traders and a few processors outside the community were particularly important for describing the market structure for the different products and analysing how different structures affected different groups of people. Efforts were made to interview all traders along a product supply chain, with one interviewee providing information about the next points in the chain. As trader numbers were relatively small, less emphasis was put on trying to identify suitable 'control' interviewees. Nevertheless, some non-NTFP traders were also interviewed, with a focus on those who had ceased NTFP commercialization, in order to understand the reasons for their decisions.

Groups and key informants

In addition to interviewing households, the NGO partners also organized discussions with groups of community

members – sometimes separating men and women – to discuss specific issues, such as tenure, collection and cultivation activities, processing activities and constraints to marketing. Interviews were also held with key informants considered to be particularly knowledgeable on certain aspects of the commercialization process.

MEASURING SUCCESS: DIFFERENT APPROACHES

Despite the widespread interest in the role of NTFPs in sustainable development, the issue of how the success of NTFP commercialization might be defined or assessed has received remarkably little attention. There are many ways in which success can be defined, ranging from how sustainably the resource is managed to the level of returns to labour or profit margins earned by different actors in the value chain. Understanding the many different definitions of success was a key concern for the project, and several approaches were used to explore this issue. These included project workshops involving a variety of different stakeholders, value chain analyses, community-level discussions and household surveys. Given that some of the definitions, particularly those of a more social nature – such as social cohesion of communities – are subjective, measuring success requires the collection and analysis of both quantitative and qualitative information.

At the household level, in addition to assessing the income derived from NTFPs and other sources, the following questions were asked:

- ▶ How important have NTFPs been in your livelihood strategy?
- ▶ How successful do you regard yourself in terms of ability to meet your basic needs?
- ▶ How successful do you consider yourself compared to your peers?

Responses to such questions and definitions identified through discussions with communities can be used to develop appropriate measures or indicators of success. However, it is sometimes difficult to attribute success in different areas to a particular NTFP activity. This is illustrated by the questions above, two of which refer to general levels of individual well-being and do not, unless analysed in combination with responses to other questions, indicate the degree to which this well-being is due to NTFP activities.

Participatory approaches can result in definitions of success that vary greatly between value chains, communities and households. In order to allow for some comparison between case studies, the CEPFOR project also applied a set of livelihood indicators developed by CIFOR (www.cifor.org) as part of its project A Method to Assess the Outcomes of Forest Product Trade on Livelihoods and the Environment (Kusters et al., forthcoming). This approach

focuses on assessing the impacts of NTFP commercialization on people's livelihoods considered at three scales: household, community and national. Impacts are considered on a range of assets that are grouped into five types of capital: natural, physical, financial, human and social. CIFOR developed a range of indicators according to this framework, which were applied in the CEPFOR project using the expert judgement of researchers familiar with each product and community.

DATA ANALYSIS

A database, which is provided on the CEPFOR CD-ROM, was developed in Microsoft Access 2000 to manage the information from the questionnaire survey. In the interests of partner capacity building and data ownership, each partner NGO entered its own set of data. The separate databases were then merged to provide an overall project database.

Data quality control was one of the greatest challenges faced by the project, given the fact that the research team was large and operating under a wide variety of circumstances. All partners were trained in implementing the questionnaire and in how to enter the data into the database. Nevertheless, some of the survey questions were interpreted differently by different interviewers, and mistakes were made during data entry. Such errors were identified and corrected during a series of project data analysis workshops held throughout the project, at which all partners were represented.

Text analysis – community and market reports

Comparison between communities was first carried out with partners at project workshops (starting in April 2002), followed by a more systematic analysis once all the community reports were finalized (Marshall 2005). The main aim of this analysis was to highlight any factors influencing different kinds of success in NTFP commercialization. The analysis was primarily qualitative in nature, but some of the factors that were identified as being important in determining success were also scored for use in the Bayesian belief network (see below).

The initial analysis of the market reports proceeded in a similar way to that of the community reports, with repeated iteration between the authors and the other members of the project team. The interim market reports were important in providing NGO partners with sufficient background information to contribute to the drafting of a standardized trader questionnaire that could be applied across all products.

The role of the market reports was to complement, and often provide an explanation for, data collected in the household questionnaires. These were used in the value chain analysis (see below) as well as to support the statistical and regression analysis (see below). As for the community reports, some of the factors that were identified as being important in determining success were scored for use in the Bayesian belief network (see below).

Quantitative description: tables, graphs and summary statistics

Table 2.1 shows the total number of household questionnaires that were entered into the database. Detailed analysis of these results is presented in te Velde (2005).

Regression analysis

The household data were analysed using regression analysis, a statistical analysis procedure that allows relationships to be identified between some measure of interest – such as profitability of the NTFP trade – and one or more explanatory variables. Possible explanatory variables – such as individual characteristics, resource tenure, product seasonality, selling strategies, marketing conditions, etc. – were determined from the NTFP literature or identified during the analysis of the community and market reports and in discussion with partners during project workshops. These explanatory variables included both quantitative and categorical variables.

Value chain analysis

A value chain analysis was carried out for each of the products based on the household data, supplemented by the market and community reports, as well as further interviews with the report authors (Rushton et al. 2004). This consisted of the following analyses:

Description of supply chains. Supply chains were described for each product in the form of an annotated flow chart illustrating the actors carrying out different roles in different locations. The supply chains related to

Table 2.1 Number of household questionnaires by country and NTFP activity

	Involved in NTFP activities		Controls		Total
	Households	Traders	Households	Traders	
Bolivia	142	25	46	25	238
Mexico	147	21	45	1	214
Total	289	46	91	26	452

the study communities and did not attempt to identify all the actors in the general supply chain for the products. The analysis also attempted to identify which parts of the chain were the most important in terms of:

- ▶ the number of collectors/producers using the different routes within a chain;
- ▶ the volume of product moving through the different routes of the chain; and
- ▶ the monetary value that moves through the different routes of the chain. A combination of the latter two variables permitted the calculation of the prices paid per unit, but this information had to be combined with information about product quality as some market routes paid more per unit, but demanded different qualities.

Commercialization margins. These are based on information on the final unit price for a product. They indicate how much of the final sales price is obtained by an actor in the value chain. On the basis of individual commercialization margins, it is also possible to estimate the proportion of the final price taken by the different actors in the chain, giving a sense of how equitably the profit is divided. It was not possible to carry out this analysis for every product, as the calculation of the margin is difficult for products that are processed or transformed when passing through the supply chain, and for those that do not have a standard unit of measurement throughout the supply chain.

Economic profitability of each actor in the chain. Commercialization margins do not take into account the costs incurred by the different actors in the supply chain and do not provide a realistic picture of the profitability for each actor. Data on the costs incurred by each actor were therefore combined with the expected annual sales to estimate the economic profitability of the actors in the

chain. The analysis structure used was an enterprise budget, where costs were split into:

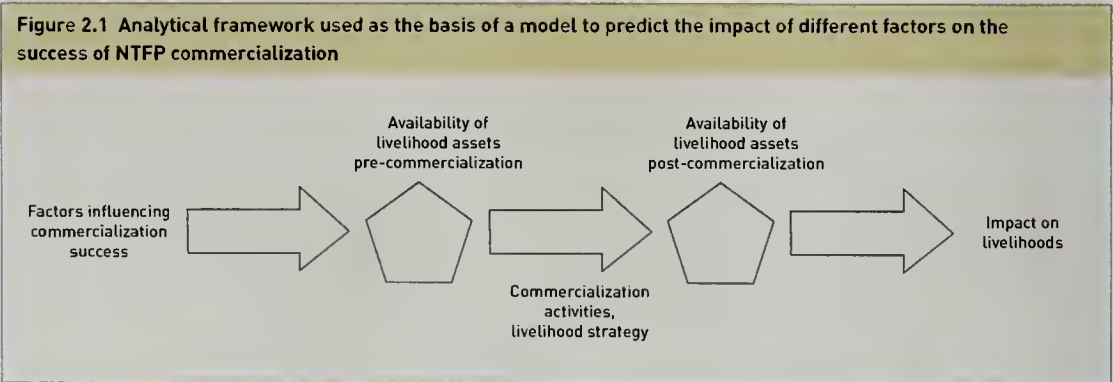
- ▶ variable costs – these vary with production volume, e.g. bags, transport costs, some permits;
- ▶ labour costs – these include family and hired labour and are divided into men, women and children;
- ▶ fixed costs – these do not vary with production volume and are depreciated, e.g. machete, tools, machines, donkey.

Profitability was calculated per activity and per unit of sale in local currency, US dollars and purchasing power parity (PPP) dollars. There were some difficulties in determining the correct labour rates to form a part of the profitability calculations. This was particularly acute in communities where there were few wage-earning opportunities and hence no generic daily labour rate, and in the case of products where much of the work was carried out using often uncosted family labour. In order to address this problem, particularly at the collector/producer level, further calculations were made to estimate the returns per labour-day employed. For some products, the data were insufficient to enable economic profitability estimates for each actor in each route in the supply chain to be calculated.

INTEGRATING THE RESULTS OF DIFFERENT ANALYTICAL APPROACHES

From the start, the project attempted to ensure that all members of the multidisciplinary project team understood and respected each other’s approaches. This was achieved through frequent team meetings and mini-seminars by each specialist, enabling participants to understand each other’s disciplinary languages and appreciate both the potential and limitations of different analytical approaches. All the data collection tools provided both qualitative and

Figure 2.1 Analytical framework used as the basis of a model to predict the impact of different factors on the success of NTFP commercialization



quantitative data. Although much of the qualitative data analysis was carried out during workshops involving all partners, it was more efficient for individual specialists to take on the task of the quantitative analysis and the cross-community qualitative analysis. An early joint analysis workshop helped to clarify the analytical tools that each analyst intended to use and the extent to which he or she was dependent on receiving data from another part of the project. The meeting also highlighted which of the project's hypotheses and research questions were not being sufficiently tackled by existing analysis and allowed this to be rectified. The integration of the resulting three main analytical reports (Marshall 2005; te Velde 2005; Rushton et al. 2004) was carried out in two ways:

1. Development of a probabilistic model

Integration of qualitative and quantitative information can usefully be achieved by representing both kinds of variable as probabilities. The CEPFOR study used the development of a probabilistic model as a novel approach to data integration and analysis, and for the development of an analytical framework enabling different case studies to be compared. The model was constructed as a Bayesian belief network, or BBN (Neapolitan 1990; Pearl 1988), which enables the probabilistic relationships between variables to be represented and examined graphically. Specifically, the BBN was designed to enable the impact of different factors on the success of NTFP commercialization to be evaluated. The BBN was constructed according to a livelihoods framework (Figure 2.1), which considers the different assets – including both material and social resources – that are required for living [see Box 1.2].

The BBN is based on the concept that the impacts of NTFP commercialization on the different assets required by people to support their livelihoods are influenced by a variety of factors. These factors include the characteristics of the product to be commercialized, but also include the socio-economic characteristics of the communities involved, and the characteristics of the value chain. A large number of factors could potentially influence the success of NTFP commercialization. The list of factors that could be important varies among products and among the socio-economic circumstances under which commercialization takes place. The research results generated by the CEPFOR project were used to identify a total of 66 factors that were found to be important in the case studies examined. Each of these factors was then scored by the project team, to indicate the relative influence of the factor on each of the case studies considered by the project.

The limiting factors that were important in the greatest number of communities are summarized in Table 4.2. The BBN was validated by independently

assessing the impact of NTFP commercialization on livelihoods using the CIFOR scoring approach described above. Further details of how the BBN was developed, tested and deployed are provided on the accompanying CD-ROM (Newton et al. 2006).

A CEPFOR decision support tool (CDST) was constructed based on the BBN to enable NTFPs with high potential for commercialization to be identified, and to help determine how successful commercialization might be achieved in practice. The CDST is also provided on the accompanying CD-ROM.

2. Integrated analysis of research hypotheses

This book presents an integrated thematic analysis, which draws on the different sources of information described above to generate conclusions about the factors affecting successful NTFP commercialization. Each of the reports produced by the project was structured around the project's research hypotheses and questions, allowing for triangulation between different lines of evidence, by:

- ▶ Examining, for each research question, whether the results from the different reports complemented, supplemented or contradicted each other.
- ▶ Explaining conclusions made by one analyst using information from another. This was particularly true for the quantitative analysis of the household data, which sometimes gave rise to conclusions that would have appeared anomalous without reference to the contextual explanation provided by the community reports.
- ▶ Confirming the conclusions made by one analyst with additional evidence from another. For example, the community reports tended to reflect the *stated preference* for the community as a whole, e.g. which factors are important in determining success, whereas the quantitative analysis of household data was able to determine the *revealed preference*.
- ▶ Refuting conclusions made by different analysts. In practice, the main issue of contention was variation in the definition of household incomes used by different interviewers. Unless supporting evidence was available from another source, it was decided to ignore any conclusions that depended solely on comparisons of income between different communities.
- ▶ Enriching individual conclusions by referring to supporting evidence from other elements of the analysis.

The resulting synthesis is presented in the second half of this book, beginning with Chapter 4.

3. Case studies

Introduction

Elaine Marshall

The aim of this chapter is to describe the study communities and provide an overview of the salient features of each case study, highlighting the different commercialization strategies that have been adopted. The chapter begins with a brief introduction to the cases, followed by a summary of each case study product and the communities in which commercialization of the product was researched. These individual summaries provide a context for the comparative thematic analysis in subsequent sections of the book.

Each case study summary has a common structure focusing on community characteristics, the nature of the resource and the market, including a description of the product and how it is traded by the community. The case study summaries include photographs, a diagram of the product value chain and a map illustrating the community location, species distribution, main centres of production and the principal national – and international, where applicable – value chains. Each summary highlights both the common and unique features of the case study concerned, illustrating the degree of variation observed between case studies.

SOURCING THE INFORMATION

The information in this chapter is taken from reports generated by the CEPFOR project. It draws particularly on the community and market reports (see Chapter 2) written by the case study researchers, and on the three comparative analyses carried out by the project team (Marshall 2005; Rushton et al. 2004; te Velde 2005). Community names have been abbreviated to improve readability (see Table 3.1). Names of individuals and key organizations involved in the value chain have been changed to respect anonymity.

BRIEF OVERVIEW OF THE CASE STUDIES

As outlined in Chapter 2, the products were selected on the basis that they had to be traded for money and had to leave the community of origin. Pairs of communities were selected for each product to be representative – in terms of social homogeneity, resource tenure and market access – of the wider set of communities in which it was commercialized, and to illustrate key



Elaine Marshall

A market trader waits patiently to sell a few goods in Oaxaca city, Mexico.

differences in commercialization strategies. Table 3.1 lists the communities and products and presents some summary data for each.

All the case study communities were located in highly marginalized areas of Mexico and Bolivia characterized by a lack of economic opportunities, typical of rural areas in developing regions. The Mexican case study communities are located in regions where more than 76 per cent of the population live on less than US\$2 per capita per day, and the Bolivian case study communities are located in regions where, on average, populations are living on less than US\$1 per capita per day, which corresponds to some 37 per cent of the country's population (UNDP 2001; World Bank 2004).

Table 3.1 Key characteristics of case study communities and product value chains

Community names (abbreviations in bold)	Species name	Part used and value chain	Months traded in the year	Evidence of domestication	Degree of processing within community	Final consumer	Dominance of individuals in value chain	National trend in demand in last 10 yrs
Carmen del Emero La Paz, Bolivia	<i>Theobroma cacao</i> organic cocoa	Bean extracted from seed pod and traded	5.2	Yes	Low	Local, national and some international	A small number of traders dominate the purchase of cocoa beans	Up
San Silvestre La Paz, Bolivia	<i>Theobroma cacao</i> organic cocoa	Beans processed into cocoa paste	5.2	Yes	Low	Local	A small number of traders dominate the purchase of cocoa beans	Up
Santa Rosa de Challana La Paz, Bolivia	<i>Hevea brasiliensis</i> natural rubber	Trunk cut for latex and rubber goods processed	11.3	No	High	Local miners	No	Down
Tomachi La Paz, Bolivia	<i>Hevea brasiliensis</i> natural rubber	Trunk cut for latex and latex rubber traded	6.3	No	Low	National	Dominated by concessionaires based in La Paz	Down
Pucasucho La Paz, Bolivia	<i>Clusia</i> and <i>Protium sp.</i> <i>incense/copal</i>	Trunk cut for resin and incense/copal traded	12	No	None	Copal in Mexico and incense to Argentina	Dominated by an oligopoly	Stable
Carmen Surutu Santa Cruz, Bolivia	<i>Carludovica palmata</i> jipi japa palm	Leaves processed and woven into jipi japa hats	10	Yes	High	Local	No	Up
Candelaria Santa Cruz, Bolivia	<i>Carludovica palmata</i> jipi japa palm	Leaves processed and woven into jipi japa tourist crafts	11.5	Yes	High	National (international through tourists)	Entrepreneur	Up
Potrero San Rafael Santa Cruz, Bolivia	<i>Carludovica palmata</i> jipi japa palm	Leaves processed and woven into jipi japa tourist crafts	11.5	Yes	High	National (international through tourists)	Entrepreneur	Up
La Esperanza Guerrero, Mexico	<i>Brahea dulcis</i> soyate palm	Leaves boiled, dried, plaited into strips and woven into hats, mats, etc.	12	No	Low	National (international through tourists)	No	Stable
Topiltepec Guerrero, Mexico	<i>Brahea dulcis</i> soyate palm	Leaves boiled, dried, plaited into strips and woven into hats, mats, etc.	12	No	Low	National (international through tourists)	No	Stable
La Esperanza Guerrero, Mexico	<i>Agave cupreata</i> maguey	Heart of the maguey plant fermented to produce traditional drink, mezcal, for trade	7	Yes	High	Local, national and international	Broad involvement in collection of maguey, but only one family distils serious quantities	Up
Topiltepec Guerrero, Mexico	<i>Agave cupreata</i> maguey	Maguey heads sold for fermentation	7	No	Low	Local, national and international	No	Up
Santa Marta Latuvi Oaxaca, Mexico	<i>Tricholoma magnivelare</i> matsutake mushrooms	Fruiting body collected and exported fresh	2	No	None	International (Japan)	Entrepreneur	Up
San Antonio Cuajimoloyas Oaxaca, Mexico	<i>Amanita caesarea</i> , <i>Cantharellus cibarius</i> , <i>Boletus edulis</i>	Fruiting body collected and sold fresh locally	2	No	None	Local	A few local traders	Up
San Antonio Cuajimoloyas Oaxaca, Mexico	<i>Amanita caesarea</i> , <i>Cantharellus cibarius</i> , <i>Boletus edulis</i>	Fruiting body collected and dried for regional and national sale	2	No	High	National	Community enterprise	Up
Arroyo Blanco Oaxaca, Mexico	<i>Aechmea magdalenae</i> pita	Fibre extracted from the leaves and cleaned and combed into pita fibre sold for making thread	2	Yes	High	National and international (North America)	President of the local producers' association	Down
San Rafael Agua de Pescadito Oaxaca, Mexico	<i>Aechmea magdalenae</i> pita	Fibre extracted from the leaves and cleaned and combed into pita fibre sold for making thread	2	Yes	High	National and international (North America)	No	Down
Monte Tinta Oaxaca, Mexico	<i>Chamaedorea elegans</i> , etc. camedora palm	Palm fronds collected and traded as bundles of floral greens	5.8	Yes	None	International (North America)	Entrepreneur	Up
Nueva Santa Flor Oaxaca, Mexico	<i>Chamaedorea elegans</i> , etc. camedora palm	Palm fronds collected and traded as bundles of floral greens	5.8	Yes	None	International (North America)	Entrepreneur	Up
Santa Cruz Yagavila Oaxaca, Mexico	<i>Chamaedorea tepejilote</i> tepejilote	Inflorescence (cluster of flowers) collected and sold fresh as food	3.7	Yes	None	Local	No	Up
San Miguel Tiltepec Oaxaca, Mexico	<i>Chamaedorea tepejilote</i> tepejilote	Inflorescence (cluster of flowers) collected and sold fresh as food	3.7	Yes	None	Local	No	Up

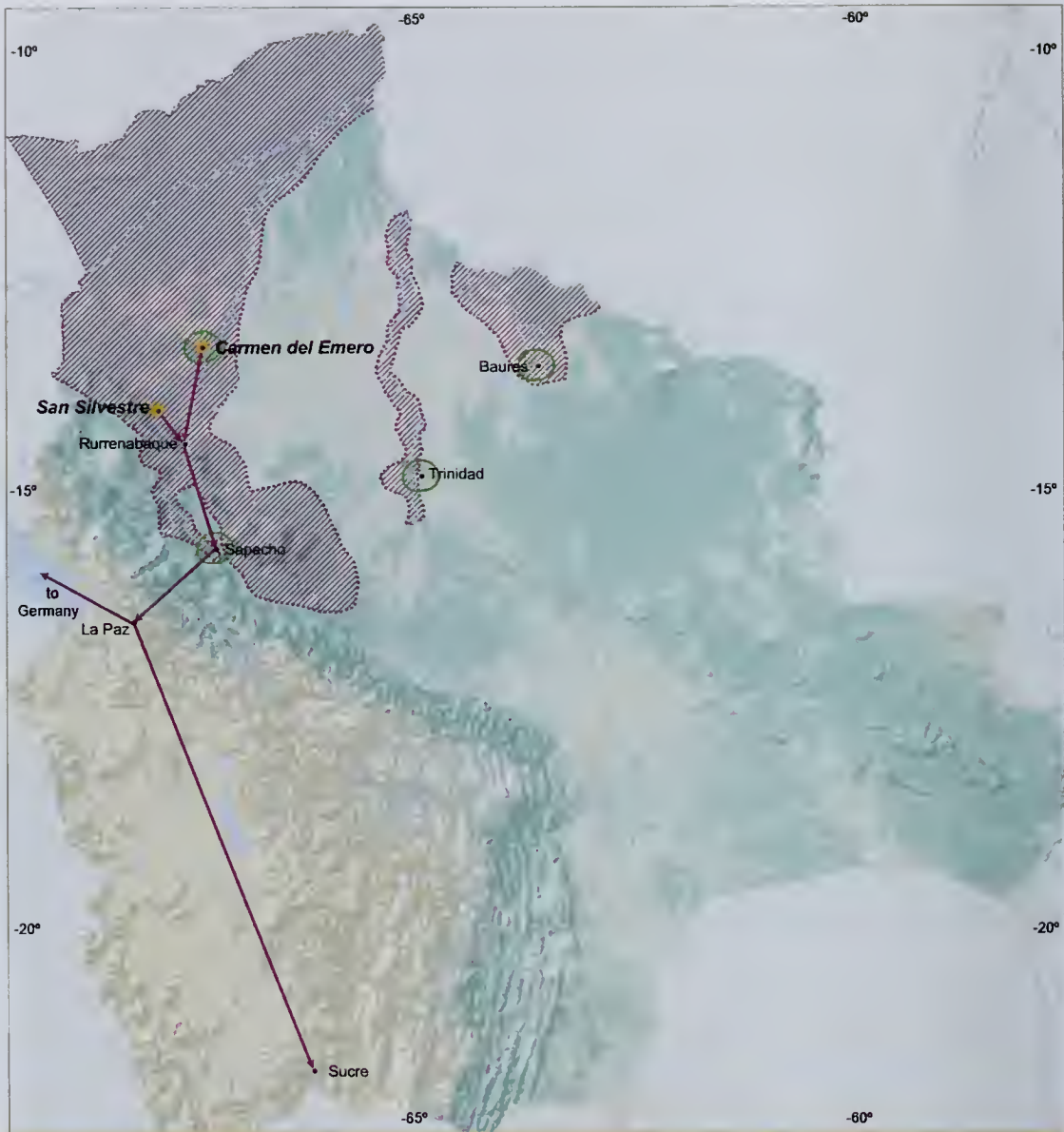









Figure 3.1 Commercialization of wild cocoa in Bolivia: species distribution, centres of production, case study community locations and commercialization routes

Wild cocoa (*Theobroma cacao*)

-  Species distribution
-  Centres of production
-  Case study community locations
-  Commercialization routes

% canopy cover

-  Non-forest
-  10-40% canopy cover
-  > 40% canopy cover

Sources: MODIS (canopy cover); ESRRI (other topographical data)

Wild cocoa

Theobroma cacao

(Sterculiaceae)

Beans or paste?
Different commercialization
strategies to respond to the
challenges of resource density
and market access

Florencio Maldonado, Erik Arancibia
and Elaine Marshall

The case study communities are situated in the Department of La Paz, Bolivia, in the municipalities of Ixiamas and San Buenaventura, some 450 km from the capital city of La Paz. The region is located in the tropical humid zone adjacent to Madidi National Park at an average altitude of 250 metres. This is one of the poorest regions of Bolivia.

San Silvestre is located a two-hour walk from Tumupasa, where there is a tarmac road providing regular access to the towns of San Buenaventura and Rurrenabaque, 64 km away on the Beni river. The 22 families in San Silvestre belong to the Tacana ethnic group and have access to a total of 15 200 ha of land. In 2004, the Bolivian government recognized their ownership by granting them the status of an indigenous territory (TCO - *Tierra Comunitaria de Origen*). The communities are affiliated with the Indigenous Council for Tacana Communities (CIPTA) and consist predominantly of subsistence agriculturists. Average household incomes are only half those in Carmen del Emero (see below). Their land is relatively fertile; it has a high proportion of forest cover and a density of about 104 cocoa trees per ha. Trees are not individually owned, and the fruit is collected by whoever finds it first. Men principally carry out harvesting, often with their children, and women are solely responsible for processing beans into paste. All households are involved in cocoa trade, which contributes about 7 per cent of family income, although much paste is also consumed.

Carmen del Emero (Emero) is located 280 km downriver from Rurrenabaque, a journey of 10 hours by motor boat. Emero has 47 Tacana families who have access to 30 000 ha



Florencio Maldonado

Cocoa harvesting, Carmen del Emero, Bolivia.

of land. The cocoa trees occur naturally along the river fringes at a density of around 324 trees per ha. They are a communal resource with the fruits collected by whoever finds them first. Harvesting is undertaken by all families, involving both men and women, although men collect from sites located further away. There has been a recent move to establish cocoa plantations near the community, mostly using transplanted wildlings, but a few farmers are also beginning to use improved varieties. Emero has a reputation for producing cocoa beans, and the activity contributes, on average, 14 per cent of family income. The other principal economic activity is the sale of dried fish, which accounts for household incomes in this community being almost twice those of San Silvestre.

THE RESOURCE

Cocoa occurs naturally in the humid lowlands of Bolivia (below 500 metres) and throughout the Amazon basin (Figure 3.1). Although there is no evidence that the resource has been overexploited, households have initiated domestication to reduce collection times and increase their individual control over the resource. In recent years, many farmers in both communities have transplanted wildlings to establish their own cocoa resource that is situated closer to home. The growing economic importance of cocoa has been a driver in this process, and domesticated varieties

have been established in informal plantations. There are two varieties of cocoa, which complement one another well in yield and flavour. One variety produces many pods per tree with low bean density, and the other has fewer pods but more beans per pod, and a preferred flavour. Taking the two communities together, some 38 per cent of interviewees are cultivating cocoa as well as collecting it from the wild, but there is no chemical management of the crop, and it is organically produced. The NGO CARE is working with existing community organizations to improve harvesting practices and promote fermentation of the beans to achieve better quality and consequently a higher market price.

PRODUCT AND MARKET DESCRIPTION

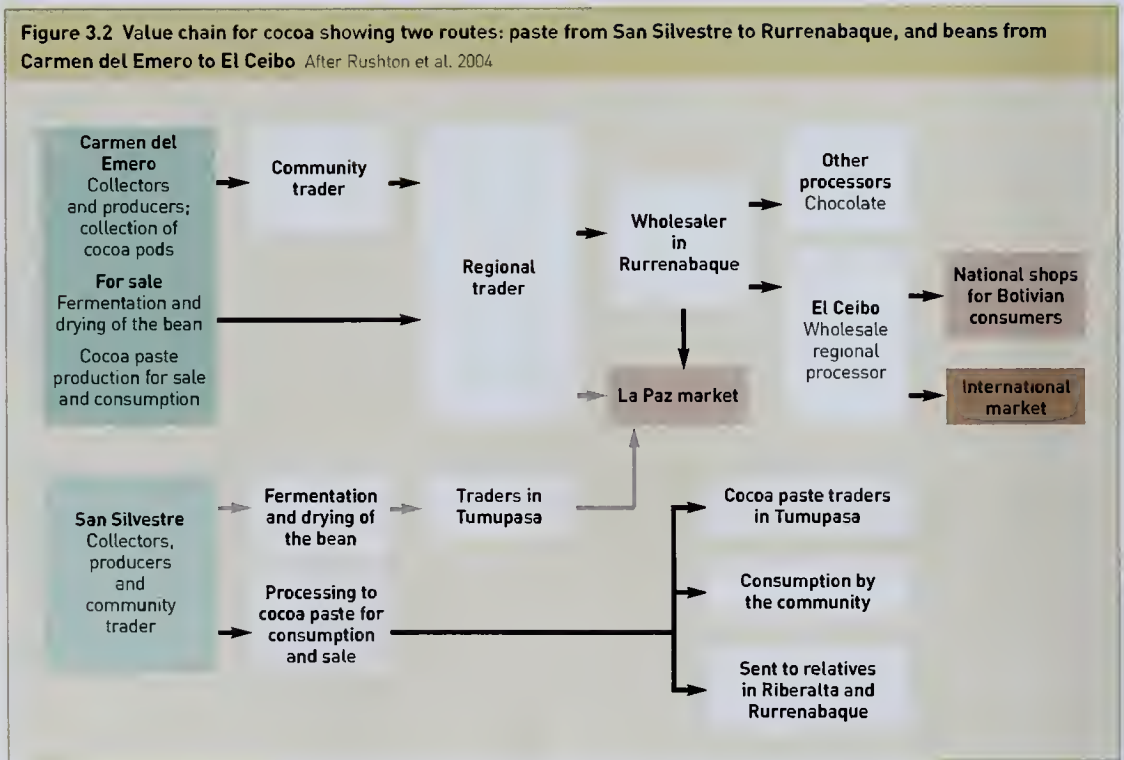
Cocoa is harvested during the months of January to March. Wild cocoa is known for its supreme butter quality, although yield per tree is lower than that of commercial varieties. A growing market for the organic chocolate paste has resulted in an increase in production of cocoa and an elevated price in recent years. Although the butter content is high, the quality of the processed seed needs to be improved to increase market share and price paid.

Cocoa requires some processing at collector level

before it can be sold: predominantly fermented and dried cocoa seed is traded from Emero, throughout the year, in units of 11 kg. The trade from San Silvestre is largely as cocoa paste, processed from the beans by women in the community. There is an option in both communities to sell to a community trader, and also to sell to regional traders [see Figure 3.2].

San Silvestre is a two-hour walk from the nearest town, Tumupasa. The road from there to San Buenaventura is seasonal, and few trucks pass along it. This presents an obstacle to physical transport – particularly for a heavy product like beans – and to market information. San Silvestre has focused on production of paste because of the community’s low density of trees, which means that insufficient beans are produced to attract traders along the poor-quality road to collect a bulky product. Furthermore, paste is a traditional product that is locally consumed and exchanged as a gift. Only the surplus product is traded, in 500-gram balls. This indigenous community is less experienced in commercialization and sells cocoa for a shorter period than Emero, directly following its harvest.

The cocoa producers in Emero, despite their remote location, have greater outside contact provided through six regional traders, who visited initially to purchase dried fish





Florencio Maldonado

Harvested cocoa pods vary greatly in size. San Silvestre, Bolivia.

and now also exchange groceries for cocoa beans. These regional traders are either related to the community traders or have strong social obligations to them as godparents to their children.

The volume of cocoa traded from Emero is highest when dried fish availability is low, but between the two products the traders have something to buy all year round. Women prefer to barter with the traders as they say that they are more likely than their husbands to select products important to the household, such as food and medicines. Although there is high demand for cocoa and the intermediaries have provided a marketplace for Emero, market information is restricted by these same intermediaries, and there are few ways for communities to overcome this.

All the cocoa beans from the region are bought by a wholesaler cooperative, El Ceibo, some 170 km from Rurrenabaque. This cooperative pays a price premium to its members, who meet entry requirements relating to quality and quantity of production, but a reduced rate to non-affiliated producers such as the two case study communities. This study highlights the potential for NTFPs to be marketed into high-value niche markets – organic, in this case – as the cooperative is currently doing: El Ceibo receives a price premium for chocolate made from organic cocoa. Unfortunately this is not passed down to the producers from the case study communities, as their production is not certified as being organic. Access to market information at this point in the value chain is a significant obstacle to commercialization for producer communities. In addition, no households have access to credit, relying solely on informal lending arrangements

between relatives for the establishment of plant nurseries. Both communities have received support from CIPTA, CARE Bolivia and the German Development Service (DED) to improve processing of the beans.

Waiting for the intermediary to arrive, beans ferment in the sun, improving their flavour.



Florencio Maldonado

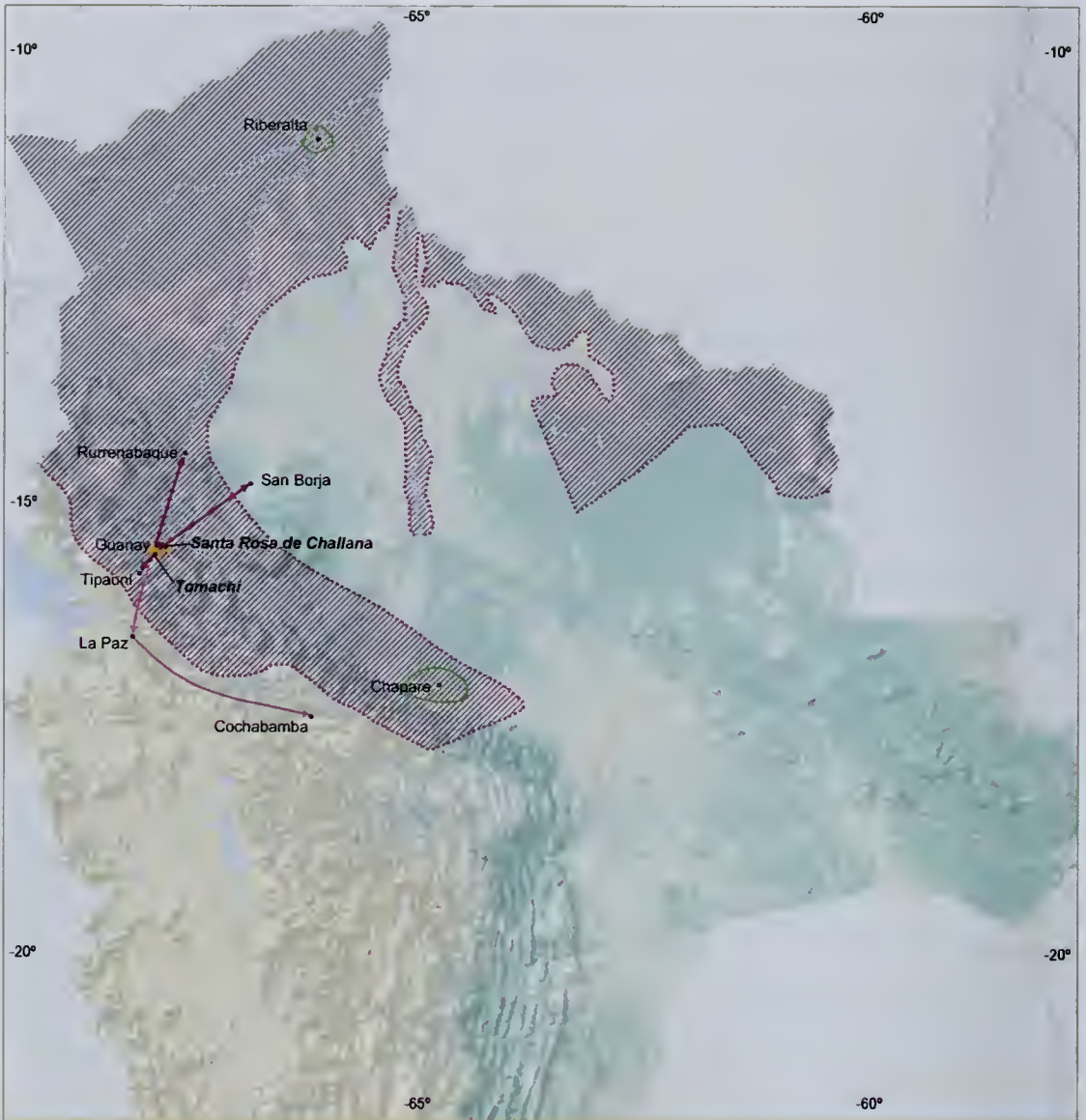










Figure 3.3 Commercialization of natural rubber in Bolivia: species distribution, centres of production, case study community locations and commercialization routes

Natural rubber (*Hevea brasiliensis*)

-  Species distribution
-  Centres of production
-  Case study community locations
-  Commercialization routes
-  Commercialization routes (latex)

% canopy cover

-  Non-forest
-  10-40% canopy cover
-  > 40% canopy cover

Sources: MODIS (canopy cover), ESRI (other topographical data)



Isidro Rodríguez

Making waterproof ponchos by coating cloth cut-outs in rubber latex, Santa Rosa, Bolivia.

Natural rubber *Hevea brasiliensis* (Euphorbiaceae)

Waterproofs or latex?
Different commercialization
strategies determined by
transport and tenure

Isidro Rodríguez, Erik Arancibia
and Elaine Marshall

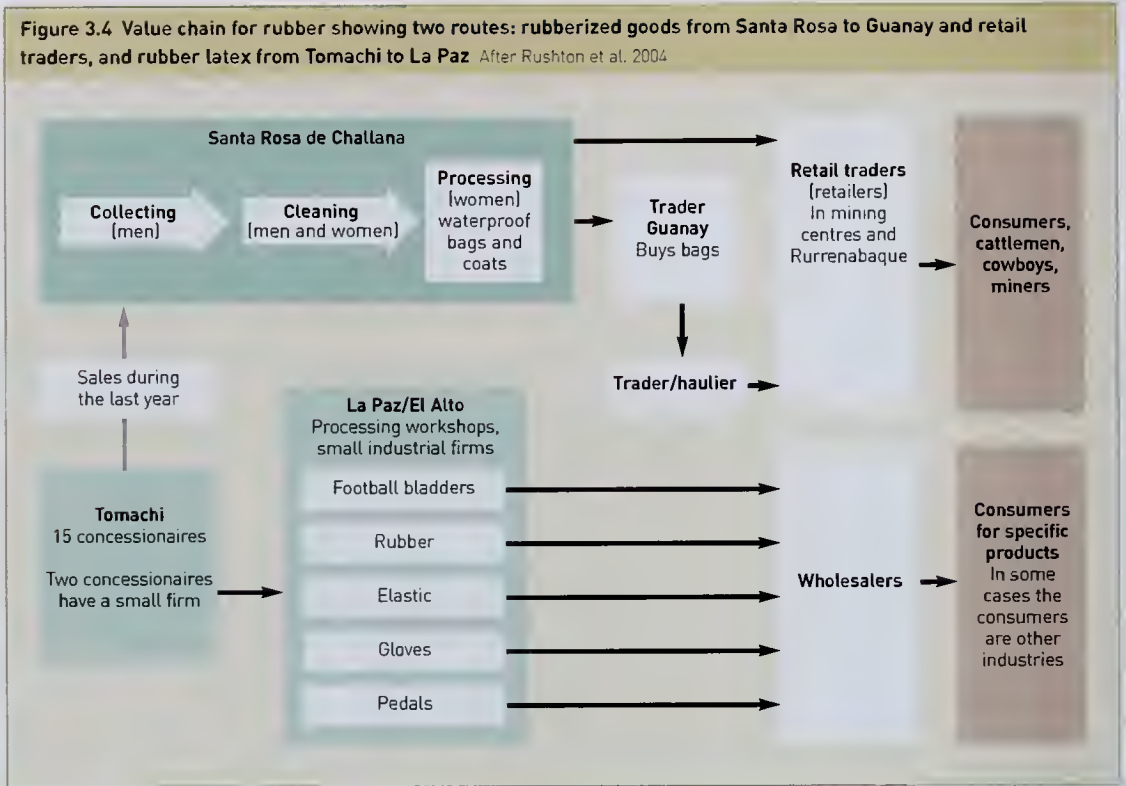
The case study communities of Santa Rosa de Challana and Tomachi are the longest-standing producers of rubber in the municipality of Guanay, La Paz Department, Bolivia, with more than 50 years' experience of production, processing and sale. They are located eight hours by road (220 km) from the capital city of La Paz. The region lies within a tropical mountainous zone characterized by occurrence of valuable mineral deposits, including gold.

Santa Rosa de Challana (Santa Rosa) is located at an altitude of 900 metres approximately 23 km from the town of Guanay. It consists of 26 families of the Aymara ethnic group, who migrated to the region in the early 1900s and established a well-organized community. The agricultural and livestock potential is limited by steeply sloping topography. The community possesses an extensive land area of 8 500 ha, of which 40 per cent is dedicated to rubber production, from natural stands.

Tomachi is located at an altitude of 360 metres approximately 26 km from Guanay. There are 140 families: 60 per cent of Leco origin, 30 per cent Aymara immigrants who arrived during the 1960s from the Altiplano and 10 per cent Quechua. The community owns 5 600 ha (land is in the process of establishing a TCO to exclude further immigration).

The majority of land is cultivated, and 80 per cent of agricultural produce is sold, representing the principal source of income. Consequently, much of the surrounding forest has been cleared for rice cultivation. In general the community seems much richer, or has much greater wealth disparities, than Santa Rosa due to land titling [see below]. There are 12 forest concessions in Tomachi, which generate a much higher income than traditional agricultural activities.

Figure 3.4 Value chain for rubber showing two routes: rubberized goods from Santa Rosa to Guanay and retail traders, and rubber latex from Tomachi to La Paz After Rushton et al. 2004



THE RESOURCE

Rubber occurs naturally in the northwest of Bolivia from the Andes to the border with Brazil (Figure 3.3). Latex is extracted by cutting into the surface layers of the bark, but not as deep as the cambial layer, to avoid killing the tree. The harvesting is undertaken at night and in the early hours of the morning. Rubber is harvested along forest tracks (*estradas*), from which individual rubber trees can be accessed. The number of trees per track varies from approximately 50 in Santa Rosa to 200 in Tomachi.

In Santa Rosa, rubber trees are communally owned, but each family has access to an average of three forest tracks, which were demarcated when areas were first worked. No community management plans exist, but rights to forest tracks are well respected, and individual collectors manage their resource – even without NGO intervention – including allowing the trees to recover for two months between cuts. Peak rubber yields occur during the rainy season. Extraction is predominantly by men due to the hard and sometimes dangerous physical labour involved, though women also collect from nearby trees. Women dominate the processing. Everybody benefits from rubber production in Santa Rosa, with 90 per cent of household cash incomes

coming from the sale of rubber products. The large area available per person and the hilly terrain – which makes rice cultivation impossible – combined with a lack of alternative income-generating activities make rubber production a highly valued activity. This is one reason why forests in the area are well conserved, with no signs of agricultural clearings. The income from selling the final goods is used by women to cover household expenses.

In Tomachi, land tenure is based around concessions for mineral rights established during the gold mining period. These were then transferred to forestry, giving the concessionaires ownership of 10-36 tracks of rubber each. During the course of this research, it became apparent to the NGO CARE that the title deeds had in fact expired, so community members are now seeking to achieve land redistribution with new titles. The concessionaires hire local men on a piecemeal basis to harvest the latex during six months of the year, and they will hire immigrants if the locals do not work hard enough. The remaining rubber resources are a short boat ride and a 90-minute walk from the village. When the mining industry was started during the 1980s, 40 per cent of the community was employed to collect rubber, but the

quantity of work has diminished substantially over the last 10 years. Now only seven Tomachi families are involved in collection.

PRODUCT AND MARKET DESCRIPTION

Three distinct products are marketed: liquid latex, locally processed artisan goods and goods processed in a semi-industrial manner (Figure 3.4). The rubber from Tomachi is commercialized as liquid latex in 200-litre drums. This is possible because of the availability of good transport links: in addition to daily vehicle access to and from the community, Tomachi is also located next to a large river. Traditionally, people have both used the river to transport rubber, and used rubber to transport precious goods down the river, including placing small children inside rubber sacks and floating them across! Concessionaires in Tomachi control commercialization from collection to wholesale. Barrels of latex are sold to intermediaries working for the concessionaires, who then transport it to La Paz and El Alto, where it is sold to craftsmen and women working in small-scale industry. Two of the concessionaires themselves own workshops in La Paz, where products such as football bladders are made.

By contrast, Santa Rosa is limited to a seasonal road with twice-weekly vehicle access. Poor infrastructure coupled with a low density of rubber trees in Santa Rosa make selling the raw rubber latex unviable, whether

individually or communally. Families process the relatively small volumes of latex, adding value locally and increasing the sold value per unit weight. Final goods include rubber ponchos and raincoats destined for miners, and bags farmers use to transport their rice downriver. Individuals sell their products to the mining centres of Guanay. Other commercialization obstacles in Santa Rosa are lack of market information and declining traditional markets provided by the gold mining industry, including water-proofs. Nevertheless, good community organization and innovation have enabled producers to develop new products to take advantage of the limited local market.

Trade in natural rubber declined markedly during the 1940s following the appearance of synthetic latex. Substitutes remain a threat, but natural rubber has a rustic niche market, e.g. rubber boots. National demand for natural rubber remains relatively high; it is imported into Bolivia. The main obstacle to competing with this imported natural rubber is consistency in product quality and the wholesale price paid. Neither community has access to formal credit, nor is there any government support for natural rubber. Although there are no policies or norms impeding commercialization, rubber processing is affected by the increasing regulation of ammonia supplies, due to its use in cocaine production. CARE has provided support in product improvement, including finding alternatives to ammonia for use in the production of rubber.

Tapping rubber trees: grooves are cut in the bark and the latex is collected in recycled cans.







A gold miner leaves for work wearing his waterproof poncho, made from locally harvested and processed natural rubber.








Figure 3.5 Commercialization of incense and copal in Bolivia: species distribution, centres of production, case study community location and commercialization routes

Incense and copal
 (*Clusia cf. ramosa* and *Protium puncticulatum*)*

-  Species distribution
-  Centres of production
-  Case study community location
-  Commercialization routes

-  Non-forest
-  10-40% canopy cover
-  > 40% canopy cover

* The two products have been grouped together as they have the same commercialization chain.

Sources: MODIS (canopy cover),
 ESRI (other topographical data)

Incense and copal

Clusia cf. ramosa

(Guttiferae)

and *Protium sp.*

(Burseraceae)

Two resins: different values,
different uses, one value chain

César Enríquez, Erik Arancibia
and Elaine Marshall

Pucasucho is located in the municipality of Apolo in northern La Paz Department, Bolivia. The average journey time from the capital city of La Paz, some 450 km away, is 12 to 16 hours by road during the dry season. Products traded from this region, therefore, are likely to be most successful when they are high in value but low in volume. The case study community is one of only six communities seriously engaged in the incense trade.

Pucasucho is located 70 km from the nearest town of Apolo at an altitude of 1 530 metres in the buffer zone of the recently created Madidi National Park. It has 43 families of Leco-Ahuachile and Quechua origin, 18 of which dedicate time to the joint collection of copal and the scarcer and higher-value incense. The families are subsistence agriculturalists farming beans, maize and small livestock on approximately 5 500 ha of land. Most external goods are acquired through barter, emphasizing the importance of incense and copal activities in generating a cash income. These NTFPs are viewed as a savings bank that can be drawn upon in times of need. Collection of these NTFPs is labour and time intensive, with an average of two days required to reach the harvesting sites within the park. There is an informal agreement with the park administration that collection may continue in existing areas, but not expand into new areas.

It is not the poorest members of the community who collect incense/copal, but rather those who are recognized by the community as nominal owners of a zone of incense production, or *rumbeo*. Collection also requires the resources to cover costs for harvesting, including a mule or pony for transporting food and provisions. Collection is undertaken exclusively by men because of the distance travelled, time spent away from home and the dangers



Elaine Marshall

Copal resin on the underside of a piece of bark. Madidi National Park, Bolivia.

encountered, such as venomous snakes. The products are available for harvest throughout the year, but collection trips are relatively dangerous during the rainy season. On average, three or four expeditions are undertaken each year, when money is needed for the home.

THE RESOURCE

The natural distribution of these species in Bolivia is in the foothills of the eastern Andes, from the Chapare region towards the north of the country (Figure 3.5). They exist in almost all patches of tropical montane or cloud forest, but are especially abundant in the Madidi region at 1 500–2 400 metres. The resin from both incense and copal is extracted by cutting a groove in the bark of the tree, from which the resin flows and solidifies into lumps. Both incense and copal can be harvested on collection expeditions, but incense is often preferred due to its higher market value. However, it is naturally much less abundant, and copal is collected to provide at least some returns to labour on the expedition. Testimony from collectors indicates that there is rarely enough incense to make an expedition worthwhile, and copal provides a readily collected alternative. Both resins are marketed along the same trade route, but are priced differently, and only incense is exported.

As a result of the remoteness of the harvesting sites – up to five days can be invested in one collection outing – resource management is difficult. The lack of management capacity and lack of attempts to domesticate the species, coupled with harvesting without norms or management techniques, have had a negative impact on the natural resource. There has been an observed reduction in the productivity of remaining individual trees of both species and the gradual death of harvested trees. There are

increasing reports of theft of incense/copal by individuals other than those to whom the right to harvest certain trees has been assigned. This results in overcutting of immature trees and reduced recovery time between harvests. As harvesting zones are individually assigned, no single community has a defined area, making community-level management difficult to organize.

PRODUCT AND MARKET DESCRIPTION

There is a stable market for incense and copal, which are used extensively in Bolivia and throughout Latin America for ritual burning in Catholic and traditional ceremonies, at parties, on saints' days and for blessings. The Quechuas also use these aromatic resins as a medicine for various ailments. Incense appears to have a much wider application than copal owing to its chemical composition, and is used in the paint/varnish industry in Argentina and possibly Chile.

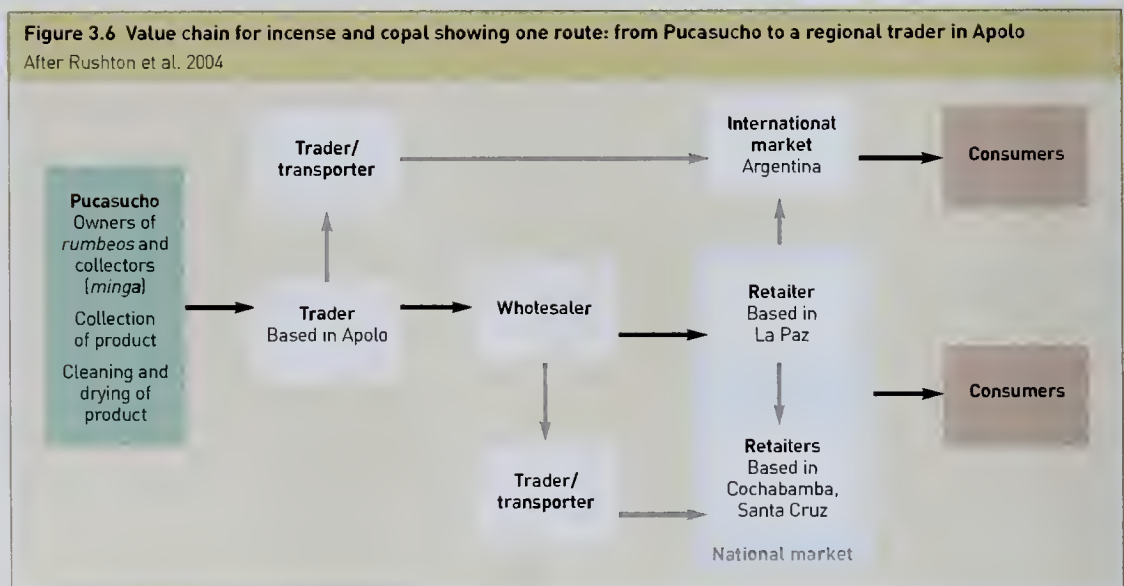
Harvesting expeditions are organized by the harvesting zone owners, who sometimes hire labour through the traditional Quechua *minga* system of communal labour. Although harvesting is looked down upon as a poor man's activity, in the case of incense and copal the *minga* system allows individuals who do not have access to the resource to take part in and benefit from expeditions. Expenses such as food are advanced by the owner in return for half of the harvest.

The volume of incense is increased through stock-piling as it moves along the value chain away from the collector. Incense is often traded first within Pucasucho, in quantities of 1-2 kg, and the price paid to collectors at

wholesaler level in the markets of La Paz is per unit of 11 kg or 45 kg. Few collectors in Pucasucho sell their resin in La Paz themselves due to the distance involved. Instead they sell to a small number of intermediaries (Figure 3.6) based in Apolo, who send the product on to family members in La Paz for sale.

Intermediaries grade incense into three qualities according to the size of the resin drops harvested. Although intermediaries earn a premium on the largest drops of resin, collectors are not paid a price differential. The chain is inefficient at communicating market information, and the fact that the price differential is not passed on to the collectors may be a cause of resource overexploitation: higher values could provide greater incentives for sustainable management. Community members sell individually, without adding value, e.g. through processing, and there is no formal credit provision. Access to market information is poor at community level largely owing to the distance between areas of production and centres of commerce. Collectors have no opportunity to exert market power, and prices paid to producers have remained virtually unchanged since the 1970s.

The community has received support from CARE Bolivia for the elaboration of proposals for financing management plans, domestication trials and community trading initiatives. There is currently regional interest in both the trade of incense/copal and harvesting impacts on the resources by the United Nations Development Programme (UNDP) and international NGOs such as the World Conservation Society.





Elaine Marshall

Jipi japa *Carludovica palmata* (Cyclanthaceae)

Tourist crafts or hats:
weavers associating
with an entrepreneur
to reach tourist markets
or immigrant women
selling hats locally?

Fausto López, Erik Arancibia
and Elaine Marshall

Only the young jipi japa leaves are selected for weaving. They are dried and often dyed before being woven into hats, trinket boxes and mats.

The case study communities of Candelaria, Potrero San Rafael and Carmen Surutú are located in the municipality of Buenavista, Santa Cruz Department, Bolivia. They are situated in a region of lowland humid forest in the foothills of the Amboró National Park. The region is connected by relatively high-quality roads to the city of Santa Cruz, some 160 km distant, with a journey time of under two hours.

Candelaria has 40 indigenous Camba families, native to eastern Bolivia, who own 300 ha of land, including a forested river margin from which jipi japa palm is extracted. The community depends largely on subsistence agriculture and the preparation of handicrafts, which involves more than 90 per cent of the population. There is a tendency for young people to migrate to Santa Cruz in search of paid work.

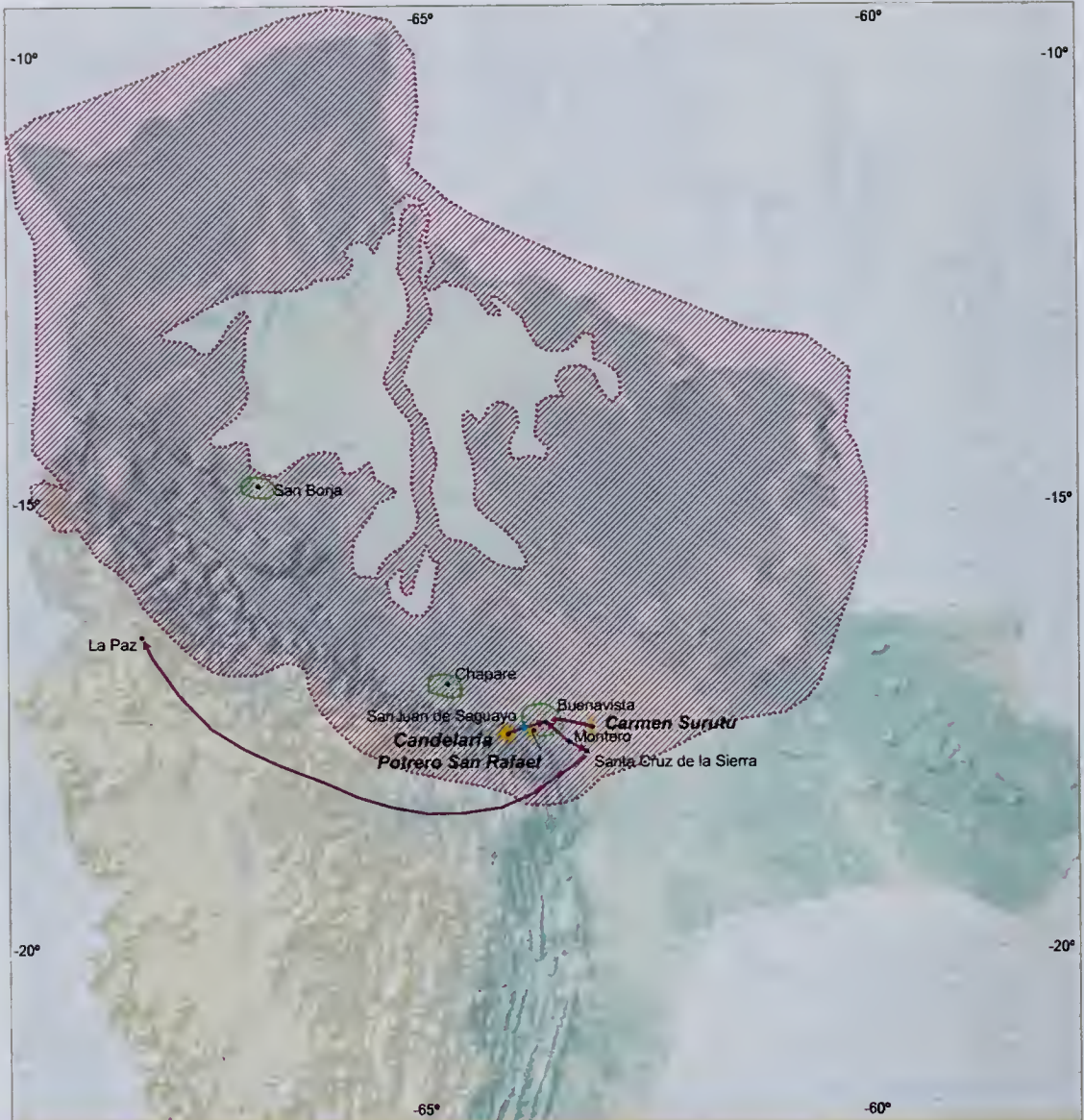










Figure 3.7 Commercialization of jipi japa in Bolivia: species distribution, centres of production, case study community locations and commercialization routes

- | | |
|---|--------------------------------|
| Jipi japa palm (<i>Carludovica palmata</i>) | |
|  | Species distribution |
|  | Centres of production |
|  | Case study community locations |
|  | Commercialization routes |
|  | Source of raw material |
| % canopy cover | |
|  | Non-forest |
|  | 10-40% canopy cover |
|  | > 40% canopy cover |

Sources: MODIS (canopy cover), ESRI (other topographical data)

Potrero San Rafael (Potrero) is similar to Candelaria, with 33 families of Camba origin who own 1 000 ha of land. Forest cover has almost disappeared as a result of agricultural encroachment, resulting in the need to purchase jipi japa from San Juan de Saguayo for processing and sale. The main activity is agriculture; only 25 per cent of the population work with jipi japa. There is marked emigration of young people.

Carmen Surutú (Surutú) is the largest of the three communities, with 120 Valluno and Chuquisaqueño families organized in an agrarian syndicate, with 12 500 ha of land. As immigrants from the Altiplano, they learned to weave jipi japa after arriving in the region. There is a continued high rate of immigration into the region, and this population pressure is, in part, contributing to high rates of forest loss. The principal activity is agriculture, and only 15 per cent of families are involved in the jipi japa trade. The shortest route from the community to Buenavista involves having to wade across a river, easily passable in the dry season but an obstacle in the rainy season.

The collection of jipi japa is undertaken mainly by men, or it is bought from San Juan de Saguayo, and processing almost exclusively by women. As a result, women generate an income over which they have control, but many report the activity as overloading their daily commitments.

THE RESOURCE

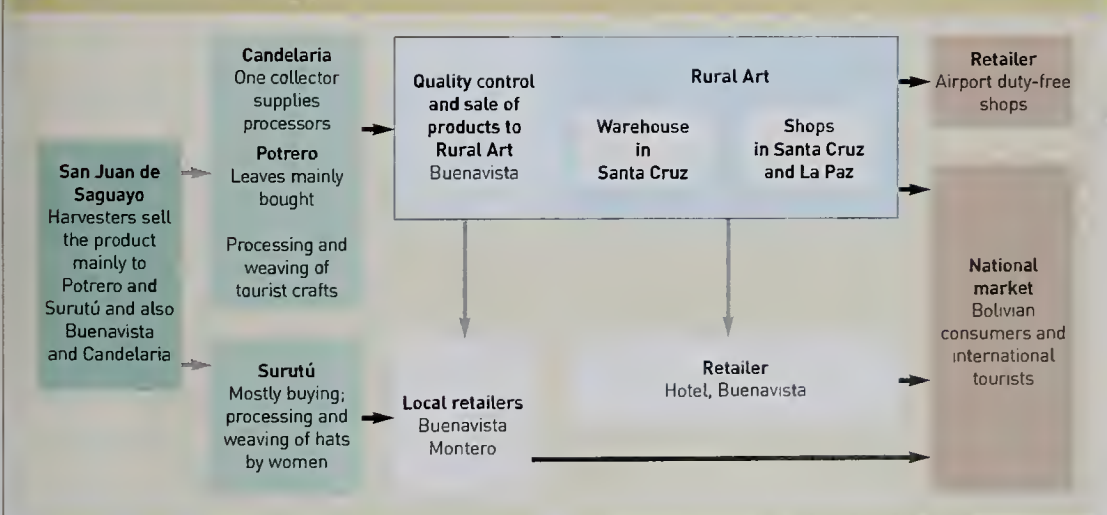
Jipi japa palm is extensively distributed throughout the lowland tropics, extending from the centre of Bolivia northward into the Amazon basin (Figure 3.7). Generally it is

found within forest fringes of foothills and around river banks. It grows in clusters of individual plants, and harvesters target young unfurled leaves from which to extract plant fibre to weave hats and other diverse crafts.

Resource scarcity is considered to be largely a result of habitat loss – deforestation and mass land conversion to agriculture – rather than overharvesting. According to the National Service for Protected Areas (SERNAP), people wishing to harvest jipi japa must ask for a permit related to its function and future use – i.e. either domestic or with a commercial aim. The law states that whilst an individual may own the land upon which jipi japa grows, he or she does not own the actual resource. However, national regulation has little impact, and in reality this government department receives a negligible number of requests for extraction permits. As a result of depleted natural resources, some communities have attempted to domesticate the species, with the most promising results from growing it with other plants and under shade.

The quality of young leaves cultivated under full sunlight is low, resulting in shorter length and greater rigidity. Candelaria is the only community that still harvests leaves; in the other communities, leaves are predominantly bought, and minimal amounts are harvested. There are two separate raw material supply chains for jipi japa (Figure 3.8): one collector located in Candelaria supplies processors in Candelaria and Buenavista; and families in San Juan de Saguayo collect jipi japa and supply processors in Potrero and Carmen Surutú and, to a lesser extent, Buenavista and Candelaria. Only families that can afford to

Figure 3.8 Value chain for jipi japa showing two routes: tourist crafts from Potrero and Candelaria to Rural Art, and hats from Surutú to local traders After Rushton et al. 2004



purchase the raw material can continue to weave. Inevitably, female processors are somewhat vulnerable due to their reliance on purchasing the leaves from a few male collectors, in addition to having no land on which to domesticate.

PRODUCT AND MARKET DESCRIPTION

Jipi japa hats and other woven goods have over time been displaced by cheaper plastic substitutes imported from Taiwan. However, there is an emerging interest in jipi japa for inclusion in alternative livelihood programmes originating from the Bolivian government's move to eradicate coca production. This is evident from the establishment of several weavers' groups supported by regional NGOs and working with jipi japa and palms from other regions. This may have implications for resource supply and market share for many rural communities.

Weavers in the communities of Candelaria and Potrero are affiliated with a private company called Rural Art, which established and supports an association of jipi japa weavers, providing them with training to supply its tourist shops with artefacts woven to specified designs and qualities. An NGO associated with Rural Art specifically supports indigenous people from the Santa Cruz region in an attempt to counter the high proportion of bilateral aid that has been directed at immigrants. Rural Art

Freshly dried palm leaves ready for weaving or dying into different colours.



Elaine Marshall

was established by a social entrepreneur with the aim of helping locally indigenous people by selling a range of handicrafts made by different underprivileged groups through the company's shops.

Association members see the concentration of market power in the hands of Rural Art as being mostly positive. Benefits include higher prices paid for goods, a social fund that pays health bills and a rotating fund that occasionally provides financial capital for investments. In addition, affiliation with Rural Art helps weavers overcome market barriers; through the organization, their products reach otherwise inaccessible tourist markets that are demanding in terms of quality but pay higher prices. Trade is direct and in the form of cash for all the communities, but Rural Art defers some of the payment for merchandise, placing it into a compulsory savings account. A portion of each seller's profit is held back for health services and year-end gifts for the members. The demand for products has remained stable over the last five years, although it is feared that the emergence of other associations in the marketplace will destabilize prices. The current trade network operates at a national level with outlets in the cities of La Paz and Santa Cruz, and smaller interventions in the towns of Beni, Trinidad, Rurrenabaque and San Borja.

Weavers in the community of Surutú are not considered eligible to join the Rural Art association because they are immigrants to the region. They have established a community organization that successfully supplies the local markets of Buenavista and Montero, mostly with hats. A single woman is nominated to sell all the hats made in Surutú, in return for 20 per cent of the sales income. There are, however, no organizational benefits nor security for weavers, and reliance is almost entirely on a local market in Buenavista, and visitors to Amboró National Park.

Jipi japa trinkets available for sale in a Rural Art shop, Santa Cruz.



Elaine Marshall

Soyate palm

Brahea dulcis

(Arecaceae)

Plaiting palm leaves: family production of hats and handicrafts

Catarina Illsley, Tonantzin Gómez,
Fabrice Edouard and Elaine Marshall

Two indigenous communities of Nahuatl origin were selected for study, located in the dry lowlands of Guerrero State, Mexico. The region is located in the southern Sierra Madre mountain range, 60 km west of the state capital Chilpancingo and 25 km northeast of the regional economic centre Chilapa, to which it is connected by paved highways (Figure 3.9). The region is characterized by tropical dry forest that exhibits high levels of endemism and includes species of oak, other deciduous trees, grasses and palms.

Topiltepec is located in the municipality of Zitlala, at an altitude of approximately 1 800 metres. The 380 families in the community are subsistence agriculturalists with a total land area of 1 540 ha. A dam allows for more intensive and diversified irrigated agriculture. Tenure is complicated, with a long history of land use conflict. Essentially an agrarian community, part of the population is assigned individual plots with access to the remaining communal land for collected products including soyate palm, but excluding maguey (see next case study). The remaining population consists of small landowners who have enclosed plots for their private use and consequently no longer have access rights to the communal land. There are hourly bus connections to nearby towns via a dirt road, and proximity to the region's commercial centre has resulted in more girls and boys studying beyond primary and secondary school.

La Esperanza is located in the municipality of Martyr of Cuilapa at an altitude of 870-1 980 metres. The 350 families are reliant on subsistence farming and have a communal land area of 3 000 ha. All the community speaks Nahuatl, and some older women have never learnt Spanish. The dependence on natural resources is greater than in Topiltepec because there are fewer opportunities for paid

work. Household cash income in both communities is largely sustained by remittances from young men who migrate both seasonally and permanently to other parts of Mexico, and recently to the United States.

THE RESOURCE

The soyate palm can grow in two forms: as a single trunk palm or in bushy clusters measuring up to 10 metres in diameter. It is a slow-growing evergreen species reaching a maximum height of 7 metres. Each frond produces between 10 and 24 leaves per year. The species is widely dispersed across the communal territory, and people are free to collect from any part. It is not unknown for some collectors to remain in their plots for days to prevent others coming and cutting the leaves at the wrong time. What is harvested depends on the collector's plans about what to make or sell. Historically, the palm trunk was harvested for roof posts, but as mature trees were all cut down, the community assembly imposed restrictions that are maintained to this day. Leaves are now the principal product harvested, predominantly from the bushy form of the palm. This form is promoted by cattle grazing, forest fires, logging and general degradation of the forest, and can occur on abandoned plots following slash-and-burn. As degradation is increasing, palm structure and cover are expected to change in favour of the bushy form.

The exploitation of the palm, which is a wild plant with some *in situ* management, is not endangering the species *per se*. However, there is evidence that current levels of exploitation are having an impact on the size of the leaves. For making handicrafts, the still-folded and tender leaves must be at least 50 cm long. Harvesters report having to travel further from the community to locate suitable harvesting material. The community of Topiltepec has implemented a management plan to increase the productivity of the palms. The NGO Grupo de Estudios Ambientales (GEA) has provided technical and financial support to both communities over the past decade, including resource management assistance.

PRODUCT AND MARKET DESCRIPTION






Almost all the families (98 per cent) in both communities harvest palm and use the dried leaves to thatch roofs and the young unfolded leaves to make handicrafts. They also boil the leaves to soften them and then plait them into strips (*cinta*), which are sold in rolls of 20 metres and later sewn or woven together to make hats, saddlebags, table mats and so on. The palm fibre is resistant, but not of a high enough quality for fine weaving. Consequently, producers and processors are paid very low prices for their material.

Collection and processing occur during traditionally quieter periods of the year, and provide an income when






Figure 3.9 Commercialization of soyate palm in Mexico: species distribution, centres of production, case study community locations and commercialization routes

Soyate palm (*Brahea dulcis*)

-  Species distribution
-  Centres of production
-  Case study community locations
-  Commercialization routes (artisan goods)
-  Commercialization routes (hats)

% canopy cover

-  Non-forest
-  10-40% canopy cover
-  > 40% canopy cover

Sources: MODIS (canopy cover);
ESRI (other topographical data)

there are few other economic options. It takes approximately six working hours to produce 20 metres of plaited strip worth US\$0.15. The price paid to collectors has not increased with inflation over the last decade. However, plaiting the strips can be undertaken in parallel with other daily activities, explaining why more than 90 per cent of the families in both communities continue to devote time to this activity. It is also one of the only options available in either community for *in situ* cash income generation, especially for women, children and the elderly. Products are sold to buyers in the community as soon as they are made in order to obtain immediate income to cover basic needs. In addition to plaited strips, there are people in La Esperanza who simply sell the palm leaves to a couple of weavers who specialize in different palm articles, or to the two family-run handicrafts workshops making baskets, mats and hats (Figure 3.10).

Some commercialization chains, especially those trading hats, are very long and complex. Hat production from the region was well established in the 1870s. According to Sanzekan Tinemi, a regional organization based in Chilapa and supported by GEA, palm leaves are now harvested by about 40 000 people, producing 500-800 tonnes per year, from just five municipalities. Principal

centres of production and processing of plaited strips throughout Mexico are in Tlapehuala, Guerrero; Tehuacán, Puebla; Sahuayo; and Michoacán. However, Chilapa is one of the most important palm markets, with numerous processing factories for different products. The finished crafts are sold locally, regionally in the tourist centres of Acapulco, Taxco and Cuernavaca, nationally in other cities throughout Mexico and internationally via export throughout the Americas and into Europe.

One of the challenges facing the commercialization of palm products is displacement by cheaper substitutes. Increasingly, plastic products and cheap Chinese palm goods infiltrate traditional markets, directly competing with local palm products and serving to further push prices down. Although the market has declined for some palm products, such as bedrolls and large bags, market share is being maintained and even increased for smaller, more decorative items. The capacity of craftworkers to produce new designs and respond to market trends helps maintain a presence in the market. Sanzekan Tinemi has brought in qualified designers to work with weavers and has explored new commercialization chains, including fair trade markets in Holland, to date capturing 3-5 per cent of local production.

Figure 3.10 Value chain for soyate palm showing three routes: a community trader, a local trader who comes to the community, and selling directly to hat makers After Rushton et al. 2004

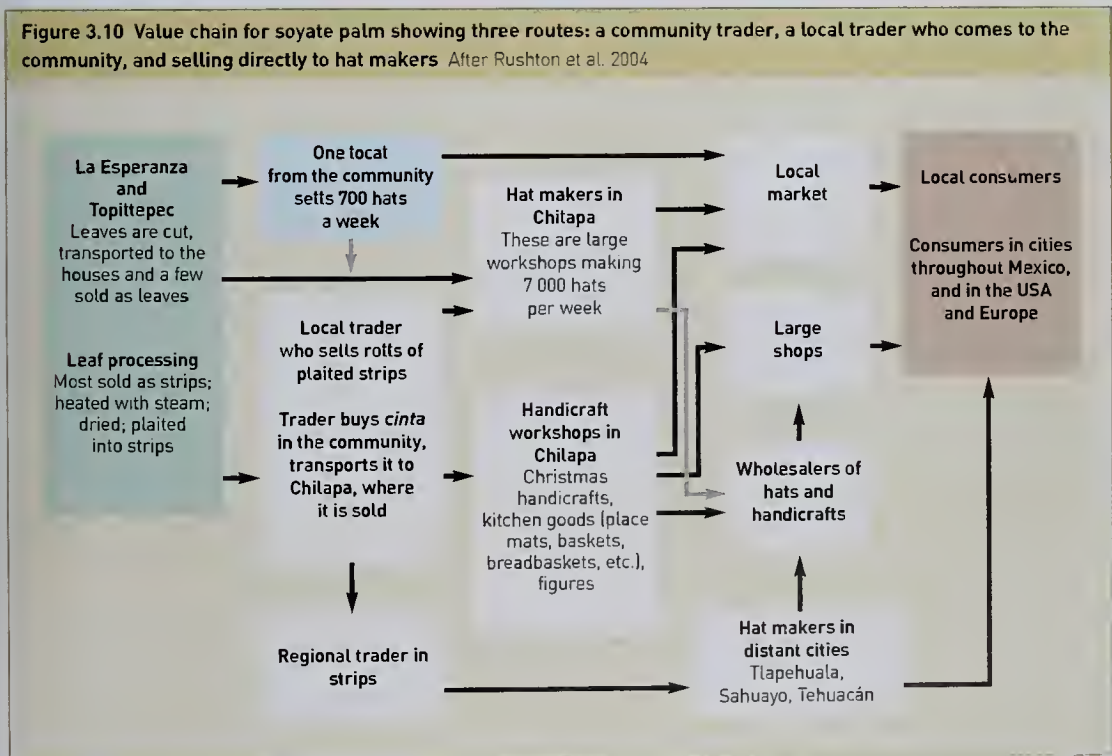











Figure 3.11 Commercialization of maguey in Mexico: species distribution, centres of production, case study community locations and commercialization routes

Maguey papalote (*Agave cupreata*)

-  Species distribution
-  Centres of production
-  Case study community locations
-  Commercialization routes

% canopy cover

-  Non-forest
-  10-40% canopy cover
-  > 40% canopy cover

Sources: MOJIS (canopy cover), ESRI (other topographical data)

Maguey papalote

Agave cupreata

(Agavaceae)

Community resource management supplies a traditional beverage for a niche market

Catarina Illsley, Tonantzin Gómez,
Fabrice Edouard and Elaine Marshall

This case study was carried out in La Esperanza (see previous case for description). In the neighbouring community of Topiltepec, usufruct rights to maguey on communal land have never been clarified, so it is only harvested from individual plots. The maguey is sold on to mezcal distillers in La Esperanza.

THE RESOURCE

Maguey papalote is endemic to the area, growing naturally in the understorey of tropical dry forests, in oak woodland and in grasslands (Figure 3.11). Maguey is important to the culture of the Nahua communities, who use the plant for food, medicine, building, soil conservation and the production of the traditional beverage mezcal. In order to manufacture mezcal, agave plants are harvested at six or seven years, before they produce their single flower and fruit. It is important to cut the right part of the plant at the right time to ensure a good flavour: the centre of the rosette, or head, is used because of its concentration of sugar. In traditional distilleries, these heads are placed inside pit ovens, where they bake for three to five days over firewood and hot stones. Later they are fermented in wooden vats and finally distilled twice in copper Arab-style stills.

Maguey in La Esperanza is a communally owned resource. The General Assembly meets every year and allocates maguey-harvesting rights to mezcal distillers on a monthly basis, rotating among them during the harvesting season of February to May. The income of US\$150 per month from the sale of agaves benefits the whole community by covering the costs of social events. Distillers also buy maguey from other communities. Maguey is harvested from wild populations. Unlike other agaves, it only reproduces from seed. There is considerable pressure on the resource as immature plants are harvested with insufficient sparing of

reproductive individuals, and forest fires and grazing livestock destroy many of the smaller plants.

To protect the resource, the communal land is divided into two parts – rotated annually – half of which is designated for cattle grazing and half for maguey production. Traditional management practices include community rules that ensure regeneration of wild populations. One traditional management system represents incipient domestication, promoting the forming of dense patches of agaves and selection of reproductive individuals according to desired traits. During the last decade, Sanzekan Tinemi has established a programme of maguey reforestation through enrichment planting of the natural habitat. Collection of wild germplasm produces more than 2 million plants annually.

PRODUCT AND MARKET DESCRIPTION

Mezcal is a spirit prepared by distilling cooked and fermented agave plants. The tradition of making mezcal has been passed down from one generation to another for hundreds of years, and production takes place in small rustic distilleries (*fábricas*) set in the forest close to water sources. Some 15 agave species are used in different regions of Mexico, and each mezcal is different, both because of species variation and because of the tools and processes used in its preparation. Few mezcal are made industrially, the most famous being tequila. Mezcal's origin goes back some 10 000 years, when baked agaves were the main foodstuff for hunters and gatherers. Fermented agave was a basic alcoholic beverage, and Filipino slaves brought by the Spaniards in the 16th century introduced the practice of distilling. Some slaves escaped and blended with the Indian population, making mezcal the distinctive Indian liquor, especially in the dry tropical areas of Mexico. Production was maintained throughout the centuries in spite of a long history of prohibition and persecution that continued up to 1986 in Guerrero.

Traditionally, only men are involved in the production and trading of mezcal. The distillery owners (*fabriceros*) live in the region and are individuals who have managed to accumulate sufficient capital to install a distillery. Two of the local distilleries are privately owned, while one is managed by the community. A distillery owner may distil mezcal himself or rent the distillery out to other distillers (*mezcaleros*) in return for 50 per cent of the mezcal produced. The distillery owners, distillers and local men employed to harvest maguey earn sufficient income to prevent their seasonal migration in search for paid work. Individuals in need of cash or mezcal (e.g. for a family celebration) can establish agreements with a distillery owner to be hired in the harvest and production process. Private owners of maguey in other communities have a

right to half the mezcal as payment for the raw material and work.

Much mezcal in La Esperanza is sold and consumed locally. Only one distiller sells his mezcal outside the community (Figure 3.12), through complex national and distribution networks. The excellent quality of papalote mezcal is recognized by connoisseurs for its flavour and bouquet. A group of distillers from 30 communities recently formed a bottling and commercialization enterprise, which also formed an association of maguay growers and mezcal distillers of the Chilapan region to which La Esperanza belongs. This certifies the product as being of high quality, of limited supply, and harvested in a sustainable manner, according to self-regulating rules. Bottling identifies the source with labels detailing producer names.

Open trading of mezcal in Guerrero began in the 1980s, selling in bulk to the important cities in the state, to Mexico City and to cities in the United States. The international boom in tequila induced a crisis in the supply of raw material and an increase in price, creating a market for mezcal and motivating the appearance of bottling enterprises. The observable increase in the demand for mezcal is also due to a trend embracing established traditions and customs. New brands provide the consumer and connoisseur with a range of different prices and qualities, from US\$25 to US\$2 000 per litre.

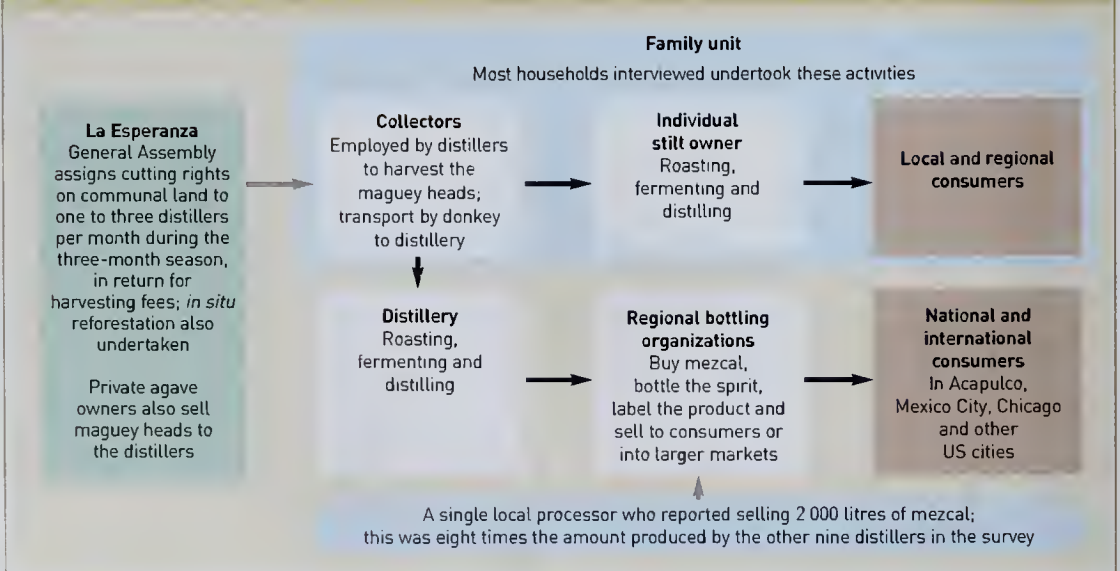
The mezcal industry is most developed in Jalisco

and Oaxaca, where agave species have been domesticated on an agro-industrial scale, with enormous environmental and socio-economic costs. Barriers in the form of taxes and certification of origin (which requires a mezcal to originate from one of seven named states in Mexico) are significant for local producers and are on the increase. These policies are pushing small-scale distillers out of business or into clandestine production. At the same time, transnational tequila companies have expressed their interest in investing in other mezcals.

COMPARING SOYATE PALM AND MAGEUEY PRODUCTION AND TRADE

Both case studies illustrate a high degree of specialization of tasks within the community, with many people carrying out slightly different activities. Though from the same community, soyate palm and maguay are produced and traded very differently. Soyate palm is a particularly socially oriented communal activity, involving men, women and children. Although it pays very little, everyone benefits. Maguay is a specialized activity, characterized much more as a private enterprise, involving a few skilled people: harvesters, distillers and distillery owners. However, despite the private nature of the work, the mezcal producers do pay harvesting fees to the community, and the activity provides employment for some men. Both species benefit from community organization for the management of natural resources.

Figure 3.12 Value chain for mezcal showing two routes: local trade, and trade from the region into national and international markets After Rushton et al. 2004



Wild mushrooms

Boletus edulis,
Cantharellus cibarius,
Amanita caesarea,
Tricholoma magnivelare

(Basidiomycetes)

Fresh, dried and exported mushrooms: community business and entrepreneurs

Fabrice Edouard, Raday Quero and Elaine Marshall

Research was undertaken in two indigenous Zapotec communities of the Juárez mountain range, in the temperate zone of the eastern Sierra Madre mountains of Oaxaca state, approximately 60 km from Oaxaca city (Figure 3.13).

San Antonio Cuajimoloyas (Cuajimoloyas) is located at 3 100 metres in the municipality of San Miguel Amatlán. Access is via a paved highway. There are 147 families who, in addition to forestry activities, are subsistence agriculturalists producing potatoes, maize, oats and livestock. The three mushroom species that naturally occur in the forests of Cuajimoloyas have a lower market value than the matsutake collected in Latuvi (see below).

Santa Marta Latuvi (Latuvi) is located at 2 500 metres in the municipality of Santa Catarina Lachatao. Access is via a partially paved highway. Here, 101 families are subsistence agriculturalists and also produce fruit and flowers for local trade. Latuvi commercializes matsutake (*Tricholoma magnivelare*), the production of which is related to forest type. Latuvi is more experienced in harvesting and trading than Cuajimoloyas.

Both the case study communities are members of a collective administrative body of communities, called Pueblos Mancomunados, comprising eight localities that have a total common land area of 29 500 ha. Forests of



Fabrice Edouard



Fabrice Edouard

Amanita caesarea (upper) and *Cantharellus cibarius* (lower) are eaten fresh locally and traded throughout the region.

this region are dominated by pine (*Pinus* spp.) and oak (*Quercus* spp.), and the forest industry is an important income-generating activity. In Cuajimoloyas, there is extensive business experience with a sawmill, which was originally a private business but was taken over by the community after a year's struggle. Sale of timber provided enough funds to invest in a separate water-bottling business and secured access to credit to establish a drying business for mushrooms and fruit. The communities have also developed various successful ecotourism activities, but there is continued emigration of young people, who provide their families with remittance income.

The poorer households in both communities are associated with the collection and trade of mushrooms; collectors with more experience generate a larger income. As mushrooms are available for only three months a year, the earnings generated do not represent a significant percentage of total household income, but the activity provides a complementary source of income during the rainy season, when agricultural and forestry activities are reduced. This income covers extra expenses rather than basic needs: it is spent on improving the home, purchasing school materials and uniforms and sometimes financing travel of family members to the United States. Women are predominantly responsible for collecting and, consequently, they manage the income.



Fabrice Edouard

Fabrice Edouard

Figure 3.13 Commercialization of wild mushrooms in Mexico: species distribution, case study community locations and commercialization routes

Wild mushrooms

(*Tricholoma magnivelare* – fresh) (*Boletus* sp., *Amanita* sp., *Cantharellus* sp. – dry and fresh)



Species distribution



Case study community locations



Commercialization routes (dry)



Commercialization routes (fresh)

% canopy cover

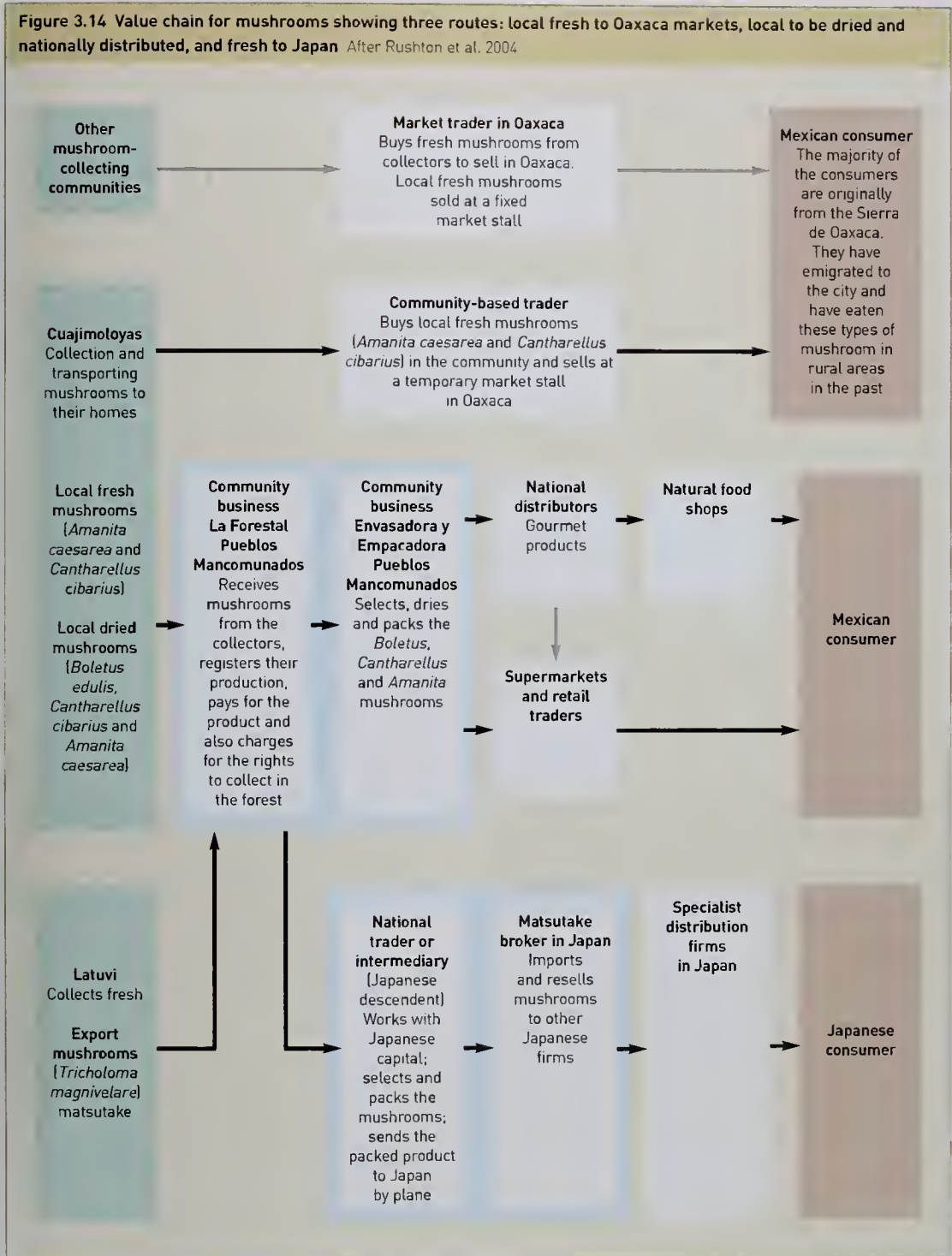
Non-forest

10-40% canopy cover

> 40% canopy cover

Source: s. MODIS (canopy cover); ESRI (other topographical data)

Figure 3.14 Value chain for mushrooms showing three routes: local fresh to Oaxaca markets, local to be dried and nationally distributed, and fresh to Japan After Rushton et al. 2004



THE RESOURCE

The wild mushrooms that are collected are produced by ectomycorrhizal fungi associated with roots of pines or oaks. Mushrooms are harvested leaving the fungal mycelium and plant root system intact, suggesting that harvesting is likely to be sustainable as long as the habitat of the fungi is not unduly disturbed. There is huge annual variation in the volume of wild mushrooms available for harvesting, attributed largely to climatic variability, especially rainfall. A limited understanding of the biology of these organisms makes it difficult to know the impact that harvesting will have on production over the longer term. Although communities sense a reduction in resource availability over the last decade, recently initiated resource monitoring does not provide data to support an overall decline. Improved resource management in high-yielding areas is advocated, as there are no options to domesticate any of the species. There is zoned management throughout the forest for timber and non-timber species.

PRODUCT AND MARKET DESCRIPTION

There are three distinct market chains: locally traded fresh mushrooms; regionally and nationally traded dried mushrooms; and fresh mushrooms exported to Japan (Figure 3.14). Women dominate the local fresh mushroom and dried mushroom chains, with collection predominantly by poor female collectors. As the export trade in matsutake mushrooms from Latuvi is more lucrative, men are also involved.

Local fresh mushrooms. *Amanita* and *Cantharellus* mushrooms are bought by a female community trader who

A market trader of fresh mushrooms and local vegetables. Oaxaca, Mexico.

transports them from Cuajimoloyas to sell at a market stall in Oaxaca city. Sales of mushrooms took off during the last decade, and there is now a notable nostalgic market as a result of migration. Before intervention from the NGO Methodus Consultora, people did not know how to collect mushrooms in a sustainable manner, nor did they understand the species' life cycles and links with trees. As no local employment is generated and few families are involved, the positive impact on the community as a whole is low.

Dried mushrooms. In 2002, with infrastructural support from Methodus, a community business was established in Oaxaca city. This business dehydrates, packs and distributes its own brand of *Boletus*, *Amanita* and *Cantharellus* mushrooms to specialized outlets in Mexico. Drying the mushrooms extends their shelf life, conserves their flavour and provides a market in gourmet food outlets in Oaxaca and Mexico City. Trade has had a positive effect on the community as many families are involved. There is a move to further develop the activity and involve more communities to meet the increasing demand. Methodus has provided resource- and processing-management capacity to the communities, and supportive government policies subsidized an environmental impact assessment (EIA) required for a collection permit. A professional manager is employed to manage the dried-food business.

Export mushrooms. *Tricholoma* (or matsutake) mushrooms are exported from Latuvi to Japan by Korean and Japanese entrepreneurs. They have a good understanding of food-chain technology and established links with brokers who provide some of the funds for the airfreight, thus spreading the high risk between the Mexico-based entrepreneur and themselves. Trade began 10 years ago, following Japanese prospecting in response to diminishing Asian stocks. There is a significant demand in the Far East, and consumers are prepared to pay elevated prices of more than US\$200/kg. Japanese brokers developed secure associates in Mexico, who were entrusted with accumulating mushroom stocks from different sources. Communities are paid US\$7-30/kg of fresh mushrooms, which are then packed by the intermediary and airfreighted across the Pacific Rim. Latuvi is part of a supply network to meet the demand: 80 kg of mushrooms per day are needed to make expediting the mushrooms worthwhile. The trader reduces airfreight costs by booking a minimum volume in advance at a fixed cost, and bears the risk of not filling the container. There is good organization between the communities and the entrepreneur. However, these traders would not pay for the ecological study required in order to obtain a collection permit. Methodus consequently funded this, enabling the community to stay in the formal sector.

Elaine Marshall



Pita

Aechmea magdalenae

(Bromeliaceae)

Traditional use, organization and domestication contribute to a successful niche marketing strategy

Fabrice Edouard and Elaine Marshall

This study was undertaken in two indigenous Chinantec communities located in the Papaloapan river basin, on the Atlantic side of the Sierra Norte, in the state of Oaxaca, Mexico (Figure 3.15). The communities are more than 200 km from Oaxaca city, accessible via a new paved highway. The Chinantla region is one of the most forested regions of Mexico and is characterized by extremely species-rich ecosystems of tropical rain and humid montane forests.

Arroyo Blanco [Arroyo] is located at an altitude of 500 metres in the municipality of San Juan. There, 138 families own 2 000 ha of land and are dependent on subsistence

Women and girls are responsible for most of the initial pita processing, including the 'rasping' of flesh to extract the fibre.



Elaine Marshall

agriculture and traded coffee, which is cultivated in an agroforestry system. Pita is of traditional importance to this community. Arroyo is one of 18 communities that are members of the Union of Indigenous Towns of the Sierra de Lalana (UPIS-L) cooperative. This municipal farmer-based organization promotes improved livelihoods for its 1 200 members through socio-economic projects.

San Rafael Agua de Pescadito [Pescadito] is located at 580 metres in the municipality of Valle Nacional. The community's 170 families have access to 5 800 ha of land, are largely dedicated to the commercial production of coffee and are involved to a much lesser extent in maize cultivation. There is no traditional use of pita.

THE RESOURCE

Pita, also known as *ixtle*, is a terrestrial spiny-leaved bromeliad that naturally occurs in the lowland forests of southeast Mexico and provides a source of fibre. All-year availability and the fact that its collection and processing is combinable with other agricultural activities make pita an attractive product to trade, and it is collected and processed two or three times a year, whenever money is needed. Pita is harvested in both communities from forest populations that have been enrichment-planted with wild germplasm. A price premium is paid for longer fibre, so generally leaves are not cut until the plant is around six years old. When the demand for pita increased at the beginning of the 1990s, at a time of declining international coffee prices,

Rolling the bleached and combed pita fibre into thread ready for use in embroidery.



Elaine Marshall



overexploitation of wild populations began to occur, followed by a move towards domestication. Establishing a plantation is expensive; sufficient land is needed, and so the poorest and landless are often excluded. UPIS-L has provided loans, subsidized by the government, for plantations.

PRODUCT AND MARKET DESCRIPTION

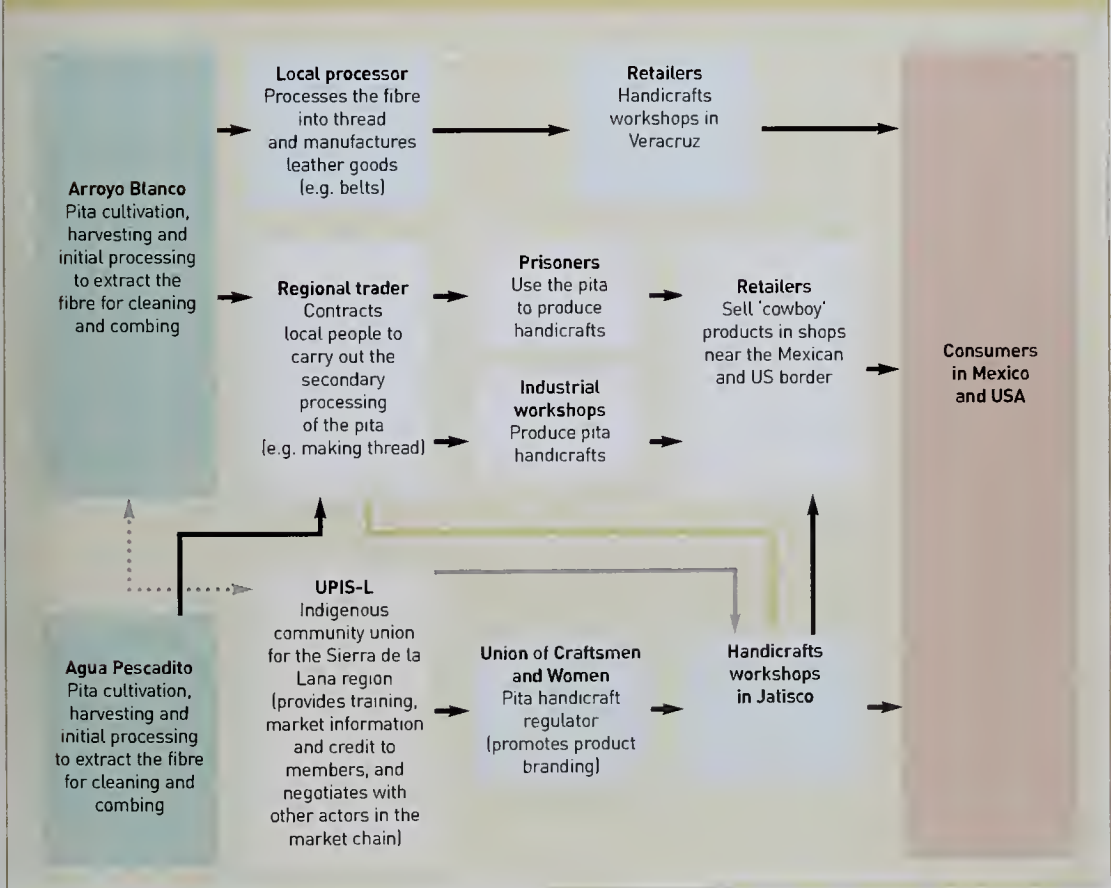
Pita was originally used to make fishing nets and thread to sew sandals. The natural fibre is processed by washing, bleaching and combing before being rolled into thread. It is distributed via workshops to leather stitchers and other craftsmen (Figure 3.16). Popular items such as embroidered belts sell for US\$40 to US\$500, either directly from the leather workshops or via specialized stores in the centre and north of the country. Women are generally responsible for processing the leaves, and often help out

with collecting and, in some communities, manufacturing the thread.

Pita fibre is exceptional in terms of its brightness, refinement and strength, comparable only with silk. As a result of these characteristics the Chinantec, Lacandon and Popolucas indigenous groups of Mexico have used it for centuries to produce nets for fishing and hunting, as well as for a variety of ceremonial objects. The leather stitchers in the north of Mexico specialize in the manufacture of pita crafts, using the extracted fibre to embroider leather articles such as belts, boots and saddles, which are sold at the high end of the market in both Mexico and the United States. Following increased availability of synthetic fibres, the market for pita would have declined further without the interest and skills of craftsmen (and women) coupled with a fashion trend in North America that revived the

Figure 3.16 Value chain for pita showing two routes: to local processors from Arroyo, and to regional traders from both communities, illustrating the role of UPIS-L in helping Arroyo access specialist workshops

After Rushton et al. 2004



cowboy/cowgirl style in the early 1990s. A decline in the demand for pita has been observed during the last few years because the market has not sustained this boom growth of the 1990s. However, the final products are highly valued in Mexican culture both in Mexico and throughout the United States. It is estimated that the current annual consumption of pita throughout Mexico is approximately 45 tonnes, equating to a market value of almost US\$3 million. Pita is currently the most valuable natural fibre in the national market, exceeding the price of linen and silk, reaching prices of up to US\$100/kg.

The community of Arroyo has an established tradition of working with pita, and achieves higher production from a well-managed resource than the community of Pescadito. The majority of families in Arroyo cultivate pita and trade with the craftsmen and women and leather workers through the cooperative of which they are members. Families in Pescadito, who do not have a tradition of use and management of pita, have to sell in bulk to traders. When pita is managed intensively in a plantation, producers can obtain an income from 0.5 ha of pita plantation equivalent to that generated by 1 ha of coffee. In addition, the workload of cultivating pita is one-third that of coffee.

Following the market growth of the early 1990s, increasing competition opened up between traders. This resulted in an improvement in the quality of the final product and reduced 'super normal', or inflated, profits along the

commercialization chain. At the present time, with a declining market, it is the producers who are receiving the highest profit margins, and social companies such as UPIS-L need to maintain low processing costs and strive to further improve quality to secure a market niche. Successful negotiation between producers and leather workers to guarantee producer prices, in spite of falling demand, has been a critical factor in maintaining market share.

The difference in market access between Arroyo, which belongs to the UPIS-L cooperative, and Pescadito, which trades alone and is poorly organized, illustrates how maintaining a hold in a declining market is highly dependent on good social organization. In Pescadito, when intermediaries were no longer interested in buying pita, trade stopped completely. Despite continued external support from the NGO Methodus, producers were unable to cope with crop disease, which destroyed whole populations.

UPIS-L has obtained technical support and market information to improve product quality, and improved the availability of credit to enable direct trade. Methodus has provided market information to both UPIS-L and Arroyo, acted as a conduit for government support to the community and played an important role in supporting links between UPIS-L and craftsmen and women. The latter are organized in the Union of Pita Craftsmen and Women, which brings together many small workshops for processing pita and has been successful in branding pita products to protect against substitution.

The community of Arroyo Blanco in La Chinantla, Mexico.

Elaine Marshall





Janett de los Santos

The community of Monte Tinta. Oaxaca, Mexico.

Camedora palm *Chamaedorea elegans, C. concolor, C. oblongata* (Palmae)

Mexican palm fronds for the US
floral industry: opportunities
and threats presented by
a successful entrepreneur

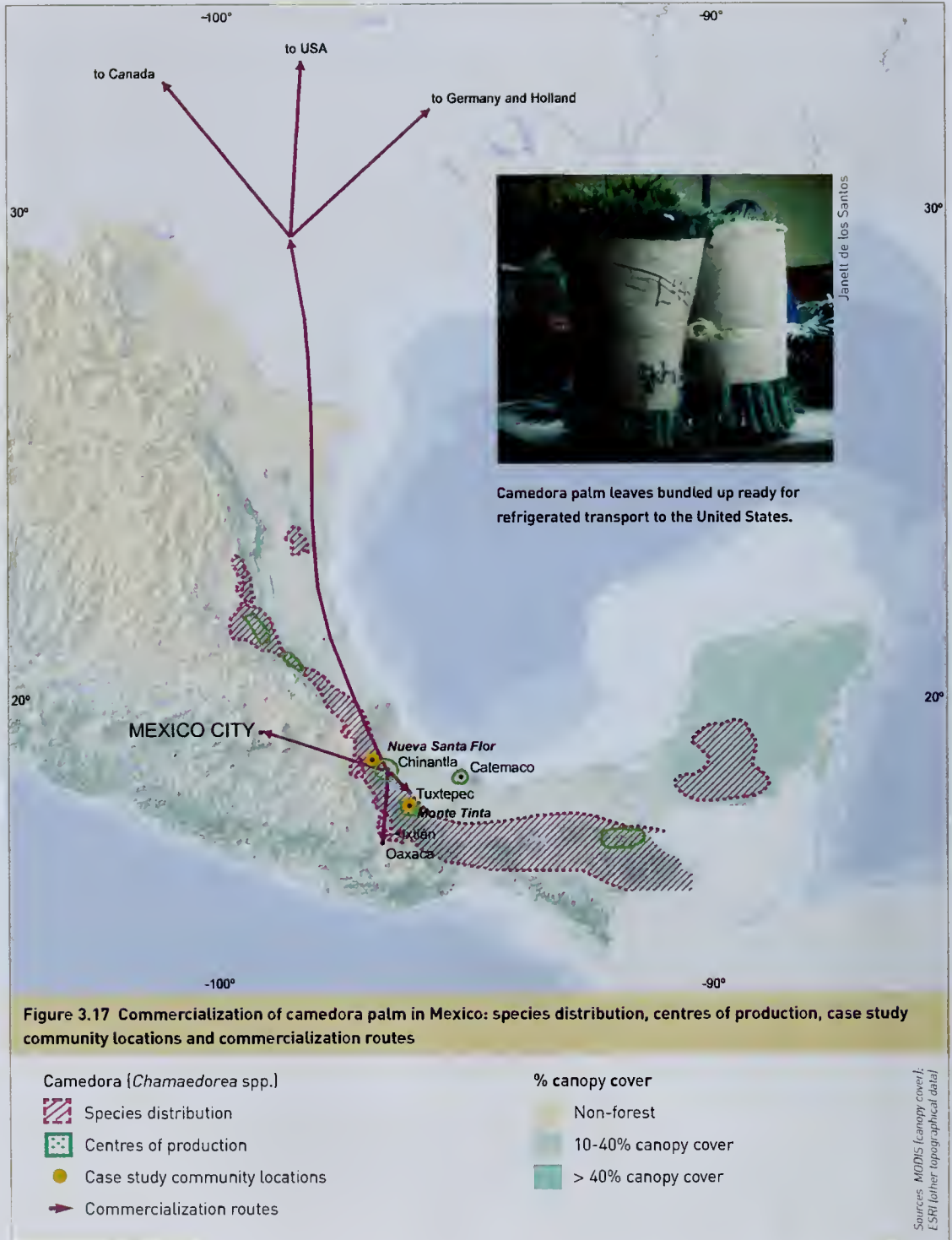
Janett de los Santos, Fabrice Edouard
and Elaine Marshall

This study was undertaken in two indigenous Chinantec communities located in the river basin of Papaloapan, on the Atlantic slope of the Sierra Norte, Oaxaca, Mexico, situated some 300 km from the city of Oaxaca by partially paved highway (Figure 3.17). Both communities are situated

in isolated mountainous locations, with limited access (between one and two hours' walk) to the nearest road.

Monte Tinta (Tinta) is an *ejido* (a social-legal entity formed after the Agrarian Revolution), which owns 3 000 ha of land at an altitude of 360-800 metres and is part of the municipality of Ayotzintepec. Its 73 families are dependent on subsistence agriculture and coffee production. The income generated from trading camedora fronds can compensate for shortfalls in the production of basic crops such as maize and beans and provide for gap periods in the agricultural cycle for farmers with few resources.

Nueva Santa Flor (Santa Flor) pertains to the municipality San Felipe Usila, which has assigned it 2 000 ha of land located at 400-1 500 metres. The 17 families here are subsistence agriculturalists, with coffee providing their main cash income. Collection of wild camedora leaves was widespread in the 1970s and 1980s but declined in the 1990s due to several fatal snake bites among collectors, lower prices, increasing distance to the resource because of overharvesting and rising transport costs. The community used to transport the leaves by boat directly to the edge of a dam, where buyers came regularly. A new road – which does not, however, pass through Santa Flor – has made the boat service infrequent and expensive, as



most people travelling to the nearest market town use the bus. Plantations exist which generate a limited supply of leaves, but better community organization is needed to overcome transport problems. Furthermore, Santa Flor cannot obtain a permit for wild collection because of boundary conflicts. The political sensitivity surrounding the use of natural resources due to these conflicts means that it was not possible to collect household data for Nueva Santa Flor.

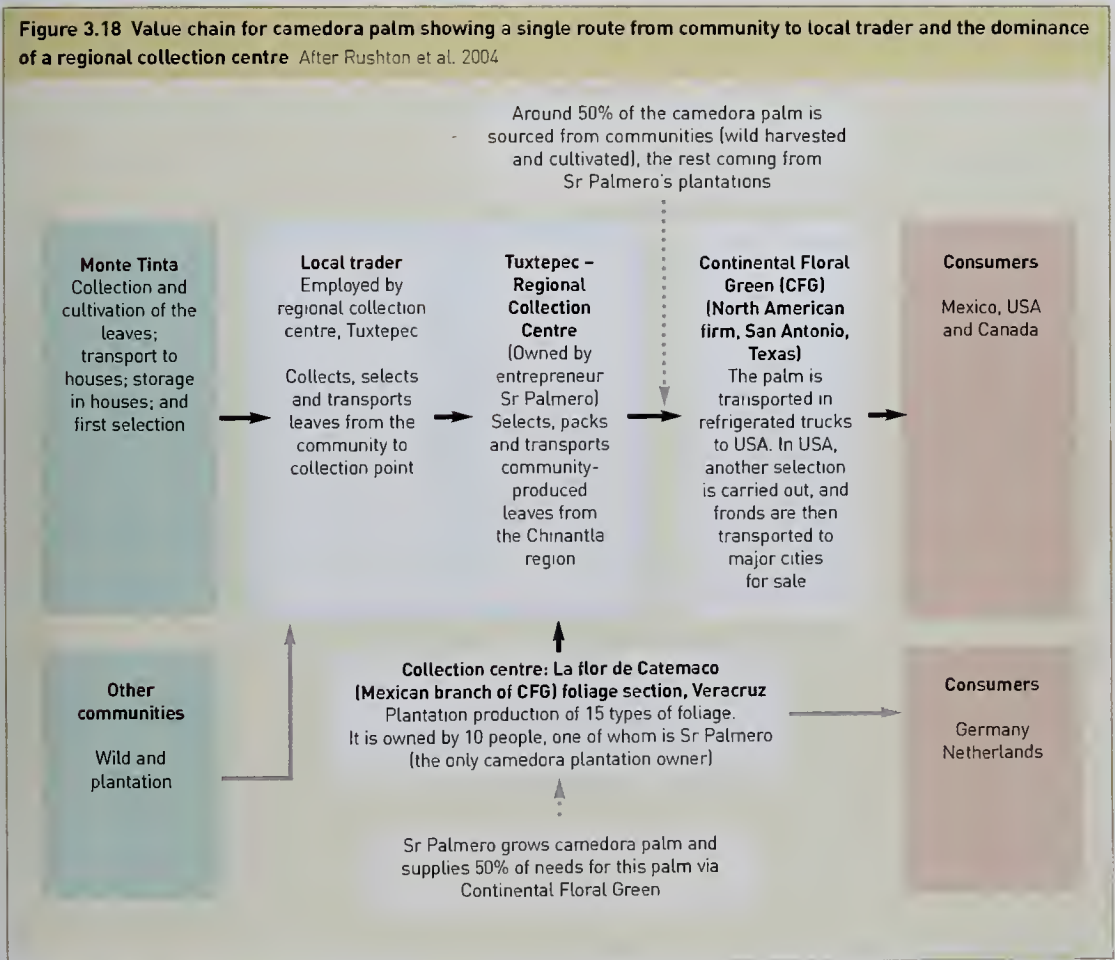
THE RESOURCE

The camedora palm, also known as *xæte*, represents a set of species that belongs to the genus *Chamaedorea* and dominates the herbaceous field layer of montane forests. Access to the resource is relatively equitable, since it is largely collected from communal land with free access. However, over the last 10 years, distances to harvest sites

have increased to three hours' walk because of land conversion for maize and coffee, and as a result of overexploitation of the palm.

The species reproduces easily via seed, requiring little light and possessing a high tolerance for humidity. For these reasons, several communities in the study area and other regions – Veracruz, Chiapas and San Luis Potosí – have begun to domesticate via understorey cultivation. When leaf fertilizer is applied in plantations, each plant can be harvested every three months. In the wild, peak harvesting, between April and October, follows the rains, when the quality and quantity is most readily available for two to three cuts. Some camedora palm species are on the Mexican protected species list and thus require an extraction permit. However, due to the cost involved in acquiring a permit, some communities cut leaves illegally and many have established small plantations.

Figure 3.18 Value chain for camedora palm showing a single route from community to local trader and the dominance of a regional collection centre After Rushton et al. 2004



PRODUCT AND MARKET DESCRIPTION

The palm leaves are used fresh in floristry and have been exported from the humid tropical regions of Mexico and Central America since the 1940s. Mexico is the leading world exporter of the leaves and seeds of different species of *cameedora* palm, predominantly to the United States. It is estimated that the global production of this foliage currently meets only one-third of the international demand. In Mexico, the leaves are used in floristry, wreaths and bouquets; as traditional adornments for Easter and Palm Sunday; as a fresh base for exhibiting produce in supermarkets; and as garden plants. The leaves are highly sought after because once cut, they remain green for up to three weeks.

Market access for communities depends largely on production capacity: commercial intermediaries are attracted to areas where there is sufficient volume to make trade worthwhile. Many families have to overcome several obstacles to access regional trade centres, including low-quality roads and lack of access to vehicles. Monte Tinta overcame this barrier by designating one community member to pool together the leaves and transport them, by donkey, to the road on the trader's route. In return the trader pays on time and compensates for the costs of accidents during collection.

Due to the market demand for palm leaves, retailers need to work with a large number of community suppliers. The viability of this commercial activity and the ability to obtain significant profits is a result of traders sourcing from

numerous producer communities. In Chinantla, as in other regions of Mexico, six different actors are involved in the commercialization of palm leaves (Figure 3.18). Men collect the foliage and women grade it, preparing bushels of 140 leaves that sell for up to US\$1.30 to a local stockist. A second actor transports the product to a regional wholesaler, who manages a centre where he accumulates, grades, packs and sells the product to wholesalers in Mexico City. Leaves are sold to the Mexican consumer at 12 leaves/US\$1, and sold on to a foreign buyer, who retails them to the US consumer at six leaves/US\$1.

There are very few companies dedicated to the export of palm in Mexico, owing to the existence of a monopoly: the national market is concentrated in the hands of a single successful entrepreneur who had sufficient capital to invest in refrigerated transport and storage facilities. This individual is the sole representative of the North American company that imports *cameedora*. The existence of a single company buying leaves makes communities somewhat vulnerable. This single buyer supplies half of the product from his own plantation. While this is important to maintain the value chain year round, it can also pose a threat to wild palm collectors who are restricted mostly to cutting only a few months in the year. Even though there is small-scale domestication of *cameedora* palm in southern Mexico, these poorly organized communities are finding it difficult to compete with the industrial-scale plantations being established in the United States – with seed exported from the Chinantla region.

Taking the *cameedora* palm to the intermediary.

Janett de los Santos



Tepejilote

Chamaedorea tepejilote

(Palmae)

Palm flowers traded as a traditional aphrodisiac: how local markets became closer for rural men than women

Juan Carlos Flores, Fabrice Edouard and Elaine Marshall

The communities are situated in the municipality of Ixtlán de Juárez, known as El Rincón, in the Sierra Norte, Oaxaca, Mexico, 200 km by paved highway from Oaxaca city (Figure 3.19). The region is mountainous, rich in biodiversity, high in plant endemism and has extensive natural forests. Indigenous Zapotec communities have

long utilized a variety of NTFPs including tepejilote and wild edible fungi. The area is also characterized by the cultivation of coffee, as part of an agroforestry system. Tepejilote has provided a valuable alternative source of income when coffee prices have been at their lowest, both in the late 1980s and again in the late 1990s.

San Miguel Tiltepec (Tiltepec) is located at an altitude of 1 830 metres, and despite having 13 000 ha of communal land, it is considered more impoverished than Yagavila (see below). The 50 indigenous families here, whose ancestors arrived and settled over 500 years ago, are predominantly subsistence agriculturalists and coffee producers. Most families are involved in collecting tepejilote from communal land for both consumption and sale. The involvement of women in harvesting is considered important because the tepejilote palm flowers from January to April, when men work full time on the coffee harvest. This provides women with one of the only options to generate their own income, which is invested in the home.

Santa Cruz Yagavila (Yagavila), at an altitude of 1 750 metres, has a larger population with 110 Zapotec families, but has only 2 400 ha of land. Subsistence agriculture and coffee production dominate. The community is considered less poor than Tiltepec and many other communities in the area

A community in El Rincón region, Oaxaca, Mexico.



Elaine Marshall

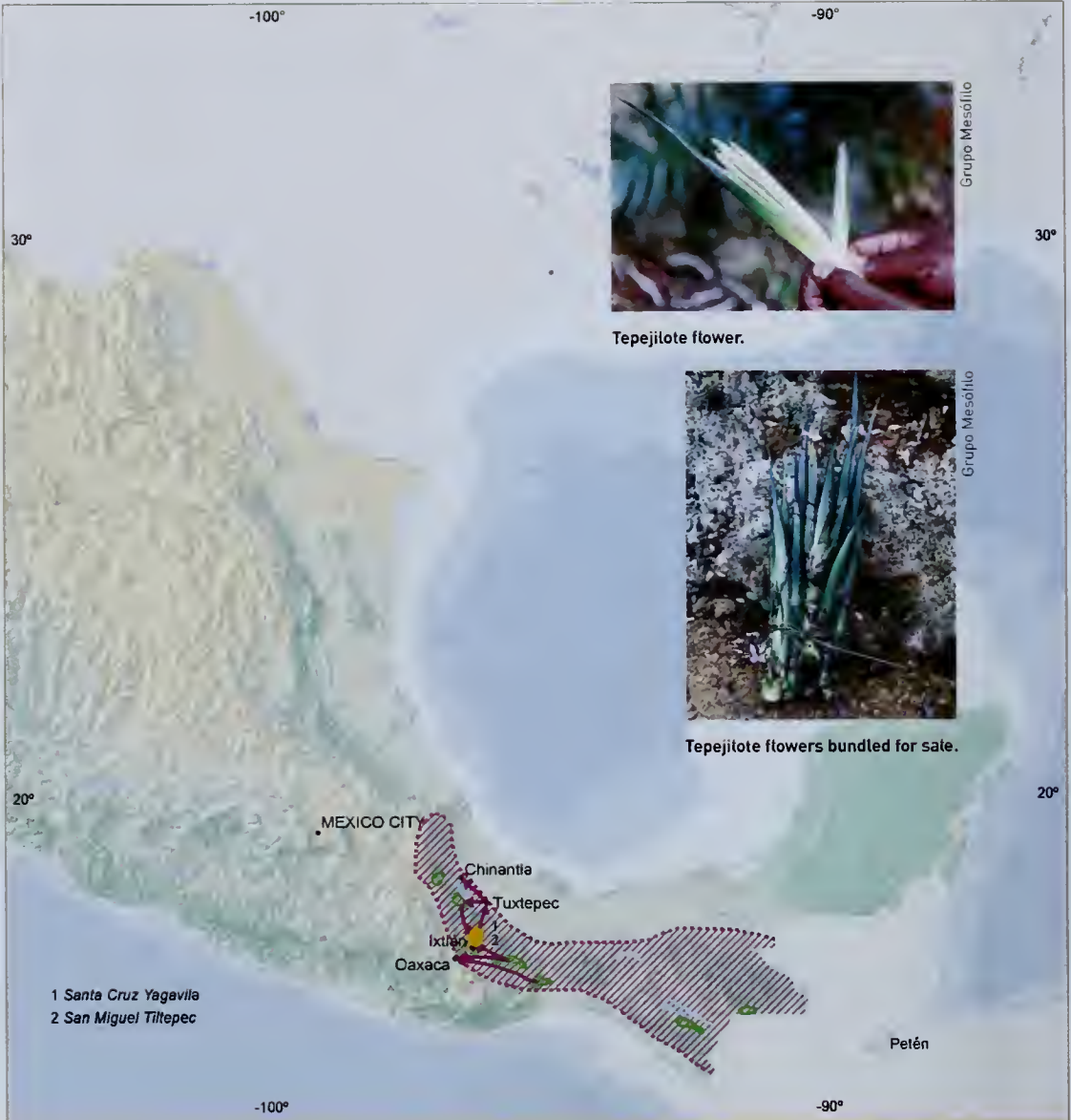









Figure 3.19 Commercialization of tepejilote in Mexico: species distribution, centres of production, case study community locations and commercialization routes

Tepejilote (*Chamaedorea tepejilote*)

-  Species distribution
-  Centres of production
-  Case study community locations
-  Commercialization routes

% canopy cover

-  Non-forest
-  10-40% canopy cover
-  > 40% canopy cover

Sources: MODIS [canopy cover], ESRI [ather topographical data]

due to its reasonable road and good basic infrastructure. Wild harvest of tepejilote takes place on communal land, but plantations have been established on privately owned land. There is less tepejilote available than in Tiltepec, with only a few men collecting, mostly for consumption rather than trade. The few that collect for sale, however, sell approximately the same quantities as collectors in Tiltepec.

THE RESOURCE

Tepejilote is the tender and edible inflorescence (cluster of flowers) of the *Chamaedorea tepejilote* palm: up to seven inflorescences are collected from each individual plant. The species is at its northern limit of distribution in the state of Oaxaca, occurring naturally as far south as Colombia. It is most abundant on damp ground near streams and rivers. In both communities the availability of wild tepejilote has declined because of land conversion for maize and, in Tiltepec, sugar cane. Yields of up to 1 700 inflorescences/ha of tepejilote have been reported over an average area of 3 ha.

Unlike other *Chamaedorea* species, *Chamaedorea tepejilote* is not listed as at risk on the official Mexican list of threatened plants – NOM-059. However, in both

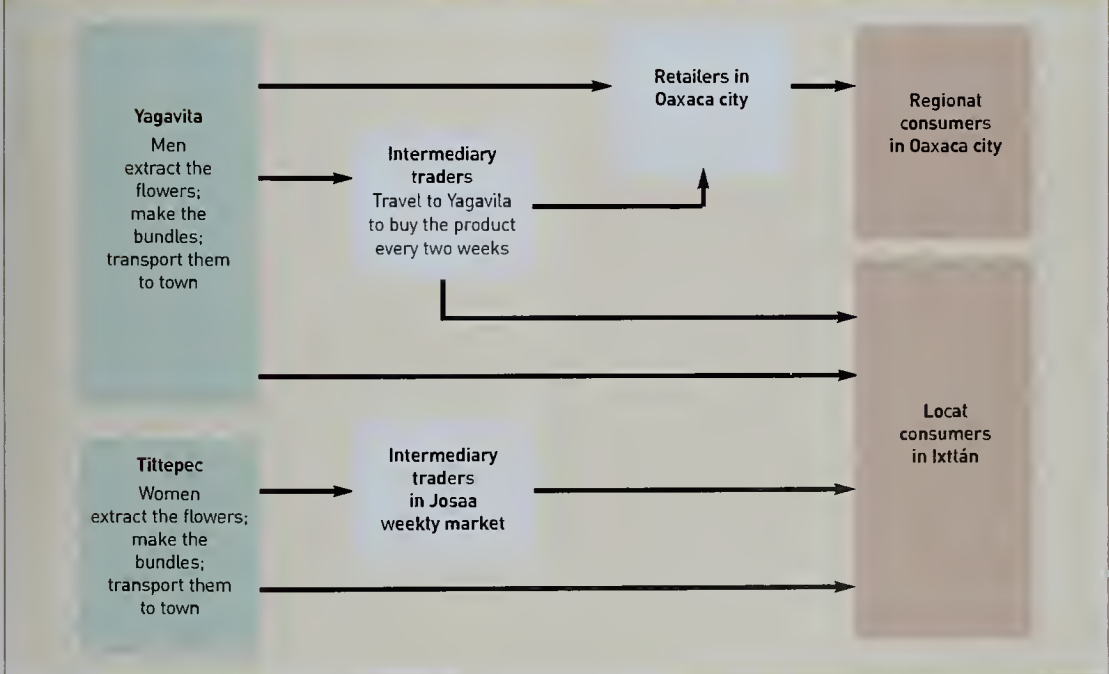
communities, local studies on population dynamics indicated that wild harvesting rates were having a negative impact on the resource. Further population studies have provided the basis for the establishment of sustainable yields and led to initiation of domestication. The domestication of tepejilote involves enrichment planting that requires a very low level of investment, does not substantially increase yields or quality but does bring the resource closer to the community. In 2000, both Yagavila and Tiltepec established a communal nursery and later individual plantations, following training workshops organized by the Conservation and Sustainable Forest Management Project (PROCYMAF). In plantation, the first harvest is after three years.

PRODUCT AND MARKET DESCRIPTION

Tepejilote is consumed predominantly by indigenous populations throughout Oaxaca and Chiapas in Mexico, Guatemala and Honduras. It is a wild vegetable with a slightly bitter flavour according to its degree of maturity, and it is rumoured to have aphrodisiac properties. A third of the product collected is reportedly consumed by the family, and trade is largely confined to local traders who sell in

Figure 3.20 Value chain for tepejilote showing five routes: two from Tiltepec (regional intermediaries and local consumers in Ixtlán), and three from Yagavila (regional intermediaries, local consumers and retailers in Oaxaca city)

After Rushton et al. 2004



Elaine Marshall



A market trader is interviewed in one of Oaxaca's formal markets.

regional markets, or via retailers who distribute various nutritional products (Figure 3.20). Almost all the traders pay for the product via mixed exchange of goods and money.

There is a short chain between producers and consumers, and there are low entry costs to collection and marketing of the product, making it relatively attractive for the poor to work with. Typically, collectors sell 100 bundles of 10 tepejilote for US\$30 to an intermediary, who transports it and resells it in regional markets for between US\$50 and US\$70. In Oaxaca city, it is sold in markets primarily to Zapotec migrants. The same situation occurs in Guatemala, where tepejilote is tinned and exported to the United States to satisfy the demand of the emigrants living north of the border.

In Tiltepec, 50 per cent of the families harvest wild tepejilote. Those that harvest with the greatest intensity are those with the least resources, including the landless. Selling tepejilote provides them with up to 10 per cent of their total family income. It is a particularly important source of cash income for poorer coffee growers who have suffered from the decline in coffee prices. Some coffee growers have received support enabling them to sell organic coffee to a secure buyer for three times the price of conventional coffee. However, this support has been provided by an organization whose members are largely Catholic, leaving the non-Catholic producers struggling and relying more heavily on tepejilote.

Until a few years ago, tepejilote trade in Tiltepec was exclusively undertaken by women, with 70 per cent of sales made to a local intermediary from nearby Josaa. It is more difficult for women to leave the community for extended periods of time and pay the extra up-front cost to take the truck to the more distant market in Ixtlán, even though sales there are much more profitable. Therefore, when the market intermediary stopped visiting Tiltepec, trading transferred from women to men, who were able to make frequent visits to other local markets outside the community.

By contrast, in Yagavila, less than 5 per cent of households collect tepejilote for sale. Nevertheless, those that do are more commercially successful than the collectors in Tiltepec, as they manage to sell direct to the local market at a higher price. This is attributable to a buoyant local demand and limited supply. Yagavila is on a good road and traders visit every fortnight. Despite the fact that the volume of tepejilote traded from Yagavila has increased over the last few years because of the ease of harvesting from locally established plantations, the traders from Yagavila sometimes have to buy from Tiltepec to meet demand.

Producers consider that the market for tepejilote has increased over the past 20 years, explained in part by the fact that traditional consumption is rooted in the region, and that tepejilote is sold in markets catering for migrants. This has allowed tepejilote to become better known among urban consumers.

4. Defining success

An introduction to the thematic analysis

Kathrin Schreckenber, Adrian Newton and Elaine Marshall

The previous chapters have described each of the product case studies, focusing on resource issues, involvement of the poor and women and the functioning of the value chain. The remaining chapters of the book present a thematic analysis of the research results, drawing on material from all the case studies to address each of the project's research hypotheses. This chapter begins with a discussion of the different definitions of success identified by the project and provides a summary assessment of the success of the case studies according to a range of indicators. It then reviews the factors constraining success that are most widespread among the case studies considered. The chapter finishes with a brief introduction to the thematic analysis presented in the chapters that follow.

WHAT IS SUCCESSFUL NTFP COMMERCIALIZATION?

As discussed in Chapter 2, there are many ways of defining success. An understanding of how people define success under different circumstances is an essential prerequisite for the development of appropriate policy interventions, and governance and institutional responses. Measurement of the success of NTFP commercialization is of critical importance to the planning, monitoring and evaluation of conservation and development projects involving NTFPs. Such monitoring is essential to determine the impact of any management or policy intervention. Results of the CEPFOR project indicate that:

- ▶ Success should not simply be defined at the product level, as the success of a given product may vary among different socio-economic situations. Instead, success should be defined in relation to the needs of people.
- ▶ Different actors along the value chain of a given product may have very different perceptions of what constitutes success; for example, while some traders are primarily interested in the size of profit margins, producers also cite aspects such as compatibility with other livelihood activities.
- ▶ Success can usefully be considered at different levels with respect to households – and the individuals within them – and communities, and at district or national levels.



Elaine Marshall

Newly harvested pita leaves are de-spined before extracting the fibre to make thread. Some NTFPs can contribute to national prestige: pita products are given as gifts to other heads of state by the president of Mexico.

- ▶ At each level there are social, economic and environmental aspects of success.
- ▶ Given this complexity, single measures of success are unlikely to be useful, and therefore suites of indicators may be preferred, including both quantitative and qualitative measures.
- ▶ Definitions of success may be dynamic, changing in response to variation in socio-economic circumstances and the behaviour of the market.

Box 4.1 Some definitions of successful NTFP commercialization identified by the CEPFOR project

Some of the following definitions were obtained during discussions with key informants, producer communities and NGOs, while others were identified through analysis of data from producer and trader surveys. As many activities involve several people in the household, individual-level definitions of success were generally the

same as those identified at household level, with the exception of a few relating specifically to women. The list includes both short-term indicators of success as well as definitions that take a longer-term perspective. All definitions recorded by the project are presented in CEPFOR (2005).

1. HOUSEHOLD LEVEL

Economic

- ▶ The product generates income and can be sold quickly.
- ▶ It provides employment and can generate enough money to create opportunities for the next generation.
- ▶ The activity helps meet the family's basic needs.
- ▶ Labour (particularly that of women) is rewarded.

Social

- ▶ The income generated makes an important contribution to food, education and health.
- ▶ The work involved is agreeable.
- ▶ It provides opportunities to build capacity (through new skills and networking).
- ▶ Producing something that is valued provides recognition and improves self-esteem.
- ▶ The activity contributes to making people happy.
- ▶ It is compatible with other livelihood activities.

2. COMMUNITY LEVEL

Economic

- ▶ A high proportion of people within the community are involved and benefit.
- ▶ A large percentage of the final product price stays in the community.
- ▶ The activity provides employment and the community can add value to the product.
- ▶ The producer community controls the supply (and therefore the price).
- ▶ The product has more than one buyer.
- ▶ There are price differentials for different qualities.
- ▶ The commercialization chain is not vulnerable to risk.

Social

- ▶ There is an even distribution of profit margins along the market chain.
- ▶ The activity does not cause internal conflict within the community.
- ▶ It permits people to continue to stay in the community rather than having to migrate.
- ▶ It strengthens local culture and community organization.
- ▶ The activity increases community prestige.

Environmental

- ▶ The rate of commercialization is consistent with biological sustainability.
- ▶ The activity helps to conserve the forest resource.

3. BEYOND COMMUNITY LEVEL, INCLUDING NATIONAL

Economic

- ▶ A market chain exists that connects producers to consumers.
- ▶ The market works well (i.e. prices at producer level reflect those at consumer level).
- ▶ There are price differentials for different product qualities.
- ▶ The commercialization chain is not vulnerable to risk.
- ▶ The activity increases employment.
- ▶ It increases tax revenues to national governments and export earnings.
- ▶ It generates national prestige.

Social

- ▶ It improves the welfare of consumers.

Environmental

- ▶ It strengthens the conservation and sustainable development of natural resources.

The CEPFOR project identified many different definitions of success through its community and household surveys, value chain analyses and project workshops involving a variety of different stakeholders (CEPFOR 2005). Some examples of definitions of success identified during

the project are listed in Box 4.1. In general, the results of this project emphasize the need for a participatory approach to both defining and measuring success, which should ideally incorporate perspectives from all of the actors involved in NTFP commercialization. Approaches developed

and tested during this research provide guidance regarding how this can be achieved in practice (see Methods manual on CD-ROM).

HOW SUCCESSFUL ARE THE CASE STUDIES?

As outlined above, there is no single measure of success for NTFP commercialization activities. Table 4.1 presents a selection of different measures used in this study, some defined by the project and others derived from application of the CIFOR scoring system (as described in Chapter 2) to the CEPFOR case study communities. This subset provides a useful summary of how the case studies compare in terms of their impact on livelihoods. In the case of the two pita communities, for example, Arroyo has a markedly higher score for combined household and community impact than Pescadito, reflecting the better level of organization and a long tradition of working with pita in the former and the devastating effects of disease on the resource in the latter. The very different combined score for the two rubber communities reflects the differences in their NTFP value chains, with the more successful Santa Rosa having a more egalitarian production system that involves most of the community in the production of waterproofed goods for the local market. However, different value chains do not necessarily result in a different livelihood impact score, as is shown by the two cocoa communities: Emero markets beans while San Silvestre produces cocoa paste, but their overall scores are not that different.

One of the features of these results is that impacts on livelihoods at the household level are not closely related to impacts at the community level. For example, while the most positive impact score at the household level was obtained for rubber goods in Santa Rosa, the highest score at the community level was obtained for maguey in La Esperanza. The latter's success is achieved in spite of the involvement of relatively few people and low returns to labour because the community is organized effectively and sells its communal maguey resource as well as operating a community distillery. However, this level of organization does not extend to the commercialization of soyate palm, which is also carried out in La Esperanza but receives a very low community impact score.

A very important finding of this project is that different measures of success do not necessarily correlate. In Table 4.1, pita in Arroyo and rubber in Santa Rosa appear to be the most successful value chains from the combined community and household perspective. However, from a national perspective, both products have seen a decline in demand in recent years, and local success is due to their specialized niche markets – pita thread for stitching leather cowboy products and rubber for bags and ponchos. In Cuajimuloyas, low participation in mushroom



Elaine Marshall

A household in La Esperanza, where soyate palm weavers consider the activity to be successful because they can combine it with other activities.

commercialization nevertheless leads to significant community benefits in the form of an associated drying enterprise, training and ecotourism.

This underlines the need to be flexible when assessing a new NTFP intervention, as stakeholders' perceptions of success are likely to be diverse. An important first step is to define and prioritize measures of success in each community. As discussed in later chapters, different activities may be required to achieve different types of success, and it may therefore be necessary to agree whose definitions should be prioritized. For example, the main success definitions identified during discussions with the case study communities were financial in nature. However, NGOs were particularly interested in equity issues, particularly those relating to the possible impact of NTFP activities on women and poorer segments of society. Such differences in perception need to be made explicit to ensure that interventions are correctly targeted and possible trade-offs agreed between stakeholders.

FACTORS DETERMINING SUCCESSFUL NTFP COMMERCIALIZATION

As described in Chapter 2, on the basis of the project case studies, it was possible to identify 66 factors that contributed to determining successful NTFP commercialization, where success was defined very broadly taking into account the livelihood asset base of both households and communities. These factors were scored, and the resulting data formed the basis for the development of the CEPFOR decision support tool (CDST), which is discussed in more detail in Chapter 11. Some factors contributed to successful commercialization in just a few cases,

Table 4.1 Different scores of success of NTFP commercialization in the case study communities

Community (and value chain)	Scoring of some success measures identified by the CEPFOR project				Scoring of livelihood impact according to CIFOR's method (includes physical, natural, social, human and financial indicators). A higher score indicates a more positive impact		
	Resilience of the value chain to external shocks 1 = Low 2 = Medium 3 = High	Proportion of households involved 1 = <10% 2 = 10-50% 3 = 50-90% 4 = >90%	Proportion of consumer price captured by producer 1 = Low 2 = Medium 3 = High nd = no data	Returns to labour 1 = <wage rate 2 = equal to wage rate 3 = >wage rate	Household score Range from -44 to +44	Community score Range from -36 to +36	Combined household and community score Range from -80 to +80
Emero (cocoa beans)	3	4	nd	2	8	8	16
San Silvestre (cocoa paste)	3	4	2	2	10	4	14
Santa Rosa (rubber goods)	2	3	2	3	17	8	25
Tomachi (latex rubber) non-concessionaires	2	2	1	3	8	5	13
Pucasucho (copal)	3	3	1	2	6	2	8
Pucasucho (incense)	3	3	2	2	4	1	5
Surutú (jipi japa palm hats)	2	2	2	2	3	0	3
Candelaria (jipi japa palm tourist crafts)	2	3	nd	2	15	2	17
Potrero (jipi japa palm tourist crafts)	2	2	nd	2	9	2	11
La Esperanza (soyate palm)	2	4	2	1	12	1	13
Topiltepec (soyate palm)	2	4	2	1	12	2	14
La Esperanza (maguey)	3	1	2	1	9	14	23
Latuvi (exported mushrooms)	1	2	nd	3	12	2	14
Cuajimoloyas (fresh and dried mushrooms)	3	1	nd	3	13	7	20
Arroyo (pita)	2	3	2	2	10	14	24
Pescadito (pita)	1	1	1	1	1	4	5
Monte Tinta (camedora palm)	1	3	2	2	4	1	5
Yagavila (tepejilote palm)	3	1	3	1	1	8	9
Tiltepec (tepejilote palm)	3	3	3	1	0	3	3

while others occurred in a larger proportion of cases. Factors that had a positive effect on the capital assets of households and communities – and thus supported successful NTFP commercialization – in some communities are conversely considered to limit success in the communities in which they do not occur. Table 4.2 presents those factors that limited NTFP commercialization in more than 60 per cent of the case studies, roughly grouped into three categories. The individual factors will be discussed in more detail in the following chapters. A number of generic issues can be raised here:

- ▶ The percentage value in the second column represents the proportion of communities in which a particular factor limited success by reducing the availability of physical, natural, financial, human and social capital assets required for commercialization.
- ▶ The grouping of the factors highlights the fact that value chain issues are particularly widespread for households and communities, with factors relating to natural-resource issues or the social and economic context of communities being of importance to a relatively low proportion of case studies.
- ▶ As will be highlighted in the following chapters, households, communities and traders show a high degree of innovation in overcoming factors constraining successful NTFP commercialization. Some factors, however, such as integration of producers into the cash economy, are outside their control. As will be discussed in Chapter 11, understanding the degree to which different actors in the NTFP value chain are able to influence different factors is important for determining appropriate policy interventions.
- ▶ The linked nature of some of the factors – e.g. lack of producer/processor organization can result in inequitable exertion of market power by other actors in the value chain – suggests the need to recognize that policy interventions designed to address one factor may have knock-on effects on other factors.

INTRODUCING THE THEMATIC ANALYSIS

The thematic analysis in the remaining chapters of this book examines the different elements of successful commercialization, using the project’s key research hypotheses as an organizing framework. Chapters 5-7 focus on identifying the impacts of commercialization, based on the belief (discussed in Chapter 1) that NTFP commercialization can only be deemed successful if it has no adverse effects on the poor, women and the resource (or access to it by the poor). Chapter 5 focuses on how the poor benefit from NTFP commercialization (hypothesis 1) while Chapter 6

specifically addresses the benefits for women (hypothesis 2). Chapter 7 considers resource status and access issues, addressing both hypotheses 3 and 4.

The following three chapters examine the conditions under which commercialization is more likely to be successful, beginning with the legal, policy and institutional framework in Chapter 8. Chapter 9 presents results related to the nature and establishment of NTFP value chains (hypothesis 5), while Chapter 10 explores how individuals

Table 4.2 Factors limiting successful NTFP commercialization in more than 60 per cent of the case study communities	
Factor	Percentage of case studies for which the factor limits commercialization
Structure and function of the value chain	
Inequitable exertion of market power along the value chain	79
Price of the product does not vary in response to changing costs of production	74
Low development of the brand identity	74
Lack of an organization that links producers or processors to buyers	74
NTFP value chain does not use the value chain of other products	68
Lack of provision of financial capital to commercialization (e.g. credit and loans) by entrepreneurs	68
No traditional link between the producers and the consumers	68
Producers do not have good access to market information (price, quantity, quality)	68
Consumer preference for product quality is not reflected in the price paid to producers	63
Lack of entrepreneurs facilitating NTFP commercialization (e.g. through market information and contacts)	63
Community social and economic context	
Lack of a communication network	68
No external financial support available in the form of credit or loans	68
Low level of integration of producers into the cash economy	63
Natural resource issues	
NTFP quality is adversely affected by poor harvesting methods	74
Limited amount of resource available	68
Competing land uses for NTFP production areas	63



Income generation from the sale of mushrooms in the communities of Cuajimoloyas and Latuvi has reportedly given collectors a greater sense of self-esteem.

and communities can succeed in gaining access to value chains (hypothesis 6).

A complete presentation of the project's results is provided in separate reports on the CEPFDR CD-ROM. The aim of the thematic analysis in the following chapters is to present a summary of the main findings in a form relevant to the kinds of questions asked by decision-makers at all levels, both government and non-government. Where possible, attempts are made to highlight trends and generalizations that apply to case studies with particular characteristics. The thematic analysis also illustrates the degree of variation observed between case studies. Within each chapter, information is presented as a series of answers to questions. These were derived both from the project's original research questions and from research undertaken into the questions most frequently asked by communities and the staff of development organizations.

CONCLUSION: MULTIPLE DEFINITIONS OF SUCCESS

Successful NTFP commercialization can be defined in many ways, not all of which correlate with each other. Trade-offs between achieving success at different levels, e.g.

household and community, or in different areas, e.g. environmental, social or economic, are common. A key recommendation of this research is that NTFP development projects should seek to identify the various perceptions of success held by different actors in the value chain, and use these as a basis for project monitoring and evaluation, ideally using participatory approaches. The factors that determine successful NTFP commercialization are multiple, with issues relating to the value chain being particularly widespread. Many are interrelated, reflecting the complexity of the process of NTFP commercialization.

CHAPTER HIGHLIGHTS

- ▶ Different actors in a value chain have different perceptions of success.
- ▶ The impact of NTFP commercialization at household and community level is not necessarily correlated.
- ▶ Trade-offs may be necessary between economic, social and environmental definitions of success.

5. NTFP commercialization and the rural poor

More than a safety net?

Kathrin Schreckenber, Elaine Marshall and Dirk Willem te Velde

This chapter addresses the project's first hypothesis by exploring the contribution NTFP activities make to poor people's livelihoods. It examines whether, and under what conditions, NTFP activities are poverty traps, safety nets, gap fillers or stepping stones out of poverty (as defined in Chapter 1). Finally, it outlines the changes in NTFP value chains that have the greatest impact on poor people's vulnerability.

HOW WIDESPREAD IS ENGAGEMENT IN NTFP COMMERCIALIZATION ACTIVITIES?

Levels of involvement in NTFP commercialization activities vary greatly between communities (see Table 4.1). In some communities, all households are involved in collecting, cultivating, processing or selling the case study NTFP. In others the proportion is much lower, reaching a minimum of just 4 per cent for maguey in La Esperanza and pita in Pescadito, and 7 per cent for tepejilote palm in Yagavila. This may be attributed to a range of factors that make commercialization more difficult – such as disease affecting the pita supply, the loss of a key market intermediary reducing community-level demand for tepejilote, poor transport, etc. – or less attractive, such as availability of economic alternatives.

HOW POOR ARE NTFP HOUSEHOLDS?

As outlined in Chapter 1, the NTFP literature suggests that NTFP activities are particularly important for poor people.



GEA

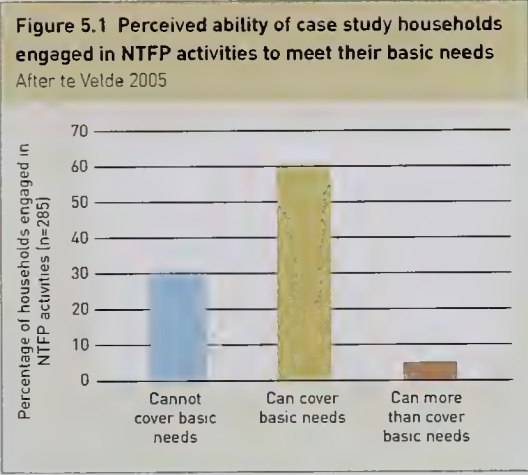
NTFPs provide the only source of cash income for many marginalized households in remote areas, such as the soyate palm communities in Guerrero, Mexico.

The project examined the poverty of households engaged in NTFP activities in several ways. As previously noted in Chapter 3, all the case study communities are classified as highly marginalized according to their national poverty classifications, with populations living below the national poverty line. During exercises to group households into different well-being categories – as a proxy for poverty – in each community, key informants repeatedly stressed the all-pervasive poverty in their communities.

Table 5.1 Relationship between well-being level and engagement in NTFP activities

Well-being ranking of NTFP households relative to non-NTFP households concentrated in lowest well-being group	Name of community
NTFP households are disproportionately concentrated in lowest well-being group	Potrero, Latuvi, Cuajimoloyas, Tiltotec and Arroyo
NTFP households are disproportionately concentrated in middle well-being group	Tomachi and Surutú
NTFP households are disproportionately concentrated in top well-being group	Pescadito and Pucasucho
Not applicable, as all households are involved in NTFP activity	San Silvestre, Emero, La Esperanza (for soyate palm), Topiltepec

Figure 5.1 Perceived ability of case study households engaged in NTFP activities to meet their basic needs
 After te Velde 2005



Nevertheless, for most communities it was possible to group both NTFP and non-NTFP households into different well-being categories. As shown in Table 5.1, households engaged in NTFP activities are relatively poorer than other households in five of the communities. In two communities they tend to be more concentrated in the middle well-being groups, while in two communities they are more concentrated in the top well-being groups. The relatively high level of well-being of the small number of NTFP households in Pescadito is explained by the fact that pita is mostly cultivated in plantations, requiring

Incense and copal collectors rest on the two-day walk into the harvesting sites. There is 'free' access to this traditionally used resource.

Charles Veitch



significant financial capital and access to sufficient land. Incense collectors in Pucasucho are those who have traditional access to collecting areas and the capital to finance costly harvesting trips.

A third of interviewed households engaged in NTFP activities consider that they are not able to meet their basic needs during the course of the year (see Figure 5.1).

Households engaged in NTFP activities were also asked how successful they considered themselves to be relative to their peers. In Bolivia, most NTFP households in the incense, cocoa and rubber-trading communities consider themselves to be as successful as their peers. Only households in the *jipi japa*-trading communities feel less successful, which may reflect the fact that this activity is carried out almost exclusively by women in poorer and less well-educated households. In Mexico, households engaged in NTFP activities generally consider themselves to be less successful than other households in their communities. While income data support this perception regarding the case of Monte Tinta, in the case of Pescadito, households engaged in NTFP activities generally have higher household incomes than those who do not. The generally negative perception of their relative success suggests that, in the Mexican communities, NTFP activities are considered inferior to other livelihood options. In the Bolivian communities, this possibility is less likely to arise as there are few, if any, alternative income-generating options available.

ARE ALL ACTORS IN NTFP VALUE CHAINS EQUALLY POOR?

All value chains include at least two separate functions – production, through collection and/or cultivation – and sale of the product. Most also require some combination of processing, storage, transport and marketing. In most value chains, the roles of producer, processor and trader are quite distinct. Processors and traders tend to make higher profits than collectors and cultivators except when processing occurs within the collector household and is carried out by women and children, who have few, if any, other economic opportunities. In both Bolivia and Mexico, income, access to credit and level of education is higher/more developed for NTFP traders than for non-traders. This is perhaps not surprising, because most traders are from outside the community. It means that very few poor NTFP collectors and producers are able to move along the value chain and become traders. Moving into trading is particularly difficult because the returns per unit of product collected tend to be higher than the returns per unit traded. In most cases, therefore, traders can only make a reasonable return if they trade high volumes, for which financial capital to buy, store and transport the product is needed, as well as

investment – often financial – in developing networks of collectors and buyers.

HOW MUCH DO NTFP ACTIVITIES CONTRIBUTE TO HOUSEHOLD INCOME?

Households typically engage in a range of activities, generating a combination of in-kind, or subsistence, income and cash income. As discussed in Chapter 1, NTFP activities can be categorized as poverty traps, safety nets, gap fillers or stepping stones, depending on how regularly they are carried out and how much income they generate. The CEPFOR data show that the importance of NTFP-based incomes in livelihoods varies greatly between products and communities, and that there is also a great deal of variation in productivity between households. In the fresh mushroom case, for example, three different types of collectors can be distinguished:

- occasional collectors, who collect approximately 10 kg per season;
- average collectors, who collect about 70 kg per season;
- serious collectors, who collect up to 300 kg per season.

This suggests that individual activities can fit into one or more of the categories below, depending on the degree of intensity with which a household engages in them. The kinds of characteristics that may be important in determining how much effort people invest in NTFP commercialization activities are discussed further in Chapter 10.

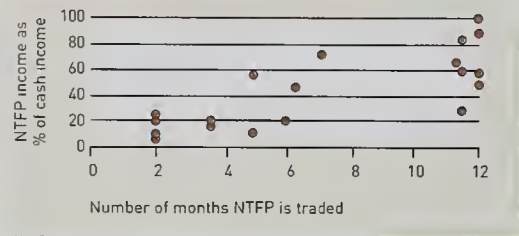
Poverty traps

None of the value chains within the CEPFOR case studies resulted in the kind of debt peonage – in which producers are paid in advance, often with commodities at inflated prices, leading them into a vicious cycle of borrowing and repayment – that has been reported for some NTFPs, such as Brazil nuts and rubber extracted from the Brazilian Amazon. Nevertheless, in a few cases – soyate palm, cocoa beans and incense – producers may barter their NTFP for household goods rather than being paid in cash. In the cocoa and incense-collecting communities, all of which are located far from the nearest town, producers are very reliant on the honesty of traders to provide them with a reasonable value of products in exchange. In the case of cocoa, strong social relations between producers and traders promote transparent interactions.

Safety nets

The selection process for the case study NTFPs almost ruled out the possibility of including any products that are only used as safety nets when household circumstances are particularly bad. Nevertheless, some of the activities have

Figure 5.2 Relationship between months traded and the proportion of cash income the NTFP provides in case study communities After te Velde 2005

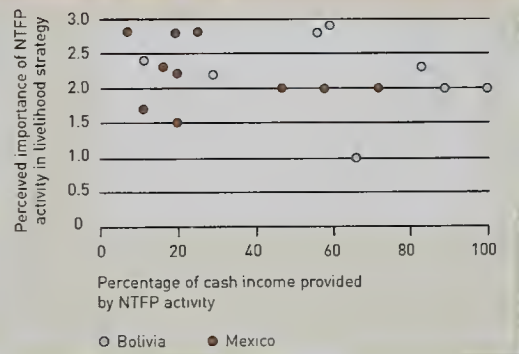


played a safety-net role in the past: collection of both pita and tepejilote palm, for instance, increased when coffee prices fell. Interviewees also highlighted the fact that products such as pita and incense/copal are available all year round and collection can be undertaken as and when the household needs cash income. One incense collector explained that ‘the knowledge that incense and copal is available to be harvested and traded acts as a guarantee that, no matter what, some income can be obtained’.

Gap fillers

Most case study products fall into the gap-filling category, in which NTFP-derived income is supplementary to more important farm and off-farm income-generating activities. NTFP activities are carried out on a regular basis, often in the non-agricultural season, and contribute between 7 and 95 per cent of cash income to the household. On average, 34 per cent of case study households in Bolivia depend on NTFP trade for more than half of their total income, while the corresponding figure for Mexico is 15 per cent. This reflects the fact that there are more economic

Figure 5.3 Importance of NTFP income in livelihoods in case study communities



Box 5.1 Combining NTFPs with other activities in Bolivia and Mexico

A characteristic of all the products studied is their ability to be combined with other livelihood activities. For producers, the NTFP must fit in well with the agricultural cycle and not require them to choose between alternative activities. Soyate palm fibre, for example, is plaited into long strips by all community members at the same time as they go about their other activities. If carried out on its own, the returns to labour would be so low as to make it not worthwhile. Collection of camedora palm fronds, which are available all year round, occurs predominantly in the April dry season and again in August-September, when there is little agricultural activity, and peaks in October to provide money for the Day of the Dead celebrations.

Some NTFPs combine with each other. Thus the relatively rare incense is collected on special expeditions which would not be worthwhile if it were not for the

assured availability of the more common copal. In addition, incense collectors may also benefit from these expeditions to hunt wildlife for food. For traders, the NTFP must complement other products being traded in terms of seasonality, or be of sufficiently high value to warrant sole trading. Fresh mushrooms, for example, are only available for two months and are taken to market by a trader who travels to Oaxaca every week to sell the bread that she makes and other farm produce that she buys from households in Cuajimoloyas. In the community of Emero, organic cocoa beans and dried fish are bought by the same traders, with cocoa dominating from December to February, when dried fish is not available. This case also illustrates the risk associated with combinable activities, namely that NTFP activities may be dependent on their 'partner' activities for success. Thus the cocoa trade from Emero is both dependent on the dried fish trade and vulnerable to any changes that may occur in it.

opportunities, and general income levels are higher, in Mexico than in Bolivia. It is also a reflection, however, of the fact that there is a highly significant relationship between the proportion of total income contributed by NTFP activities and the number of months they are traded (Figure 5.2). This, in turn, is usually related to the seasonal availability of individual products. Those that are only available for short periods – predominantly the Mexican cases of mushrooms and tepejilote palm, as well as the Bolivian cocoa case – typically contribute less to a household's annual income than NTFPs that are available all year round. It should be noted that availability does not always determine the number of months traded, as in the case of pita, which is available all year round but only harvested for a few months.

As shown in Figure 5.3, even products that only contribute a relatively small share of a household's cash income may be perceived to play a valuable role in a household's livelihood strategy. This is because the NTFP activity may be the main source of cash available to a family. This is the case for many of the Bolivian communities, some of which are extremely remote. It is less likely to be the case in Mexico, where the case study communities have easier access to other income-generating activities, including through migration to the United States as well as agricultural subsidies and various forms of social security.

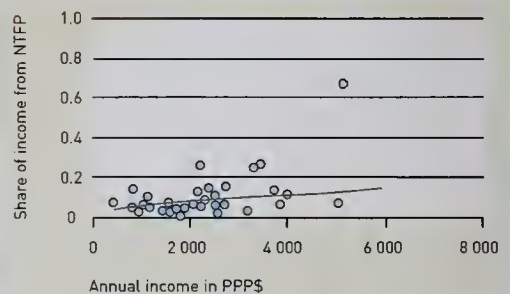
Another reason that even small amounts of NTFP-derived income can be important is that they may come at times of year when households have no other income-generating activities. The timing of the income from many of the NTFP activities complements the often highly seasonal income from agricultural activities, providing the household

with a combined income flow that is both greater and less variable. A good example is mushroom collection, which is concentrated during June-August, at a time when agricultural and forest industry incomes are low but school fees need to be paid. Other examples are provided in Box 5.1.

Stepping stones

For most people, income generated from NTFP activities enables them to cover the cost of basic subsistence goods. Only rarely do these activities provide sufficient income to permit the accumulation of substantial savings. The women weavers who are members of the jipi japa association benefit by obtaining access to a rotating fund, which has enabled many of them to put tin roofs on their houses,

Figure 5.4a Relationship between total annual income and share of income provided by cocoa (San Silvestre)
After te Velde 2005



a common indicator of a lower level of poverty. In the mushroom-collecting communities, some people have used their NTFP income to acquire land to build a house or to invest in other forms of income-generating activity, including purchase of sewing machines, or sending a family member to work in the United States. NTFP activities are more likely to provide a path to socio-economic advancement for those who engage in the activity most seriously, either by trading large volumes of the product – such as the rubber concessionaires or the soyate palm wholesaler – or by moving along the value chain towards the consumer, e.g. mushroom traders, or the mezcal distillers. A measure of how much income the NTFP provides to the mezcal distillers is the fact that they are no longer forced to engage in seasonal migration to feed their families.

DO POOR PEOPLE RELY MORE ON NTFP INCOMES?

For some products, households with a greater overall income also derive a greater share of that income from the NTFP, suggesting that richer people benefit more from the activity. This is true for incense, for which collection trips require advance financing; cocoa, where there is a variable level of investment in plantations (see Figure 5.4a); and soyate palm, where a few households have bought or rented sewing machines and focus almost exclusively on producing higher-quality hats for sale. For the other products, the NTFP share decreases as total income rises, suggesting that it is poorer people who are most involved in NTFP activities. A typical example is Cuajimoloyas, where only a few people in the higher livelihood status groups are involved in mushroom collection, but the activity is carried out by all households in the lowest livelihood status group. Jipi japa is a similar product: its significance increases as people’s cash income declines, making it particularly important to poorer people (Figure 5.4b).

DO PEOPLE ENGAGE IN NTFP ACTIVITIES OUT OF NECESSITY?

Decisions about engaging in NTFP activities appear to span the whole spectrum from desperation to positive choice, both within and between communities. In Mexico, poorer households are less likely to want to continue in the NTFP trade, suggesting that they are – for the most part – engaged in the activity out of necessity. In Bolivia the situation is less clear, and the seasonality of product availability appears to be particularly important in decision-making; the more months a product can be traded, the more likely households are to want to continue with the activity. Conversely, households involved in seasonal products may want to move away from NTFP activities into other activities, reflecting their desire for a more consistent year-round source of income.

Bolivian NTFP traders interviewed are poorer than traders – who are similar in terms of communities and markets served – of other products such as agricultural and horticultural produce. The poorest among them are more likely to want to move into other activities, suggesting again that the poor engage in NTFP activities out of necessity. However, less poor NTFP households in Bolivia tend to want to move on to another stage in the same NTFP value chain rather than moving out of it altogether.

The national context may also be a factor in determining how important NTFPs are to poor people. In Bolivia, for example, poor people have no access to agricultural subsidies or various forms of social security, and NTFPs may play an important role in fulfilling these functions. Yet the Mexican cases, where agricultural subsidies are available to almost all households, show that there is a positive correlation between amounts of agricultural subsidy received by a household and the income derived from NTFPs. This suggests that NTFP income can be seen as additional to agricultural and subsidy income and not as a substitute.

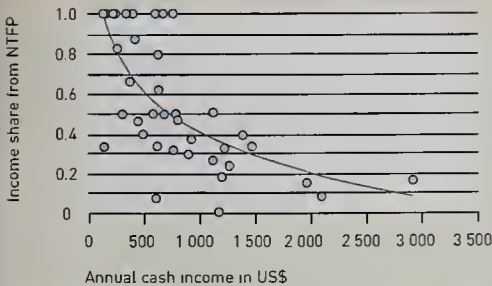
Economic factors are not the only ones determining a household’s livelihood strategy. In Santa Rosa, for example, people prefer to engage in rubber collection and processing than rice cultivation, in spite of the former’s lower returns to labour, because they find the work – standing up in the shade – more pleasant. Pita producers explain that pita collection is much less laborious than their main livelihood alternative, coffee production, and, unlike coffee, the activity can be engaged in at any time of the year.

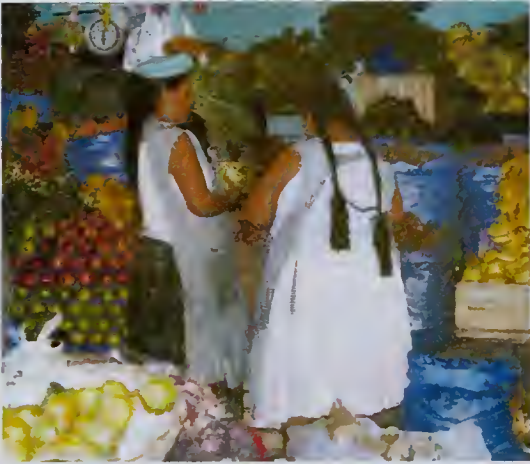
WHAT CHANGES IN NTFP COMMERCIALIZATION HAVE THE GREATEST IMPACTS ON THE POOR?

A feature of poor people’s lives is that they are very vulnerable to risk because they lack the necessary assets

Figure 5.4b Cash income and income share provided by jipi japa (Candelaria)

After te Velde 2005





Local market traders tend their stall in Rurrenabaque, Bolivia.

to buffer them against unforeseen circumstances. On the one hand, NTFPs play an important role in reducing the vulnerability of poor people because they are one of the few cash-generating activities available with sufficiently low entry requirements for very poor people to access. Even where entry requirements are higher, poor community members may benefit from being employed in NTFP collection (e.g. incense, latex rubber and maguey), cultivation and/or processing (e.g. distillation of mezcal). In addition to the commercial use of NTFPs, their subsistence use, which is not discussed in this book, may also play a very important role in reducing household vulnerability.

On the other hand, the fact that many poor people rely on NTFPs for various elements of their livelihoods also makes them particularly vulnerable to external changes and shocks affecting NTFP commercialization. The impacts of change will vary depending on the type of shock and where, within a specific value chain – for example, collection, cultivation or processing – the poorest are active. Important changes highlighted by the case studies include:

- ▶ general decline in demand;
- ▶ local decline in demand due to loss of established trading channels, e.g. because of changes in transport infrastructure;
- ▶ substitution by other products;
- ▶ natural variation in product yields, e.g. because of diseases;
- ▶ introduction of new regulatory requirements, e.g. relating to harvesting permits;
- ▶ domestication of the resource, in situations where the poorest have no land or access to planting stock.

These changes are discussed in more detail in the following chapters.

CONCLUSION: WHAT MAKES NTFP ACTIVITIES SO ATTRACTIVE TO POOR PEOPLE?

The CEPFOR case studies suggest that NTFP commercialization activities usually involve the poorer – but not always the very poorest – members of a community. The fact that many poorer producers and traders of NTFPs would rather be involved in other livelihood activities suggests that they are generally engaged in NTFP activities out of necessity. However, none of the case study activities acts as a poverty trap. Some provide a safety net and all play an important gap-filling role in people's livelihoods. How much NTFPs contribute to household incomes is very variable both between activities and between households engaged in the same activity. For a very few people, they can even bring in enough income to provide a stepping stone out of poverty. The following features of NTFP activities make them particularly attractive to poor people:

- ▶ Source of cash income in subsistence communities where families often have no other cash-generating opportunities. The year-round availability of some products is an added attraction.
- ▶ Low fixed and variable costs. Almost all costs are labour, so good health is the main requirement for poor people to engage in these activities.
- ▶ Low level of formal education required. NTFP activities, particularly at collection level, require little formal education, relying on skills learned 'on the job' [see Chapter 10].
- ▶ Free access to the resource, often on communally owned and managed land [see Chapter 7].
- ▶ Traditional use of the resource. For some products, a culture of using the resource (e.g. cocoa paste, tepejilote palm inflorescences) means that it can be consumed or sold depending on need.
- ▶ Ability to be combined with other activities [see Box 5.1].

CHAPTER HIGHLIGHTS

- ▶ NTFP activities often involve poor people but may also involve the less poor.
- ▶ The importance of NTFPs in household livelihood strategies is closely linked to their seasonality and how they can be combined with other income-generating activities.
- ▶ The importance of NTFP income is extremely variable between households.
- ▶ NTFP activities can be safety nets, gap fillers and sometimes even a stepping stone out of poverty.

6. Women and NTFPs

Improving income and status?

Kathrin Schreckenber and Elaine Marshall



Fausto López

A weaver hands in jipi japa trinkets to the Rural Art association, Buenavista, Bolivia. Each Monday, weavers are able to sell their home-woven goods, keen to deliver high quality in exchange for a premium payment.

This chapter examines the project's second hypothesis, namely the extent to which NTFPs are particularly important for women. It considers the kinds of NTFP activities that women tend to be involved in and the range of benefits they obtain. It also addresses the concern that changes in the NTFP production and marketing system can have a negative impact on women's ability to derive benefits from these activities.

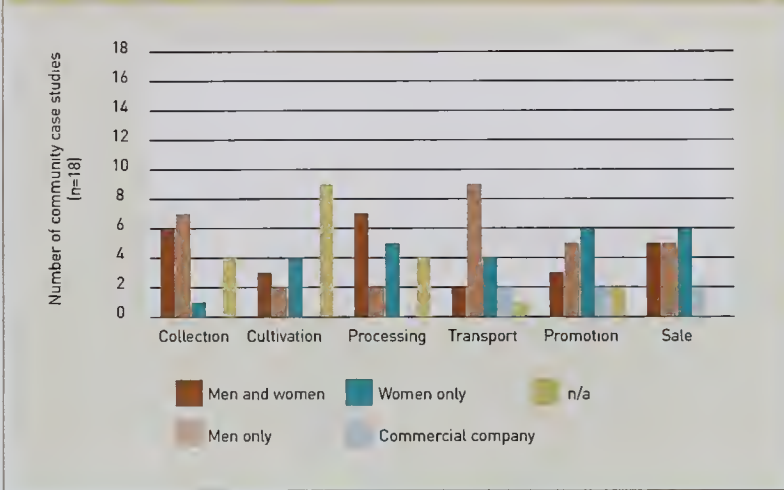
WHAT IS THE INVOLVEMENT OF WOMEN IN NTFP ACTIVITIES?

In three value chains – latex rubber, incense and maguey – all activities from cultivation and collection to sale are carried out exclusively by men, but in none of the CEPFOR

cases are women solely responsible for all activities. There are three value chains in which women carry out all the processing and sale activities but may be dependent on men to provide the resource. In the case of Santa Rosa, some women do harvest rubber if trees are close to home, but others rely on male family members to provide them with the raw resource for processing, as is also the case for soyate palm. In the case of jipi japa palm, women purchase the fibre from a male collector, while for dried mushrooms women are responsible for most activities with the exception of some joint decision-taking in the drying plant.

In general, men are more likely to be involved in collection and any transportation of the product (Figure 6.1). In some activities there is also a high level of involvement

Figure 6.1 Involvement of men, women and/or a commercial company in different stages of the value chain After Marshall 2005



of children, particularly in collection, production and processing. In the case of cocoa, for example, children from the age of seven are among the main harvesters owing to their ability to climb into the branches of the trees. Where cultivation occurs, women are more likely to be involved than men and, with the exception of rubber latex and maguey, are always involved in any processing that takes place, though sometimes together with men. Marketing and sales activities are carried out by men and women. In activities carried out jointly by men and women, the cultural norm is for men to have the final decision-making power.

WHAT DETERMINES WHETHER OR NOT WOMEN ARE INVOLVED?

An important factor in women’s involvement is whether or not the activity takes place far from the community, as distance tends to present an obstacle to women. In La Esperanza, where men traditionally accompany women on trips to collect soyate palm, this was explained by men as ‘women shouldn’t wander the hillsides on their own...’. In addition, women need to be near home for childcare and other domestic responsibilities. Thus most products that are harvested solely from the wild are collected by men. The exception is mushrooms for fresh and dried sale: these are predominantly collected by women and children in forests about four hours from the community. When processing activities occur, they usually take place in the home and generally involve women, as in the case of jipi japa palm and community-level rubber processing. Selling increasingly becomes a male activity if it involves travel from the community. The case of tepejilote palm is a good example

of this: women in Tillepec used to sell the inflorescences to a trader who came to the community, but when this trader stopped visiting, men began to take the inflorescences to a market in a neighbouring community. Only 37 per cent of traders based outside the community are women.

Availability of other income-generating activities

In many communities there are alternative income-generating opportunities for men – for example as hired labourers in the mining and forest industries or tending cash crops – but none for women. Women will therefore engage in NTFP activities even though these generate very low returns to labour, because their opportunity costs are low, whereas men may choose to concentrate on other, more lucrative activities. In Santa Rosa, for example, men collect rubber for several weeks at a time, achieving returns to labour of US\$4.20 that are above the local daily wage rate of US\$3.40. However, the returns to labour for the processing are only US\$2.50. Men therefore leave their wives to process the rubber while they work in the more lucrative mines, returning only when their wives have finished processing a batch of rubber. This is an example of a product that would not be viable for a family to engage in if it were not for the low opportunity-cost of women’s time. A similar situation exists in the cases of pita, where women and children do the processing, and tepejilote, which women collect. In both cases, men can earn a daily wage working as a labourer, or managing a cash crop such as coffee.

Family situation

Women’s income-generating activities need to combine with their childcare responsibilities. Several former pita weavers, for example, gave up weaving because caring for their children left them with insufficient time. This is not to say that childcare is an insurmountable problem for women wanting to engage in NTFP activities. Those NTFP activities occurring at or near home are reliably combinable with domestic chores, including childcare. In six of the 10 product case studies, the NTFP activity was sufficiently close to home for children to accompany their mothers and help in the collection. Basic processing, when undertaken by women, is also often carried out by girls, providing them

with a form of apprenticeship. Moving out of the parental home to marry may deprive young women of the opportunity to learn the skills necessary for more complex activities. For example, one woman explained that she could not continue weaving after she left home as she no longer had her mother to teach her.

Domestic consumption of the product

The case of mushroom collection illustrates the fact that women may be more involved in activities that also contribute to their family's nutrition. In Cuajimiloyas, women collect mushrooms for fresh and dried sale at the same time as they are collecting fresh mushrooms for family consumption. In the case of Latuvi, where matsutake mushrooms are collected only for export and not used in traditional cooking, men are more involved in the harvesting process.

HOW DO WOMEN BENEFIT FROM INVOLVEMENT IN NTFP ACTIVITIES?

In some NTFP activities, both men and women are involved, and therefore the family as a whole benefits. The CEPFOR case studies indicate that, if women are involved in selling, this tends to give them greater control over the income generated. The clearest example of this is the case of cocoa in Emero, which is sometimes bartered for goods provided by traders. Women generally barter the cocoa beans for medicines, school books and other household goods, whereas men are more likely to accept alcohol and cigarettes in exchange. In the case of Santa Rosa, women use the income from processed rubber goods to cover family expenses. If men want income of their own, they process and sell a small number of items themselves.

Training and social support

The jipi japa palm case is one in which women benefit greatly from being involved with a commercial enterprise with strong social objectives. Not only does it train women and provide a guaranteed market for specified products, but it has also helped women set up a rotating fund and provides health care. This has led to an increased recognition and appreciation of the economic role of women at both household and community levels. The introduction of the mushroom trade has also been especially positive for women because the income and accompanying training accrues almost exclusively to them. Prior to this activity, forest management was undertaken solely by men working in timber production.

Self-confidence and status

Involvement in income-generating activities gives women a greater sense of self-confidence and improves their status within the household and the community. For many women

in the case study communities, especially those working with jipi japa and mushrooms, the NTFP activity is their first cash-generating activity and is important in giving them confidence in their ability to learn new skills and achieve goals. These benefits are particularly visible if the activity is linked with some kind of organization, as in the case of the jipi japa weavers' association established by the Rural Art enterprise, which provides a focus not just for training but also for social exchange and economic advancement.

CAN THE INTRODUCTION OF NEW TECHNOLOGY DISPLACE WOMEN?

In the CEPFOR case studies, innovation generally improves the situation of women. Thus Rural Art's introduction of new product styles increased sales potential for women. Similarly, in the case of soyate palm, there has been some new subcontracting to women of production of specific woven items. Fresh and dried mushroom commercialization has been adopted almost exclusively by women, possibly – as outlined above – because of its link to food. Only in the case of pita has the management of a new fibre-cleaning machine been taken over by men. Although women are able to use it at minimal cost, they have to leave the home to do so and, for many, processing at home remains easier to combine with domestic duties.

CONCLUSIONS: WHAT IMPACT DO CHANGES IN NTFP COMMERCIALIZATION HAVE ON WOMEN'S LIVELIHOODS?

NTFP-based activities are frequently the only source of cash income available to women in rural and marginalized forest

Trading natural rubber products – catapults, elastic bands and inflatable football bladders – on the streets of La Paz, Bolivia.



Isidro Rodríguez



Female mushroom harvesters in Latuvi, Mexico, receive training from Methodus on resource management and harvesting techniques.

areas. However, very few product value chains are women-only. Thus development projects intending to work with women must understand at what stage contributions from men – typically for collection and transport – are likely to be essential, and then work with both men and women to improve these stages. In the cultural context of the case study communities, women's activities, such as production or processing, need to be focused close to the home to enable the women to continue to fulfil traditional domestic and childcare duties. Alternatively, the activity must provide sufficient economic gains for families to replace the women's tasks, for example by paying for childcare or buying in food.

Given the more limited livelihood options available to women, they are more likely to feel the impact of changes in NTFP commercialization than men. Some of the more difficult changes for women to deal with are:

- ▶ Reduction in the resource base. This can oblige women to switch from collection to purchase of the resource, thus making it more costly for them to engage in the activity.
- ▶ Change in location of selling point. Leaving the community can present a greater obstacle to women because of their childcare and domestic duties, leaving men to take on the selling role.
- ▶ Changes in processing location. Centralization to increase efficiency, for instance, can take jobs and

income away from rural women, possibly to the benefit of urban women.

A change that can have a positive impact is the introduction of new technology such as labour-saving devices, which can increase the usually low returns to labour. An important proviso, however, is that women should retain control over the process through good social organization and clear definition of responsibilities, as illustrated with the *jipi japa* and mushroom case studies. In addition to income generation, non-financial benefits, such as status, health care or membership in a social fund, can be important rewards for women's work.

CHAPTER HIGHLIGHTS

- ▶ Few product value chains are women-only.
- ▶ NTFP activities are one of the few cash-generating opportunities for women in marginalized rural communities.
- ▶ By providing an income, NTFP activities can be an important source of status and confidence for women, particularly if they are members of an NTFP-related organization.

7. Access rights and resources

The impacts of NTFP commercialization

Kathrin Schreckenber and Elaine Marshall



Charles Veitch

Incense and copal harvesters walk through several different vegetation types on their long journey to the montane forests where they collect resin. The management of this traditional resource has been largely based on mutual respect for each individual's area. This is being challenged as interest in commercialization increases and distance makes resource sites difficult to monitor.

This chapter explores whether increased commercialization leads to overexploitation of the resource, the project's third hypothesis, and whether possible outcomes are influenced by type of resource tenure and the existence of competing land uses. It further addresses hypothesis 4, the issue of whether increased commercialization, particularly when it leads to domestication, has an impact on resource access rights for the poorest. Finally, it examines the way in which commercialization strategies are affected by the type of resource.

HOW CAN SUFFICIENT RESOURCE SUPPLY BE ENSURED TO SUPPORT INCREASED COMMERCIALIZATION?

Limited resource supply is a constraint to successful commercialization in 68 per cent of the case study

communities. The cases illustrate a variety of strategies used by communities and individuals to ensure that NTFP supply is sufficient to meet the demands of increased commercialization (Table 7.1).

Overexploitation

When the NTFP being harvested is a flower, fruit or fruiting body, exploitation rarely damages the resource severely. Damage can occur, however, when the leaves or even the whole plant – as in the case of maguey – are harvested. A degree of overexploitation is evident in 75 per cent of the communities studied. It tends to occur where individuals or the community have no effective control over the production area. This is particularly problematic when the resource is very distant, as in the case of incense, for which the

collecting areas – though nominally owned by individuals – are situated up to 120 km away from the community. Furthermore, when collecting areas fall within locations subsequently designated as a national park, their legal status is unclear and nobody takes responsibility for enforcing sustainable harvesting practices. None of the communities, however, complains of serious resource depletion as a result of NTFP commercialization. This may be because they have all begun to find solutions to

the problem, often with NGO support, as summarized in Figure 7.1.

Collecting from distant locations

Closely linked to local overexploitation is the shift to harvesting the product in other locations situated at greater distances from the community. This is the case in 35 per cent of the case study communities, and may occur even where there has been no increase in the volume of

Table 7.1 Responses to resource depletion in the case study communities

Product	Traditional use of the product in the community	Average time (hours) to reach NTFP collecting site	Evidence of resource depletion in the case study communities	Do the biological characteristics allow for domestication?	Does any form of domestication occur in the study communities?	Any other response to depletion in the case studies?
Organic cocoa	Yes	0.8-1.3	No	Yes	Yes, planting of wild and hybrid cocoa	n/a
Natural rubber	Yes	1.3	Only in Tomachi (due to agriculture)	Yes, but 15 years to first harvest	No	Harvest further from the community
Incense and copal	Yes	52-87	Some, due to poor harvest technique for incense	Subject of experimentation	No, small trial for incense.	Project promotion of better management; harvesting moving to new areas
Jipi japa palm	Yes	2.1-3.0	Yes, clearing for agriculture in two of three communities and overexploitation	Yes, two years to harvest	Yes, transplanting from the wild	Purchase of raw material; harvest from new areas
Soyate palm	Yes	1.5-2.1	Yes, overcutting leaves	No	No	Improved resource management; harvest from more distant areas; purchase of <i>Palma real</i> from other communities
Maguey	Yes	0.9-2.5	Yes, overharvesting of whole plant	Yes	Yes, enrichment planting	Better resource management and extraction systems in La Esperanza
Mushrooms	No	3.1-4.4	Community perception of resource decline is not supported by monitoring by NGD	No	No	Zoning of community for different land uses to protect mushroom resource; training in harvesting techniques
Pita	Yes in Arroyo, no in Pescadito	0.5	Yes, including removal of wildlings for plantation establishment	Yes	Yes, enrichment planting often in coffee plantations	Cessation of the activity in Pescadito when fungus destroyed plantations
Camedora palm	Yes	2.1	Yes, overcutting of leaves, and loss of resource to deforestation	Yes	A little, but mostly by the intermediary	Harvest from new areas leading to increased collection time
Tepejilote	Yes	1.4	No	Yes	Starting enrichment plantations	n/a

commercialization. In the case of both soyate palm and camedora palm, for which demand levels have been relatively stable during the last 10 years, average collection times have nevertheless increased significantly in the same period. This suggests that people now need to travel much further to locate sufficient resources to meet current demand. In all of these cases, communities are also engaging in other strategies – domestication and/or improved resource management – to make up for reduced resource availability.

Domestication

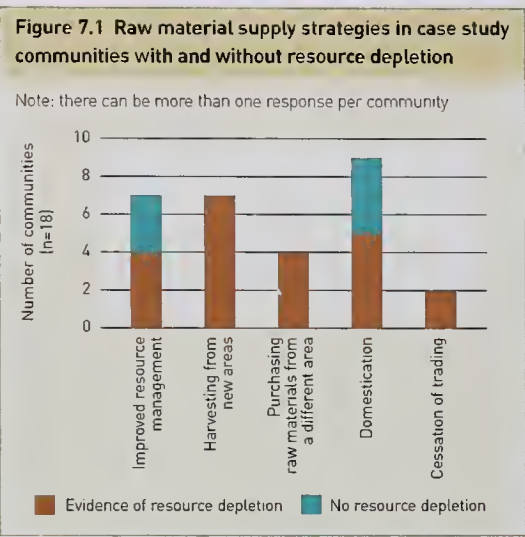
Some 45 per cent of the case study communities, including four in which there is no evidence of resource depletion, have begun to domesticate the resource to some extent (Table 7.1). For some products, however, such as wild mushrooms, it will never be possible (Box 7.1). In the case study communities, domestication typically consists of transplanting wild germplasm with the main aim of establishing a resource closer to home rather than improving its quality. While the distance to collection sites is very variable between and within products, domesticated products are found closest to home.

Many domestication efforts are supported by NGOs. In Emero, for example, increasing demand for wild cocoa is being met by a combination of enrichment planting, using wild planting stock to establish a community nursery and manual cross-fertilization to increase yields. In the case of maguey, in which the whole plant is harvested just before it flowers, enrichment planting is beginning to combat resource depletion.

Domestication may change the status of a resource from one collected mostly from communally managed land to a predominantly privately produced resource, disadvantaging those harvesters who lack appropriate land for establishing plantations. In a few cases, domestication outside the community can have potentially negative repercussions for the whole community. In the case of camedora palm, the intermediary trader has established large plantations enabling him to supplement the community-produced fronds from wild collection and small-scale domestication with more consistently high-quality plantation stock. Half of his trade is supplied from his plantations, and an increase in this proportion would disadvantage the communities. The large-scale export of camedora seeds from the Chinantla region for establishment of plantations in the United States also poses a potential risk to the future viability of community production of palm fronds.

Improved management of the natural resource

In all the cases studied, traditional resource management has not been geared to the extraction of commercial



volumes. Poor harvesting techniques and insufficient recovery time between harvests have therefore led to resource depletion, particularly for maguey, soyate palm, incense and jipi japa. In 74 per cent of the case study communities, low NTFP quality caused by poor harvesting methods is considered a constraint to successful commercialization. However, 35 per cent of the communities studied, including three in which there is no resource depletion, have initiated efforts to improve resource management.

In the case of mushrooms, for example, an improved understanding of the fungi’s biology has led the communities to institute a land-use zoning system in which part of their forest is designated for NTFP harvesting, particularly of mushrooms, and protected from destructive activities such as timber extraction. Harvesters are also trained in best-practice collection methods. A land use rotation system has been introduced in La Esperanza to optimize the community’s maguey resource. In half these cases, NGOs initiated the resource management activities, while in the other half their intervention was critical to support or improve existing community resource management practices, for example through provision of technical information.

Purchasing the resource from another area

In the case of the jipi japa palm, two of the study communities no longer have access to locally available supplies, due to a combination of land use change and some overexploitation of the palm, and they now purchase the raw material from a third community. In the case of soyate palm, a decline in resources has meant that some people purchase a different species, *Palma real*, from other areas.

Box 7.1 Can all species be domesticated?

Six of the 10 NTFPs studied are the subject of some degree of domestication. Whether or not domestication is possible and/or likely to succeed depends on a combination of the following factors.

Biological characteristics: Mushrooms that grow as mycorrhizal fungi are not readily domesticated as they are difficult to propagate and establish. Other species, particularly trees, take a long time to become productive; for example, incense and rubber do not produce until 15 years of age. There is no experience of domesticating the soyate palm as its biological characteristics make it difficult to plant, but it is managed and phenologically manipulated *in situ*. In these cases, the communities will inevitably be more dependent on wild resources for supply of the product.

Tenure characteristics: Tenure can determine whether a community improves its management of the wild resource – possibly supplementing it through enrichment planting or regulating practices that lead to overexploitation – or whether a process of individual domestication on private plots takes place. In the case of organic cocoa, people wanted to increase their ownership of the resource and have therefore begun to plant it rather than relying on common property resources.

Opportunity cost of collection versus production: Domestication is generally more costly – in terms of land and capital resources – than collection. It is usually only worthwhile, therefore, if the resource has become relatively difficult to collect or demand is sufficiently high.

Overexploitation of the camedora palm led to domestication by the main trader. In the case of organic cocoa, there has been no overexploitation, but increased demand has led to the establishment of a community nursery using wild germplasm. Where substitutes exist, as in the case of rubber, domestication may not be worthwhile unless start-up costs are very low.

Legislation: Most of the domesticated case study NTFPs provide highest yields if cultivated in forestlike systems. However, in Mexico, crops grown under forest shade are considered neither subsistence nor agricultural crops. Pita is therefore not legally permitted as a plantation crop.

Traditional knowledge and management capacity: A history of using a plant can be advantageous both for natural resource management and domestication. This is illustrated by the different impact of a fungal disease on pita plantations in Arroyo, where the indigenous community used its traditional knowledge to restrict the damage, and in Pescadito, where the immigrant population was unable to prevent the devastation of their plantations. Within communities, it is rare for domestication to be undertaken by people who have not previously collected the product from the wild.

Technical and organizational capacity: Technical know-how can be a constraint to domestication, and this is an area in which NGO intervention was found to be particularly helpful in the CEPFOR cases. Where domestication takes place on communal land, the ability of the community to organize itself to manage the resource is also a critical area frequently requiring NGO support.

HOW IMPORTANT IS TENURE?

Tenure regimes (see Table 7.2) influence how a resource is managed. In practice, three basic categories exist in the case study communities.

Open access

Nobody has control over the resource and anybody can harvest at will. This situation typically arises where the legal status of land is uncertain or has changed, and nobody takes responsibility for, or has the wherewithal to enforce, systematic resource management, as may be the case in some protected areas, for example.

Communal land

Many of the products studied are collected from areas of community-owned land that are designated for communal use. However, community-based management systems are not always effective if organizational structures break down or cannot adapt to changing levels of resource use. This is

true of maguey and soyate palm, for example, which are benefiting from NGO interventions to strengthen community organizations and to support adaptation and enforcement of community norms. Similarly, NGO support has helped to establish a new community system of resource management in the case of mushrooms.

Individual land

In many of the communities, communal land is gradually being allocated to individuals, mostly as a response to agricultural investment. This means that individuals possess some plots of land over which they can take most decisions, although some are still subject to a degree of community control. In several cases, domestication has benefited from the existence of these plots. In the case of Emero, the desire to domesticate cocoa has been the motivation for some 'privatization' of community land.

There are many overlaps between the above categories, and few communities can be characterized by a

single form of tenure. In Pucasucho, for instance, the very widespread copal can be collected from anywhere. Incense, however, is much rarer and individuals inherit rights to collect from a specific zone of incense trees. The harvesting zones are named and recognized – though not always respected – as individual property within the community. A complicating factor is that all the harvesting zones are

located within the boundaries of a national park, with which an informal agreement to allow collection exists, but expansion of collection into new areas is prohibited.

Inasmuch as it is possible to clearly distinguish the land tenure system involved, there appears to be no simple correlation between tenure type and the existence of resource overexploitation. Overexploitation is as likely to

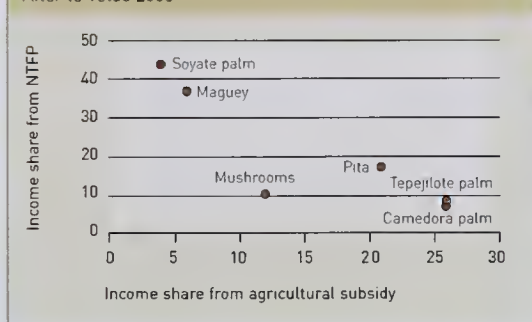
Table 7.2 Changes in resource tenure and access brought about by commercialization

Product	Resource tenure and access	Changes brought about by commercialization	Impact on poorest
Organic cocoa	In both communities, cocoa trees are predominantly located on communal land. No community norms restrict access.	Due to demand for cocoa, wildlings are being transplanted on to private plots.	Some poor people do not have access to private land for planting.
Natural rubber	In Santa Rosa, each family manages an average of three forest tracks on communal land. In Tomachi, a dozen concessionaires from outside the community each have 10-36 tracks, hiring community members to harvest the latex.	In Tomachi a dispute over ownership of the forest tracks has led to an agreement by which the concessionaires pay the community an annual harvesting fee (see Box 7.2).	No particular impact.
Incense and copal	Incense collection occurs several days away from the community in the recently created Madidi National Park. A tacit agreement exists that collection may continue in existing areas but not expand into new areas.	Certain incense harvesting areas are traditionally respected as the nominal property of particular collectors, handed on within families, though no official papers exist. Control has become more difficult as interest in commercialization has increased.	Access depends on having rights to a harvesting zone or being hired to join a collecting trip (the proceeds of which are shared). The main constraint for poor people is lack of capital to fund collecting expeditions.
Jipi japa palm	Most weavers buy the fibre, as harvest areas have been converted to agriculture. The remaining collectors collect from the Ambaró National Park buffer zone.	Commercialization has led to increased demand, but not sufficient to encourage domestication by the female processors.	Women who used to collect jipi japa now need to buy the leaves.
Soyate palm	Soyate palm is collected from community land, subject to some community-imposed restrictions on volumes and days harvested.	Overharvested resource, but no change in access rights.	The same community norms apply to all. No disadvantage to the poorest.
Maguëy	Communally managed resource. In La Esperanza, harvesting rights are allocated to distillers on a monthly basis in return for payment of harvesting fees.	Recent increase in commercialization. Overharvesting has led to enrichment planting by community.	Poorest are never likely to have sufficient capital to become distillery owners, but are employed as harvesters.
Mushrooms	In both communities, all land is owned by the community and access to mushrooms is open to all.	Apparent overexploitation at national level has put matsutake and <i>Baletus</i> on Mexican protected species list. Cuajimolayas has carried out an EIA to obtain a harvesting permit and zoned land to protect mushrooms from timber extraction activities.	In Cuajimolayas, positive impact on the poorest, who rely more on mushrooms than on timber. In other communities, poor are unable to harvest mushrooms legally because of lack of funds (ca. US\$10 000) to carry out an EIA.
Pita	For agricultural reasons, Arroyo decided to parcel land into individual plots, and it is from these that pita is collected.	Commercial interest has led to establishment of agroforestry plantations of pita on individual plots. A few individuals in Pescadito have taken over areas of communal land with high densities of pita.	Poorer people are prevented from establishing plantations because of high start-up costs (US\$1 000 per ha) and a five-year lag before plants begin to yield.
Camedora palm	Camedora palm is collected from communal land with no restrictions. In Monte Tinta, most individuals also have private plantations.	Overexploitation has reduced physical access to the wild resource. The main trader has established large plantations of camedora palm, providing 50 per cent of his supply.	Greater distance to the resource means that only the poorest still engage in collection. Small-scale domesticators displaced by trader's plantation.
Tepejilote	In Tiltotec, tepejilote is collected from open access communal land. In Yagavila, the palms are planted on private land.	No change.	No impact on poorest. People with wetter land can plant more of the palm.

Note that open access means no community norms. Anybody can collect from any plant at any time.

Figure 7.2 Agricultural subsidies and NTFP income share in Mexican case study communities

After te Velde 2005



take place on private as on communal or open access land. The tenure type does, however, have a strong impact on the forms of improved management undertaken in response to overexploitation, with domestication most likely on private land and improved management of the natural resource taking place on communal land.

CAN NTFP PRODUCTION COMPETE WITH ALTERNATIVE LAND USES?

In 63 per cent of the case study communities, competing land uses for NTFP production areas are a constraint to successful commercialization. In four communities the NTFP was not valuable enough to resist land use conversion to agriculture. The jipi japa case highlights the importance of understanding who benefits from the alternative land uses: the benefits of agriculture accrue mostly to men and exceed the benefits women derived from collecting jipi japa. As a result, the majority of land was converted to agriculture, obliging the women to buy in jipi japa fibre from other communities. Trends may also be reversed. Thus many wild populations of the spiny pita plant were destroyed in the 1980s, when large-scale plantations of coffee under shade were introduced. Declining coffee prices, however, have resulted in the partial replacement of coffee by pita plantations. These cases illustrate how responsive communities are to changes in market prices and opportunities.

In Mexico a number of subsidies, e.g. Procampo and Progreso, are available, many of which are aimed at stimulating agricultural production. They might be expected, therefore, to make agricultural land use more attractive and reduce household reliance on NTFP income. At a product level, this seems to be the case (Figure 7.2): a high proportion of income contributed by subsidies is associated with a high share of income from agriculture but a low share of income from NTFPs. However, within

communities, households obtaining a greater share of their income from subsidies also appear to obtain a greater share from NTFP activities, suggesting that NTFP income is additional to agricultural income and not a substitute.

In a few communities, NTFP use is providing justification for forest protection. This is the case in Santa Rosa, where intensive rubber collection, and processing, from essentially private forest tracks has led to a decline in the number of agricultural clearings in forests with high densities of rubber trees. It is also true in the case of mushrooms, where forest zoned for mushroom production is effectively protected from timber extraction by the local administrative body, as is the case with private understorey pita plantations.

HAS COMMERCIALIZATION LED TO A CHANGE IN ACCESS RIGHTS FOR THE POOR?

The effect of commercialization on access rights is a complex issue (see Table 7.2). In most of the study cases there has been no formal change in access rights over the last 10 years. An exception is the case of mushrooms. Here there have been changes at the national level as several mushroom species, including *Boletus* sp. and *Tricholoma magnivelare* (matsutake), have been placed on the Mexican list of protected species. This imposes a new requirement for an environmental impact assessment (EIA) before harvesting is permitted. The required study costs around US\$10 000 and is prohibitively expensive for a community to undertake without significant support from an NGO. This was forthcoming in the case of Cuajimoloyas, where the community now requires *Boletus* harvesters to attend a course on correct harvesting techniques and charges buyers, including the community-owned drying enterprise, an annual permit for forest use.

Another legal change has occurred with the creation of the Madidi National Park, Bolivia, which includes the incense stands accessed by the community of Pucasucho. The park administration permits current collection to continue, but no new activity will be approved. In this case, the change of status has affected all incense and copal collectors equally, with the poorer ones being constrained more by the cost of mounting a collecting expedition than by the park's existence. Box 7.2 describes how increased interest in rubber collection in Tomachi has led to a tenure dispute with some benefits for the community.

At community level, research results from the CEPFOR case studies indicate a definite trend towards privatization of access rights as commercialization of a product becomes a more profitable activity. Any collection

from semi-private land will tend to disadvantage the poorest, as they may have less access to land. Rights to establish pita plantations, for example, are theoretically the same for all community members providing they have sufficient land under forest or secondary forest cover, but the capital required – up to US\$1 000 per ha, with first returns after five years – is prohibitive for poorer people. The youngest members of the community, who do not yet have access to their own land, are also excluded from plantation crops. Thus, although domestication does not have a negative impact on the access of poor people to the wild resource, it may disadvantage them if they continue to rely on the wild product and it is less easy to trade – for example because of poorer quality or less consistent yields – than the domesticated one. If carried out on an industrial scale, as in the case of camedora palm, domestication may put whole communities at a disadvantage.

WHAT IMPACT DOES THE RESOURCE HAVE ON COMMERCIALIZATION STRATEGIES?

Just as increased commercialization can have an impact on the resource, so the biological and ecological characteristics of the resource may constrain commercialization in a number of ways.

Variable resource densities

Two pairs of communities illustrate how different resource densities, combined with transport constraints, can lead to differing commercialization strategies. In the case of natural rubber, the community of Tomachi has access to a large rubber tree resource and produces sufficient latex to attract regular traders in spite of difficult access by boat. In Santa Rosa, the fewer rubber trees available do not produce sufficient latex to attract traders. The community has therefore turned to processing the latex into bags and raincoats for direct sale to local miners. A similar situation exists in San Silvestre, where low production levels of cocoa have led the community to concentrate on sales of processed cocoa paste rather than the much heavier beans.

Variable yields

Mushroom yields vary greatly from year to year, depending on climatic conditions. This deters people from investing time in possibly fruitless collection. For some products, such as cocoa, although individual plants have alternate good and bad years, production across the whole population is fairly stable from year to year.

Variable qualities

Incense resin can be collected from a number of species, but the quality varies considerably among them.

Box 7.2 Rubber harvest leads to improved access rights for community

The NGO CARE has been working with the indigenous people of Tomachi to improve the benefits they obtain from trade in latex rubber. Community members are employed as rubber tappers in concessions located within the community's territory. Initial community meetings highlighted the fact that the legal status of these concessions, all owned by people from outside the community, was not clear. On reviewing the documentation, the community established that the concessionaires had not paid taxes to the government for many years. At a joint meeting, the community therefore advised the concessionaires that, due to this failure to meet their obligations, they should stop extracting latex. The concessionaires responded by obtaining title deeds, of dubious origin, that gave them the status of a *colonia* (neighbourhood) they called Isapuri. This heightened the conflict, as the community did not agree with the presence of this new *colonia* on its land. Further discussion has led to a temporary resolution of the conflict with the concessionaires agreeing to pay an annual fee of US\$80 to the community for use of the concessions.

Erik Arancibia

Perishability of harvested product

Successful commercialization of perishable products requires rapid access to the market, refrigerated transportation or processing. Fresh mushrooms and tepeljote inflorescences must both be sold within a few days following collection. Although slightly less perishable, camedora palm fronds – which last two to three weeks – need to be transported in refrigerated trucks to maintain quality, while mushrooms can be dried to prolong shelf life.

Vulnerability to disease of domesticated plant

Some plants are very susceptible to diseases when cultivated in plantations. The pita trade from Pescadito, for example, was devastated when all the plants were killed by a fungal infection.

Danger of collection

Collection can be difficult and dangerous either because of characteristics of the plant – such as the presence of spines on pita – or because of its location. Incense collectors complain of the dangerous snakes and very steep terrain they may encounter during their long collection trips. The fact that several camedora palm collectors have been killed by snakes is the reason given by some collectors for cessation of trading.



Pita growing as part of an agroforestry plantation in the community of Arroyo Blanco, La Chinantla, Oaxaca, Mexico. Domestication of pita in the forest understory protects the forest from being cleared for agriculture. It also brings the resource closer to home and under tighter individual control.

CONCLUSIONS: WHAT IS THE RELATIONSHIP BETWEEN COMMERCIALIZATION AND RESOURCE STATUS?

Overexploitation of the resource is evident to a lesser or greater extent in 75 per cent of the cases studied, occurring equally on private plots, communally managed and open access land. In the face of this overexploitation, there are several options available for ensuring sufficient supply, ranging from improved management of the wild resource to domestication, or purchase of the raw material from other areas. Which option a community prefers depends partly on land tenure. Domestication is particularly suitable on individual plots, while improved resource management and/or enrichment planting are appropriate on community-owned land. Another approach is to introduce processing in order to obtain higher value from a more limited resource base. Whichever route is chosen, the CEPFOR cases illustrate the importance of external intervention, predominantly by NGOs, to initiate and/or support changes in resource management.

Whether or not an NTFP is valuable enough to lead to the conservation of the forest resource depends on the relative value – and to whom it accrues – of the competing land use. In one case – jipi japa – the use of an NTFP by

women was not valuable enough to prevent land use change to agriculture. However, in at least two other cases – rubber and pita – NTFP commercialization was considered an important reason why forest land was not being converted to agriculture. In the case of mushrooms, where domestication is not possible, the community has zoned the forest to protect the mushroom resource, which provides an important income during the rainy season, when there is less employment in the timber industry.

The case studies demonstrate that a shift from subsistence use, which is legal in all cases, to extraction of commercial volumes of NTFPs, which requires permits, in many cases reduces access rights for the poorest producers. The main reason for this is that the permit requirements for commercialization of NTFPs, particularly if they are considered to be a species in need of conservation, are often beyond the reach of poor communities. The same applies within communities, where poorest members may find it hardest to respond to the requirements of community norms that are more strictly applied as the resource becomes more valuable.

Where domestication occurs on individual land holdings, poorer community members without access to the right kind of land and no voice in decision-making may well be excluded from this activity. In one case, the establishment of plantations outside the community meant that although there was no change in the community's rights of access to its own resource, its market share was declining.

CHAPTER HIGHLIGHTS

- ▶ There is no simple correlation between tenure type and the existence of resource overexploitation.
- ▶ Tenure influences how communities try to assure resource supply. Domestication is dominant on private land while improved natural resource management dominates on communally managed land.
- ▶ Industrial plantations can displace harvesters of the wild resource and small-scale domesticators.
- ▶ Successful domestication is determined not just by the biological characteristics of a plant but also by socio-economic and legal context and traditional knowledge.

8. Policies, laws and institutions

What framework for NTFP commercialization?

Kathrin Schreckenber, Jonathan Rushton, Alan Bojanic and Fabrice Edouard



SEA

Maguery harvesters load up a donkey with agave heads to transport to the distillery. They will be fermented in the production of mezcal. Making mezcal was formerly a clandestine activity, but the days of moonshine are now over.

This chapter provides a brief overview of the policy, legal and institutional context within which NTFP commercialization takes place in Mexico and Bolivia.

WHY ARE GOVERNMENTS INTERESTED IN NTFPs?

National interest in NTFPs may be catalyzed by a number of different concerns, leading to a range of policies with the aim of supporting or controlling NTFP commercialization.

National economic advancement

The Mexican government has decided that a focus on niche markets will allow the country to compete in international markets at the same time as pursuing poverty-reduction objectives (Ramírez Farias 2001). It has therefore created

the Non-Traditional Agricultural Products Trade Promotion Programme within the Ministry of Agriculture, Livestock and Rural Development and the Inter-American Institute for Cooperation on Agriculture (IICA), the aim of which is to identify market niches for higher-value small-farm agricultural products. Although not specifically designed for NTFPs, the latter would be well served by inclusion in this system. The national government has also created an official seal of quality, *From Mexico to the World*, and is promoting this seal at fairs and exhibitions for non-traditional agricultural and livestock products. A few NTFPs, such as embroidered pita belts, are considered items of national prestige and are exchanged as gifts with visiting heads of state.

Supporting local livelihoods

With the exception of Brazil nut and palm heart, the government of Bolivia has not supported the promotion of NTFPs as potential export products. This may be in part a cautionary approach based on the 'boom and bust' experience of these two products (see Box 8.1). Nevertheless, there is a strong interest in the potential role of NTFPs in supporting livelihoods, particularly as a possible alternative to coca cultivation. As all the case studies are located outside the principal coca-growing areas, they have not benefited from any support linked specifically to finding alternatives to coca. All of the products studied could, however, benefit from being marketed as organic or community-traded niche products.

Intellectual property rights

In the interests of protecting national production and intellectual property rights, Mexico has registered an Appellation of Origin for mezcal. Seven states are included in the protected region, though mezcal is traditionally produced in more than 20 states. Although well intentioned, poor understanding of the distribution of mezcal production has meant that this new appellation is forcing many traditional producers to abandon the name 'mezcal' for their product, and is causing increasing conflict. At the same time, certification costs within the protected region are beyond the reach of small-scale producers, causing them to abandon their trade or continue it in a clandestine manner.

Conservation

Government interest in NTFPs may be part of a conservation agenda. This may lead to the development of

legislation that restricts NTFP commercialization (see below) but can also have a positive effect. In the Chinantla region of Mexico, for example, the government's interest in maintaining forest areas led the National Commission for Protected Areas (CONANP) to fund a study to identify harvestable forest products, which highlighted the development potential of pita. Further government support was then provided to private-sector development in the form of the UPIS-L cooperative of private members, although an NGO was instrumental in helping to access the funding.

DOES THE LEGAL FRAMEWORK SUPPORT NTFP COMMERCIALIZATION?

Depending on the details of the existing legislation and how it is implemented, the legal framework can either support and/or constrain NTFP commercialization. Legislation is particularly critical in determining whether and how NTFP commercialization moves from the informal, and often illegal, sector to the formal sector. The case studies highlight several issues.

No legislation specific to NTFPs

Legal issues are generally not a constraint to small-scale NTFP producers operating in the informal market, and few of the community members interviewed knew anything about the legal requirements for trade of NTFPs (Box 8.2). This reflects the fact that neither Bolivia nor Mexico has much legislation specific to NTFPs, and that which does exist is poorly implemented by overstretched officials. In both countries, NTFPs are covered by various environmental laws and regulations that are predominantly

Box 8.1 Boom and bust in the NTFP trade

Commercialization of many NTFPs is characterized by 'boom and bust' scenarios, where a rapid increase in trade is followed by a rapid decline. Bolivia's two most important NTFPs are good examples of the important role of legislation and the market in bringing about this pattern. In the case of canned palm heart (*Euterpe precatoria*), the bust was brought about by sanctions imposed by Brazil, the main importer, because of the supposed presence of botulism in palm heart processed under poor hygienic conditions. These sanctions resulted in the number of processing plants in northern Bolivia falling from 26 in 1997 to under six in 2003 (Stoian 2004a), aggravating existing problems of poverty and seasonal unemployment in the source areas. In the case of Brazil nuts (*Bertholletia excelsa*), overproduction at the end of the 1990s led to a decline in prices, and collectors were

also hit by new sanitary regulations imposed by the European Union requiring improved collection and processing methods (to reduce the level of aflatoxins). With phytosanitary costs now being met by processors, the price is currently at a new peak.

Several of the case study products have benefited from busts in other products or other locations, an indication that they themselves may be vulnerable to a similar scenario. In the case of exported matsutake mushrooms, for example, a bust in Asia, caused by overharvesting, led Japanese and Korean prospectors to seek new supplies in Mexico. Maguey has similarly benefited from the fact that tequila supplies have not been able to meet the boom in demand, leading to interest in mezcal as an alternative. On a lesser scale, the world decline in coffee prices has allowed for the enrichment or replacement of coffee plantations with pita.

Box 8.2 The benefits of being legal

Lack of enforcement means that NTFP traders generally do not feel constrained by their lack of collection permits. Proper permits could, however, enable them to increase their benefits through more secure contracts with traders in the formal sector, as illustrated in the case of the camedora palm. The SEMARNAT office in the Chinantla region would like communities to obtain permits for harvesting camedora, as this would enable them to sign agreements with buyers, guaranteeing prices and medical assistance in return for a specified volume and quality of palm fronds. In spite of technical support from SEMARNAT and financial support available from the Forest Development Programme (PRODEFOR), the requirements are so complex that most producers continue to harvest palm leaves without the permits specified by the law.



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concerned with timber production and/or biodiversity conservation. In Mexico, for example, there are three different environmental laws – the Ley General de Equilibrio Ecológico y Protección al Ambiente (LGEEPA), the Ley de Desarrollo Forestal Sustentable, and the Ley General de Vida Silvestre (LGVS). The overlay of often contradictory regulations originating from each of these laws generates confusion among both NTFP producers in the formal sector and the institutions issuing NTFP exploitation permits (see Box 8.3 for an example relating to

soyate palm). Administrative control is further complicated by the existence of additional state-level laws dealing with the environment and forest resources, many of which apply different criteria from those in federal legislation.

Lack of coordination in the creation of new legislation

Poor coordination between the departments that create the laws can inadvertently lead to contradictions or policies that promote environmental degradation and biodiversity loss. The declaration of the Appellation of

Box 8.3 The never-ending road to legality: fighting bureaucracy to manage soyate palm in Topiltepec

Since 1991, the NGO Sanzekan Tinemi has tried to encourage sustainable – and legally recognized – management of soyate palm in its partner communities. In compliance with the 1986 Forest Law, which required a management plan for extraction of timber and non-timber products alike, Sanzekan spent many years working with Topiltepec and the NGO GEA on the necessary ecological, socio-economic and organizational studies. When the community finally submitted its management plan for soyate palm to the authorities in 1997, it was informed that the law had changed and a management plan was no longer needed. Compliance with the new law only required a notification of extraction for NTFPs.

However, this turned out to be less simple than it sounded. The notification and the associated permit required the community to provide quarterly reports, signed by an authorized forest engineer, of the quantity of

palm harvested. Unfortunately the income generated from selling the palm was insufficient to pay the costs of the forest engineer. Still intent on obtaining legal recognition for the sustainable management system it had by now put into practice, the community consulted SEMARNAP (the predecessor of today's SEMARNAT). It was told that, according to new legislation, it should establish an environmental management unit (UMA), which would allow for legal harvesting without a management plan or quarterly reports. Working through the documentation required to establish a UMA, the community realized that a UMA was more appropriate for fauna and that extraction of non-timber products would still have to be approved by a forest engineer.

Back at square one, the community is today still looking for the best way to achieve legal recognition of its management plan. In the meantime, after four years of sustainable management, Topiltepec is proof that community-based resource management is possible.

Catarina Illsley

Origin for mezcal, for example, was achieved by the Minister for the Economy. However, as described above, a lack of biological and cultural insight means that mezcal has been considered in the same light as tequila – a product of monoculture agroindustry – and policies derived from the declaration create confusion and overregulation.

Collection permit requirements difficult to fulfil

In both Bolivia and Mexico, plants cannot be extracted from tropical forest areas – except for domestic use – without a management plan and/or an environmental impact study. In Bolivia, the key document required is a certificate of forest origin, issued by the Forest Superintendence on the basis of a management plan supported by annual operational plans. Evasion is rife as the system was designed for timber extraction and is excessively costly and technically difficult for small-scale NTFP producers. In Mexico, commercialization of species on the protected list (NOM-059-ECOL-1994) – including some *camedora* palms and *Boletus* and matsutake mushrooms – must comply with the requirements of two different laws. One requires communities to create an environmental management unit (UMA or Unidad de Manejo Ambiental), and the other requires communities and individuals to present a professionally prepared EIA. Without this, SEMARNAT is unable to issue a collection permit. The EIA format is complex and little adapted to activities such as mushroom collection. In the dried mushroom case, the community received NGO assistance to cover the US\$10 000 cost of the EIA. However, mushroom collectors in other areas lack the capacity to undertake the onerous and costly task of obtaining a valid EIA and therefore continue to collect – and sell to exporters – without reporting their production.

Permits required for NTFP cultivation

An EIA is also required if communities want to cultivate NTFPs in natural forest areas, e.g. pita and *camedora* palm, both of which are grown under shade. Without external support, communities do not have the financial or technical capacity to meet these requirements, resulting in a situation in which most extraction and much domestication is illegal and unregulated. Yet, as described in Chapter 7, well-organized extraction, e.g. of mushrooms in Cuajimuloyas, can lead to protection of the forest resource, and pita plantations are a more environmentally friendly option than forest clearance for agriculture. A few NTFPs can be cultivated without a permit, such as maguey, which is considered an agricultural crop because of its biological similarity to the agave used for the industrial production of tequila.

Complicated export requirements

In addition to harvesting and/or cultivation permits, commercialized NTFPs must also comply with a range of trade requirements. In Bolivia, very few NTFPs other than Brazil nut and palm heart are subject to taxes for domestic trade. In most cases, traders pay their municipalities a small fee – unrelated to volume sold – for a stall in a particular market. Export of NTFPs is administratively complex, however, requiring at least a dozen documents to be presented, including a commercial bill prepared by the exporter; registration of the enterprise at the Forest Department; an export declaration; a packing list; a notice of confirmation to confirm weight and value of product; transport documents prepared by a transport company; phytosanitary certificates; and a certificate of Bolivian origin. As with the EIAs, these requirements are extremely difficult to meet, particularly for small-scale producers of products for which little information, e.g. on phytosanitary issues, exists. Alliances with foreign companies, as in the case of the *camedora* intermediary and the fresh mushroom exporter, can help national producers to meet the necessary requirements.

Impacts of new protected areas

Introduction of new – or new enforcement of existing – regulatory requirements, e.g. relating to harvesting permits, can create formidable barriers to NTFP commercialization for poor communities. Establishment of Bolivia's Madidi National Park, for example, has restricted the extension of harvesting zones for incense and copal.

Legal status of community enterprises

Comparing Bolivia and Mexico, it is clear that Mexican communities are at an advantage when establishing community enterprises. Of the 7 000–9 000 communities owning forest land, an estimated 2 400 are Community Forest Enterprises with varying control of the value chain from resource management to sale of processed timber products (Bray et al. 2005). Their success is considered to be due in part to the relative security provided by the collective land tenure awarded after the Mexican Revolution. A second factor is the previous impact of the Mexican timber industry, which not only established transport and processing infrastructure that has now been taken over by communities, but also inadvertently mobilized a well-coordinated protest movement that later became the principal impetus for government policy reforms.

In Bolivia, in spite of recent initiatives to strengthen community control of land, such as through the establishment of TCOs, communities are much less secure in their resource rights, and the legal basis for them to establish a community enterprise is more complex. Their



Elaine Marshall

A community nursery of maguay plants was established from local germplasm, with the help of funding from GEA supporting reforestation and enrichment planting around La Esperanza.

limited administrative capacity and a macroeconomic policy that restricts credit to small producers also mean that funders rarely have confidence in them unless they are allied with an NGO.

Community norms

In the case study communities, individuals are aware of and tend to respect community norms. In several cases, NGOs have been instrumental in strengthening community institutions and providing technical help for resource management. Under current circumstances, therefore, community-level regulation is often more effective than national legislation in achieving sustainable use of NTFPs.

INSTITUTIONAL FRAMEWORK

The institutional framework for NTFP commercialization is closely linked to the legislative framework described above and, in the same way, can be both a support and a hindrance to successful NTFP commercialization.

Multiplicity of government institutions

The fact that NTFPs are subject to several general natural-resource laws in each country inevitably means that a variety of institutions are also involved. In Bolivia, for

example, although the 1996 forestry law led to more narrowly defined responsibilities of forest institutions, NTFP resource issues are still variously in the remit of:

- ▶ The national Forestry Superintendence, responsible for regulating, controlling and supervising the sustainable use of forest resources, including granting permits for NTFP collection.
- ▶ The national Agriculture Superintendence, responsible for all agricultural land, including the large areas of forests which may be located on individual farms.
- ▶ The National Service for Protected Areas (SERNAP), responsible for administering more than 40 protected areas.
- ▶ The Ministry of Sustainable Development and the Environment, of which the Forestry Superintendence and SERNAP are part, and which is responsible for planning and coordinating environment-related activities and a new biocommerce action plan.
- ▶ The Ministry of Agriculture, which retains some responsibilities for forest activities.
- ▶ The National Agricultural and Livestock Health Service (SENASAG), responsible for issuing phytosanitary certificates and food safety.

In Mexico, the key institutions involved in NTFP production and trade are:

- ▶ The Ministry of the Environment and Natural Resources (SEMARNAT), the normative body responsible for regulating extraction and implementing some support policies.
- ▶ The National Forestry Commission (CONAFOR), a decentralized arm of SEMARNAT established in 2000 to promote and fund forest management projects, including NTFP projects.
- ▶ PROCYMAF, a World Bank-supported project within CONAFOR designed to sustainably develop community, *ejido* (a social-legal entity formed after the Agrarian Revolution, concerned with the administration of land and other col-

lective properties in Mexico) or small producer-owned native forests in certain priority regions. Many of the 600 initiatives funded between 1997 and 2003 included NTFP components, with pita and mushroom-collecting communities being amongst the beneficiaries.

- ▶ The National Commission for Protected Areas (CONANP), another decentralized arm of SEMARNAT, which funds projects that support conservation in reserves and sustainable extraction from forests located in areas of biodiversity interest. CONANP was the first organization to fund NTFPs in the country (starting in the Chinantla area).
- ▶ The National Institute for Ecology (INE), also a

Box 8.4 What kind of support can NGOs provide?

Non-governmental organizations can play a very important role in supporting individual communities and NTFP supply chains. They can also play a role in promoting debate about issues related to NTFP commercialization at national level. Some of the activities undertaken by partner NGOs in this project include:

Technical support to production and processing

- ▶ Technical and organizational support to improve harvesting techniques and establish more sustainable management of the natural resource, including development of management plans.
- ▶ Technical support for the domestication of the natural resource, including collection of seed, establishment of nurseries and agroforestry plantations.
- ▶ Technical and marketing support to improve post-harvest processing techniques in order to respond to market demand for better-quality products.

Business and marketing support

- ▶ Technical and business support for the establishment of a social enterprise and an alliance of processors.
- ▶ Marketing support to develop recognized product brands.
- ▶ Acting as a trade intermediary between community and buyers.

Funding support

- ▶ Support in obtaining funds from domestic and international sources for technical projects such

as nurseries, storage facilities, etc., and to meet regulatory requirements.

- ▶ Direct provisions of funds or subsidies for processing equipment, exchange visits, training.
- ▶ Provision of credit.

Information provision

- ▶ Participatory research on resource management, alternative technologies and marketing through which producers and community leaders could take control of the development of their activities.
- ▶ Provision of contacts with management experts, designers, national and international clients, and funders both public and private.
- ▶ Accessing information from private enterprises operating in the same sector, including useful information from 'failed' businesses.
- ▶ Attending national and international trade fairs to obtain price and quality information.
- ▶ Accessing national and international literature.

Information dissemination and advocacy

- ▶ Broad dissemination of issues related to NTFP commercialization through workshops with other organizations, and to the general public, e.g. by initiating an annual mushroom fair.

A number of conditions are required for the successful implementation of such initiatives, including appropriate intervention for local conditions taking into account scale and focus, etc.; sustained initiative with long-term investment and gradually reduced support; collaborative intervention to promote uptake, along with provision of capacity building and training to ensure an effective handover to relevant stakeholders.

part of SEMARNAT, responsible for undertaking and promoting ecological research.

- ▶ The National Council for Science and Technology (CONACYT), which has funded a range of academic research projects on NTFPs, particularly on resource management, through a joint fund with INE.

The majority of these institutions in Mexico and Bolivia are mandated to be involved in NTFP resource issues. Additional institutions are involved if NTFPs are commercialized, particularly if products are exported. Institutions designed to support commerce are not always designed appropriately to support natural resource enterprises. Thus the support provided by PROCYMAF in Mexico to help communities develop an enterprise study is limited to just one year, which is not long enough to ensure the successful establishment and operation of an enterprise.

Poor coordination between institutions

The large number of different institutions is compounded by the fact that they may have different administrative boundaries, thus hindering coordination of activities. In Mexico, for example, there are many programmes available to help communities, but accessing them is often difficult. Agricultural programmes are decentralized to individual states and may favour organizations close to government rather than small communities. Forest programmes, in contrast, are still centralized and must be accessed via SEMARNAT and CONAFOR delegations. In Bolivia, the instability of administrative jobs hinders the development of long-term programmes and effective inter-institutional coordination. In general, authorities have a great deal of discretion in the way they interpret and apply different regulations, leading to uncertainty among producers and the NGOs working with them and, in some cases, to overexploitation of resources due to lack of implementation.

Non-governmental organizations

Civil society organizations, particularly in Bolivia, have very little capacity to support communities in their NTFP commercialization activities. Most NGO support is therefore provided through donor-funded projects, which are rarely coordinated with government programmes. The results of the CEPFOR information-needs assessment undertaken in Mexico, Central America and Bolivia, involving 42 NGOs, donors and government organizations working on NTFPs, show that most NGOs (more than 75 per cent) focus on resource management issues and community strengthening, with relatively little emphasis on

commercialization. Yet this project's case studies indicate just how important NGOs can be in supporting commercialization activities (Box 8.4).

CONCLUSIONS: HOW SUPPORTIVE IS THE POLICY, LEGAL AND INSTITUTIONAL CONTEXT FOR NTFP COMMERCIALIZATION?

There are few policies, laws or institutions designed specifically to promote NTFP commercialization. For the most part, collection and cultivation of NTFPs are covered by a number of sometimes contradictory natural resource laws designed to deal with timber harvest and resource protection. Processing and sale are the remit of trade and export policies not developed with wild harvested products in mind. Neither set of policies and laws is designed to facilitate compliance by small-scale producers with poor access to technical information and credit. However, lack of enforcement means that the legal context, while not providing any help to small-scale producers, is also not a real hindrance until NTFP commercialization enters into the more formal, large-scale or export arena. In general, the most effective support for communities is provided by NGOs. However, these are themselves in need of capacity building, particularly with respect to product marketing and sale, and efforts are needed to achieve better coordination both between government institutions and between NGO and government interventions.

CHAPTER HIGHLIGHTS

- ▶ National-level interest in NTFP commercialization may aim at promoting national economic development, local livelihoods and/or conservation.
- ▶ Communities are often obliged to trade NTFPs in the informal sector because they lack the capacity to fulfil the legal requirements for formal-sector commercialization.
- ▶ NGOs can play an important role in helping communities access the technical and financial support they need to obtain permits for legal trade of NTFPs.
- ▶ Harmonization of legislation and more coordination between institutions would reduce the obstacles for communities wanting to commercialize NTFPs.

Table 9.1 Key market features of the case study value chains in Bolivia and Mexico After Rushton et al. 2004

Value chain	Trends in demand and price	Market structure and function	Length of chain	Resilience to external shocks
Cocoa beans	Demand appears to be increasing. Both communities produce organic cocoa but are not certified and receive no price premium.	In Emero, intermediaries dictate price and often pay for cocoa beans in the form of barter. Their cocoa is eventually exported by a cooperative.	National/ international	High
Cocoa paste	Stable local demand and price.	San Silvestre sells cocoa paste to consumers and traders.	Local	High
Latex rubber	National demand for latex is declining due to substitution. Price received by community is stable in Bolivianos, but drastically reduced in US\$	A few concessionaires control trade. Prices depend on those of synthetic rubber. Latex and processed products are sold in La Paz.	National	Medium: competition from synthetic and imported rubber goods
Rubber goods	Prices for rubber goods have decreased as local demand declines.	Processors of rubber goods are unable to influence the falling prices and shrinking market.	Local	
Incense/copal	Demand is currently unmet and expected to remain stable or increase. Producer prices unchanged since 1970s.	Prices fixed by three intermediaries, who profit by selling the resin in seven different grades. Large external market.	International	High
Jipi japa palm	Bolivian government is promoting jipi japa as an alternative to coca cultivation. This may flood the small market and cause prices to decline. The government hopes for exports, in spite of competition from high-quality jipi japa products from Ecuador.	Communities selling through the Rural Art company receive social benefits, but generally low prices when labour costs are considered.	National	Medium: vulnerability of resource to conversion to agriculture
Jipi japa hats		Surutu value chain produces lower-value products for a wider range of buyers.	Local	
Soyate palm	Stable high demand for soyate palm, with some adaptation of the goods to changing market tastes. Prices unchanged for the last decade in spite of increasing living costs.	Some trading networks were established over 100 years ago and appear to be more stable than more recent ones. Large numbers of sellers and intermediary buyers.	National	Medium: substitution by synthetics and other palms
Mezcal for local consumption	Demand for mezcal is expected to increase, with an accompanying rise in price.	Local commercialization of mezcal occurs through a complex market network, with many actors.	Local	High, as long as management prevents over-exploitation of resource
Mezcal for national sale		National and international markets dominated by highly industrialized tequila mezcal and medium industrialized Oaxacan mezcal. Growing appreciation of regional craft mezcals from endemic species. Appellation of Origin declaration has given seven states commercial advantage through right to use the word 'mezcal'. Regional organization sells directly to urban consumers.	National	
Fresh mushrooms	Demand appears stable and growing. Price reflects the scarcity of the resource.	Sold locally by one or two community-level traders.	Local	High
Dried mushrooms		Sold through a community drying enterprise to wholesalers/retailers of gourmet foods and restaurants.	National	High
Exported mushrooms	Final consumer price is high. Mushrooms also collected in other countries so producer price fixed by the intermediary does not reflect local scarcity of the product at certain times during the production cycle.	Value chain of exported matsutake mushrooms is dominated by one intermediary.	International	Low: extreme dependence on single trader
Pita palm	Declining demand, but artisans willing to purchase at same price to maintain good relations with producers and ensure product quality. To improve quality, the costs of production (i.e. plantations) have increased, reducing profit margins. Nevertheless, producers feel secure enough to continue investing in plantations.	Association of producers in Arroyo enables producers to deal directly with craftsmen. Pescadito sells fibre through intermediaries who are abandoning the trade due to decreasing demand	National	Medium in Arroyo: niche market vulnerable to changes in fashion Low for Pescadito: inability to manage pita disease
Camedora palm	National demand expected to remain stable or grow. But case study communities report slight decline in demand. Marked price fluctuation in the 1990s; now single trader maintains producer price stability	Trade controlled by an individual buyer who operates as a wholesaler and distributor. Some risk of exploitation of producers.	International	Low: domestication of resource by single trader
Tepejilote palm	Producers expect local demand to decline slightly while prices remain unchanged.	Short value chain, with collectors selling direct to consumers. Regional market.	Local	High

9. NTFP value chains

What happens between production and consumption?

Kathrin Schreckenber, Jonathan Rushton and Dirk Willem te Velde

All NTFP activities take place within a production-to-consumption system (Belcher 1998), or 'value chain'. The project's fifth research hypothesis emphasizes the need to understand the structure and function of these systems in detail if appropriate improvements are to be made. This chapter analyses the case study value chains in terms of their activities, actors and governance structures. It also examines the importance of innovation and concludes by presenting some factors that contribute to determining the sustainability of value chains.

WHAT IS A VALUE CHAIN?

A value chain describes the full range of activities required to bring a product from the producer to the consumer, emphasizing the value that is realized and how it is communicated. Different literatures use the terms 'supply', 'value' and 'marketing' chain. The terms differ slightly in their emphasis.

'Supply chain' is favoured by economists to highlight issues of competitiveness (Porter 1985), industrial organization and clustering. The sociological literature tends to use 'value chain' when examining the relationships between actors. Where products are traded internationally, the term 'global value chain' is used, the analysis of which is concerned with how lead firms go about setting up and maintaining production and trade networks (Gereffi 1999; Gibbon and Ponte 2005). The most thorough review of commercialization in the NTFP literature (Neumann and Hirsch 2000) has used the term 'marketing chain'.

This book uses all three terms synonymously, with a preference for 'value chain'. 'Commercialization network' is also used to emphasize the numbers of different actors and routes involved to bring a product to consumers. Key features of the case study value chains are summarized in Table 9.1.

WHAT ACTIVITIES ARE CARRIED OUT ALONG A VALUE CHAIN?

All value chains comprise a number of different activities. These may include:

- ▶ collection of the wild resource;
- ▶ management of the wild resource;

- ▶ cultivation of the resource;
- ▶ processing – from cleaning or air-drying to more complex processing requiring specialist skills (e.g. rolling pita fibre into thread, weaving jipi japa), purchased inputs (e.g. ammonia for rubber goods) or technologies (e.g. mezcal distilleries);
- ▶ storage – including accumulating the raw product and/or the processed product at different points in the chain;

In Santa Rosa, rubber sacks are made by coating old fertilizer sacks with the harvested latex mixed with ammonia.



Isidro Rodriguez

- ▶ transport – from the harvesting site to the home and along the value chain;
- ▶ marketing – identifying and developing good market niches;
- ▶ sale – often between several sets of actors in the value chain.

In addition, there are less obvious but no less critical activities, such as information gathering and provision, and capacity building. It would be a misconception to think of value chains as simple linear sequences of activities. This is only true of the shortest chains, such as for tepejilote palm. Most value chains more closely resemble networks in which many of the activities, such as storage and transport, are repeated several times by different people and at different locations before the final product reaches the end consumer. This intricacy greatly complicates their analysis.

WHO ARE THE ACTORS IN A VALUE CHAIN?

As illustrated in the case study chapters, NTFP value chains involve a large number of different actors. It is only in the shortest chains that the producer harvests the product, carries out the processing and sells the product to the final consumer. In all other chains, different activities are carried out by different individuals, groups or organizations. However, it is often the case that a particular actor is engaged in more than one activity. Actors may include:

- ▶ Private or community owners of the resource.
- ▶ Individual collectors of the product.
- ▶ Individual cultivators of the plant from which the product is derived. For the products studied, cultivation (26 per cent) is much less common than collection (74 per cent), and overall, half of the cultivators also collect.
- ▶ Individual processors. Often this is quite a specialized task, with only 4 per cent of interviewees involved in processing as well as in collection and cultivation.
- ▶ Informal groups of producers. In one of the cocoa communities, an existing water management group is beginning to coordinate cocoa production and marketing; women in Surutú select one individual to take their jipi japa palm hats to market.
- ▶ Community-based traders. Their main role is to transport the product from its source to the market, often accompanied by accumulation of the product and a degree of quality control.
- ▶ Traders and companies situated outside the community. These may be responsible for initiating a new value chain (as in the case of exported mushrooms), providing information to producers, quality control and long-distance transport.

- ▶ Community-owned enterprises.
- ▶ Cooperatives. The pita producers' cooperative acts primarily to negotiate quantities, qualities and prices of thread sold to leather workers – themselves also organized in an association – as well as providing its members with training and access to credit for pita plantation establishment.
- ▶ Associations. The jipi japa weavers' association established by the Rural Art enterprise provides women with many of the benefits of a cooperative, except for a role in decision-making.
- ▶ Government departments. These have both a regulatory role – issuing and monitoring permits – and a role in promoting more sustainable NTFP resource management and commercialization, including provision of grants, often via NGOs, to support environmental or market studies.
- ▶ NGOs. These play a key role in the provision of information, and of technical and business support.

Understanding the specific role of each actor is essential if conditions for the poorer actors in the chain are to be improved. In an equitable chain, all actors should be reasonably compensated for their contribution, including labour, technical expertise, marketing skills and so on. In contrast to the situation in some other countries, this study found no examples of parasitic actors who reap benefits from the chain without carrying out any useful activity.

HOW ARE VALUE CHAINS ESTABLISHED?

NTFP value chains can be established on the basis of trading goods to meet an identified demand. Alternatively, it may be that through supplying a product, a demand is created. Which approach dominates depends in part on the kinds of markets different actors in the chain can access. How the chain is established will largely determine where power lies within the chain and how information is passed between actors.

Are NTFP value chains supply driven or demand driven?

Short chains are typically supply driven, with collectors and producers making all the key decisions. Longer chains, particularly those trading products beyond national boundaries, are almost always demand driven, with actors closer to the consumer determining what is produced where, when and how. An exception is the latex rubber value chain from Tomachi, which is rather unusual in that a few of the actors are both suppliers who own the forest tracks and demanders who own workshops in La Paz.

Many conservation and development projects working with communities begin by taking a supply-driven approach, focusing on those NTFPs that can be produced in

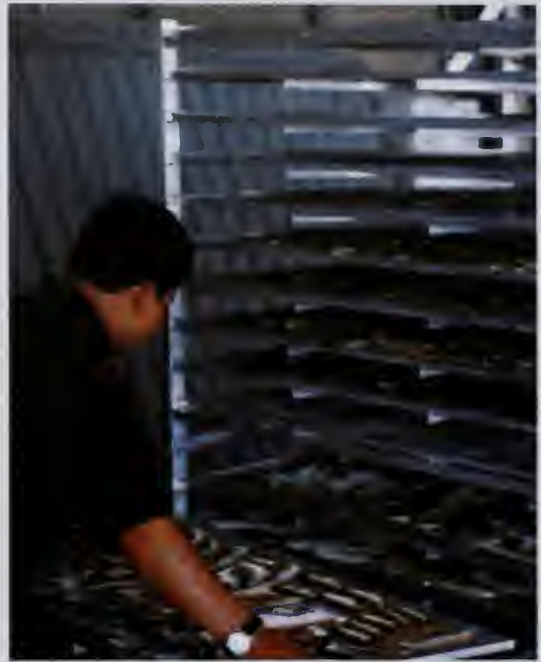
quantity in an environmentally sustainable manner. Because they assume an unlimited market demand, these projects often overestimate the potential value of the NTFP (Belsky and Siebert 1998, cited in Neumann and Hirsch 2000). Subsequent attempts to identify or create demand can end in failure due to lack of understanding of market networks, contacts, sustained demand and so on.

While none of the products studied by the CEPFOR project were completely new, two cases illustrate that, under certain conditions, it is possible for demand to be stimulated on the basis of existing supply. The dried mushroom market, for example, has been stimulated by the community, with NGO assistance, by holding an annual mushroom fair and providing targeted training for chefs in the nearby town of Oaxaca, a significant centre for foreign tourists. Demand has also benefited from a growing fashion for Italian restaurants and healthy-eating campaigns. In the case of mezcal, the regional association of distillers has learned from the growing demand for tequila and has begun a marketing campaign highlighting the region and agave species of origin. This is changing the popular perception of mezcal as a second-rate liquor to one of a higher-quality traditional drink with a recognized label.

These cases suggest that the key conditions that allow this approach to work are:

- ▶ recognition of an incipient market, possibly located away from the community, for a product available in the community;
- ▶ existence of an effective intermediary to establish links between the community and the market, particularly with respect to communicating the consumers' quality and quantity requirements to the producers;
- ▶ community organization enabling it to adapt production and/or processing to meet the demands of the new market while maintaining the resource.

For demand-driven chains to succeed, there must be a good flow of information from the consumer back to the producer, often moderated by an intermediary and/or community organization. A good example of this is the fresh matsutake chain, where the demand from the Japanese market was recognized by an intermediary who sourced the mushrooms in Oaxaca and then worked, in parallel with NGO efforts, to develop the supply – through training and improved harvesting and grading practices – to better meet the demand. Understanding demand trends is important for producers to determine the appropriate levels of investment in production and processing. As an example, the local fresh mushroom market is growing but limited, whereas the market for dried mushrooms within Mexico is currently not being met, with the volume of sales continuing to



Fabrice Edouard

Drying racks full of sliced mushrooms in the community-owned factory. Oaxaca, Mexico.

increase from the same small network of suppliers. Effective communication can also ensure that producers are able to respond quickly to changes in demand, whether for a greater quantity or a different quality of product.

In one-third of the case study communities, the viability of the NTFP value chain was in part dependent on demand for another product. For example, the collection of the rare and highly valued incense is made economically viable by the simultaneous collection of the lower-value copal. However, copal is sold predominantly in domestic markets, and if this demand were to cease, it might make incense collection less attractive. Similarly, cocoa beans from Emero might be less attractive to traders if the community did not also produce dried fish, the seasonal availability of which is complementary to that of cocoa. The incentive for women to collect mushrooms is that they can harvest species for sale at the same time as collecting other species for domestic use.

Does the successful commercialization of an NTFP depend on market access?

Market access consists of knowing about the market, i.e. possessing market information, and being able to transfer the product to the market either through direct physical access or via an intermediary, i.e. having market contacts.

Box 9.1 Assessing levels of exploitation of NTFP producers

Exploitation may occur if one or more actors in the value chain obtain an unfair share of the profits, and/or if they unfairly control the levels of profit made by other actors. Several factors make it difficult to determine actual levels of exploitation.

Business sensitivity: It is very difficult to analyse the distribution of profits along value chains that are dominated by single individuals or enterprise-like associations who may be concerned about revealing the information necessary to calculate their enterprise budgets.

Costing risk: The financial costs of the risks borne by traders are difficult to quantify – and are often not recognized by communities. They include the costs of visiting communities and finding insufficient product to buy, or advancing transport and packaging costs of perishable products.

Different volumes sold: In many of the case studies, profit margins appear to be reasonably well distributed along the chain, but the final person in the chain sells a large volume and therefore makes a larger profit.

Changing nature of the product: Where products are transformed through processing, it becomes very difficult to compare the margins received by actors early in the chain with those closer to the final consumer.

Relative profit margins: NTFP value chains link rural and urban people with very different costs of living. This makes it difficult to compare their absolute profits from the trade.

Given that all these difficulties were experienced in studying the case study value chains, it is possible that levels of exploitation in the CEPFOR case studies were higher than have been documented. However, the use of triangulation between several methods including economic analysis, community discussions and interviews with key informants suggests that the conclusions presented here with respect to the relatively low levels of exploitation found are valid.

In most of the national and international value chains studied, market information is provided, and sometimes controlled, by intermediaries or NGOs.

In half the communities studied, producers have no choice about where to sell their product. In the other half, the choice is usually between direct sales of the product to a

nearby community or sale of the product to an intermediary. There is no clear pattern as to the relative profitability of different routes. The direct sales route is more profitable for rubber goods in Santa Rosa, jipi japa palm hats in Surutú and tepejlote palm. The intermediary route, however, is more profitable for producers of soyate palm, incense, cocoa beans in Emero and latex rubber in Tomachi.

In all of the value chains in which products are moved beyond the local area, intermediaries play a key role in ensuring market access. The downside of this reliance on single intermediaries is that the producers generally have little capacity to exert market power, defined as the capacity of an actor to impose his or her trade terms on another actor. Traders may cease to operate for a variety of reasons, from personal, such as changes in family circumstances, to product related, as in the case of camedora palm, where the insufficient quantity produced meant that the single trader ceased visiting the community. One way of helping to ensure that intermediaries remain faithful to a community is to build social contacts with them. In some cases they may be people from the producer community who have moved to a town. In the case of one of the organic cocoa communities, which relies entirely on traders arriving by boat, traders typically act as godparents to children of their community partners, entering into a relationship of mutual dependency.

Another way for producers to attract intermediaries is to become more organized (see Chapter 10). Community organization can enable producers to offer sufficient produce to interest traders and/or to negotiate an improved relationship with a trader. This is the case for exported fresh mushrooms, for which the intermediary – and the availability of air transport – makes the Japanese market accessible. In the case of pita, both the community co-operative and private traders, with their better organization and market contacts, can reach larger markets and therefore pay producers more for their fibre than local processors who do not have the same access.

How important is adding value locally?

Adding value by processing is often considered an important aim for NTFP commercialization projects. Local bottling and labelling of mezcal, for example, increases its value from US\$6 to US\$18/litre. Yet most of this additional income is lost through taxes and other legal costs. In the three case studies in which comparisons are possible, returns to labour are lower for the more highly processed products: cocoa paste versus beans; rubber goods versus latex; soyate palm hats versus plaited fibre. Nevertheless, as described in Chapter 10, in the case of cocoa paste and rubber goods, processing is essential to increase the value per unit weight/volume of the products sufficiently to overcome supply and transport constraints. In all three

cases, the local processing also plays an important role in providing economic opportunities for women.

VALUE CHAIN GOVERNANCE: RELATIONSHIPS BETWEEN ACTORS

The governance of value chains refers to how control is exercised within the chain, reflecting the relationships between different actors. It plays an important role in determining the sustainability of the overall chain and the equitability of benefit distribution, and can also influence how production capacities are upgraded. Important issues include how producers are organized, where power is concentrated, how transparently prices are set and whether any actors feel exploited by others [Box 9.1].

Vertical and horizontal integration

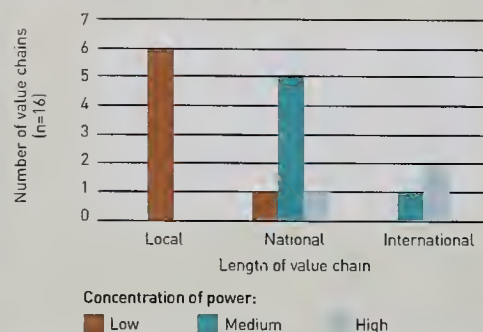
Vertical integration occurs when successive stages in the value chain are placed under the control of one enterprise. This may be necessary when a product must be supplied to exacting conditions and the local capacity in terms of skills and capital for achieving this is so low that an intermediary or company needs to take control. A degree of vertical integration exists in several of the value chains studied, for example that of exported mushrooms, camedora palm and jipi japa palm tourist crafts. In all three cases, entrepreneurs play a major role in organizing the quality and quantity of supply. Given that the chains are relatively recent, it is too early to assess the extent to which these actors may at some point in the future exert their market power (see below) to the detriment of the producers.

In Tomachi, a few rubber concessionaires own part of the value chain from the rubber trees to the processing workshops in La Paz. This extreme vertical integration enables them to achieve success in more distant urban-based markets. A different approach has been taken in Santa Rosa, where individual families collect, process and trade natural rubber products. Individually they have been successful in supplying the easily accessible local mining and cattle industry markets, but they are not able to access more distant markets. In the case of cocoa beans, the current lack of differentiation in the quality of the product, e.g. between organic and non-organic cocoa, and the low level of technology in processing the beans, reduces the need for vertical integration. Vertical integration may become a more important issue if the chocolate factory that eventually buys the beans begins to monitor its sources of organically produced cocoa in response to certification and phytosanitary requirements.

Horizontal integration involves the cooperation of all actors undertaking similar roles, e.g. producers or processors. It is generally the preferred option for project interventions, as it increases the bargaining power and

Figure 9.1 Length of value chain and concentration of power

Note: concentration of power is defined as the degree to which a single individual or firm controls the value chain; scored subjectively on the basis of market reports and Rushton et al. 2004



economies of scale of small-scale producers and processors. Among the cases studied, horizontal integration is relatively rare, occurring in only a few cases with a broad producer base. In the pita case, there is an effective producer cooperative as well as an active association of leather workers that has managed to reverse a declining trend in pita demand by establishing a brand name and guaranteeing authentic quality. A regional association of mezcal traders has achieved a similar feat.

Concentration of power

The source of market power may arise from social status, taking advantage of the needs or ignorance of the other, superior financial or technological capacity or a monopolistic position in the market. A typical example is an actor who controls access to the market because he owns the only truck available or provides loans, creating forms of dependency. Excluding producers from a particular ethnic group or locking suppliers into a specific production role are other examples.

In the CEPFOR case studies, concentration of power is greatest in value chains producing highly processed or perishable products for a sophisticated international market. Of the 10 NTFPs traded beyond the local scale, seven show evidence of concentration of power (Figure 9.1) in a single individual or small group. This is a result of the large distance to market information sources and the low education levels of the producers. Individuals who have taken up the role of entrepreneur have particular characteristics that have enabled them to implement innovative marketing strategies, e.g. Korean and Japanese descent in the case of exported mushrooms, contacts with an American businessman for camedora palm, a well-

Fausto López



Members of the Rural Art jipi japa weaving association. This provides an income-generating opportunity for women to undertake in harmony with traditional domestic roles, including childcare.

educated and socially aware businesswoman in the case of jipi japa palm tourist crafts. While there is a clear danger of abuse of power, only in the case of camedora palm does the entrepreneur appear to be disadvantaging producers by sourcing increasing amounts of palm fronds from his own plantations. In four of the seven intermediary-dominated chains, the intermediary plays a very positive role by assisting suppliers with training and financial support to achieve consistent quantities of the desired-quality product.

Transparent price setting

An important element of value chain governance is the manner in which prices are set. In a perfect market the price received by the producer should closely reflect actual production costs. The latter are sometimes difficult to define, particularly with respect to the costs of the labour involved, as local wage rates can vary by season. In the case of women, labour rates are often spurious, as no other income-generating activities exist. In spite of this caveat, it would seem that there are only a few communities in which producers are able to set the price according to their production costs, namely of mushrooms sold locally, rubber goods, tepejilote palm and pita when sold to the cooperative. In a few other cases, producers are able to set

the price but must do so in relation to competing products rather than to reflect their costs; e.g. jipi japa and soyate palm hats must be priced to compete with plastic imports. In all other cases, the producer price is determined by an intermediary with little reference to producer costs. In some cases, products are sourced from many areas and producer prices reflect production costs in other supply areas. This is the case for fresh matsutake mushrooms exported to Japan. These mushrooms can also be obtained from other parts of Mexico, and indeed the world, so the price paid to collectors in Oaxaca does not change even in years when production in the region is very low.

The critical issue that determines whether or not producers perceive that they are receiving a fair return on their efforts appears to be the level of transparency and clarity in price-setting rules – for example, whether or not all producers are treated according to the same rules. In the case of jipi japa palm, the company-promoted association has a highly differentiated price list for the range of woven products that it buys. Although some association members feel constrained in the items they are required to produce, they are content with the prices received and the additional benefits – health cover, rotating credit fund and status in the community – associated with their membership. The

relatively new community dried-mushroom enterprise is still in the process of establishing the most appropriate price to pay individual collectors versus the contribution it makes to the community as a whole. In the case of pita, the producers' cooperative provides very clear information about prices for different standards of product, and there are few complaints about inequity. Nevertheless, a few producers feel that they might be in a better position if they were able to choose between a larger number of buyers.

In only 37 per cent of case study communities is consumer preference for product quality reflected in the price received by producers. The resulting dissatisfaction among both producers and traders is greatest in the soyate palm communities. Here the price for the woven fibre has remained unchanged for the last 10 years in spite of a dramatic rise in living costs. The opportunity cost of collecting and plaiting the fibre is such that it is only profitable if labour is valued at zero. While producers receive very little money, traders can make reasonable profits if they sell a sufficient volume of plaited soyate fibre.

In the cocoa beans and incense cases, there is evidence that increases in benefits are not necessarily being passed on to the producer. In both cases, producers are paid a standard price irrespective of product quality. The incense traders then sell on the resin in three different quality grades, achieving very substantial profits as a result. Similarly, in the cocoa case, the community's cocoa is first purchased by community and regional traders, in some cases in the form of barter, which gives producers little control over the price. It is then purchased by a wholesaler before being bought by a chocolate factory that specializes in organic production. The community, however, receives no premium for producing organic cocoa. Although efforts have been made to bypass the wholesaler, the factory prefers to work through a wholesaler who is able to guarantee consistent quality and quantity. In both the cocoa and incense cases, producers are very dependent on the NTFP as a source of cash income and – because the communities are relatively inaccessible – are highly marginalized in terms of access to information, both factors likely to reduce their ability to negotiate prices.

Types of value chain governance

Based on three independent variables – (i) the complexity of the information required to sustain a particular supply transaction; (ii) the ability to codify and transmit this information between the supplier and demander; and (iii) the capabilities of suppliers to respond to the requirements of the transaction – Gereffi et al. (2005) have distinguished five types of global value chain governance:

- ▶ **Markets:** repeated transactions amongst different actors with low costs of switching to new actors.

- ▶ **Modular value chains:** suppliers make products to a customer's specifications.
- ▶ **Relational value chains:** there is mutual dependence regulated through reputation, social and spatial proximity, family and ethnic ties, etc.
- ▶ **Captive value chains:** small suppliers depend on much larger buyers for their transactions and face significant switching costs and are, therefore, 'captive'.
- ▶ **Hierarchy:** implies vertical integration with managerial control.

Of these governance types, the CEPFOR cases fall into three main groups (te Velde et al., forthcoming): market types, relational types and captive types. Market types include all the products that are only sold to the local market, often with relatively numerous suppliers and consumers, as well as those with a fairly simple domestic market. For pita and dried mushrooms, the more distant markets are made accessible by the existence of a good community-based producer association. Relational types are cases – cocoa beans and maguey – in which cultural ties and family networks play a key role in ensuring the success of commercialization efforts. Captive types include the three entrepreneur-dominated chains – jipi japa tourist artefacts, exported mushrooms and camedora palm. The critical factor in determining governance type would appear to be the physical distance of the consumer from the NTFP collector and the need for specialized skills in processing, marketing and presentation of the product.

The models predicted by Gereffi et al. (2005) are not clear-cut, as governance may differ at different points in the value chain. Thus the maguey value chain is relational at the collector and community-based distilling level, but beyond this it becomes hierarchical in nature. Similarly, the latex rubber chain begins as a market type with many labourers available for hire by many rubber concessionaires. Once the latex is collected and moved to the La Paz workshops, the chain becomes more hierarchical.

The importance of understanding the value chain governance lies in the impact that governance can have on the ability of different actors in the chain to innovate and upgrade their activities (Gibbon and Ponte 2005). In captive value chains, the dominant entrepreneur may dictate the kind of innovation a community or other individual may carry out, maintaining the supplier in a less powerful position. There is some evidence of this in the jipi japa value chain, in which some weavers expressed dissatisfaction with the fact that the Rural Art company dictates the range of artefacts that can be produced, though Rural Art is arguably in a better position to know what products can be easily sold in its shops.

Table 9.2 Responses to substitution and competition in the case study value chains

Product	Substitute available	Value chain response	Any upgrading and innovation? By whom?
Organic cocoa	Non-organic cultivated cocoa widely available and often of better and more consistent quality.	Intermediary company is profiting from the growing organic cocoa niche market, but community receives no price premiums	With NGO help, Emero has invested in improved fermentation technology (process upgrading) to produce a more consistent-quality cocoa bean.
Natural rubber	Severe competition from oil-based synthetic rubber, which tends to be cleaner and smell better than natural rubber. Often sourced from Asia	Niche marketing in both communities. Santa Rosa sells rubber bags and ponchos to local miners. Tomachi sells latex to urban workshops producing goods (e.g. football bladders, medical equipment) for which natural rubber outperforms synthetic substitutes.	Santa Rosa processors have experimented with different products and colours to meet local market demand (product upgrading). In both communities, NGO has introduced new chemicals and techniques for rubber processing to replace ammonia, which is difficult to obtain (process upgrading).
Incense and copal	None	None	None
Jipi japa palm	Woven products can be replaced by plastic, or by fibres from other palms.	Focus is on producing high-quality craft items branded as 'jipi japa' for the tourist market.	Rural Art company supervised development of new range of products (product upgrading) to meet tourist demand.
Soyate palm	Woven products can be replaced by plastic, or by fibres from other palms.	Soyate products sold so cheaply that they out-compete their potential substitutes.	None
Maguey	Mezcal can be substituted by adulterated or blended low-quality mezcal.	Mezcal industry has changed regulations to allow 20 per cent blend of other sugars, decreasing quality but increasing benefits. Tequila industry permits a 51:49 blend. An alternative approach promotes branding of 100 per cent agave mezcal by region and species of origin.	Community has benefited from innovative marketing and branding initiated by a regional association of distillers to sell mezcal as a high-quality drink for national market (chain upgrading).
Mushrooms	Exported mushrooms compete with mushrooms collected in other areas or countries. But Oaxacan mushroom season is earlier than that in Asia. No competition from cultivated mushrooms as Japanese market values medicinal properties of wild mushrooms.	Strong relationship between buyer and community, and cultural links between Mexico-based buyer and Japanese importers ensures sustainability of the value chain.	New domestic dried-mushroom market (chain upgrading) supported by NGO, through subsidized capital investment in drying facility and innovative promotion activities. For exported matsutake, trader introduced grading and packaging methods.
Pita	Pita thread can be substituted by cotton or nylon thread, and embroidered belts can be substituted by cheaper plastic belts.	Pita craftsmen have created a brand name and focused on producing high-quality goods.	Pita cooperative accumulates larger quantities of fibre (process upgrading). Innovation at marketing level by creation of 'authentic pita' brand by association of pita craftsmen (functional upgrading). NGO support for better grading of pita leaves.
Camedora palm	Potential substitution by domesticated palm, other species and palms collected from other areas	Close link between main Mexico-based buyer and US importers reduces risk.	Large-scale cultivation gives intermediary greater control over the value chain (process upgrading).
Tepejilote	None	None	None

INNOVATION IN THE VALUE CHAIN

The case studies illustrate that innovation – the introduction of new things or methods – is very important to the sustainability of value chains by enabling them to adapt to external change. There is evidence of innovation at some point in all but two of the case study value chains – incense and tepejilote palm. Innovation tends to be a response to resource scarcity, leading to better management or domestication (discussed in

Chapter 7); or it is a response to the threat of substitution, leading to improved processing, improved marketing and branding, or to development of new products.

Are substitutes a real danger to NTFP value chains?

Substitutes are available for most of the products studied (see Table 9.2). The value chains are nevertheless viable because of product innovation to meet specific market

niches. A strong and very specific market offers good protection against substitution. This is illustrated by pita fibre, which could be substituted by nylon thread. However, the artisans who use pita to embroider belts have countered this threat by producing high-quality articles aimed at a strong niche market, and developing a brand to guarantee authenticity of their products. Similarly, although the demise of the Brazilian natural rubber industry demonstrates the severe competition from oil-based synthetic rubber, small-scale natural rubber products appear to have found two different and quite specific market niches within Bolivia.

How important is technical management capacity?

Technical management capacity is important with relation to resource management (see Chapter 7). It is also important for processed products sold into markets demanding a high-quality product involving grading, etc. When commercialization begins, processing is often very basic or non-existent. Improved processing becomes important when the market expands and producers find themselves in competition with other producers or substitute products. A few case study communities adapted their processing, but effective innovation – both of the processing technology and the capacity to manage it – has generally been supported by NGOs or intermediaries [see Table 9.2].

How are value chains upgraded?

Value chains can be upgraded (Kaplinsky and Morris 2001) in several ways [see Table 9.2]. Process upgrading increases the efficiency of production processes within or between stages of the value chain. This can occur, for example, through accumulating larger quantities of the product, domestication and introduction of new technologies. Product upgrading – or the improvement of product quality and the introduction of new products – is the most commonly observed form of value chain upgrading among the case studies.

Functional upgrading changes the mix of activities conducted within a value chain or an individual firm. For example, the pita producers’ cooperative has taken on new roles of credit provision, capacity building and marketing. However, the presence of one strong actor in the value chain can stifle the efforts of others to change their activities or take on more responsible roles. Thus the desire to take greater control of their activities and market higher-value products has led some jipi japa weavers to work independently of the constraints of the jipi japa company. Producers may also be affected by the changing activities of other actors in the chain, as in the case of the camedora palm trader also moving into production.

Chain upgrading involves moving to a new value chain, as is the case in the dried mushroom chain, which is a new venture for the existing dried-fruit factory.

Table 9.3 Case study community responses to overcome shocks to the value chain

Shock	Case study community responses to ensure sustainability of NTFP value chains
Natural variation in product yields, including plant disease	In Arroyo, indigenous knowledge of pita management saved the crop, which was lost to disease in Pescadito. NGO technical support helped cocoa farmers plant different varieties that yield different qualities and quantities.
Decline in resource base, e.g. due to overharvesting and/or land use change	As discussed in more detail in Chapter 7, community organization and NGO technical support are key ingredients in the main responses of domestication and/or improved management of communal resource.
Introduction of new regulatory requirements, e.g. permits	NGO support helped mushroom-collecting communities pay for EIA required for a harvesting permit.
Changed market demand	Soyate palm weavers unable to sell woven mats and bedrolls. Responded by identifying new demand, e.g. for hats and baskets.
Established trading channels lost, e.g. because of changes in transport infrastructure or loss of key market traders	Community identified one person to gather and transport camedora leaves by road when transport by boat became impossible. Men took over trade from women, taking tepeljilota to the nearest market for sale when trader ceased coming to village
Substitution by other products	Identification of niche market for specific goods in the case of rubber and soyate palm. Branding and certification in the case of pita thread and mezcal.
Concentration of market power, leading to potential abuse of power	Strong social ties cement relationship between cocoa producers and buyers in Emoro. Cultural ties between Japanese importers and Korean traders help maintain exported mushroom chain.

WHAT DETERMINES THE SUSTAINABILITY OF A VALUE CHAIN?

A value chain is sustainable if it continues to deliver a consistent supply to meet demand. To achieve this, a value chain must display a degree of resilience to external shocks of various kinds, ranging from changes in demand to problems of supply (Table 9.3). The greater the resilience of a value chain, the less vulnerable the livelihood strategies of the actors in it are likely to be. A number of factors discussed in this and earlier chapters play a role in determining how well the actors in a value chain can recover from external shocks.

- ▶ A good understanding of the plant and its management. Whether based on indigenous knowledge or acquired through NGO support, this understanding can enable a community to avoid or manage diseases of the plant.
- ▶ Effective communication between actors in the

chain. Good relationships between producers and consumers and/or intermediaries are important to ensure effective information flows to combat the danger of competition and substitution.

- ▶ The ability to innovate. Innovation in resource management can help increase the sustainability of the supply, whether through domestication and/or improved natural resource management, while innovation at other points in the chain is an essential response to substitution. Product innovation requires the ability to define a niche market, as well as the organization and flexibility to act upon the new information.
- ▶ Length of chain. Resilience is greatest for shorter chains. This reflects the fact that some of these products, e.g. fresh mushrooms, tepejilote and local production of maguey, have a long tradition of use and socio-cultural importance. These value chains are also less demanding in terms of meeting the demands of sophisticated consumers.
- ▶ Low concentration of market power. As outlined above, market power and length of chain are correlated. However effective some of the entrepreneurs in the project case studies have been, concentration of market power in a single individual is a risk for the producers. Resilience of the value chain is greater where market power is less concentrated, or relationships between the dominant entrepreneur and other actors in the chain are strong enough to avoid abuse of market power.
- ▶ Organization. At producer and processor level, resilience to external shocks can be improved through organization. This will be discussed further in Chapter 10.

CONCLUSIONS: STRUCTURING A SUCCESSFUL VALUE CHAIN

Successful NTFP value chains come in many guises, from short local chains with direct connections between producers and consumers to long international chains with several intermediaries. The different functions in a market chain can be carried out by a range of actors. Market access is important, and entrepreneurs often play a key role in finding markets with sufficient demand to support the whole value chain. Markets can also be made accessible by community organization. In general, NTFP value chains are more likely to be demand driven except under very special circumstances – e.g. mushrooms and maguey – where, with the help of a knowledgeable intermediary, it is possible to create a specific demand for a type or source of product for which a general interest already exists.

Horizontal integration or organization – both of producers and processors – can be a useful way of decreasing vulnerability of the chain to external shocks. It does not necessarily increase the prices obtained but can improve the chances of attracting traders and negotiating deals with them. Organization is less important if demand is buoyant and suppliers can easily get the product to the sales point. Vertical integration is more common in cases with differentiated product quality, complex processing and/or difficult and costly transport requirements because it enables the dominant entrepreneur to reduce their own risk by verifying quality and quantity. It appears to offer some advantages to collectors during the early stages of value chain establishment, but, in the longer term, there is the risk that the dominant companies or individuals may at some point abuse their market power.

Whatever the governance of a value chain, a key to satisfaction for poor producers is transparency, both in the setting of prices and in defining the rules of trade. External actors, whether NGOs or entrepreneurs, are particularly important in supporting innovation, which is vital to maintain the viability and resilience of value chains in the face of competition.

CHAPTER HIGHLIGHTS

- ▶ Control of profits is exercised mainly by those who control market information and capital.
- ▶ A specialized market niche and product quality can help to protect against substitution.
- ▶ Most NTFP value chains are demand driven. Establishing a new NTFP value chain solely on the basis of existing supply is unlikely to succeed.
- ▶ Concentration of power is most likely in value chains producing highly processed or perishable products for a sophisticated international market.
- ▶ Innovation is critical to maintain market share.
- ▶ Horizontal integration increases the negotiating power of the poor, but vertical integration may facilitate establishment of specialized niche-market value chains.
- ▶ Transparent price setting and terms of trade are key to ensuring satisfaction among poor producers.

10. Overcoming barriers

Strategies and capabilities for successful NTFP commercialization

Kathrin Schreckenber, Jonathan Rushton, Dirk Willem te Velde and Alan Bojanic

How do poor producers, processors and traders gain access to NTFP value chains? This chapter deals with hypothesis 6 and examines the constraints, or barriers to entry, for new entrants to a value chain, and the characteristics individuals and/or communities need to commercialize NTFPs successfully.

BARRIERS TO ENTRY

Barriers can block the entry of new actors to a particular activity in the value chain. The presence of one or more actors making super-normal – above average – profits is clear evidence of the existence of barriers to entry inhibiting greater participation, and therefore competition, in a particular activity. Barriers to entry vary along the value chain. At producer level, they may relate to obtaining access to the resource and the necessary skill for harvesting and processing the product for sale. As activities become more specialized further along the value chain, there are greater opportunities for single traders or small groups of traders to exert their market power and establish mechanisms to prevent others entering the business. These are often related to market power in the form of relative access to financial capital, access to strategic information, single-buyer arrangements, family ties or access to market contacts. The costs of overcoming these barriers and other transaction costs [see Box 10.1] are lower for those within the group than for outsiders. In some cases the costs may be too high for outsiders to enter the business. Frequently such costs represent a series of social arrangements within the power group.

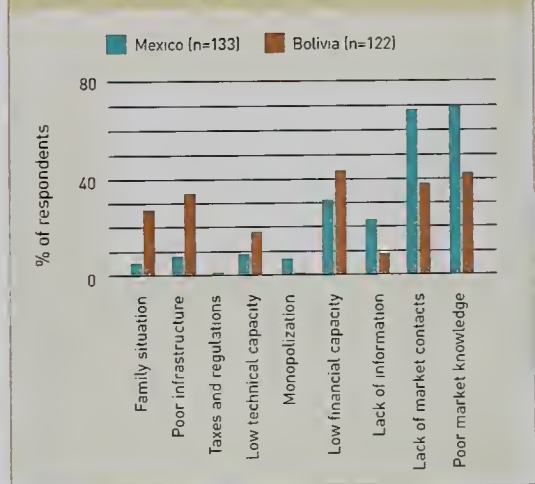
A key challenge facing any development intervention in NTFP commercialization is determining the main barriers to market entry for poor people and to identify ways of removing them so that more actors can enter the marketplace. In the CEPFOR case studies, interviewees identified the main barriers to entry to selling NTFPs as lack of market contacts and knowledge of the market, followed by lack of financial capability, including lack of access to credit. In Bolivia, lack of appropriate infrastructure (particularly transport, but also market and communication), family situation (usually cited by women with domestic duties) and, to a lesser extent, a lack of



Fabrice Edouard

The NGO Methodus Consultora has been organizing annual fairs in the mushroom communities to promote wild edible fungi and the many recipes for preparing them. This has promoted local interest, and regional and national demand has been bolstered by the availability of Mexican dried mushrooms.

Figure 10.1 Percentage of households citing different barriers to entry to selling NTFPs After te Velde 2005



Box 10.1 What are transaction costs?

Transaction costs – the costs of negotiating a transaction such as the sale of a certain volume of NTFPs – include costs incurred prior to the transaction, such as the need to search for information to safeguard an agreement, and costs incurred afterwards, such as paying for the results of errors. Some transaction costs may be fairly easy to quantify, while others are much harder to define and measure. Below are listed some of the transaction costs recorded in the project case studies. Some of these costs, particularly the ones difficult to measure, are often hidden, which makes it difficult to assess the full extent of costs associated with any single transaction, or indeed with all the transactions making up a value chain.

Examples of easily quantifiable transaction costs

- ▶ Taxes (mezcal, mushroom and camedora palm exports, jipi japa tourist product sales, chocolate and mezcal formal sales).
- ▶ Legalizing contracts (matsutake contracts with the Japanese).
- ▶ Obtaining permission to harvest the resource – both by carrying out environmental impact assessments (EIAs) (mushrooms, and attempts in the case of camedora palm and soyate palm) and/or agreeing to pay harvesting fees to communities.
- ▶ Fulfilling export requirements (certificates of origin, phytosanitary documentation, etc.) for NTFPs (mushrooms, camedora).
- ▶ Communications (matsutake, camedora).
- ▶ Financial costs of waiting (e.g. by storing a product).

- ▶ Information that can be bought (e.g. EIA studies for mushrooms).
- ▶ Costs to fulfil agreements (pita, mushrooms and camedora palm).

Examples of difficult-to-measure transaction costs

- ▶ Covering the costs of a social feast (cocoa bean traders).
- ▶ Time to attend meetings or searching for buyers (for rubber products such as bags and ponchos; cocoa paste and tepejilote palm sellers going to local towns to search for buyers; identification of new buyers by president of pita cooperative).
- ▶ Handing out gifts or otherwise giving attention to trade partners (jipi japa social arrangements, providing facilities and technical advice on quality in the case of mushrooms).
- ▶ Tricks and misleading, e.g. not fulfilling an agreement, using wrong measures, misinforming (copal/incense buyers and cocoa bean buyers selling to the chocolate factory who do not pass on differentiated price information).
- ▶ Learning the skills of marketing, selling and negotiating – lower for someone brought up in a family involved in the trade.
- ▶ Investments in establishing supply chains – many intermediaries only make a reasonable return if they trade high volumes, which requires investment in developing networks of producers from whom to purchase the NTFP, and networks of sales opportunities.
- ▶ Bribery – not visible in case study communities but likely further along value chains.

technical capacity were also considered serious barriers, while Mexican respondents also mentioned a general lack of information (see Figure 10.1).

Market information

Market information – together with market intelligence, the ability to use that information – is an important prerequisite for entering new markets and maintaining market share. It includes various kinds of information relating to the quantity, quality and price characteristics of particular products in different markets. It can include contacts with particular traders, knowledge of alternative sales points and information about trends in demand further along the value chain. In addition to being the most important barrier to entry across the sample of NTFP actors surveyed in both countries, market information is also the main concern of

organizations working with producer communities. For many community-level producers, the real value of market information lies in ensuring that the commercialization process is equitable, efficient and sustainable. Lack of market information can have a very direct impact: in Bolivia, households that perceived market information to be a problem were found to achieve significantly less added value than households that felt market information was less of a concern.

Where lack of market knowledge and contacts are considered a significant barrier to market entry, this may mean that there is insufficient demand to sell products easily or that there is poor coordination between supply and demand. Information and contacts generally present less of a problem if demand is high. This explains why information is not an important barrier for short value

chains of ungraded and unprocessed produce such as fresh mushrooms and tepeljilote palm sold locally. It becomes much more important for commercialization of processed and/or graded products selling at different prices. In the case of dried mushrooms or fresh matsutake mushrooms exported to Japan, it is unlikely that producers would have known about the markets without the intermediary. In the matsutake case, the entrepreneur has played an important role in providing market information and translating this information into price differentials for the types of quality demanded by the consumer.

With a few exceptions, where producer or processor organizations exist, the only source of information between producers and a distant physical market is often an intermediary. In 37 per cent of the cases, entrepreneurs are considered to play a positive role in facilitating NTFP commercialization through the provision of market information and contacts. In cases with only one or a few intermediaries, however, the producer has very limited ability to check the information provided. In the case of cocoa beans, for example, the community has benefited as information about demand for organic cocoa emanating from the El Ceibo chocolate factory has stimulated trader activity and increased their contacts with communities. At the same time, insufficient information at the community level has resulted in the community not receiving the benefits of price premiums for its organic product.

An important point to note is that information alone is not sufficient to ensure successful commercialization. Producers also need to have the capacity to act on the information that they receive. In the case of camedora palm, some people are aware of prices and market requirements but are unable to organize themselves to collect sufficient quantities of the leaf to attract a trader to their community. In the case of jipi japa, the lead entrepreneur (Rural Art) has acquired the necessary market information to sell a given range of jipi japa products successfully. It is relatively straightforward to communicate this information – with respect to designs and colours and quantities of different products – to its associated weavers. However, the producers' lack of capacity to respond to the information has meant that Rural Art has had to invest heavily in training its weavers to obtain the desired quality and in establishing a system of payments to reward the quality.

Access to credit

Low financial capability is considered a barrier to entry by 31 per cent of households interviewed in Mexico and 43 per cent in Bolivia. Access to credit is important for all products that require some level of up-front investment, e.g. for planting, long-distance collection trips, accumulation of produce or processing. There is very little intra-community

variation in access to credit in the case study communities. Typically, credit is available either to all households or to none at all. In fact, very few communities have access to formal credit provision, and interest rates are often exorbitantly high for loans provided by local lenders. One of the most appreciated features of the community-led pita cooperative and the privately initiated jipi japa association is that they both provide their members with access to credit.

Beyond the producer level, access to credit is fundamental to the existence of some of the longer value chains. The mushroom-drying factory in Oaxaca is owned by a union of communities (Pueblos Mancomunados), which used other commercial activities – timber sales and bottling water – to raise the government loans needed to establish the drying factory. In the case of the exported matsutake mushrooms, the Mexican intermediary receives credit from Japanese brokers, just as the North American importer initially provided the training and credit required to establish the camedora palm intermediary.

The fact that respondents who consider NTFPs to be more important in their livelihood strategies today than in the past cite credit as an important determining factor suggests that the easier availability of credit for NTFP-related activities – such as establishing nurseries and plantations or stocking and transporting the product – could help more people to engage in activities and generate higher incomes.

Community meeting in Agua Pescadito to discuss the feasibility of establishing pita plantations.



Elaine Marshall

Box 10.2 Overcoming transport constraints: how important is value per unit weight?

The products with the highest value per unit weight – fresh mushrooms exported to Japan and incense exported to Argentina – are also the two with the most difficult or longest journey between producer and consumer. Overall, value per unit weight is not a significant constraint to commercialization unless transport is a constraint. Two cases illustrate the importance of adding value locally if transport is a problem.

- ▶ **Rubber:** One community cannot sell rubber latex in an economically sustainable manner because of the low quality of transport infrastructure available to it. Families therefore process the latex into rubber goods for sale to local miners.
- ▶ **Cocoa:** One community with poor transport infrastructure and a limited supply of cocoa beans processes the beans into paste in order to increase the product's value per unit weight sufficiently to make sales economically viable.

Infrastructure

Market, transport and communications infrastructure are all important in determining the ease with which NTFP commercialization can develop in different areas. Poor infrastructure is a particular problem in Bolivia, where 34 per cent of respondent households see it as a constraint to NTFP commercialization, compared with only 8 per cent in Mexico.

Market infrastructure: For products for which there are many sellers and buyers, there may be an advantage in terms of transaction costs to bring them together in a physical place, but this is rarely the case for NTFPs, which typically have a restricted number of buyers at a particular point in the value chain. None of the case study communities has access to a physical market for their product within their locality. In some cases, producers have to take their products to a market in a nearby community or town, and are therefore at the mercy of the local transport system or dependent upon one or more intermediary traders. These first-stage markets tend to be simple unloading centres with no appropriate storage or packing facilities, leading to high post-harvest losses. Typical strategies for overcoming lack of access to a physical market include: (i) processing (adding value locally), which decreases the unit weight and makes the product easier to transport or more attractive to traders (see Box 10.2); (ii) building effective working relationships with intermediaries; and (iii) organizing the accumulation of sufficient product within the community to attract traders.

Transport infrastructure: Transport infrastructure can be critical in determining a community's NTFP commercialization strategies. In the Mexican community of Santa Flor, the construction of a new road nearby – usually considered beneficial for communities – has reduced the frequency and increased the price of a boat service that previously enabled camedora palm collectors to transport their fronds quickly, cheaply and directly to a collection centre. Although community members have invested in domesticating the palm, they are not yet able to guarantee a sufficiently large and high-quality supply to make the additional expense of accessing their community worthwhile for traders. Low-quality roads or access by river almost always mean that producers must rely on selling to intermediaries who can cover the relatively high transport costs. These intermediaries may be based in the community, as in the case of a baker in Cuajimoloyas who uses her car to take bread to a weekly market in Oaxaca, and who also takes fresh mushrooms during the two-month season. In other cases, such as cocoa beans and latex rubber, traders regularly access the communities by boat to collect the NTFP. Although not considered an insurmountable problem in most of the case study communities, the lack of physical infrastructure becomes a real hindrance to the expansion of international trade, as an inefficient distribution system results in high handling losses and makes phytosanitary requirements difficult to meet.

Communications infrastructure: Where transport infrastructure is poor, communications infrastructure becomes very important to enable producers to assess the range of prices available and the quality and quantity demanded by consumers. However, communications infrastructure is so poor as to be considered a constraint to successful NTFP commercialization in 68 per cent of the case study communities. As a result, producers have to rely on people – often the traders – visiting distant markets for information on prices, product quality and quantity. The introduction of telephone communication can make a real difference to producers. A simple but important service provided by the NGO in the pita case was to provide a telephone for communication between producer and supplier.

Legality

As highlighted in Chapter 8, only a small proportion of respondents feel that regulations are a barrier to entry. This is, in part, a reflection of the poor implementation of existing rules and regulations to the point that they are almost irrelevant to most community members. However, the experience of mezcal distillation from maguey illustrates the potential impact of a change in legal status on NTFP commercialization. It was only after mezcal

production ceased to be an illegal activity in the mid-1980s that traders began to associate and to develop the branding that underlies the successful marketing strategies of today. However, recent changes in legislation, especially the declaration of Appellation of Origin, are forcing some small-scale distillers back into illegality because of their inability to meet the elevated costs and bureaucracy of being legal. In general, any kind of legal uncertainty is likely to lead to reduced benefits for producers, either because of their decreased bargaining power or because of the transaction costs involved in circumventing or meeting legal requirements.

INDIVIDUAL CHARACTERISTICS OF ACTORS

The project's data reveal substantial differences in various indicators of success (Chapter 4) – such as share of income obtained from the NTFP activity or value-added achieved – across communities and products. Some of this variation is clearly the consequence of the characteristics of the product traded, for example short seasonality, or of the producer community, such as level of social organization. However, the high degree of variation between households within a particular product/community case study suggests that the characteristics of individuals are also very important in determining how much effort households invest in NTFP activities and how successful they are. These may include the following.

Education

Education is accepted as an important factor in determining people's capacity to engage in income-generating activities, but its impacts on success in NTFP commercialization are mixed. Levels of formal education are generally basic: in 90 per cent of the communities, only one or two interviewees had secondary education. In the case of soyate palm, the more educated the producers, the larger the share of their income contributed by NTFP commercialization. Heads of pita-producing households are significantly better educated than households not engaged in pita activities. This probably reflects the fact that pita domestication is an activity primarily carried out by people with access to both land and financial resources. In the cocoa and jipi japa cases, however, heads of NTFP-collecting households have significantly fewer years of formal education compared with non-NTFP households, indicating that collecting is not an activity that benefits from many years of formal education, and that lack of education may be a barrier to adopting alternative livelihood options. For other NTFPs, there is no significant difference in formal education between households engaged in the activity and those not. At producer level, informal education and learning on the job may be more important in ensuring a household's success.

With the exception of the recent mushroom activities, the average length of experience of producer households with case study NTFPs ranges from six to 42 years.

Traders have a significantly higher level of education than collectors in both Bolivia and Mexico. As described in the previous chapter, several value chains are dominated and even established by very influential individual entrepreneurs, all of whom have high levels of formal education. In some cases, the necessary education to make the value chain succeed is initially provided by the staff of supporting NGOs, followed by training of community members. One or more educated individuals are needed in all but the shortest value chains to establish the context within which people with less formal education can participate. However, individuals lacking basic literacy and numeracy skills are unlikely to be able to move beyond simple production and processing activities in the value chain.

Business skills and experience

Marketing skills are essential for traders such as the La Paz natural-rubber workshop owners, who must continue to out-compete cheaper oil-based rubber substitutes. Market contacts are particularly important if there are a number of different markets in which to sell products. Experience is an important asset for traders who remain surprisingly faithful to particular products, with 95 per cent stating that the NTFP they are trading is as important – or even more so – in their livelihood strategies now as it was 10 years ago. Box 10.3 illustrates how important experience has been for the camedora palm trader to establish market contacts and build up 'credit worthiness'. For sellers of perishable products, experience

Product diversification has helped rubber goods from Santa Rosa, Bolivia, maintain a foothold in the marketplace.



Isidro Rodriguez

is particularly important to gauge volumes to be sold. In the case of cocoa, age is positively correlated with success, but the reverse is true for pita.

Willingness to take risks

A characteristic that is difficult to assess but that interviewees highlighted as being important for attracting the interest of new clients and gaining their confidence is a degree of audacity, together with a willingness to take risks. The latter is particularly important for traders from outside the community who bear a high degree of risk, usually in terms of capital investment. In the case of cocoa beans, the regional traders have very low margins, suggesting that they are risk takers. The pita cooperative has become much more active since its presidency was taken over by a young and dynamic man with an interest in exploring new opportunities.

Box 10.3 The road to becoming a camedora palm trader

From having but a limited knowledge of camedora palm, Sr Palmero has advanced to a position where he controls Mexican exports and produces half the volume from his own plantations. A man in his 60s, he began work in the camedora palm sector at a young age, and as a warehouse employee in Veracruz, he observed closely the trading patterns of the palm. A chance meeting with an American businessman who represented the major US trader of camedora palm gave him access to training, a source of investment capital and the opportunity to travel and observe the trade. Sr Palmero built on his body of experience, and a conviction that future demand could be supplied from cultivated palms, to establish his own plantations.

There are no guarantees when capital is invested, but hard work and being prepared to take risks are the factors Sr Palmero sees as critical to his success. Of his countrymen, he says: 'These farmers are happy to sit and receive subsidies. Many communities who have extraction permits for camedora palm don't collect because they prefer easy work! They are too fearful of the risks involved, like snake bites.' Sr Palmero puts these risks in perspective: 'You would never do anything if you always thought of what could go wrong.' He has been unable to convince the communities to get more involved in working with the palm. The communities, meanwhile, continue to think the activity is too risky and only harvest palm when cash is needed. 'It is not an activity we want to do day in day out, but it is an important part of our livelihood', they say.

Janett de los Santos

Social networks and cultural connections

The risks mentioned above can be attenuated if a trader has recourse to strong social capital in the broadest sense. Thus the right to cut maguey is given to individuals who have been good citizens, fulfilling their responsibilities in voluntary community labour, rituals and ceremonies. Successful mezcal distillers do not just produce high-quality mezcal but also establish agreements with reliable clients who pay well year after year.

In the case of tepejilote palm, some traders inherit contacts to good buyers from their parents, who traded before them. In the case of cocoa, intermediaries establish close contacts with community members by becoming godparents to their children. The matsutake mushroom chain was established by traders who were of Japanese and Korean origin and had family connections to the consumer market. In the case of incense, the trade is economically sustainable for the intermediaries because they are able to reduce expenses by staying with family members in the city. They are also skilled in being able to communicate both with the rural producers and their international clients. The fresh mushroom sellers in Oaxaca are originally from the collector communities and therefore know their products well.

Organizational support

Social capital is often informal in character, but entrepreneurs can also benefit from formal organizational support. This can come from the private sector, the government, NGOs and/or communities. The camedora palm trader, for example, received substantial support to establish his business from his US contacts. In the pita case, the entrepreneur is the president of the pita cooperative, who also works closely with the association of processors and receives NGO advice. The matsutake mushroom entrepreneur is reliant on an effective community organization to provide him with a good-quality supply of mushrooms.

COMMUNITY CHARACTERISTICS

The success of an individual may depend in part on the community lived in, particularly in the case of communities where NTFP trade is organized as a community activity. Beyond the infrastructure issues raised earlier, several other community characteristics can play a part in determining how successfully a community engages in NTFP commercialization.

Culture/traditions

Most of the case study products have some traditional use. A community's indigenous knowledge can be very important in determining its interest in a product and its ability to

manage the natural problems. Thus Pescadito has abandoned pita because, unlike the indigenous community of Arroyo, it did not have the traditional knowledge to minimize damage to its pita plantations when they were ravaged by a fungal disease. Community-based management of maguey and soyate palm has benefited from indigenous knowledge of the resource. As described in Chapter 4, many NTFPs are considered particularly useful by poor people because they combine well with traditional livelihood strategies. In 32 per cent of the case study communities, a traditional link between the producers and the consumers is an important factor in maintaining the value chain.

Internal and external organization

The case studies illustrate that social organization plays an important role in determining the overall impact of NTFP commercialization on households and communities. Organization can exist within a single community or include several communities – as in the mushroom case. The existence of some degree of organization can have an important impact on:

- ▶ quality or diversification of the product;
- ▶ overcoming large distances to the point of sale;
- ▶ ability to provide more consistent quantities of the product;
- ▶ promotion of the product, e.g. attendance at fairs;
- ▶ power to negotiate with other actors in the value chain.

Organization is not only important at the producer level. For example, in the case of pita, the organization of leather embroiderers has played a key role in creating a brand name and thus guaranteeing a market share for the producers. However, the existence of a community-based producers' organization can have additional benefits through contributing funds to community projects, as in the case of the mushroom-drying facility.

In four of the product cases (Table 10.1), there is no established community organization related to the sale of the product. These cases include products that are sold with minimal processing and/or direct access of the producer to the consumer. In the other six cases, there is either an organization in existence or under development. The most common initial activity for community-based organizations is to ensure product supply is of adequate quantity and quality to meet trader requirements. This is particularly important where transport links are inadequate. Depending on the main constraints faced by the community, organizations then engage in resource management and/or processing, as well as in improving relationships with traders. Sellers' organizations are less frequent and exist

only in Arroyo, where 20 out of 22 pita sellers are members of UPIS-L, and in La Esperanza for mezcal.

Table 10.1 gives an overview of the importance of external organizations – predominantly NGOs but also private entrepreneurs – in providing support to communities, often beginning with helping to establish or strengthen organization within the community. The ability of a community to organize itself to take action in favour of NTFP commercialization is influenced by a number of factors, including social cohesion (affected by ethnic and religious make-up), the existence of community organizations dealing with non-NTFP issues and the presence of charismatic individuals able to motivate people to action. Where the resource is predominantly harvested from private land, the organization is more likely to take the form of a cooperative of individual members, as in the pita case, whereas collectively owned resources lead to the development of communal organizations.

CONCLUSIONS: ACCESSING NTFP VALUE CHAINS

Lack of knowledge is the most significant barrier to further NTFP sales for all case study products. NTFP value chains are very vulnerable to market concentration in the hands of one person or organization because of distance to information sources and the generally low education levels of the collectors. Market information is particularly important for breaking into new markets, as is indicated by the prevalence of influential entrepreneurs from outside the community in many of the cases, and for maintaining

Selling plaited strips of palm in the local market, Guerrero, Mexico. Lack of access to market information on trends in product price, quality and quantity is one of the biggest challenges facing small-scale producers, processors and traders.



Table 10.1 Role of internal and external organizations relating to NTFP trade in the case study communities

Product	Existence of internal organization	Role of external organizations in maintaining the value chain
Organic cocoa	Incipient organization, based on existing education committees.	German bilateral aid helped establish cocoa value chain through support to regional chocolate factory. At community level, CARE Bolivia provided technical support – improved cocoa bean fermentation technology and cross-pollination of domesticated plants – and organizational support.
Natural rubber products	No organization.	CARE Bolivia provided technical support to reduce perishability of latex and to find alternatives to ammonia.
Incense and copal	No organization.	CARE Bolivia initiated domestication trials.
Jipi japa palm	Many weavers are associates of Rural Art. Surutú women excluded due to ethnicity, but organize informally to market hats.	Association provides training in product design, buys specific products at guaranteed prices, holds some of the women's earnings in a rotating fund and provides health care benefits.
Soyate palm	There is a regional organization, but Topiltepec palm weavers do not belong to it.	NGO Sanzakan Tinemi set up regional programme in 1990 to make soyate palm trade more equitable, e.g. by controlling stock movement. Collaborates with Fair-Trade Holland, but has failed to raise producer prices and handles only 3-5 per cent of the local production. NGO GEA carries out basic research and has developed a sustainable management plan for the resource.
Maguey	Two new regional organizations: (i) bottling and commercialization enterprise; (ii) association for the certification of sustainable production, quality of mezcal and equity along the chain.	NGO GEA carries out basic research on sustainable resource management, supports participatory land use planning by the community and has supported the forming of both regional organizations.
Mushrooms	Community allocates collection permits and provides training in harvesting methods. Community enterprise manages drying facility and relationship between producers and fresh mushrooms exporter.	Interventions by NGO Methodus in the dried mushroom market and a private company in the matsutake market. Both provided processing infrastructure, access to funds and transport, handling and marketing skills, and generally reduced 'distance' between consumers and collectors.
Pita fibre	Producer association negotiates prices, assures quality and quantity and provides training, credit, plants for domestication and fibre for processing. Some producers would still prefer option of selling to several traders.	NGO Methodus facilitated communication – e.g. by providing a telephone – between producers and buyers, provided technical support for domestication and supported activities of the pita cooperative, including accessing government funds.
Camedora palm	One community organized producers to combine supplies to attract traders.	External trader is key to existence of value chain. SEMARNAT supported studies to obtain collection permits and training for domestication.
Tepejitote palm	No organization.	

market share (e.g. through innovation). Provision of market information is one of the most important means of opening up the field to more entrepreneurs and greater competition. External actors – both the private sector and NGOs – also play an essential role in enabling producers to act upon information, for example through technical training to improve resource management and product quality, support for the establishment of producer and/or processor organizations and provision of credit for those activities that require advance investment. Access to credit is particularly important for traders wanting to invest more seriously in NTFP commercialization, which, with a few exceptions, only provides profits if large volumes are traded.

General improvements in market, transport and communications infrastructure would facilitate commercialization of many products, including NTFPs. Improved education would similarly increase the ability of people to enter into some chains, and have a great impact on people's ability to advance within value chains. This

needs to be combined with capacity building in basic business skills and entrepreneurship. Constraints imposed by poor infrastructure and education can be overcome, however, through producer-level organization and the promotion of links between producers and enterprises further along the value chain.

CHAPTER HIGHLIGHTS

- ▶ Lack of market information, together with the capacity to act upon it, is the key barrier to entry into NTFP trade.
- ▶ Good organization contributes to improved product quality and quantity, more cost-effective transportation and increased negotiating ability.
- ▶ Access to credit enables people to improve their NTFP-based income generation.

11. Research conclusions

Comparing case studies to determine factors influencing success of NTFP commercialization

Kathrin Schreckenber, Jonathan Rushton, Fabrice Edouard,
Dirk Willem te Velde, Elaine Marshall, Adrian Newton and Alan Bojanic

The aim of this chapter is to highlight the main ways in which the project's findings and analyses advance current understanding of NTFP commercialization (as outlined in Chapter 1). The chapter begins by summarizing the conclusions of the study in relation to the project's research hypotheses, reflecting on the different components of successful NTFP commercialization. Elements of particular interest are the resilience of producer and trader groups in the face of change, the way these groups collaborate to succeed, and the importance of intermediaries in making markets accessible. The chapter then reviews the project's analytical framework, which enables comparison of the factors determining successful commercialization of different NTFPs, and illustrates its use in assessing the impact of different policy interventions. Finally the chapter reviews lessons learned by the project in relation to research methods for investigating NTFP commercialization.

The conclusions presented here are based on investigation of 10 different products from 18 communities in marginalized areas of Bolivia and Mexico. The cases varied with respect to length of marketing chain (from products traded to the neighbouring community to those exported internationally), source of the product (from wild harvested to cultivated), level of processing and involvement of entrepreneurs and NGOs. In spite of this diversity, the cases shared certain aspects of their socio-economic and cultural context and concerned products that are traded outside communities, often to urban markets, with mostly stable or rising levels of demand. These similarities facilitated the identification of specific findings and trends that applied across many or all of the cases. However, conclusions should not be taken to apply to the great many NTFP cases in other parts of the developing world that concern low-value products, that serve local rural demand and have stagnant or declining markets.

WHAT IS SUCCESSFUL NTFP COMMERCIALIZATION?

As outlined in Chapter 4, the CEPFOR project identified many different definitions of what constitutes successful NTFP commercialization. One of the project's main conclusions is that:

Table 11.1 How does NTFP commercialization contribute to achieving the Millennium Development Goals?

Millennium Development Goal	Contribution of NTFP commercialization
Goal 1. Eradicate extreme poverty and hunger	NTFP subsistence activities can directly reduce hunger, while NTFP commercialization activities contribute to household incomes, thus enabling families to buy food and, in a few cases, save enough to engage in other activities that will enable them to escape poverty outright.
Goal 2. Achieve universal primary education	The timing of much NTFP income is critical for enabling households to pay school fees and for books.
Goal 3. Promote gender equality and empower women	Those activities that involve women play an important role in raising their status within their households and communities by providing them with an independent source of income.
Goal 4. Reduce child mortality	The impact of NTFP commercialization on Goals 4, 5 and 6 is likely to be indirect. In the case of Goals 4 and 5, the accrual of income to women from NTFP commercialization can lead to a higher level of expenditure on children's and women's health.
Goal 5. Improve maternal health	Organization into groups gives women the opportunity to share experiences in the area of health and, in some cases, provides access to minor credits that can help women maintain their own and their children's health.
Goal 6. Combat HIV/AIDS, malaria and other diseases	
Goal 7. Ensure environmental sustainability	NTFP commercialization can lead to overexploitation of the resource base, but can also be associated with improved management of the natural resource and/or small-scale domestication, which could reduce pressure on natural resources.
Goal 8. Develop a global partnership for development	The impacts of NTFP commercialization on this goal are marginal. However, global NTFP commercialization can benefit from the development of an open, rule-based, predictable and non-discriminatory trading and financial system [Target 12]. Expansion of NTFP commercialization activities with greater recognition of the environmental services rendered could provide decent employment for young people in rural areas [Target 16].

- There is a need to engage directly with communities, and other stakeholders in the NTFP value chain, to jointly identify criteria of success and discuss the trade-offs that might be needed between them.



Can NTFPs provide a sustainable pathway out of rural poverty for future generations?

A few definitions dealt with success at a predominantly national level, e.g. through increased taxation or national status. Ways in which NTFP commercialization can contribute to achieving the Millennium Development Goals (MDGs) at national level are outlined in Table 11.1. All other definitions can be related directly to the project's six research hypotheses, as summarized below:

Hyp 1: Successful NTFP commercialization has a positive impact on poverty reduction for the poorest producers, processors and traders

The CEPFOR project confirms much of what was already known about the attractiveness of NTFP activities for poor people. These are frequently the only cash-generating activity available in a community or provide an important seasonal income. All the CEPFOR case study communities are considered to be poor in their national classification systems, and one-third of NTFP households interviewed stated they were unable to meet their basic needs. Within this generally poor context, however, the CEPFOR data contradict the belief that NTFP activities are the sole preserve of the very poor. Activities that require even small levels of investment, such as to finance collecting expeditions or small-scale domestication, are predominantly carried out by people in higher livelihood status

groups. Even in cases where NTFP actors are predominantly found in one livelihood status group, at least some are also found in other groups.

In terms of their contribution to poverty reduction, NTFP activities in the CEPFOR case studies were:

- ▶ never poverty traps;
- ▶ sometimes safety nets: this is particularly true when assessed over a multi-year time frame, e.g. with increased pita domestication making up for declining coffee prices;
- ▶ always gap fillers: depending on the product and community, the gap filled may range from 7 to 95 per cent of a household's annual cash income;
- ▶ sometimes stepping stones to a non-poor life: none of the case study products provides a guaranteed stepping stone out of poverty for all actors in the value chain. Within just over half of the case studies, however, there are at least a few people who manage to use the activity to accumulate savings and move out of poverty.

While grouping NTFP activities into three broad categories of coping, diversified and specialized strategies (Ruiz Pérez et al. 2004) is helpful for understanding the general role of NTFPs in rural economies, the CEPFOR

findings suggest that there is as much difference in household success within individual activities as there is between activities. Broad categorization should not hide the fact that individual capabilities are important in determining the level of added value that a household can achieve from a given activity. Particularly important is the volume of product traded, and this, in turn, depends both on a household's access to the resource (see below) and its access to labour – both in terms of numbers and skills – for the NTFP activity versus other alternative income-generating activities available in the area.

Hyp 2: Successful NTFP commercialization has a positive impact on women's livelihoods

Most but not all the case study NTFP activities involve women. However, even in the case study value chains dominated by women, there were some tasks – particularly collection and transport – that required collaboration with men. Several cases were considered successful by households precisely because they involved both men and women – and sometimes children – in different aspects of the activity, making use of their varying labour availability and skills. Of all the tasks associated with NTFP value chains, women are most active in processing. The CEPFOR data confirm that NTFP processing activities are much like other activities in the rural non-farm economy that are often attractive to women because of their low skill requirements, small scale, low capital requirements and the fact that they are seasonal and combinable with domestic roles (Hagglblade et al. 2002). The key issues for women were the following:

- ▶ Although returns to labour were always lower for women's NTFP activities than local wage rates, where these existed for women, women nevertheless valued the opportunity to earn a cash income and the increased status this accorded them within their households and communities.
- ▶ The main constraint on greater involvement of women in more profitable parts of the value chain is their traditional domestic duties, which restrict their movement from home.

Hyp 3: Successful NTFP commercialization does not have a negative impact on the resource

The CEPFOR case studies suggest that in 75 per cent of cases, NTFP commercialization initially has a negative impact on the resource. In 35 per cent of the case study communities, there was evidence of collectors shifting their harvesting activities to new, usually more distant, areas. Nevertheless, the local resource had only been exhausted in three communities, and this was caused not by over-exploitation but rather by shifts to alternative land uses

(agriculture) or disease of the plant. As overexploitation becomes evident, two responses appear to dominate. As predicted by Homma (1992), one of these is domestication, the other being improved management of the wild resource. The key issues on resource use were:

- ▶ For those species that can easily be domesticated and in areas where people have access to individual plots of land, small-scale domestication is widespread, occurring in 35 per cent of the communities facing resource depletion.
- ▶ Where products are primarily collected from communal land, and/or domestication is more difficult, improved management of the wild resource takes place – recorded in 20 per cent of the communities in which there was evidence of depletion.
- ▶ Only 11 per cent of cases have neither resource management plans nor domestication in place.
- ▶ The case studies illustrate that NGOs have been essential in supporting and sometimes initiating the move to domestication and/or improved communal management, with technical information to carry out resource inventories and monitoring, and with organizational capacity building to spread understanding and ensure implementation of management plans, better harvesting methods and benefit-sharing schemes.
- ▶ In several of the cases, an increased focus on NTFP production – whether as a domesticated understorey agroforestry crop or as a managed forest resource – is providing new incentives to conserve the forest.
- ▶ As yet, there is no financial recognition of environmental services being rendered, e.g. in the form of price premiums for sustainably managed or organic production.

Hyp 4: Successful NTFP commercialization does not have a negative impact on rights/access to natural resources for poor producers

The CEPFOR case studies confirm the concern in the literature that as soon as a resource has commercial value, there is a real risk that the poor become disadvantaged. The key findings for this hypothesis were:

- ▶ Poor communities are unable to meet the permit requirements for legal commercialization of NTFPs and are therefore unable to benefit from the advantages of trading in the formal sector.
- ▶ Within communities, poor individuals and families are less able to participate in domestication activities because they lack the necessary land and capital. There is no evidence that this decreases



Re-thatching a roof with the versatile soyate palm in the community of Topiltepec, Guerrero, Mexico.

their access to what remains of the wild resource, but it can reduce their opportunity to participate in NTFP commercialization on an equal footing with people who have access to a cultivated – and therefore more reliable and often better-quality – resource.

- ▶ The poorest are less likely to be disadvantaged with respect to participation in NTFP commercialization when communities initiate improved management of the communal resource to which all have equal access.
- ▶ External support can play an important role in ensuring that the poorest are not disadvantaged, e.g. by providing training for harvesting, ensuring transparent decision-making practices, or providing support for communities to meet permit requirements.

Hyp 5: Successful NTFP value chains function in an equitable, transparent and sustainable manner

One of CEPFOR's key achievements is its contribution to an improved understanding of NTFP value chains. Two findings stand out as being particularly important:

1. The important role of intermediaries: making markets accessible

In all case studies, physical access to a market was difficult and, with the exception of the very shortest value chains, information about consumer demand was almost non-existent. Intermediaries were found to play a critical role in facilitating market access in the 10 case study value chains that moved products to national or international consumers. In seven of these cases, power was concentrated in the hands of a single intermediary or a small group of intermediaries. Their key contribution entails identifying a market niche, providing contacts to consumers or retailers and informing suppliers about the quality standards required to meet consumer demand. This mirrors recent work on global value chains in Africa, which highlights the role of lead firms in value chains as providers of information about quality to their suppliers (Gibbon and Ponte 2005). In four of the seven intermediary-dominated cases, the intermediary also assists suppliers – with training and financial support – to achieve consistent quantities of the desired-quality products.

The project found little evidence of outright exploitation often depicted in the literature, such as debt peonage. Rather, in line with Neumann and Hirsch (2000), it is clear that the assumption that intermediaries procure excessive profits is challenged when market costs are taken into account. Producers are least likely to be dissatisfied when price-setting is reasonably transparent and/or they have strong social ties to traders. No single governance structure dominates in the case studies, and governance may vary at different points along a single value chain as well as change over time. This reflects the dynamic nature of the case study value chains and the ability of key actors to adapt the chains to changing circumstances.

2. Resilience and adaptability of producer and trader groups

In line with much of the literature about the boom-and-bust nature of some NTFP trade, the project found that the sustainability of NTFP value chains is vulnerable to a number of external shocks at both the supply and demand ends of the chain. Nevertheless, the project also revealed a great capacity of producers and traders to deal with risk and vulnerability, and overcome key constraints to NTFP commercialization, through a combination of the following:

- ▶ Better resource management (as discussed above) to provide more consistent quantities and qualities of the product. This enables producers to attract traders to their communities more easily.
- ▶ Product innovation to produce completely new products as well as variations on existing ones. Some value chains service highly specialized niches

that appear to be less vulnerable to substitution. Such innovation may be carried out by producers, sometimes along with intermediary traders.

- ▶ Marketing innovation to reduce transaction costs by establishing different marketing routes for existing or modified products. This may include traders selling a portfolio of products to defray fixed storage and transport costs by spreading them over several products, processors initiating schemes to brand or certify products, and various actors in the chain forming associations (see below) both horizontal and vertical.

Hyp 6: Successful NTFP value chains allow for easy access by poor producers, processors and traders

Poor producers, processors and traders are heavily disadvantaged by their lack of access to information – particularly when consumers are located at a distance from producers – and their generally low levels of education. Access to necessary information can be achieved by collaboration, either through vertical alliances with external entrepreneurs (as highlighted above) and/or through producer or processor-level organization. This collaboration is a key factor in assuring the resilience and adaptability of the case study value chains outlined above. Much of the literature – and indeed many project interventions – emphasizes the potential of horizontal integration of producers or processors into associations or cooperatives. The CEPFOR project found several such cases from small informal associations of sellers to large formal cooperatives with paid officers. Within communities, the resource tenure determines whether organization takes the form of a cooperative for privately owned resources or a communal organization for collectively owned resources. The key findings from this hypothesis were:

- ▶ Poor producers, processors and traders cannot easily advance within NTFP value chains.
- ▶ The single most important barrier to entry into NTFP value chains is lack of market information.
- ▶ Organization can help to overcome lack of information and a number of other barriers to entry, such as inadequate transport and communications infrastructure.
- ▶ Links between producers and enterprises further along the value chain can help to counteract the generally low education levels amongst producers, and bring the necessary business skills and entrepreneurship into the value chain.
- ▶ Associations may also be a means of ensuring access to credit. Although credit is not an insurmountable barrier, several activities require

advance investment. Traders' profits are related to the volume of product traded, which is often determined by their access to credit.

COMPARING NTFP CASE STUDIES: A MODELLING APPROACH

As outlined in Chapter 1, NTFP research in the past has tended to focus on individual case studies. One of the key achievements of the CEPFOR project has been the development of an analytical framework that allows for comparison between case studies taking into account both quantitative and qualitative data. The preceding section highlights the many different facets of successful NTFP commercialization. Based on analysis of the project's data, a list of factors contributing to successful NTFP commercialization was derived. As described in Chapter 2, this factor list was scored for each of the project case studies, by referring to all the information collected using the different research methods. Those factors that did not differentiate between the cases, i.e. had the same scores for all cases, were discarded as not being relevant for this particular group of cases. The remaining 66 factors were grouped into five clusters according to the five types of capital assets of the sustainable livelihoods framework and used to build a probabilistic model based on a Bayesian belief network (BBN).

A jipi japa weaver concentrates on starting a hat. Candelaria, Botivia.



Fausto López

In the model, the five factors that were most frequently found to limit NTFP commercialization among the case studies investigated were:

- ▶ inequitable exertion of market power along the value chain;
- ▶ a product price that does not vary in response to changing costs of production;
- ▶ low development of brand identity;
- ▶ lack of an organization that links producers or processors to buyers;
- ▶ poor harvesting methods leading to adverse effects on NTFP quality.

Not all factors are equally amenable to policy- or project-level interventions. The CEPFOR decision support tool, based on the BBN, allows users to explore the potential impacts of different policy scenarios on households and communities, as illustrated in Box 11.1. This modelling exercise indicates that a specific intervention can have contrasting effects on the commercialization of different NTFPs, depending not only on the characteristics of the product, but also on the socio-economic context within which commercialization is taking place.

Effective interventions depend upon understanding the factors limiting NTFP commercialization in each specific case, and the degree to which these factors are under the control of different actors in the NTFP value chain. Consideration of the impact of policy interventions on the availability of different assets accessible to local communities, according to the livelihood framework adopted here, can provide valuable insights into the likely impact of such interventions on livelihoods.

APPROACHES TO ANALYSING THE IMPACTS OF NTFP COMMERCIALIZATION AND ENGAGING THE POOR IN VALUE CHAINS: LESSONS LEARNED

The purpose of this concluding section is to provide a brief overview of the key methodological issues that the CEPFOR project found to be important in carrying out research into NTFP commercialization. Many well-meaning policy interventions inadvertently create greater barriers to entry into the NTFP commercialization sector (Vosti et al. 1997). In order to ensure that unintended negative impacts of policies are minimized in favour of positive impacts, decision-makers could benefit from an in-depth understanding of how NTFP value chains function and their importance to different actors. The experience of the CEPFOR project suggests that an effective research approach should include:

- ▶ Involvement of an interdisciplinary team and methods to ensure understanding of all aspects of the value chain, from the status and manage-

Box 11.1 Exploring different policy scenarios using the CEPFOR decision support tool (CDST)

The CDST can be used to evaluate the potential impact of different policy interventions on livelihoods. As an illustration, three different interventions are considered here:

1. Provide credit for community-level NTFP-based enterprises.
2. Improve rural transport and communications infrastructure.
3. Promote better management of the communal natural resource.

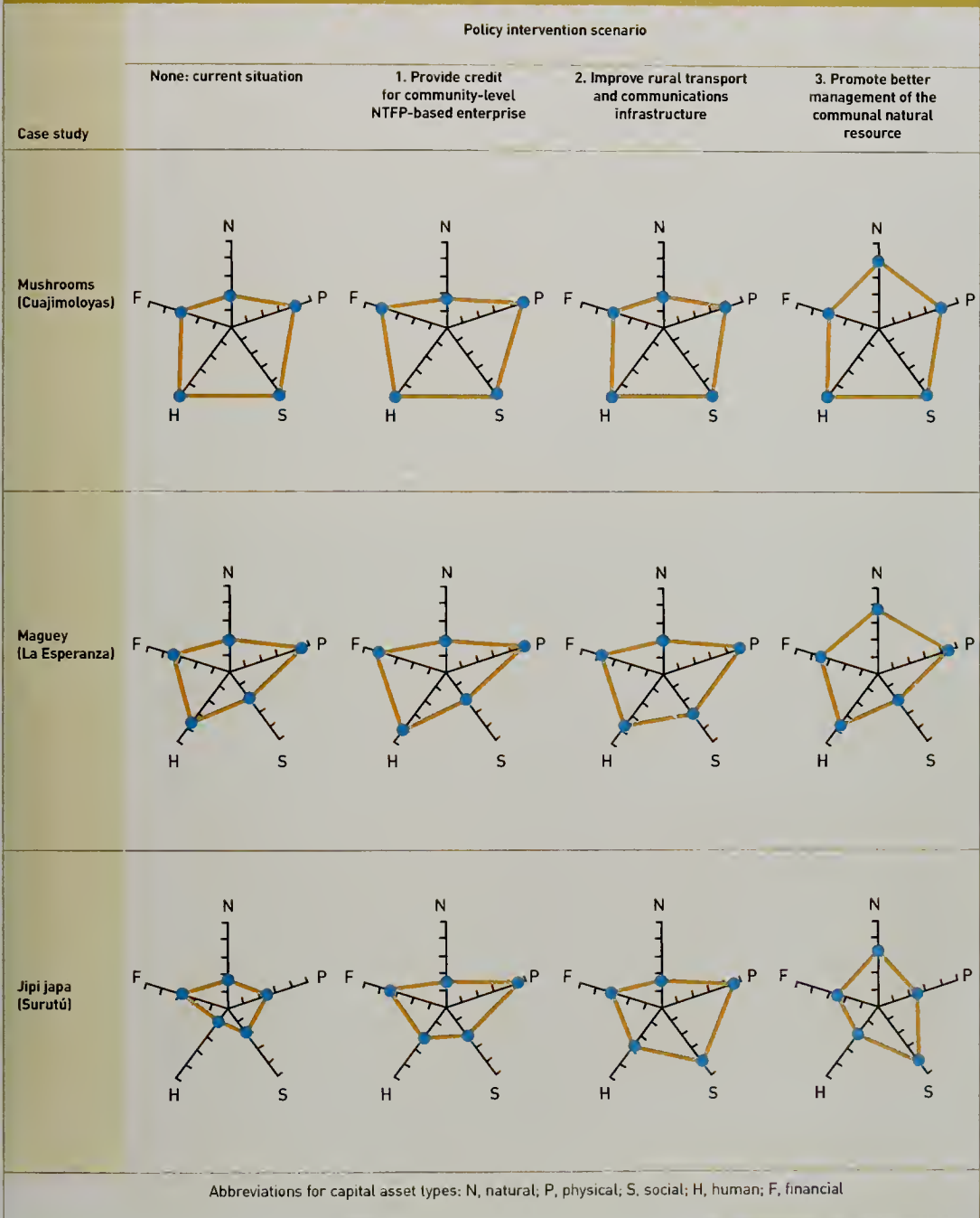
According to the DFID sustainable livelihood framework, the potential impacts of these interventions can be visualized by considering the availability to local communities of the different capital assets that influence the success of NTFP commercialization.

The radar diagrams illustrate how different interventions can have contrasting effects on different capital assets, taking the examples of mushrooms (Cuajimoloyas), maguay (La Esperanza) and jipi japa (Surutú). In each diagram, the five spokes represent the five capitals (natural, physical, social, human and financial). The values along the spokes represent the availability of individual assets as inferred by the CDST model from data for the three case studies. The area within the pentagon represents the overall availability of the combined assets for engaging in successful NTFP commercialization.

Intervention 1 can be seen to have generally increased financial capital assets, while it had little effect on natural capital. In contrast, intervention 3 had a pronounced impact on the availability of natural capital. Impacts also differed between NTFP case studies. Impacts were generally more pronounced for jipi japa than for the other case studies shown here, reflecting the relatively low availability of capital assets at the outset in this case study.

These results highlight the value of the BBN as a decision support tool, enabling the potential impacts of different policy interventions to be evaluated for each individual case. Where availability of assets is relatively high, such as human and social capital in the case of mushrooms in Cuajimoloyas, the impacts of any intervention on these assets are likely to be relatively slight. However, in cases where specific assets are severely lacking, targeted policy interventions can have pronounced impacts, increasing the probability of NTFP commercialization being successful. In the three case studies illustrated in the diagrams, the lack of natural capital assets is striking, and therefore policy interventions aimed at improving management of natural resources are likely to have greater impact than the other policy options shown.

Policy intervention scenarios: radar diagrams illustrating the availability of different assets for commercialization of three case study NTFPs



ment of the resource to enterprise economics, governance and equity issues between different actors along the chain and national policy interventions.

- ▶ A combination of work at the source (in the community) and along the value chain (to attempt to capture all the actors and understand their motivation/incentives), and, where possible, at the consumer level. The collection of accurate and complete data becomes increasingly difficult moving away from the product source, where NGOs can help to build mutual trust, towards the consumer, where trusted entry points are fewer.
- ▶ The use of enterprise budgets and calculation of returns to labour. These two tools are very useful to gain an in-depth understanding of the costs and benefits involved in NTFP commercialization activities, including hidden costs, impacts of subsidies or grants and so on.
- ▶ Graphical representation, and where possible some quantification, of the value chains to identify key organizations and actors. Initial representations

benefit from further discussion, and where necessary data collection and clarifications.

- ▶ Participatory approaches to defining success (e.g. environmental, financial, social) according to the perspectives of different stakeholders, and a framework for identifying trade-offs between stakeholders' objectives.
- ▶ Participatory research with NGOs and communities to increase the likelihood of joint ownership of results, and of future joint action to take advantage of opportunities and overcome constraints.

A thorough presentation of considered research methods is provided in the Methods manual, on the CD-ROM and on the project website. The manual has learned from, and improves upon, the methods used during the CEPFOR project. It provides the user with tools to assess and analyse the factors identified by CEPFOR as critical in influencing successful NTFP commercialization. They can be adapted for local conditions, and their intention is to provide a methodological framework for undertaking community, household and market chain research.

Looking across Madidi National Park towards the incense and copal groves.

Elaine Marshall



12. Policy options

Increasing opportunities for successful NTFP commercialization

Kathrin Schreckenber, Jonathan Rushton, Fabrice Edouard,
Dirk Willem te Velde, Elaine Marshall, Adrian Newton and Alan Bojanic



Elaine Marshall

A new day dawns on the banks of the river Beni. Carmen del Emero, Bolivia.

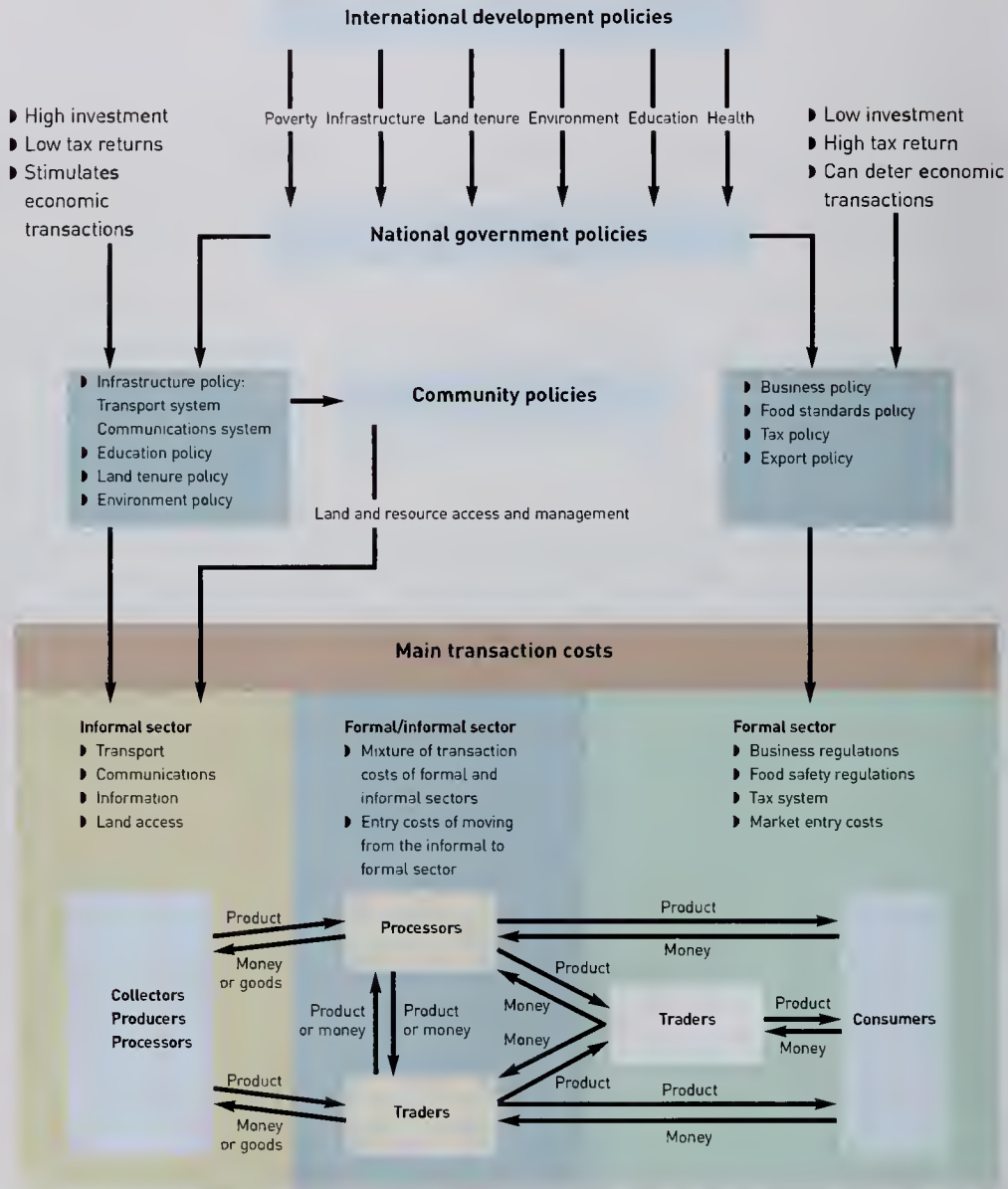
The CEPFOR project highlights the fact that NTFP commercialization activities can, in some circumstances, contribute to rural poverty reduction. Without the proper regulation and support, however, they can also lead to overexploitation of the natural resource. There is justification, therefore, for well-targeted interventions to optimize the benefits of NTFP commercialization and reduce the risks of any negative impacts.

As outlined in Chapter 8, there are few policies, laws or institutions designed specifically to promote NTFP commercialization. Like the rural non-farm economy within which they are embedded, NTFP activities are complex and straddle the regulatory and promotional responsibility of multiple central government ministries (Haggblade et al. 2002). The wide geographic spread of some NTFP value chains from far-flung producers to consumers, who may be

located in other regions or countries, further complicates the achievement of a coherent set of interventions in favour of NTFP commercialization activities. In addition, interventions in this sector may be initiated by government, at various levels, as well as by NGOs and the private sector, with the latter two intervening predominantly in specific communities or value chains.

This chapter presents options for interventions based on those that the CEPFOR project found to be helpful for, or a constraint to, commercialization. They are split into government-level interventions in the form of policy change and public investment, and interventions at community level, which may be implemented by government, NGOs or the private sector. Key areas of intervention are summarized in Table 12.1. More detailed country-specific options for Mexico and Bolivia respectively are provided in policy briefs on the

Figure 12.1 Policy entry points to reduce transaction costs in NTFP commercialization After Rushton et al. 2004





Charles Veitch

The long walk to market. Apolo, Bolivia.

CEPFOR CD-ROM and are downloadable from the project website (www.unep-wcmc.org/forest.ntfp).

GOVERNMENT INTERVENTIONS

Figure 12.1 presents a conceptual model of how government interventions can affect the transaction costs or linkages between people in a value chain that moves products from the informal to the formal sector. The lower half of the diagram shows the typical transaction costs faced in the informal and formal NTFP commercialization sectors and in the transition between them. As outlined in Chapter 9, these transaction costs are associated with ensuring the interchange of a product for money or goods. Policies that reduce transaction costs will make a value chain more cost-effective and more attractive to new participants. Broadly speaking, governments may make public investments which will tend to provide general support to the informal sector, or make policy interventions targeted more at the formal sector.

Public investments

Many of the fundamental prerequisites for enterprise growth in the NTFP sector, like those in the rural non-farm

economy, are public goods, such as roads, electricity, telecommunications and other infrastructure (Haggblade et al. 2002). Public investments have an impact on people's capabilities to carry out an activity or business, whatever the sector. For example, investment in rural education, health and skills development will have an important impact on individual capabilities, and the capabilities of actors within the value chain will in turn affect transaction costs, because the individuals will be better equipped to search out and understand information and perform transactions in a methodical way. Therefore, risks in a transaction are reduced and few opportunities remain for hiding information.

Public investment in transport and communications infrastructure is another way of reducing transaction costs and supporting the entry of remote, marginalized producers into value chains.

Policy interventions

As highlighted by Vosti et al. (1997), policy interventions can themselves represent barriers to entry. Supply restrictions may include constrained forest access, transport controls, etc., increasing supply costs and risks, reducing market

volume and limiting market development. Several areas of policy were found to impact on the successful commercialization of case study NTFPs.

1. Macro-level policies, such as tariffs, exchange rate, interest rate and labour law, are rarely designed to have a specific impact on NTFPs, but there may be a need to be aware of possible unintentional impacts on certain ones. Thus the Bolivian government’s move to increase the cost of ammonia to restrict its use in the coca trade has

inadvertently increased the costs of rubber processing, which uses the same chemical.

2. Stimulation of demand for some products can be achieved through trade policies affecting competitive imports, for example rubber, or through the promotion of tourism, which affects, for example, the *jipi japa* trade.

3. Rural livelihood support policies are likely to be more successful if they go beyond a narrow sectoral focus on one product or product area, e.g. agriculture, livestock or forestry, and support NTFP activities as part of a diversified livelihood strategy.

4. Policies specific to the NTFP subsector are rare, but those that can help to promote NTFP commercialization include:

- ▶ National-level promotion of niche agricultural products as exists in Mexico (‘From Mexico to the World’), bringing with it investment in information provision and export promotion of the sector.
- ▶ The creation of brands and appropriate standard-setting and certification systems, the important competitive advantage of which is illustrated by the CEPFOR cases. This agrees with the findings of Haggblade et al. (2002), who argue that the introduction of grades and standards will play an important role in helping rural enterprises succeed in increasingly liberalized and un-protected markets. One caveat is that any such interventions need to be based on a sound understanding of the intended beneficiary value chains or they may, as in the case of the Appellation of Origin for mezcal, have unintended negative effects on some producers. In addition, sanitary and phytosanitary (SPS) policies at international level can have a tremendous impact on trade as seen in the boom-and-bust trading of some products, including palm heart. Government support in improving product quality, certifying quality and demonstrating that NTFP value chains can provide consistent production are vital aspects to the NTFPs that come under the SPS trade agreements.
- ▶ Encouraging lending institutions to recognize the commercial potential of NTFP enterprises and make credit provision accessible to the rural poor and small-scale entrepreneurs.

5. Support to intermediaries. Two types of intermediary – entrepreneurs and NGOs – play an important role in NTFP commercialization. Entrepreneurs are critical in establishing and maintaining many NTFP value chains. In these cases, policy interventions are likely to be most successful when they are less concerned with circumventing entrepreneurs than with ensuring that they

Table 12.1 Interventions to support successful NTFP commercialization

1. Government interventions at the national level	
Policies	Macro-level policies affecting input cost and output prices
	Stimulation of demand for some products through trade policies affecting competitive imports
	Rural livelihood support policies focused across several sectors
	NTFP subsector-specific policies (special trade promotion, branding, food standards, support for SPS trade requirements)
	Support to intermediaries, both entrepreneurs and NGOs
	Natural resource use and conservation policies
Public investments	Rural infrastructure (roads, electricity, communications)
	Rural markets
	Education
2. Direct assistance to communities by governments, NGOs or the private sector	
Community organization	Promote organization at producer and processor levels
	Build on existing community organizations
	Facilitate links between actors in the value chain
Support to women	Focus activities close to home and/or help to overcome constraints imposed by traditional domestic roles
Support to entrepreneurs	Provide basic business development skills
Market information	Provide information and training/support to use to community’s advantage
Resource management	Technical and organizational know-how for resource management
	Support to fulfil regulatory requirements



Elaine Marshall

Returning to Arroyo Blanco at the end of a long day.

do not abuse their market power and that, where possible, they spread their success more widely across the chain. At the same time, there is a need to level the playing field – through better education and improved access to information – and increase the opportunities for more people to take on an entrepreneurial role. With respect to NGOs, the capacity of civil society organizations linked to the forest sector needs to be increased to enable these organizations to provide better support to communities both in resource management and marketing. There is a role to play for government, possibly at state or municipal level, in supporting better coordination of government, private sector and NGO activities in favour of NTFP commercialization.

6. Natural resource use and conservation policies.

A clearer statement of which laws, implemented by which authorities, apply to NTFPs, and under which circumstances, e.g. domestic and international trade by communities and/or companies, would greatly assist actors in the NTFP value chains. There is a particular need for clarification of harvesting options in protected areas. Specific policies that would help NTFP commercialization include:

- ▶ Extending government programmes targeted at supporting forest activities to those forest areas in which NTFPs are harvested, in addition to those related to commercial timber production.
- ▶ Adapting the requirements for management plans and environmental impact assessments to the capacities of rural communities. At local level, success is likely to come from a single institution being responsible for coordinating support for community-based development and implementation of management plans. In the Mexican case, the costs of carrying out EIAs in order to obtain permits are prohibitive for individual communities. To avoid people being pushed into illegality, regional permits could be assigned (on the basis of one study) for some 50 communities in combination with community norms to assure management.
- ▶ Modification of regulations pertaining to the LGEEPA law in Mexico, so that farmers' NTFP plantations in tropical forest areas, where they increase the value of the forests, are seen as low-impact subsistence activities that do not require an environmental impact assessment.

- ▶ Further investigation into helping communities obtain price premiums for natural and organic products, and into possible payments for environmental services, e.g. of maintaining forests as a result of NTFP commercialization.

DIRECT ASSISTANCE TO COMMUNITIES

Support at community level can come from various sources. Better coordination – possibly by state or municipal government – of government, private sector and NGO activities could lead to more successful NTFP commercialization. Three underlying principles are important to allow successful interventions:

- ▶ Understanding the whole value chain in order to target interventions to make the chain sustainable and, if possible, also more equitable. Many NGOs that begin by focusing their activities solely on NTFP supply may also wish to intervene closer to the consumer, e.g. to focus demand on the kind of supply a community can provide.
- ▶ The importance of NTFPs is very variable between households. Interventions could be targeted at those functions carried out by the poor and/or those that constitute the key bottlenecks to the functioning of the whole value chain.
- ▶ NTFPs must be recognized as associated activities. People will rarely want to invest all their efforts in this activity. Projects able to go beyond a narrow focus on one product or product area, e.g. agriculture, livestock or forestry, and support NTFP activities as part of a diversified livelihood strategy are likely to have a more positive impact on the livelihoods of the poor. This is particularly true for the many NTFPs that are available only for a few months of the year. At the same time, interventions in favour of a specific NTFP could look out for interdependence with other activities, and associated vulnerability.

Interventions at community level relate either to organization, entrepreneurship and business development skills, or to natural resource management.

- ▶ Community organization can be a useful way of decreasing the vulnerability of both producers and processors. It will not necessarily increase the prices obtained but can improve a community's chances of attracting traders – by offering more consistent and larger volumes of better-quality supply – and negotiating deals with them. Whether or not such organization is important depends on demand levels and transport – if demand is buoyant and suppliers

can easily get the product to the sales point, then organization is less of a priority – and on access rights to the resource. Organization is more important for products collected from communal land than for individually owned or planted resources. Where organizations do not yet exist, it can be useful to work with any effective organizations that operate in the community, for example education committees or water committees, providing that these represent the same groups of people and interests as are affected by NTFP commercialization. Linked to improved organization is the facilitation of links between different actors in the value chains.

- ▶ Interventions in support of women's capacity to engage in NTFP commercialization for income generation might consider the constraints imposed by women's traditional domestic roles. Activities focused close to the home and combinable with childcare, or sufficiently remunerative to enable women to organize other forms of childcare, are most likely to be sustainable.
- ▶ Potential entrepreneurs would be helped by basic business skills, including advice on paperwork; access to credit; cash flow analysis; negotiation with creditors, clients and suppliers; maintaining quality and quantity; and how to expand markets.
- ▶ Collectors and producers would benefit from better market information, including trends in product price, quantity and particularly quality, understanding how value chains work and how to identify key actors, and training and support to use this information to their advantage.
- ▶ The most important supply-side intervention in communities is the provision of technical know-how and organizational skills to ensure sustainable resource management and harvesting, domestication where appropriate, and processing. This may include provision of support to communities to meet regulatory requirements such as EIAs, the development of management plans and the establishment of monitoring systems. The experience of camedora palm shows that large-scale plantations may out-compete small-scale domestication, leading to the conclusion that small-scale domestication should focus on products with qualities that make them difficult to grow in large-scale plantations (Scherr et al. 2004). Consideration should also be given to the fact that, within a community, the poorest – who may be landless – are helped most by activities on communal land.

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Appendix

Project outputs available on CD-ROM and from www.unep-wcmc.org/forest/ntfp.

When the computer reads the CD-ROM, the CEPFOR icon will appear. Click on it to be taken to the contents page, which is available in both English and Spanish. To view and download documents listed, click on a hyperlink and the document will open directly from the CD. Where documents are available in English and Spanish, there will be an option to click for each.

CD-ROM contents

Contents	Author	Language available
CEPFOR final project outputs		
<i>Commercialization of Non-timber Forest Products: Factors Influencing Success. Lessons Learned from Mexico and Bolivia and Policy Implications for Decision-makers</i>	Marshall, E., Schreckenberg, K. and Newton, A.C. (eds) 2006.	English and Spanish
CEPFOR Decision Support Tool (CDST)	Newton, A.C. et al. 2006.	English only
CDST User Guide	Newton, A.C. et al. 2006.	English and Spanish
Methods manual		
Practical tools for researching successful NTFP commercialization	Marshall, E. et al. 2006.	English and Spanish
Policy briefing papers		
Instructivo político para los departamentos forestales del gobierno en México: la problemática en el aprovechamiento y comercialización campesina de los PFNM	Edouard, F. 2006.	Spanish only
Instructivo para las municipalidades y las instituciones gubernamentales en el trópico húmedo boliviano: promoviendo los beneficios de la comercialización de los PFNM	Rushton, J. 2006.	Spanish only
Journal publications		
Entrepreneurship in value chains of non-timber forest products. <i>Journal of Forest Policy and Economics</i> .	te Velde, D.W., Rushton, J., Schreckenberg, K., Marshall, E., Edouard, F., Newton, A.C. and Arancibia, E. Forthcoming.	English only
Commercialising non-timber forest products: first steps in analysing the factors influencing success. <i>International Forestry Review</i> 5(2): 128-137.	Marshall, E., Newton, A.C. and Schreckenberg, K. 2003.	English only

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Conference presentation		
XXII IUFRO World Congress. Informing decision-making for successful NTFP commercialisation: research findings and policy implications from Mexican and Bolivian case studies	Marshall, E., Newton, A.C. and Schreckenber, K. 2005.	English only
CEPFOR data analysis internal project reports		
Value chains for a range of non-timber forest products in Bolivia and Mexico With additional data sheets	Rushton, J., Pérez, L. and Viscarra, C. 2004.	English only
Successful NTFP commercialisation. A quantitative analysis based on household and trader level data	te Velde, D.W. 2005.	English only
Analysis of case study communities from community level reports written by research partners in Bolivia and Mexico With additional data sheets	Marshall, E. 2005.	English only
Project definitions of successful NTFP commercialization	CEPFOR 2005.	English only
Market reports		
Cacao orgánico	Maldonado, F., CARE Bolivia	Spanish only
Goma natural	Rodríguez, I., CARE Bolivia	Spanish only
Incienso y copal	Enríquez, C., CARE Bolivia	Spanish only
Palma jipijapa	López, F., CARE Bolivia	Spanish only
Palma soyate	Grupo de Estudios Ambientales (GEA)	Spanish only
Maguey/mezcal	Grupo de Estudios Ambientales (GEA)	Spanish only
Hongos silvestres	Edouard, F., Methodus Consultora	Spanish only
Fibra de pita	Edouard, F., Methodus Consultora	Spanish only
Palma camedora	de los Santos, J., López, J., González, A., Grupo Mesófilo	Spanish only
Palma tepejilote	Flores, J.C., González, A., Grupo Mesófilo	Spanish only
Community level reports		
Cacao orgánico: Carmen del Emero; San Silvestre	Maldonado, F., CARE Bolivia	Spanish only

Goma natural: Santa Rosa de Challana; Tomachi	Rodríguez, I., CARE Bolivia	Spanish only
Incienso y copal: Pucasucho	Enríquez, C., CARE Bolivia	Spanish only
Palma jipijapa: Carmen Surutú; Candelaria; Potrero San Rafael	López, F., CARE Bolivia	Spanish only
Palma soyate: La Esperanza; Topiltepec	Grupo de Estudios Ambientales (GEA)	Spanish only
Maguey/mezcal: La Esperanza	Grupo de Estudios Ambientales (GEA)	Spanish only
Hongos silvestres: San Antonio Cuajimoloyas; Santa Marta Latuvi	Edouard, F., Quero, R., Methodus Consultora	Spanish only
Fibra de pita: Arroyo Blanco; Agua Pescadito	Edouard, F., Methodus Consultora	Spanish only
Palma camedora: Monte Tinta	de los Santos, J., López, J., González, A., Grupo Mesófilo	Spanish only
Palma tepejilote: Santa Cruz Yagavila; San Miguel Tiltepec	Flores, J.C., González, A., SERBO-Grupo Mesófilo	Spanish only
Policy background papers		
Marco institucional, normativo y político para el manejo y comercialización de productos forestales no maderables en México	García-Peña Valenzuela, E. 2002.	Spanish only
Marco legal y políticas relevantes para la comercialización interna y de exportación de productos no maderables en Bolivia	Bojanic, A.J. 2002.	Spanish only
Data collection tools		
Methodological procedures	Schreckenberg, K. et al. 2005.	English only
Detailed community report structure	Schreckenberg, K. and Marshall, E. 2001.	English and Spanish
Metodología de investigación del mercadeo	Bojanic, A.J. et al. 2001.	Spanish only
Questionnaires		
Comunidad		Spanish only
Comunidad testigo		Spanish only
Comerciante		Spanish only
Comerciante testigo		Spanish only
Estructura de la base de datos en MS Access		Spanish only

Glossary

- Altiplano** High mountainous terrain of Bolivia, stretching from the southern regions of the Department of Potosí to the Bolivian-Peruvian border around Lake Titicaca
- Chapare** Tropical region of Bolivia around Cochabamba
- Debt peonage** A system in which the collectors are kept in a state of permanent indebtedness as buyers advance payment for non-timber forest products in the form of usually overpriced merchandise
- Exchange rates**
 Bolivia: US\$1 = Bs7.30, September 2002
 Mexico: US\$1 = \$10, September 2002
- Inflorescence** A clustered arrangement of flowers on a plant
- Value chain** Describes the full range of activities required to bring a non-timber forest product from collection to consumer

Abbreviations and acronyms

BBN	A Bayesian belief network enables the probabilistic relationships between variables to be represented and examined graphically. The CEPFOR BBN was designed to enable the impact of different factors on the success of NTFP commercialization to be evaluated.	NGO	Non-governmental organization
Bs	Boliviano (Bolivian currency)	NTFP	Non-timber forest product
CDST	CEPFOR decision support tool	PPP	PPP (purchasing power parity) dollars allow for comparison between countries with different living standards. In 2001, at the time of this research, a dollar in the United States was worth 150 per cent more in Bolivia and 40 per cent more in Mexico. In Mexico, US\$1=PPP\$1.4; in Bolivia, US\$1=PPP\$2.5.
CEPFOR	Project title: Commercialization of non-timber forest products (NTFPs) in Mexico and Bolivia: factors influencing success	PROCYMAF	Conservation and Sustainable Forest Management Project within CONAFOR
CIFOR	Center for International Forestry Research	SEMARNAT	Ministry of the Environment and Natural Resources, Mexico
CIPTA	Indigenous Council for Tacana Communities	TCO	Communal property assigned to certain ethnic groups in Bolivia
CONAFOR	National Forestry Commission, Mexico	UMA	Environmental management unit, which Mexico's Forest Law requires NTFP producers to establish
DFID	UK Department for International Development	UNEP-WCMC	United Nations Environment Programme World Conservation Monitoring Centre
EIA	Environmental impact assessment	UPIS-L	Union of Indigenous Towns of the Sierra de Lalana is a municipal farmer-based organization that promotes improved livelihoods for its 1 200 members through socio-economic projects.
FRP	Forestry Research Programme	US\$	US dollar
GEA	Grupo de Estudios Ambientales, NGO project partner, Mexico	\$	Peso (Mexican currency)
LGEEPA	Mexican Law on Ecological Equilibrium and Protection of the Environment		
LGVS	Mexican Forest Law		
MDG	Millennium Development Goals		



Commercialization of non-timber forest products

Factors influencing success

Lessons learned
from Mexico
and Bolivia
and policy
implications for
decision-makers

Conclusiones
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e implicancias
políticas para
los tomadores
de decisión



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International
Development



2006



Commercialization of non-timber forest products

Factors influencing success

This book is the product of one of the most comprehensive studies undertaken on the commercialization of non-timber forest products (NTFPs) in Mexico and Bolivia. It investigates the role of 10 NTFPs, across 18 communities, in poverty alleviation, the promotion of gender equality, the sustainable use of resources and equitable access to natural resources. It focuses on reasons for success or failure of NTFP value chains and assembles lessons learned in order to provide guidance to policy-makers and practitioners, helping them ensure that NTFP commercialization makes a positive contribution to the lives of the poor.

This book will be of interest to the following people, whether they are currently working in or wanting to initiate a programme of work supporting community-based NTFP commercialization in Latin America:

- decision-makers in government organizations and NGOs;
- the donor community working at national and sub-national policy levels;
- field technical staff;
- research and development organizations.

The broad implications of the results obtained by this research project will be of interest to anyone concerned with the sustainable development of tropical forest resources and its role in poverty alleviation.