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Practical Tools for Researching Successful NTFP Commercialization:  
**A Methods Manual**

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With

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## NTFP COMMERCIALIZATION RESEARCH METHODS

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## 1 INTRODUCTION: A HOLISTIC APPROACH TO RESEARCH

### 1.1 THE CEPFOR PROJECT

The manual draws on the experience of the project 'Commercialization of Non-timber Forest Products (NTFPs) in Mexico and Bolivia: Factors Influencing Success' (CEPFOR), a multidisciplinary research initiative involving partners drawn from the UK, Mexico and Bolivia. The research team critically examined the factors influencing successful non-timber forest product (NTFP) commercialization, and tested and further developed theory relating to the commercialization of NTFPs and rural development. Socio-economic and market research in 18 communities in Bolivia and Mexico 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. The structure and function of 16 different NTFP value chains were analysed to identify the attributes that make a chain successful. On the basis of the CEPFOR case studies, successful NTFP commercialization was defined as a transparent, equitable and sustainable activity that has a positive impact on poverty reduction, gender equality and resource access, tenure and management.

Some key findings from the CEPFOR research include the following:

- Successful NTFP commercialization cannot be summarized by a single variable, and community perceptions of success need to be assessed and incorporated in project planning and evaluation.
- NTFPs are important in the lives of the rural poor, and NTFP income varies greatly even between households engaged in the same activity.
- NTFP activities are one of the few cash-generating opportunities for women in marginalized rural communities.
- Tenure influences the variety of strategies used by communities and individuals to ensure that NTFP supply is sufficient to meet the demands of increased commercialization.
- NTFP 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.
- Information about markets, together with the capacity to act upon it, is an important prerequisite for entering, and maintaining a hold in, new markets.

The research methodologies developed by the CEPFOR team are documented in Chapter 2 of Marshall, Schreckenberg and Newton (2006), which outlines the way in which the CEPFOR project collected, analysed and integrated different types of data. In developing a research methodology, the project had three objectives, namely to:

- combine qualitative and quantitative information;
- undertake joint research with NGO partners;
- carry out participatory research in communities.

Some of the research methods were specific to a large-scale research project undertaking comparative analysis between communities in different countries. For example the CEPFOR approach includes household surveys, which are not detailed in this manual. The tools selected for the manual are felt to be most appropriate and useful to organisations working at community level, and for understanding the opportunities and constraints of NTFP commercialization. The manual draws on lessons learnt from the implementation in the field of the different data collection and analysis methods described. It also draws on the development of the CEPFOR decision support tool (CDST), an

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analytical framework that presents the factors identified by the project as determining successful NTFP commercialization. The CDST allows users to: compare the potential success of different NTFP development options; the opportunities & constraints of current NTFP initiatives; and to explore the potential livelihood impacts of different policy options. The current manual provides the methods to help the user of the CDST investigate and consider some of the factors - often presented as questions - which influence success (see Appendix 1). Information can be directly input into the CDST, facilitating further impacts and outcomes of NTFP commercialization to be explored (see CDST user manual on CD-ROM). In this way the manual complements and supports the use of CDST.

Finally, although the overarching concept of the manual and CDST is to highlight where the potential for successful NTFP commercialization may lie and where external support may be required through information generation, neither tools, used separately or in conjunction, assist the user in making value judgements. In exploring NTFP commercialization, it may be necessary to make trade offs between environmental, social and economic objectives, for example, natural resource use versus financial gain.

### 1.2 WHO IS THE MANUAL FOR?

The manual is designed to be of use to organizations that are currently supporting community based NTFP commercialization, or are intending to provide support to communities who want to develop commercialization of NTFPs. Possible users may include:

- Government organizations
- NGOs
- Civil society organizations
- Research groups
- Community based organizations
- Private sector organizations

It is not envisaged that any particular training be required prior to using the manual. A basic understanding of, and familiarization with, some widely used participatory research tools and basic interview and observation techniques will be useful. The manual presents some key, locally adaptable methods. One of the most important criteria for successful research with communities is to have an established trust based relationship, often a product of prolonged interaction between the researcher and the case study community. A transparent explanation of the research aims, objectives and outputs is an integral component of participatory research approaches.

It is intended that the methods described in the manual generate information that can be used to help identify opportunities and obstacles to NTFP commercialization at community level, and along the marketing chain. The overall aim of the tool is to provide information to guide external interventions and support communities in their decision-making concerning NTFP commercialization.

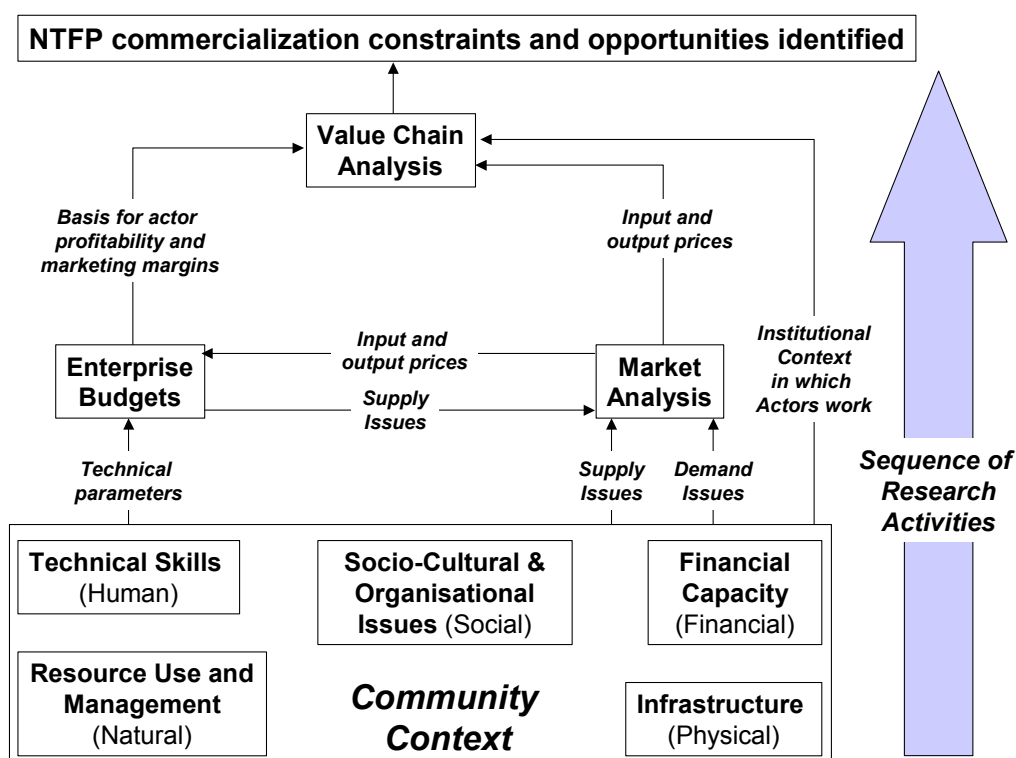
### 1.3 CONCEPTUAL FRAMEWORK: HOW THE TOOLS FIT TOGETHER

The manual presents a range of different research tools, each of which gives rise to different sets of information. How they fit together and build on each other is shown in the conceptual framework presented in Figure 1..First of all, participatory analysis at community level can be used to understand technical capacity, resource use and management, community organization and socio-cultural issues. This set of information is sufficient to allow for a rough prioritization of NTFPs with potential for further development. Decisions can be further refined by developing an enterprise budget based on technical parameters from the data set, and carrying out a market analysis using information on supply and

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demand data, trends and cultural preferences. The value chain analysis in turn requires information generated from the enterprise budgets and market analysis, in addition to information on the institutional context in which people involved in the chain are found. The manual, therefore, provides a holistic framework that includes technical, ecological, cultural, social and economic data and analyses, and provides a powerful base to examine present commercialization networks in order to highlight both opportunities and constraints that need to be addressed.

**Figure 1. Conceptual framework showing the relationship between different data collection and analysis tools required in identifying constraints and opportunities for NTFP commercialization.**



The manual has six main chapters:

- Theoretical background
- Management of data collection and analysis
- Participatory research at community level
- Developing and analysing enterprise budgets
- Analysing markets and market trends
- Value chain analysis

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### 2 THEORETICAL BACKGROUND

This chapter provides a brief theoretical background for each of the main components in the conceptual framework, explaining how the information elicited in each helps to deepen understanding of different aspects of NTFP commercialization. Interpretation of information from the various data collection and analysis tools has to take place in an iterative manner. For example, it may be important to consider the findings of an enterprise budget, in the context of the resource base, socio-cultural issues, technical capacity or physical infrastructure of the community. Likewise, market trends, or exertion of market power – determined by a value chain analysis – will be important information to consider when deciding with a community which strategies they may wish to adopt to commercialize particular products.

#### 2.1 PARTICIPATORY RESEARCH AT COMMUNITY LEVEL

Participatory research tools provide a detailed understanding of the community context within which NTFPs are commercialized. The context can be analysed using the sustainable livelihoods framework (Carney, 1998; see Chapter 2 Marshall *et al.* 2006), which highlights five forms of capital asset – Natural, Financial, Physical, Human and Social. These are used in the CDST to group the factors influencing sustainable commercialization.

##### 2.1.1 *Natural resource use and management*

Information on resource use and management are essential in developing a clear picture of the status, quantity and location of forest resources. These directly influence the quantity and quality of NTFP supply, and hence are necessary in an assessment of the potential for NTFP commercialization. This manual does not cover how to undertake a detailed baseline resource assessment, which is a key tool in monitoring environmental impact of commercialization (FAO, 2000, Sheil *et al.*, 2002, Peters, 1996.). However, a rapid rural assessment (RRA) of the supply of forest resources is provided that can empower and motivate local people to monitor and manage the impacts of their activities on their resources. The sustainability of raw product supply for NTFP commercialization is linked to one or a combination of the following factors:

- the ability of the natural resource base's ability to recover after harvesting,
- the substitution of a product through cultivation,
- the domestication of a product,
- enrichment planting.

Resource use and management factors that can influence whether or not commercialization is successful include:

- Resource management and monitoring.
- Rights or access to the resource, including subsidies for competing land uses.
- Resource availability.
- Variation of NTFP yield.
- Species domestication.
- Seasonal availability of the NTFP.

##### 2.1.2 *Financial capacity*

Information on financial capacity can be used to determine the extent to which communities are integrated into the cash economy, have access to different forms of credit, receive land use subsidies, and have a need for investment capital. On a family or individual basis there are likely to be



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differences in access to credit, which needs to be examined in terms of socio-economic and gender status.

Financial factors that can influence whether or not commercialization is successful include:

- Speed with which money and time invested in NTFP activities are returned.
- Combinability of income generating activities with subsistence activities.
- Availability of investment capital and external financial support such as:
  - Access to different forms of credit at reasonable interest rates.
  - Willingness of entrepreneurs to invest in key components of the NTFP commercialization value chain.

### **2.1.3 Physical infrastructure**

Information on physical infrastructure including the transport network of roads, rivers, railways, airports and their related costs, and the availability of energy, as water, electricity, fuelwood, etc., are all needed in evaluating the potential to physically move a product down the value chain. In addition physical communication networks are important in transmitting messages along the value chain, either in the form of prices for quality and quantity or descriptions of how a product should be presented or processed. It is important to consider a variety of factors at collection sites and the first points of trade within and outside the community, as these may be key determinants of a successful marketing strategy. Infrastructure factors that can influence whether or not commercialization is successful include:

- Infrastructure to collection or production site.
- The level of product perishability.
- The extent and reliability of a communication network.
- The storage requirements of a product.
- Physical accessibility of a market.
- Value per unit weight of the traded product.

### **2.1.4 Human capacity**

Information on human capacity is needed to evaluate existing levels of technical skills and processes involved in production, processing and marketing of NTFPs. This information will help to identify potential interventions to support NTFP commercialization. Other skills involve the ability to interpret market information and therefore relate to education levels of the people involved in the NTFP commercialization.

Evaluation of technical capacity may contribute to improved understanding of:

- processing, storage and transportation requirements for selected products in different seasons,
- gaps between the current situation, the human and technical skills required to meet market demands, and new techniques that could increase efficiency,
- appropriate technologies that do not have an adverse effect on the environment and society.

Human and technical capacity factors that can influence whether or not commercialization is successful include:

- Impact of harvesting techniques on product quality.
- Impact of processing methods on product quality.
- Knowledge of the impact of pests and diseases on the natural resource.
- Experience of different marketing strategies.

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- Understanding variation in quality of the product or the raw material and its impact on price.

### **2.1.5 Socio-cultural and organizational issues**

Cultural, social and organizational issues are important in determining the direct and indirect benefits of NTFP commercialization for different social groups and between men and women. This includes distribution within individual households or across the community, via income generation, employment generation, and preservation of traditional resource use. Ideally potential commercialization activities should have a positive, or at least a neutral impact, on the most vulnerable members of the community.

Socio-cultural and organizational factors that can influence whether or not commercialization is successful include:

- Women's involvement in NTFP commercialization and their control over NTFP generated income.
- Availability of NTFP relative to labour availability.
- Community or cultural norms that facilitate NTFP commercialization.
- Organization of access to the resource.
- Organization of the commercialization of the NTFP.

## **2.2 ENTERPRISE BUDGETS**

An enterprise budget is a useful tool for compiling all the costs and income of an activity and for assessing its economic profitability. Within a household, particularly poor ones, there are likely to be a number of activities that when combined provide an income. An enterprise budget provides a snapshot of costs, and provides key information on opportunities and constraints of an enterprise, allowing an assessment of factors that may be constraining, or conversely facilitating commercialization, e.g. credit provision. Factors that can be assessed by undertaking an enterprise budget, thereby providing background information on success, include:

- Magnitude of variable and fixed costs<sup>1</sup> as a proportion of total costs at producer level.
- Estimating the value of local labour, and how much of it is needed.
- Domestication of NTFP species and associated costs in order to compare the returns of domestication with alternative agricultural activities in the region.
- The value of the processed NTFP in order to estimate its value per unit weight.
- Energy requirements for NTFP commercialization.

## **2.3 MARKET ANALYSIS AND MARKET TRENDS**

NTFP producers and processors in communities do not exist in isolation, they are linked to the outside world by markets for both inputs and outputs. Analysis of these markets will provide information on whether they are efficient in transmitting information on consumer preferences to the producers and processors. This requires a combination of data collection and analysis at the community level and also at local, national and international levels. Therefore, this part of the manual process does not involve the community at all stages, but information generated obviously needs to be returned and used by the community in its decision making process.

Market and market trend analysis can provide information on:

- Ability of the producers and processors to respond to better prices for NTFPs in the main markets, which is related to:

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<sup>1</sup> These concepts are defined in Chapter 5 on enterprise budgets.

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- Access to market information, i.e. whether producer and processor NTFP prices reflect consumer demand and preference.
- Ability of the producers and processors to interpret changes in market demand.
- Access to input markets for materials, tools and facilities for NTFP commercialization.
- Characteristics of the buyers and sellers and their links in terms of:
  - Experience of the communities in trading other goods.
  - Traditions of using and selling the NTFP within the community.
  - Consumer preferences for products.
  - Number of sellers and buyers.
  - Traditional links between producers and consumers, including direct selling and whether an organization links the two.
- Technically related issues with regards to the product in terms of:
  - Perishability of the product.
  - Storage requirements, particularly prior to first point of sale.
  - Processing required between producer and first point of sale.
- Trends in the market at local, national and international levels that should cover:
  - Fluctuations of NTFP prices over recent years.
  - Responses to changes in NTFP price, income and price of substitutes on demand.
- Degree of product substitution and brand identity.

### 2.4 VALUE CHAIN ANALYSIS

From the collection of an NTFP to the final use or consumption of this product by a consumer there are often various people involved as the product moves along a value chain. These people, called actors throughout much of the document, have different functions such as processing, storage, packaging, marketing and selling of the product, and at each stage they add value to the product. Each actor plays a role that is important in the successful commercialization of the product, and each actor has different incentives and abilities to influence the NTFP value chain. Value chain analysis is important firstly to identify the actors, describe their roles, understand their incentives for involvement in the chain and also their power to work within and influence that chain. Value chain analysis can provide information on:

- The number of processors and traders.
- The presence and roles of entrepreneurs.
- Level of horizontal or vertical integration of the value chain.
- The dependence of the NTFP value chain on the value chains of other products.
- Proportion of the NTFP that is harvested from cultivated and non-cultivated sources.
- The institutional context which relates to transaction costs such as:
  - Regulations by which the NTFP is collected, processed, marketed and sold.
  - Characteristics of the traders in terms of age, experience, education, skill level and social networks.
  - Community level infrastructure including transport and communication networks.
  - Access to market information and technical support, including on how to best harvest and process the NTFP with regards to environmental sustainability and market demand.

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- Economic context of the NTFP value chain in terms of:
  - Equitable distribution of benefits along the NTFP value chain. This requires information from the enterprise budgets for each actor and the markets they work in.
  - The level of integration of producers into the cash economy.
- Governance of the NTFP value chain in terms of the role of entrepreneur or organizations in:
  - Providing financial capital (loans and credit) for NTFP collection, processing and commercialization.
  - Facilitating NTFP commercialization through the provision of market information and contacts.

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### 3 MANAGEMENT OF DATA COLLECTION AND ANALYSIS

#### 3.1 PLANNING THE WORK: TIME AND RESOURCES

The time needed for the field research will depend on:

- the size of the area and community where the research will be conducted;
- the number and complexity of the products;
- the number of people undertaking research and their skill level;
- the complexity of the market channels at community level for the chosen products and the accessibility of market information. It may be possible to undertake an initial assessment of community resource use, livelihood activities, and the value chains for key products in a week or two;
- Finally, it is important to be aware of seasonality. For products that are not traded throughout the year, it will only be possible to gather market information during those months when the product is available for collection and trade.

The key costs involved will be largely composed of:

- staff time, transport and communication, depending on whether the research team will follow products along the value chain physically or via telecommunications, or use observers at set points.
- If the product is traded only locally or regionally, the costs of staff time, transport and communication will be kept lower, but if the final consumers are distant from production, surveys will take longer, incur higher transport and communication costs, and may require international communications.

The human resources required will depend on the methods used:

- Participatory research tools work best when used by a team of people with different disciplinary backgrounds;
- A minimum of 2 people is needed and for some exercises 3-4 are better. It may be useful to have 2 people who are considered to be the 'core' team members, with others joining in for different activities as available and needed. It may also be that, in different communities, certain community members (or other key informants) can act as part of the team for certain exercises;
- It can be very effective to combine external researchers with community-based or locally experienced NGO staff to bring both research experience and local experience and trust relationships to bear;
- Different key activities can be assigned to specific team members. These may include organization of logistics, acting as research monitor and coordinating note taking as outlined in Table 1.

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**Table 1. Key activities required within a research team**

<b>Logistics</b>	<b>Research monitor</b>	<b>Note taking</b>
<p>One member of the core team should be responsible for the <b>logistics</b> of the community-level work. Responsibilities include:</p> <ul style="list-style-type: none"> <li>• Organize pre-visits with local authorities and key informants.</li> <li>• Organize first community-level meeting (including refreshments).</li> <li>• Organize transport /accommodation for all team members.</li> <li>• Organize per diems (as necessary) for team members and compensation for key informants.</li> <li>• Organize compensation for the community in agreement with other team members.</li> <li>• Ensure availability of sufficient large paper, card, scissors, beans or other counters, coloured pens, notebooks and A4 paper.</li> </ul>	<p>One member of the core team should be responsible for <b>implementation</b> of the research activities. Responsibilities include:</p> <ul style="list-style-type: none"> <li>• Assigning team members to different research activities.</li> <li>• Ensuring exercises are carried out in a logical sequence.</li> <li>• Ensuring there is a facilitator and note-taker for each activity.</li> <li>• Ensuring the teams understand the objectives for each activity and have copies of checklists where appropriate.</li> <li>• Arranging briefing meetings with whole team prior to research activities to ensure data and information from individuals and communities are collected in a systematic and consistent manner.</li> <li>• Arranging daily team debriefing to discuss the findings, note contradictions or other points needing clarification, plan activities for following days. A useful time to collate field notes in a structured format (large boxes for collating verbal comments, copying diagrams, etc.) Capturing sets of results in the same format helps researchers analyse data.</li> </ul>	<p>One member of the core team should be responsible for ensuring a consistent <b>recording</b> format across all research communities if a case study comparison is to be undertaken. In addition, full notes (both results and process) should be collected for each activity. Notes should include the following information:</p> <ul style="list-style-type: none"> <li>• Date and place, names of participating team members.</li> <li>• Title of activity.</li> <li>• Names and gender of participating individuals from the community, marketplace, etc.</li> <li>• Comment on level of participation.</li> <li>• Notes on the process of the exercise, particularly any deviations from the guidelines and any prompts used.</li> <li>• Notes on the findings of the exercise.</li> <li>• Clear copies of any diagrams produced during the exercise.</li> </ul>

- Finally, the tasks of note taking and reviewing them frequently in order to adapt or add further research tools to fill in gaps or provide additional information to allow for triangulation should not be underestimated! It is also important to rotate these roles between team members trying to have at least one woman team member in exercises involving research with female producers, or traders, and taking into account any particular language skills within the team. Table 2 illustrates the difference between 'Findings' and 'Process' notes in an exercise of seasonal income sources with a group of women.

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**Table 2. 'Findings' and 'Process' notes**

<p><b>Findings notes</b>          Time and date of meeting          Names of participants          List of income sources plus any specific information provided about each one          Annotated copy of income calendar</p>	<p><b>Process notes</b></p> <ol style="list-style-type: none"> <li>1. The group consisted of 5 older women and 3 younger women. The younger women hardly spoke throughout the meeting, even when questions were directed specifically at them.</li> <li>2. Women only mentioned 3 income sources (food crops, chickens, coffee) by themselves; all the others (NTFP, oranges, petty trade) had to be prompted)</li> <li>3. At first, women were confused about exact timing of different income sources – resolved the problem by marking the main rainy and dry season on the calendar.</li> </ol>
<p><b>Analysis:</b>          Indication of timing of different incomes as perceived by older women show that NTFP provides the only income in Sept-Oct.</p>	<p><b>Analysis:</b></p> <ol style="list-style-type: none"> <li>1. Results only reflect older women's perceptions so need to repeat exercise with a group of young women</li> <li>2. Need to carry out an exercise (e.g. preference matrix) to discuss advantages and disadvantages of different income sources</li> <li>3. When using calendars, show the rainy and dry season.</li> </ol>

### 3.2 WORKING WITH INFORMANTS

Participatory research at community level, or in the market place, can be undertaken through workshops, smaller focus groups, and / or with key informants. Some of these methods will be more familiar to researchers working in communities. The same approach is required when working with groups of traders, or processors, outside of a community.

#### 3.2.1 Starting the field work

- Once a research area has been selected, arrange the introductory meeting to obtain permission with the local leaders, or authorities. If appropriate, explain that you would like to invite everyone to the first and last meetings but that you would only work with small groups of people and individuals for the remainder of the research.
- Use the first meeting to introduce the project and consult with the community, or trader group about its information needs. If the number of participants is manageable, carry out one or more of the participatory tools (such as maps, timelines, well-being ranking). If there are too many people, explain that you would like to work with smaller groups of people and arrange to meet them later or in a different place.

#### 3.2.2 Focus groups

- Most exercises only need 4-8 people and having more can make it difficult to control the process.
- Try to ensure that the smaller groups are fairly randomly selected from the whole community when trying to get a representative mix of people. However, for topics where it is useful to work with a specific group, e.g. specialists in NTFP processing, cultivating or trading, these can be identified using the 'snowball' technique, in which one specialist provides the name of another, and so on.
- In some cases, the perspectives of different groups may be important: gender, age, ethnicity, well-being (e.g. when trying to gauge the possible impact of different NTFP management strategies on more or less poor households, or part-time traders).

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- Groups of people can be placed into different well-being classes using participatory well-being ranking (see Pretty et al., 1995; or Geilfus, 2000, for methods). A similar number of representatives (e.g. households, individual traders, processors etc) can then be selected at random from each group and exercises carried out separately with each group.
- It is not necessary that the same people are involved in all the exercises but it is important to agree how individuals are selected for the different exercises. Where research is being carried out in different communities, the method of selecting focus groups for a particular activity should be as consistent as possible across the different communities. This will help ensure that the results are not biased by the method of selection being different in the different communities. It is also important that all the participants of the exercises understand the overall process they are part of (i.e. are invited to the introductory and feedback meetings).

### **3.2.3 Key informants**

- May be internal or external to the community, market place, etc
- Include people in positions of authority (e.g. chiefs, teachers, forest officers) as well as individual specialists identified by word-of-mouth (e.g. specialist producers, particularly successful traders, innovative processors, etc.)
- Important not to rely entirely on information from a single person, but to check against other info sources.
- Do not solely work with more dominant or vocal individuals!

### **3.3 ANALYSIS**

The aim of participatory rural appraisal (PRA) tools (as detailed in chapter four) is for at least a preliminary level of analysis to be carried out with the communities themselves, usually as a precursor to planning action by or with the community. PRA tools can also be used in a more extractive way (usually referred to as Rapid Rural Appraisal or RRA) if great care is taken not to raise community expectations that action will follow. Returning the information generated from such RRA work is important in building trust with the communities. Chapters six, seven and eight describe methods where there is probably need to take analysis outside the community. This should continue to be a participatory process. Where data analysis requires the use of computers and possibly professionals from outside, there is also a need to present back the results and discuss if the conclusions drawn fit with local reality. The following process is suggested:

1. Where possible analysis, even if only of a preliminary kind, should be carried out with the communities.
2. Where the research involves creating diagrams (e.g. maps, calendars), these should be copied for the communities and care taken to annotate any symbols or local names used so that somebody who was not present during the exercise can easily interpret them.
3. For analysis carried out outside the community, results should be presented back to validate the process of the analysis and to verify the results and information generated.
4. Information generated by both types of analysis should be returned in a format that will be useful for the communities in their future decision making processes.



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### 4 PARTICIPATORY RESEARCH AT COMMUNITY LEVEL

#### 4.1 INTRODUCTION

This Chapter addresses key thematic areas that underpin successful NTFP commercialization at community level. The overall aim of this section is to provide the researchers with all the elements needed to undertake a value chain analysis at community level. This section aims to generate and analyse, contextual information pertaining to community organization, socio-cultural factors, resource use and management and technical capacity, providing the stepping-stone into a more quantitative analysis in sections five, six, and seven. These sections address enterprise budgets, market trends and value chain analysis respectively, using much of the background information generated, as commercialized products progresses along the value chain.

Outputs from this community level research phase include:

- Stakeholder expectations agreed and objectives of NTFP commercialization listed;
- Evaluation of the legal and policy framework within which the community is located;
- Identification of income generation activities and other livelihood activities, and details of expenditure;
- Evaluation of the natural resource base, tenure, access and use throughout the community across different user groups;
- Identification of products already collected and traded, and additional ones with potential;
- Evaluation of the technical capacity available for NTFP production processing and trading.

This manual will focus on providing sufficient information for readers with some exposure to RRA/PRA to carry out the methods, while highlighting issues of particular significance for NTFP commercialization. It is assumed that the research will be followed by some kind of action at community-level and therefore suggests the use of RRA/PRA methods. If no action is intended, researchers need to be very aware of the possibility of raising false expectations and modify the tools as necessary.

As with every exercise, the researchers should be aware of and be prepared to manage the following issues, for example:

- mapping exposing boundary disputes,
- seasonal calendars missing information if carried out in the 'wrong' season
- institutional diagrams highlighting power imbalances
- difficulties in eliciting information about what are formally considered to be illegal practices (e.g. harvesting certain resources might not be mentioned in transects or in timelines), etc.

The tools in this section draw heavily on rapid rural assessment and participatory research approaches (RRA / PRA). For general information on how to use these tools and methods suggested reading includes:

- Pretty, J.N., Guijt, I., Thompson, J. and Scoones, I. 1995. A Trainer's Guide for Participatory Learning and Action. IIED Participatory Methodology Series. International Institute for Environment and Development, London.
- Geilfus, F. (2000). Estrategias campesinas. *Marco de análisis para el desarrollo rural*. Programa PROLANCHO, Tegucigalpa, Honduras.

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Some of the key tools that were used by the CEPFOR project to collect and interpret community context data are presented below, with an indication of the kinds of questions that different tools can be employed to answer. The tools include:

- Setting community objectives
- Use of secondary data
- Resource mapping: product identification and access and tenure
- Timeline: community history
- Transect to discuss land use
- Matrix on NTFP production and land management
- Land and tree tenure discussion
- NTFP preferences
- Seasonal calendar: analysing activities and resources
- Income and expenditure calendar
- Institutional support discussion
- Interview checklist with producers and/or processors
- Trader interview checklist
- Preference ranking matrix
- Factor checklist.

This is by no means a definitive list of tools and methods, and the authors recognises that there are many different tools to collect information. However, the implementation of these tools and methods will provide a good basis for the community context of NTFP commercialization and key data and information for the quantitative analysis described in following chapters. The following sections provide a brief description of each tool or method.

### 4.2 SETTING COMMUNITY OBJECTIVES

At the outset of any intervention, research or project implementation, it is important to agree project expectations with project stakeholders and document their objectives for NTFP commercialization. Direct engagement with communities and other stakeholders in the NTFP value chain can identify criteria of success and discuss the trade-offs that might be needed between them. The tool can be used to explore a variety of issues including whether:

#### Objectives

- To gather detailed information about the potential impact of NTFP commercialization on producers, processors and traders, to establish community perspectives of successful NTFP commercialization.
- To identify aspects of livelihood which are directly affected by NTFP involvement.
- To establish if the community wants to:
  - improve commercialization of an existing NTFP, or start on a new one;
  - improve the lot of a few producers or wants everyone to benefit;
  - achieve its objectives through community organization or on an individual basis.
- To develop from these a series of culturally appropriate indicators based on community definitions of success that also reflect various capital assets. This forms the basis for a system to enable impact to be monitored on a continuous basis.

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- To select most appropriate facilitators for community evaluation and train them in basic methodological principles for future community evaluation sessions.
- To establish importance of community participation and evaluation and agree on most appropriate methods for recording.

### With whom?

We recognize that communities are socio-economically heterogeneous, and productive activities have distinct impacts on different groups. There is therefore the need to consult representatives from all relevant subgroups in order to capture distinct views and experiences. These should include poor/rich, young/old, men/women, NTFP collectors, producers and traders as well as people not directly involved in NTFP commercialization. The activity should be carried out with as many community members as possible, as well as the staff of relevant organizations providing community support in the field of NTFP commercialization.

### How?

1. Researchers should arrange for these different groups to meet together in a workshop scenario.
2. Beforehand, project researchers should identify an overall facilitator (*someone preferably with a social science background or with participatory planning experience and who is aware that what is needed is not an "expert" in the theme, but rather someone to direct the workshop sessions towards the achievement of their objectives and to ensure the widest participation possible*). In addition, facilitators will be needed for each of the working groups.
3. In a plenary session, get individuals to introduce themselves very briefly and identify their relationship to NTFPs (collectors, traders, etc). Explain the objectives of the workshop and the next session. Ask participants to list all the different groups of people who are involved in NTFP activities. Are they all represented amongst the current participants? Any additional groups of people affected by NTFP activities? This then constitutes a checklist against which the facilitator can later check that impacts have been considered.
4. Divide workshop participants into at least two groups, including at least one male and one female group, each including a mix of representatives from the different sub-groups. Seat them in a circle.
5. In these groups, individuals are asked to record on three separate reference cards, three ways in which their lives have changed as a result of NTFP commercialization. Attention should be paid to the literacy levels of group participants and help offered for those who would like assistance in noting these down. *It might help to get groups to think about before and after situations regarding the adoption of specific NTFP commercialization strategies in order to help them identify how livelihoods may have changed.* Also, mention the need to identify not only the positive impacts of NTFP trade but also any possible social costs encountered (particularly relevant to women, who may face situations such as increased conflict with husbands or increased pressures on their time as a result of their involvement in commercialization processes)
6. Individuals place these cards on a table or on the floor in the middle of the group. Through discussion, each group then works to sort their cards into related themes and to rank them according to degrees of importance.
7. In a plenary session, the focal groups then share their sets, posting them on the wall. A general discussion follows, with additional comments made by the facilitator who will prompt

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the session to consider additional livelihood assets (identified during the project by partner organizations) if these have not yet been raised and with a view to maximize components covered.

8. The facilitator should then attempt, but not push, to get consensus on the most important impacts. In a general discussion, the facilitator should open discussion about the differences between men and women. Is it possible or even desirable to create one collective community list, or are the issues raised by the men and women so distinct that it is preferable to keep the two separate? Is it possible to identify the ten most important impacts? Have all the groups identified on the checklist from the first plenary been considered?
9. Individuals then return to their original groups and the facilitator will explain that by looking at the impacts of NTFP commercialization on different aspects of livelihoods, the above exercise contributes to our understanding of how human and ecosystem wellbeing interacts. Having already explored how the commercialization system impacts on livelihood, what is needed is to isolate the desirable impacts and to establish definitions of success by which the community can evaluate NTFP commercialization in the future. This will then help them define whether NTFP commercialization is desirable and what might need modifying or developing in order to achieve positive impacts.
10. Groups then discuss and define a set of definitions of success. Bear in mind that most of these will correlate directly to the ten most important impacts. Also be aware that where negative impacts were previously identified, these can be re-articulated in the opposite to represent a definition of success, such that, for example, an impact of “increased time collecting in the forest”, could be converted into a definition of success as “less time away from the home”. Likewise, the impact of “increased conflict between husband and wife” could be articulated as a success where there is “increased husband-wife collaboration”.
11. In a plenary, the facilitator will attempt, but again not push, to establish agreement on priority definitions of success. How are these different from impacts? Is there a direct correlation between the impacts and definition of success?
12. The whole community should then be involved at the end of the research phase to help determine the plan of action. It can explore:
  - the capacity of the group to respond to commercialization opportunities;
  - the external factors which may prevent participation, including legal, which affects access and resource use, and migration;
  - the internal factors which may prevent participation including community norms, well being, and traditional expectations of gender roles, the elderly, children etc within the same community, on resource use and access;
13. The direct and indirect potential impacts of the proposed; commercialization on the community i.e. to ameliorate any subsistence use being adversely affected by trade).
14. A second and final phase, developing indicators for monitoring and evaluation, is detailed in Chapter 8.

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### 4.3 USE OF SECONDARY DATA

#### Objectives:

- To provide a context for data collected in the community.
- To allow for triangulation between different data sources.

#### With whom?

- Literate members of the community or outsiders working in or with the community (e.g. teachers, pastors, NGO or government staff) may be able to help collect materials available nearby (e.g. census data, maps (e.g. from logging permit applications), school enrolment figures, health unit figures).

#### What?

- Maps (historical as well as present-day)
- climatic information, forest inventories
- aerial photos if available
- reports by other projects or local authorities
- dissertations
- household lists (someone may need to be sent to draw a sketch map with the households marked) and census information
- journal articles and newspaper reports

#### Analysis

The secondary data need to be analysed to extract information related to the main aims of the research, preferably before the bulk of the community level work starts.

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### 4.4 RESOURCE MAPPING: PRODUCT IDENTIFICATION AND ACCESS AND TENURE

#### Objectives:

- To map basic community infrastructure and access routes.
- To identify the different types of land-use within the community, their distribution and their tenure status (who owns them, who takes decisions about them)
- To investigate the distribution of NTFPs (both cultivated and 'wild') across different types of land use.
- To investigate access to different NTFP resources (including different forms of land/ tree tenure, where not too sensitive) by different groups of people.
- To identify different types of NTFP resource management.
- To discuss changes over time in all the above, through trend data.

#### With whom?

Preferably separately with a group of men and a group of women to understand their different viewpoints. As appropriate, can also do this with other obvious groups in the community (e.g. poor / rich, young / old, NTFP collectors / non-collectors).

#### How?

1. Identify a suitable area of ground for the map (or piece of paper if necessary).
2. Collect a few markers / indicators to compile a map (e.g. sticks, stones, wood ash, flowers, leaves etc.), agreeing what different objects represent.
3. Discuss reasons for wanting a map with participants.
4. Discuss different categories of land-use with participants (if they are not mentioned, ask about particular types of local land use, e.g. solar, food crops, fallow land, cocoa plantation, other plantation, forest of various types [list to be defined with key informants]).
5. Ask people to choose one person to draw the map (try to avoid everyone trampling over the map), and hand over the stick / pen.
6. Help people get started with clear instructions (e.g. by suggesting they start with a river or a road), but let them draw the map themselves.
7. Do not worry about the scale or exact orientation – the map is more important as a tool for discussion than as an exact image of reality.
8. Use symbols to indicate different land uses, etc, rather than drawing on paper as symbols allow people to change their minds more easily.

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'Interview the map', using a checklist of questions, that could include:

- Who are your nearest neighbours (in the community)?
  - Where are the neighbouring villages and towns?
  - Where is the main market? What kind of transport is available? How long does it take to get there?
  - What infrastructure exists in the village (ask about church, school, meeting house, water sources)
  - Where are your farmlands found?
  - What types of crops are grown most?
  - How do you grow them (in what combination)?
  - Do men and women have their own/separate land?
  - Where are the forests found?
  - What types of NTFPs do you collect?
  - From where are they harvested? Have they always been collected from here or has their distribution changed? [ask about some key dates (e.g. marked by a natural catastrophe or political event) in the past, identified with the help of a key informant or a historical timeline].
  - How long does it take to get there (and back)?
  - Is there anybody in the community who is regularly involved in collecting NTFPs from the forest? Who owns these resources? Are they managed in any way?
  - Are these NTFPs only found in the forest?
  - If also found on farms, are they planted or simply managed (i.e. natural regeneration)?
9. Suggest that the different groups present their maps to each other.
10. Make copies of the map for the community and for the research team.
11. Use the map to identify one or more areas to visit with community members, possibly at a different time, to follow up on the questions above.

### Further notes:

- The map can form the basis of developing further tools. For example, the different land uses identified from mapping can be used with the cross rank matrix to further explore where different NTFPs come from, who has access, preferred products and why, etc.
- Caution! If boundaries or access rights are uncertain, this may be a sensitive subject and could lead to some heated discussion.
- Landless families, or those without title deeds, may feel their contribution to resource mapping exercise is limited, or less valued. Often these people can rely more extensively on "wild resources". Ensure that their views are captured in separate discussions.

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### 4.5 TIMELINE: COMMUNITY HISTORY

#### Objectives

- To understand the history of the community (or part of community).
- To identify and investigate events in the past (relating to resource use and market trends changes) which had a major impact on rural livelihoods and land use (particularly as relates to NTFP use).
- To establish reference dates/markers for use in other changes over time exercises.
- To help understand recent trends and long-term dynamics which may alert us to possible future changes.

#### With whom?

Key informants (community leaders, elders); small groups of people - usually choose a few older people (can separate men and women) and one or two respected younger members of the community

#### How?

1. Ask the person who has lived in this area longest to identify the first major event which changed people's livelihoods in this area
2. If possible, identify the date (rough estimate is ok) - other key informants may be able to help later;
3. What were livelihoods like before this event? Use of NTFPs?
4. How did they change with the event? Why?
5. What was the next major event? Ideally, identify events at 10 to 15 year intervals, and distinguish between national and local events
6. How did livelihoods change? Why?
7. Continue the process...
8. Prompt with checklist:
  - Have there been any boundary changes in the community?
  - What is the ethnic make-up of the community? Have there been any changes over time?
  - Have there been any infrastructural improvements like new roads, schools or markets?
  - Has there been any project (church, NGO) intervention?
  - Any innovative new activities in the community?
  - Impact of national policies and administrative changes, e.g. on NTFP use.

#### Analysis

Analysis can be carried out and recorded in matrices with the communities e.g a chart to detail the date, describe the event, and examine community perceptions of the impact of that event (Table 3).

**Table 3. Example of a timeline that captures changes and trends in a Mexican village.**

DATE	EVENT	IMPACT
1960	New tarmac road from Oaxaca	Easier access to market, therefore move from growing food crops to growing crops for market
1985	School built in neighbouring village	Children no longer available to work on the farm, therefore more use of hired labour



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### 4.6 TRANSECT TO DISCUSS LAND USE

#### Objectives

- To become familiar with the community's surroundings.
- To observe harvesting practices and areas.
- To discuss competing land uses and other pressures on the resource.
- To crosscheck information obtained during the mapping exercise and the timeline.

#### Who with?

Following on from the community mapping exercise, choose an area to explore with a small group. Can be useful to carry this out separately with different NTFP users.

#### How?

Allow participants to guide you to areas they consider interesting. Observe and discuss along the way. If the season is right, it may be useful to participate in harvesting expeditions. Use the checklist in the previous exercises as well as the following questions:

1. Who maintains paths or access routes?
2. Are there any threats to particular land uses?
3. Is there evidence of over-harvesting of the NTFP?
4. What are the particular challenges and costs of harvesting the NTFP?
5. What are the levels of NTFP production of different areas? How variable are yields between seasons and years?
6. Are there any problems with pests and diseases?
7. What kind of management is carried out?
8. How are outsiders excluded?

#### Analysis

Use information on production levels and harvesting costs (time and inputs) to help elaborate the enterprise budgets (Chapter 5).

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### 4.7 MATRIX ON NTFP PRODUCTION AND LAND MANAGEMENT

#### Objectives

- To understand how community production and management (land use) has changed over time.
- To identify trends relating to availability (and quality) of NTFPs in the forest and cultivation of NTFPs on farms. Who is involved? If there have been changes, why have they occurred?
- To understand how land and tree/NTFP tenure works, and how this changes in space and time.
- To crosscheck information obtained during the mapping exercise and the timeline.

#### Who with?

Can be done in a number of ways. Probably best as a semi-structured discussion with a small group of participants (possibly men and women separately, but mixed ages).

#### How?

1. Refer to the community maps and/or the timeline to remind participants of different land use types that exist in the community. Symbolise each land use type with leaves or fruit.
2. Draw boxes showing the different land use types. Ask participants to indicate the proportional sizes of each at the present time, putting different numbers of beans/stones on each type e.g.

Maize / Rice	Fallow	Cocoa	Coffee	Bananas	Forest
xxxxxxxxxx	xxxxx	xxxxx	xxxx	xx	xxxxxxxxxx

3. Discuss changes in land use over time by referring to certain marker dates in the past (from the timeline) and asking whether the land use proportions were the same at that time.
4. Also ask about overall changes in the size of land available to the community.
5. Discuss the location and quality of NTFP resources
  - Give participants a handful of beans and ask them to indicate on the ground in which land use type the NTFP occurs most frequently in the wild.
  - Has this distribution changed over time? (The distribution at different dates can be represented by additional lines added to the basic land use diagram above).
  - Has the quality of the NTFP changed over time? (e.g. it may be harder to find large/mature plants today than in the past; plants from certain environments may not be as tasty, etc.).
  - If they are planted, ask them to indicate in which land use types this occurs (e.g. by asking them to pretend the beans are seedlings and asking them to 'plant' them where they would like them – note that this exercise could be used to ask people how many NTFP trees/plants they 'actually' have in each land use type as well as how many they would 'ideally' like to have in each land use type. Both pieces of information would be useful.)
  - If people have the NTFP in their fields, is it simply protected during field clearance or is it planted? If planted, how many do people plant each year on average? Are they simply replacing old or non-productive individuals or are they adding to their stock?
  - Has there been a change in the quality of NTFPs people plant -different varieties available?

#### Analysis:

Determine in which types of land use (and tenure) the NTFP currently occurs, whether there are constraints to production levels and whether/where different people would like to increase access and/or production levels.

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### 4.8 LAND AND TREE TENURE DISCUSSION

#### Objectives

- To understand specifically the prevailing land and tree tenure systems and how these have changed over time.
- To understand whether the tenure system may be a constraint to NTFP use by different groups of people (both internal and external to the community).

#### Who with?

This exercise could be done as a continuation of the timeline or the community mapping with the same group of people. Otherwise select another small group of people with some older and some younger members, and triangulate findings with the resource map exercise.

#### How?

1. Ideally ask one or more key informants about the land and tree tenure situation before-hand in order to determine whether there are any difficult topics that need to be approached carefully.
2. Refer back to the timeline and the community maps and prompt with a checklist of questions:
  - What is the land tenure situation? Is there enough land for all?
  - How do trees fit into this system [This is particularly relevant if the NTFP is a tree product; otherwise also ask about bromeliads, mushrooms or whatever plant form the NTFP is extracted from]? Who can plant/harvest/cut/sell trees?
  - Is tree tenure different if a man or a woman plants the tree? Does it make a difference if the land belongs to a man or a woman?
  - Go on to ask broadly about harvesting non-timber forest products – Who has rights? Who does it? Why?
  - How are tenure and access rights enforced? Are they changing? (it may be, for example, that trees are becoming increasingly ‘privatised’ as their market value increases)
  - Specifically ask about the NTFP concerned – Do they use the products? Do they collect from the wild or cultivate the plant/tree? When did they start planting? On what kind of land? What happens to the plants/trees if land use changes?

#### Analysis

Determine the main forms of tenure in which the NTFP occurs, and which ones are most easily accessible for any people who are particularly dependent on use of the NTFP. Discuss whether further development of the NFP resource (e.g. domestication and/or management) should be concentrated on any particular tenure type.

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### 4.9 NTFP PREFERENCES

#### Objectives

- To establish a list of NTFPs used in the community and identify which are preferred and why.
- To compare results between different groups, e.g. men/women or rich/poor.
- To be used if the community is trying to decide which NTFP, out of several, to select to take forward and commercialize.

#### Who with?

Separately with groups of men and women, and maybe also with old, young, poor, rich.

#### How?

1. Ask the participants to list all the NTFPs they use. Prompt with additional species [from a checklist based on key informant information] if necessary.
2. Discuss which are the most important NTFPs overall. Make a list of the 6-8 most important species. If the main NTFP being investigated by the project is not included, ask for it to be added to the list but be sure to note that this was your choice rather than the participants'.
3. Collect leaves or fruit to symbolise each species.
4. Discuss the advantages and disadvantages of each of the species. If necessary, prompt with questions about:
  - Market value
  - Consumption value
  - Medicinal value
  - Wide availability of (and access to) the resource
  - Reliability of production from year to year
  - Easy harvesting/processing
  - Where relevant, ease of domestication
5. Be sure to note which criteria participants mentioned, and which you had to prompt for.
6. Make a list of these criteria. Turn negative criteria into positive ones (e.g. 'has inconsistent yield' should be phrased as 'has consistent yield'). Make sure that the criteria are independent and can apply to all or most of the species.
7. Draw a matrix with the species along the top and the criteria down the side. Find symbols to identify the different criteria (e.g. coins for market value, spoon for food value, etc.). Note that you may end up with different species and criteria in the men's and women's matrix.

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8. Ask the participants to fill in the table. A different person can fill in each row. Give them a fixed number of beans per row (approximately 5 per cell) to distribute across the row. The number in each cell reflects how well a particular species meets that criterion.

- e.g. Using 20 beans per row:

	Pita	Hongos	Copal	Ornamentales
Market value	xx	xxxxxxxx	xxxx	xxxxxx
Consumption	xxxx	xxxxxxxxxxxx	xx	xx
Reliable yield	xxxxx	xxxxx	xxxxxx	xxxx
...				

9. Try to get the group to reach a consensus decision, but follow-up any obvious disagreements with more questions to discover why.

### Analysis

- Discuss relative importance of different criteria – but don't do a separate matrix for this. Give group beans to rank the criteria in order of importance [or carry out preference ranking activity – see 4.15].
- Ask participants about possible substitutes for each of the species they consider important, e.g. if the NTFP did not yield well in a particular year, would they purchase it from elsewhere or invest in some other product/activity instead?
- Try to reach a consensus decision about which NTFP(s) to focus on
- Make a copy of the matrix for the group/community before leaving. This can then be used as background information for exercise on the preferred characteristics of the main NTFP being investigated.

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### 4.10 SEASONAL CALENDAR: ANALYSING ACTIVITIES AND RESOURCES

#### Objectives

- To establish a list of all the main activities carried out in the community and identify when these activities are carried out and by whom (distribution of workload between men and women).
- To establish regular cycles or patterns of activities involving tree and forest products over a given period.
- To identify the main labour bottlenecks during the year and periods of the year at which labour is less of a problem.
- To understand whether NTFP activities occur at 'difficult' or 'easy' times of the year.
- To present diverse information in a common time frame (compares monthly village activities).

#### Who with?

Separately with men and women, producers, processors, etc (as appropriate). The informants from the target group should be diverse, so that there are men and women and young and old people, and that income, ethnicity, etc.), is represented which will facilitate comparison between different groups.

#### How?

1. Discuss the different seasons of the year with participants. Establish whether participants are happy talking about months or whether they prefer to talk about seasons or particular 'marker' activities. What month or season do they consider to be the 'beginning' of the year?
2. Draw a table with the seasons/ months in the top row, starting with the 'beginning' of the year as specified by the participants.

Main activities (below)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

3. Ask participants to list the activities they (or other members of the community) carry out during the year, choosing symbols to represent the main ones, with a separate row for each activity.
4. Ask participants to indicate the labour involved in each activity during the year, using different amounts of beans to represent the intensity of work. Ask who does which activity (men, women, children, hired labour).
5. Ask about activities related to the NTFP and when these occur (planting, maintenance, harvesting, processing, storage, marketing, selling). Discuss who carries out the different activities and how. Do these activities vary greatly from year to year (e.g. what happens if there is a very poor or very good harvest?). Ask what forest and tree products are harvested/collected, when, and by whom.
6. After finishing all the individual activities, give participants a pile of 50 beans (you need not mention the number) and ask them to distribute them across a final row to indicate the busiest months/seasons for labour overall. Are there periods of labour shortage or surplus?

#### Analysis

- If they wanted to increase their NTFP-related activities, how would this affect the overall labour calendar? Who decides how labour should be allocated? How could any labour constraints be resolved?
- Make a copy of the diagram for the participants.

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### 4.11 INCOME AND EXPENDITURE CALENDAR

#### Objectives

- To identify the main sources of income and reasons for expenditure in the community, and the time of year at which they occur.
- To see how NTFP-related activities could contribute to improving incomes or overcoming expenditure bottlenecks.

#### Who with?

Income and expenditure discussions can be sensitive. Therefore, first work with key informants to establish which are the most important (or most difficult) issues. Then work with a small group of participants (4-8), separating men and women.

#### How?

1. To avoid embarrassing participants, talk about *relative* income and expenditure rather than *absolute* amounts.
2. Ask participants to list the kind of income-earning activities they do. Draw a matrix with the main (6-10) activities down the side, each represented by a symbol. If the NTFP activity is not mentioned, ask whether it can be added to the list (but note that this is your choice).
3. Ask participants to indicate the relative importance of the different activities by giving them a fixed number of beans to distribute between the boxes. Make sure that participants have a clear idea of what 'important' means, a suggested definition would be the total income that can be earned from an activity in a year.
4. Mark the months/seasons across the top of the matrix (if you are working with a group which has already done a labour calendar, you can use the same system; otherwise you will need to discuss the participants' perception of time first). Ask participants to indicate (using as many beans as they wish) at what time of year they earn expenditure from each activity.
5. Repeat the same exercise to ask about main items of expenditure in a year, their relative importance and their timing. Expenditure items can be shown on the same calendar underneath the income-earning activities, or drawn on a separate calendar. You can prompt by asking about the following items:
  - Agricultural inputs
  - Food
  - Drinking, Entertainment
  - Education
  - Health
  - Transport
  - Household goods
  - Building materials

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### **Analysis**

Analyse the calendar with the participants, using the following checklist:

- Are there times of year when there is high expenditure but low income?
- How could these difficult periods be overcome?
- Are NTFPs an important source of income for farmers? Are they more important for some people than for others?
- Who do they provide an income for (men/women/elderly/rich/poor)?
- What kind of income is it (all-year round/seasonal/emergency)? How does this fit in with other sources of income?
- What proportion of total income is provided by NTFPs? Can this be substituted by other activities?
- How important is this income relative to expenditure?
- How many (and what kind of) people rely on this kind of income?
- For products that can be consumed or sold, ask about the balance between consumption and sale. Does this vary depending on how good or bad the harvest is in a particular year?
- How much investment is required to achieve NTFP income?
- How do market prices/structures influence the income obtained?

Make a copy of the diagram for the participants.



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### 4.12 INSTITUTIONAL SUPPORT DISCUSSION

#### Objectives:

- Discuss information sources.
- Discuss sources of credit and other inputs required for NTFP commercialization.
- Analyse role (current, past and desired future) of various community organizations in supporting commercialization.
- Understand how the national legal and policy framework impacts on local practices.
- Address issues of social capital, impact of commercialization on community networks (also more specifically on gender and other community groups).

#### With whom?

Work with a small group of people representing different stages in the value chain within the community.

#### How?

1. It may be useful to refer back to the community map, if this indicated support infrastructure (e.g. NGO or other office, community meeting space, etc.). It can also be helpful to draw a circle representing the community (or a specific group of producers or processors) and indicate their links to support networks or organizations through short or long lines to other circles.
2. Discuss using the following checklist:
  - What technical or other support is available for NTFP commercialization (at producer / cultivator, processor and trader levels)?
  - Are there any community-based organizations, external organizations, or key individuals providing support?
  - Who benefits from any support that is provided?
    - Women?
    - Ethnic groups?
    - Members only? If so, who are members and how do you become one?
  - Are there any other organizations that could become interested in NTFP commercialization?
  - What are the key information constraints in producing, processing and marketing the NTFP?
  - What are the key normative constraints in producing, processing and marketing the NTFP?

#### Analysis

Identify key bottlenecks in information provision and possible organizations that might be able to provide different kinds of support.

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### 4.13 INTERVIEW CHECKLIST WITH PRODUCERS AND/OR PROCESSORS

#### Objectives:

- Obtain more in depth information around a particular area, such as NTFP harvesting production, cultivation, domestication, preferences, presence of substitutes, market trends, etc. from a “specialist group”.
- As appropriate for the product and community, investigate detailed costs and benefits of resource management, harvesting, processing and trading.
- Identify all the costs associated with each activity including labour, costs of permits, access to information, etc. [think in terms of social capital].
- Identify all the benefits associated with each activity.
- Define profit margins for different types of ‘actors’.

#### With whom?

- Identify the specialist group you wish to interview – this could be collectors, cultivators, processors or different sub-groups of these.

#### How?

1. Convene meetings when it suits the participants. If discussing harvesting or processing, be prepared to participate in the activity
2. Prompt with the following checklist:
  - Describe the whole process of production/processing.
  - What are the key challenges?
  - What are the costs involved, including time?
  - What are the benefits, including non-cash benefits if any?
  - What losses are encountered during harvesting, transport, processing?
  - How do qualities vary? What impact does this have on price?
  - Who sets prices?
  - Are production/processing activities combined with other activities? Who does them?
  - Are producers and/or processors organized in an association? What is its role?
  - Are there community regulations/norms relating to the production/ processing of the NTFP?
  - Is there equitable access to the resource in the community?

#### Analysis

- Determine key challenges for producers/processors and opportunities for overcoming any constraints.

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### 4.14 TRADER INTERVIEW CHECKLIST

#### Objectives:

- Obtain more in depth information around a particular area, such as NTFP grades, trends in prices and volumes sold, consumer preferences, clarification of activities performed, etc., from a “trader”. This type of interaction is more likely to occur in an individual rather than group setting, as some information may be sensitive.
- Confirm and compare the information gathered from focus groups, for community level trade, and participant observation from the market place. This triangulation of data from different sources helps to ensure the reliability of data interpretation.

#### With whom?

- Identify the traders you wish to interview – they may be seasonal / part -time, mobile, fixed to one location, trade a variety of goods. Where traders are women, try and have a female interviewer, and again, try and identify several people at each interview location to improve representativity where possible.

#### How?

1. If time permits, try to establish a rapport, purchase goods, visit the marketplace regularly, and talk informally to traders. If possible do not produce an interview checklist until you have met several times informally, and gathered notes.
2. Convene meetings when it suits the trader.
3. Be prepared and have a checklist of questions ready, but always ask permission to write things down.
4. Maintain flexibility for them to have their own questions.
5. Prompt with following checklist:
  - How did the trader begin in this trade?
  - What kinds of characteristics are important to succeed as a trader?
  - Membership of networks or trader organizations?
  - What are the challenges of being a trader?
  - Who sets prices? How do they vary by quality?
  - How do prices vary over time? By season and year?
  - How do volumes vary? Typical sales amounts?
  - What are the foreseeable trends in demand and supply? Where do traders obtain such information?
  - Is trade of the NTFP linked to trade of other products?
  - Are there any substitutes on the market?
  - Are there competing trade routes?
  - Does this trade have a future or are there better livelihood options?

#### Analysis

Determine what kinds of transaction costs traders face. How secure are current trade routes? What potential is there for traders to organize themselves and/or for them to cooperate more with communities?

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### 4.15 PREFERENCE RANKING MATRIX

#### Objectives

- To understand why different people like (or dislike) the principal NTFP selected for research.
- To explore how disadvantages of the NTFP might be countered (e.g. through better management of the resource, domestication, different processing, new marketing routes).
- To investigate whether differences in quality can lead to differences in price obtained.

#### Who with?

- Separately with different community groups as appropriate, e.g. men and women, collectors, processors, traders.

#### How?

1. Discuss the different characteristics participants like and don't like about the NTFP. Be very clear about why they do/don't like particular characteristics (e.g. for commercial value or subsistence use). If they are not mentioned, prompt with questions relevant to the NTFP, e.g:
  - Ease of collection, processing, trading
  - Use for home consumption and for sale
  - Others – may be taken from the matrix on preferred NTFPs (see activity 4.9)

Be sure to note the characteristics mentioned by participants and those you have to prompt for.

2. Try to make sure that the characteristics are independent of each other. If too many characteristics are mentioned, ask participants to reduce the list to the 6-8 most important.
3. Find symbols (or use pictures drawn on small cards) to indicate each characteristic.
4. Draw a matrix with the characteristics along the bottom and along the side (in the same order).
5. Fill in half of the matrix (other half is a mirror image). For each pair of characteristics ask the participants to decide which is most important for them and mark the cell with a symbol/picture of that characteristic. Count the numbers of times each characteristic has appeared inside the matrix and assign ranks:

**Table 4. A preference ranking matrix to identify the most important characteristic which determines market value of copal.**

	Smell	Purity	Size of lumps	Consistent quality	Colour	Ignitability
Smell (S)						
Purity (P)	S					
Size of lumps (L)	S	P				
Consistent quality (Q)	S	P	Q			
Colour (C)	S	C	C	C		
Ignitability (I)	S	P	L	Q	C	
Number of times mentioned	5	3	1	2	4	0
Rank	1 <sup>st</sup>	3 <sup>rd</sup>	5 <sup>th</sup>	4 <sup>th</sup>	2 <sup>nd</sup>	6 <sup>th</sup>

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### **Analysis**

- Have a more general discussion with the participants about the results to investigate their technical knowledge about these different characteristics; how can the good ones be maximized? are they aware of the existence of varieties with better qualities? do they know of management techniques that can be applied to improve the desired characteristics?
- Make a copy of the matrix for the participants.
- A similar matrix could be used to investigate the main constraints faced by different people in marketing the product.

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### 4.16 FACTOR CHECKLIST

Presented in Appendix I is a matrix of all the factors influencing success, with suggested tools for data collection and analysis. The matrix serves as a comprehensive checklist of all the factors identified by CEPFOR as influencing success, and illustrates how many of the factors can be researched using different tools, and those in italics can be answered using several methods. It can also be used to evaluate how information from one tool can feed into the next, and where there is more than one tool to gather information on a factor, it provides the opportunity to triangulate the information, i.e. cross check it, and explore it further. The matrix also highlights which factors influencing success will be more difficult to research and analyse, which may be useful in designing and implementing a research plan. Depending on the tools, research and analysis may be undertaken with a key informant (KI), or as a small working group, or “focus group”. A focus group may comprise of specialists on particular issues, e.g. enterprise budgets, gender, access and tenure, community norms, etc. Working with focus groups may be a first step in researching a factor, and can provide the opportunity to identify additional key informants for further individual research.

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### 5 DEVELOPING AND ANALYSING ENTERPRISE BUDGETS

An enterprise budget is an economic representation of an activity, be it the collection, processing or marketing of an NTFP. It is a relatively simple tool, which makes it ideal when working with communities (see Galpin et al 2000 for a careful description of how it can be used as a participatory method). If well used, an enterprise budget can also be very powerful in identifying opportunities and constraints of NTFP activities.

#### Objectives

The objectives of an enterprise budget are to:

- Describe an NTFP activity through the simple representation of its inputs and outputs.
- Determine important inputs and examine efficiency questions of the key outputs and inputs.
- Compare the economic profitability and efficiency of different actors in the value chains. This requires that data have been collected from different collectors or actors in the NTFP value chain.
- Assess if changes from one form of NTFP activity to another are profitable and attractive.

#### With whom?

The enterprise budget can be used in two ways:

1. Within the community an enterprise budget can be developed using a modified seasonal calendar as described above. The interview could either be with a key informant or group with a focus on an NTFP activity. The participants would be asked to identify the outputs, labour and other inputs detailing their quantities, values and when they occur. The layout for this calendar would be as shown in Table 5.

**Table 5. Seasonal calendar format to develop a participatory enterprise budget.**

Output – Inputs	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Outputs												
Labour Inputs												
Other inputs												
Estimation of profitability	Value of outputs minus the value of inputs											

2. Data from the communities, supplemented with secondary data on prices can be used by an analyst who would perform enterprise budget analysis outside the community. The purpose of this is to carry out more detailed estimation of costs, their importance and the impact of changes in the availability of inputs and changes in demand for NTFPs.
3. To be of real value the information generated from the exercises described in 1 and 2 should be returned and retained by the communities and disseminated amongst forestry policy decision makers.

#### How?

The following section will describe how to develop an enterprise budget. This will be illustrated with an example of an enterprise budget developed for latex rubber processing in a community in Bolivia.

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### **Step 1: Outputs**

The first step in the construction of an enterprise budget is the identification of all the products from the activity, the quantity produced and value per unit of each product. It is also recommended basic raw materials are taken into account at this stage, but there is flexibility on this point. Some analysts prefer to include these basic inputs in the variable costs that will be described below.

It is recognized that some NTFP activity outputs maybe used within the same household, such as the consumption of mushrooms, or given away as gifts as part of a social obligation within the community. An enterprise budget includes these outputs and where possible places a value on them either by taking the local market value or asking the communities what value they would place on these outputs. Even if they are not valued they should still be included in the list of outputs.

In the latex rubber processing activity there were two products: bags and jackets. There was also the purchase of the latex to make these products. Table 6 presents the total or gross sales from this activity.

**Table 6. Estimation of the output for a rubber processing activity in a Bolivian community (modified from Rushton et al, 2004).**

				Value
	Unit	Quantity	Price	Total
<b>Output</b>				
Bags for rice (bolsas)	Unit	185	10.47	1,937
Miners Jackets (sacos)	Unit	160	19.85	3,176
Less the cost of the latex litre		425	4	-1,700
<b>Total sales</b>				<b>3,413</b>

This simple calculation provides information on the scale of the enterprise and can also be combined with key inputs and costs to examine efficiency issues. The latter will be discussed in more detail below.

### **Step 2: Variable costs**

The next step is to identify the costs that directly relate to the NTFP activity and that vary with the amount of NTFP produced. These costs are called **variable costs**. In general the most important variable costs for NTFP collecting activities are labour, but due to the difficulties of assigning values to family labour inputs these will be discussed separately in the following section.

In the rubber processing activity a number of variable costs were identified and these are presented with the quantities used, their unit price and their total value in Table 7.



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**Table 7. Estimation of the variable costs for a rubber processing activity in a Bolivian community (modified from Rushton et al, 2004).**

	Unit	Quantity	Value	
			Price	Total
<b>Variable costs</b>				
Fabric moulds for bags	Unit	247	2.5	617
Sulphur for bags	Kilo	3.08	12	37
Thread for bags	Unit	6.17	3	19
Paint	Unit	6.17	5	31
Firewood	Unit	6.17	5	31
Vinegar	Unit	6.17	34	210
Fabric moulds for jackets	Unit	267	2.5	667
Thread for bags	Unit	5.33	3	16
Paint	Unit	5.33	5	27
Firewood	Unit	5.33	5	27
Vinegar	Unit	5.33	34	181
<b>Total variable costs</b>				<b>1,861</b>

Again this simple calculation can be used to determine the relative importance of individual variable costs and the variable costs in general.

### **Step 3: Labour costs**

Step 3 involves the identification of labour used by the activity. While this sounds simple it is important to remember that labour may vary in terms of whether it is supplied by men, women or children, the skill levels of the labour used and if the labour input is seasonal. All these issues need to be taken into account in order to put a value on the labour as labour rates will vary with gender, age, skill and season that they are supplied. The seasonality of labour inputs is particularly important where NTFP commercialization activities are combined with agricultural activities that generally have seasonal peaks in labour demand.

In the case of the rubber processing activity only women's labour was used and there was no seasonality in the activity. The estimation of the costs of labour for this enterprise is presented in Table 8.

**Table 8. Estimation of the labour costs for a rubber processing activity in a Bolivian community (modified from Rushton et al, 2004).**

	Unit	Quantity	Value	
			Price	Total
<b>Labour costs</b>				
Women (bags)	Days	31	20	617
Women (Jackets)	Days	27	20	533
<b>Total labour costs</b>				<b>1,150</b>

Other activities will be more complex than the example provided above where there are labour inputs from men and women with different skills at different points in the year. What will be examined in more detail for this example in the analysis section is the estimation of returns to labour inputs.

### **Step 3: Fixed costs**

Some costs involve the purchase of equipment that lasts for more than one year, and which can be used by different activities within the family economy or livelihood strategy. For example a machete will probably last for 2 or 3 years and be used in the harvesting of NTFPs, the chopping of firewood and the harvesting of grain crops. Obviously it would be incorrect to assign the whole cost of this

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machete to an annual NTFP activity, as the machete will be used for more than a year and also in other activities.

These types of costs are called **fixed costs** and usually include:

- regular paid labour or permanent staff – including both paid labour and an estimate of the value of any unpaid (usually family) labour,
  - Where family labour inputs are divided into gender and age this should be recognized in the analysis and labour inputs separated into men, women and children
- depreciation on equipment, machinery, vehicles, some buildings etc. (see below for a further explanation of this concept and how to calculate depreciation),
- maintenance and repairs,
- fuel and oil costs, where these cannot be assigned to a particular enterprise,
- rent (both paid rent and estimated or 'notional' rent on land owned by the actor in the chain),
- gas, water, electricity costs where these cannot be assigned to a particular enterprise,
- paid management costs,
- paid interest (see below for a complete explanation).

While discussing payments to labour, it is worth mentioning payments in kind. Where casual or permanent paid staff are paid partly with produce, the **value** of such payments should be included as a fixed cost.

### ***What to do about depreciation?***

Depreciation is not a cash value cost, but an estimate of the amount by which the value of a capital item falls in a given period. Therefore it represents a cost of ownership of that item. The inclusion of such a cost in an enterprise budget is to recognize that in the future when this object needs to be replaced there is sufficient money available to do so. Where depreciation is not taken into account and the contribution of capital items is important there can often be a false sense of making large profits in the early years of a business. If this money is not reinvested during this period, problems could well arise when capital items need to be replaced. One of the common problems of many businesses is that replacement costs for capital items are not taken into account.

Depreciation may occur for three reasons:

1. Obsolescence
2. Gradual deterioration with age
3. Wear and tear with use.

The first two factors limit the economic life of a machine or capital item and the third limits the life of the item in terms of hours or days of use. In a NTFP context where capital items are of relatively low technology the most important reason for depreciation to occur is wear and tear with use. Therefore, where the NTFP activity is seasonal and practised for short periods of time each year, the number of years of life is likely to be much longer than for an activity that is increasing in intensity.

There are three common methods of calculating depreciation of which the diminishing balances and sum-of-the-digits methods are relatively complicated in comparison to the straight line method<sup>2</sup>. These complicated methods are also more applicable where there is a need to calculate depreciation for an item with a large degree of obsolescence. For example, in the case of a lorry, a computer or a processing machine where technologies change rapidly the value of such an asset will decline rapidly

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<sup>2</sup> See Annex ?? for an explanation on how to use these methods to calculate depreciation

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in the first year of life due to the purchased item being quickly replaced by newer versions with different technologies. For capital items such as basic tools, machetes, spades, etc., or buildings, the straight line method is preferred. It is generally more appropriate with many of the basic technologies used in the collection of NTFPs and household or village level processing. However, further along the value chain other depreciation methods will be needed for capital equipment with rapidly changing technologies to take into account the sharp decrease in their value in the early years of life.

In the example of the rubber processing activity, a sewing machine was identified as an important fixed cost. The cost of buying the machine was 500 Bolivianos<sup>3</sup>, which for a small NTFP activity would be a very large cost to bear in one year. However, the sewing machine was estimated to have a useful life of 20 years, but with no salvage value at the end of this period. Using the straight line depreciation method an annual cost of 25 Bolivianos was estimated for the sewing machine ((500-0)/20=Bs.25/year, see Table 9).

### **What to do about interest?**

In an enterprise budget it is a common convention to estimate interest as the interest charged on half the initial cost of any capital item<sup>4</sup>. For example the family involved in the rubber processing activity are estimated to have invested 573 Bolivianos in equipment, and the interest rate in the region was 20%. The interest included in the enterprise budget for this activity is (573/2)\*20% = 57 Bolivianos per year (see Table 9).

Table 9 presents an estimation of the fixed costs for the rubber processing activity in a Bolivian community.

**Table 9. Estimation of the fixed costs for a rubber processing activity in a Bolivian community (modified from Rushton et al, 2004).**

	Unit	Quantity	Price		Value Total
<b>Fixed costs</b>					
Equipment depreciation	Unit	Number	Price	Life (years)	
Sewing machine	Unit	1	500	20	25.00 25
Needles	Unit	1	0.2	0.2	1.00 1
Frames for bags	Unit	30	1	1	1.00 30
Frames for jackets	Unit	30	1	1	1.00 30
Bucket	Unit	1	13	5	2.60 3
Transport	Unit	6			50.00 300
Transaction costs (other)	Days	1			20.00 20
			Rate	Amount	
Interest	Unit	1	20.00%		57.32 57
<b>Total fixed costs</b>					<b>466</b>

Similar to variable costs, this calculation allows the identification of important individual fixed costs and whether fixed costs in general are important in the cost structure of the activity. Where fixed costs are relatively high in relation to other costs there is a need to increase the volume of NTFP collected, processed or marketed to reduce the cost per unit of NTFP produced.

### **Analysis**

The analysis structure of an enterprise budget estimates the output or gross sales, and splits costs into:

<sup>3</sup> Boliviano is the official Bolivian currency. In November 2005 the exchange rate was US\$=Bs.8

<sup>4</sup> Note that this simple method assumes simple rather than compound interest.

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1. Variable costs (The purchase of raw material has been included in the output section);
2. Labour costs (divided into men, women and children, skills and seasonality); and
3. Fixed costs (where equipment is used and this equipment has a usable life, straight line depreciation is generally used to calculate the costs, and interest costs are calculated based on half the value of the equipment multiplied by the lending interest rate).

However, further analysis is required to determine various measures of economic profitability and productivity measures. In addition, by combining information on total costs it is possible to identify key inputs to the NTFP activity, which should focus attention on how these costs can be controlled or reduced. Sensitivity analysis can be carried out on these costs to assess how far prices of these inputs can vary before making the activity unprofitable. A brief description of these key analysis methods is provided in the following sections.

### ***Gross margin analysis***

A gross margin is defined as the enterprise output less its variable costs:

$$\text{ENTERPRISE GROSS MARGIN} = \text{OUTPUT} - \text{VARIABLE COSTS}$$

In the NTFP analysis this should be varied a little to have a gross margin as explained above and a gross margin less labour costs:

$$\text{ENTERPRISE GROSS MARGIN (less labour)} = \text{OUTPUT} - \text{VARIABLE COSTS} - \text{LABOUR COSTS}$$

### ***Enterprise profit***

An enterprise budget is the difference between the total value of the outputs and the total costs (variable, labour and fixed). The answer is the profit from the NTFP activity:

$$\text{ENTERPRISE BUDGET (PROFIT)} = \text{OUTPUT} - \text{VARIABLE COSTS} - \text{FIXED COSTS}$$

In our example of the rubber processing activity the gross margin and enterprise profit are presented in Table 10.

**Table 10. Estimation of the gross margin and enterprise profit for a rubber processing activity in a Bolivian community (modified from Rushton et al, 2004).**

	Total (Bs)
<b>Total output</b>	<b>3,413</b>
Raw Latex Costs	1,700
Total variable costs	1,861
<b>Gross margin</b>	<b>1,552</b>
Total labour costs	1,150
<b>GM less labour costs</b>	<b>402</b>
Total fixed costs	466
Total costs including raw latex	5,177
<b>Enterprise Budget (Profit)</b>	<b>-64</b>

The rubber processing activity has a positive gross margin even when taking into account labour costs, but makes a small loss when taking into account the fixed costs. Note that the outputs and costs are all detailed in Tables 6 to 9.

### ***Identifying the important inputs***

The enterprise budget details all the inputs and their costs. Each input has its own importance in terms of ensuring that the NTFP activity produces an output that can either be used, consumed or sold. However, not all inputs are of equal importance in terms of their impact on the economic profitability of

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the NTFP activity. To identify which inputs are of greatest importance with regard to economic profitability it is recommended that the percentage of total costs for each input is calculated:

$$\text{Percentage of Total Costs for Input 1} = (\text{Cost of Input 1} / \text{Total Costs}) \times 100$$

Applying this analysis to the rubber processing activity the most important costs are the raw latex, the fabric moulds for the bags and jackets and labour, with fixed costs being of low importance (See Table 11).

**Table 11. Estimation of the cost structure for a rubber processing activity in a Bolivian community (modified from Rushton et al, 2004).**

Cost Item	Cost	
	Value (Bs)	%
Raw latex	1,700	32.8
Fabric moulds for bags and Jackets	1,284	24.8
Other variable costs	578	11.2
Total variable costs	1,861	35.9
Total labour costs	1,150	22.2
Total fixed costs	466	9.0
Total costs	5,177	100.0

This activity has a cost structure where the costs that vary with the scale of the activity are the most important in terms of total costs. It is possible to infer from this that there is very little capital required to establish a rubber processing activity and therefore credit constraints are unlikely to be that important.

### **Productivity and efficiency measures**

Gross margins and the enterprise budget are absolute measures, which indicate if an NTFP activity will make money. However, they give no indication of how well the NTFP producers, processors or traders use resources or their cost per unit produced. To estimate how well resources are used we need to identify the most important input and use this as a denominator to measure the productivity of an enterprise.

$$\text{Enterprise Productivity Measure} = \frac{(\text{Enterprise Profit plus the Key Input Cost})}{\text{Number of Units of the Key Input}}$$

In many of the NTFP collecting and local processing activities studying by CEPFOR labour was the first or second most important input. One of the difficulties faced during the research was how to value the labour as it was supplied by the household. Many people involved felt that the local labour rates were not applicable so the analysis estimated the productivity of labour used in the NTFP activities using the procedures described above (see Table 12).

**Table 12. Estimation of the returns to labour for the different actors in a rubber value chain in Bolivia (modified from Rushton et al, 2004).**

Actor	Enterprise Profit (Bs.)	Cost of key Input - labour (Bs.)	Profit plus Labour cost (Bs.)	Number of labour days	Returns to labour (Bs. per day)	Labour Rate (Bs. per day)
Collector	512	2,310	2,822	92.4	31	25
Processor	-64	1,150	1,086	58	19	20
Trader	580	2,100	2,680	70	38	30

It can be seen that the estimation of the productivity of labour used in processing rubber is slightly below but very close to the local labour rate for women, whereas the rubber collecting and trading

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activities generate a labour productivity higher than local labour rates. The latter were male dominated activities.

With regard to the measure of efficiency it is necessary to calculate the cost per unit of producing the key NTFP output for the activity in the following way:

$$\text{Enterprise Efficiency Measure (cost per unit output)} = \frac{\text{Total Costs}}{\text{Number of Units Output Produced}}$$

Alternatively we can estimate the efficiency in terms of the profit generated per unit of key output produced:

$$\text{Enterprise Efficiency Measure (profit per unit output)} = \frac{\text{Enterprise Profit}}{\text{Number of Units Output Produced}}$$

Difficulties arise where the analysis would like to compare the efficiency of the NTFP activities along the value chain, but the key output for each activity changes as the product is processed. In the rubber example the analysis used latex rubber as the key output measure. It was necessary in this calculation to estimate how much latex was used in the production of each of the rubber products. The efficiency measures for the actors of this rubber chain are shown in Table 13.

**Table 13. Estimation of the cost and profit per unit of latex produced or used by the different actors in a rubber value chain in Bolivia (modified from Rushton et al, 2004).**

Actor	Enterprise Profit	Total costs	Estimated number of litres of latex	Per litre of latex	
				Cost (Bs)	Profit (Bs)
Collector	512	2,945	864	3.41	0.59
Processor	-64	5,177	425	12.18	-0.15
Trader	580	10,166	585	17.38	0.99

It is interesting to note that in this example the costs per unit of key output increase along the chain. The cost structures for the different NTFP activities also vary where the collecting and processing activities are dominated by variable costs, whereas the trading activities involve significant costs in the purchase and storage of the rubber products.

### **Sensitivity analysis**

The above analyses are static, which means that the quantities and prices for inputs and outputs do not vary. In real situations this is not the case and it is important to assess what would happen if there were changes in prices for NTFP activity outputs and inputs. It is not necessary to test changes in the prices of all inputs. The analysis that identified the key inputs (see Table 12) determines which input prices need to be tested to see how far they can vary before the NTFP activity has a negative profit. Where small variations put the enterprise in difficulties, the NTFP activity can be said to be sensitive to variations in price of this input. This type of analysis is called sensitivity analysis and is a useful method to indicate where communities need to concentrate their management efforts in stabilizing the profits from the NTFP activities.

### **Notes of Caution.**

There are number of issues that need to be considered when using enterprise budget analysis:

1. The presentation of gross margin and enterprise profit should be accompanied with how these figures have been calculated.
2. Similarly when comparing gross margins and enterprise profits between producers and communities it is important to have at hand the calculations for all the inputs and outputs.

## NTFP COMMERCIALIZATION RESEARCH METHODS

3. Ideally, the enterprise budgets produced should come from a group of NTFP producers, processors or traders in order to have an average budget. However this may not always be possible, particularly where there are very few NTFP traders. Here caution is needed when trying to extrapolate an enterprise budget from very few observations for a large area.

### **5.1 SUMMARY**

Enterprise budget analysis is a simple, but powerful tool that can be used by communities and analysts alike to estimate economic profitability, efficiency and productivity. Information generated from such analysis is useful in helping communities and projects plan activities to support NTFP commercialization and thereby support its success. For those interested in further information on enterprise budgets it is recommended that they look at the farm management books Barnard and Nix (1979) and Boehlje and Eidman (1984) for how this tool can be used in management of enterprises and Galpin et al (2000) on how to use enterprise budgets with communities.

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### 6 INVESTIGATING MARKETS AND MARKET TRENDS

The market analysis should build on the data and information generated from the community context and enterprise budget analysis. The community context will provide information on resource management and use, the organization of the producers, processors and traders and skill levels of the different actors. It will also provide information on the community's contact with markets and traders. The enterprise budget analysis will provide a basis to assess how well the NTFP producers and processors can supply NTFP demand and how quickly they could respond to growing demand.

Much of the market analysis will be dedicated to examining markets for the NTFPs. However, when investigating the commercialization of NTFPs there is also a need to investigate key input markets. Here the link between market analysis and enterprise budgets is crucial, the latter will help an investigator identify which are the key inputs for the NTFP collectors and actors. In this way it will also determine which input markets need to be further investigated for issues such as seasonality of availability, variations in quality, number of suppliers etc. Outside the standard list of inputs that can be easily quantified, it should also be remembered that the information market is important in ensuring that the NTFP chain works smoothly and equitably.

The analysis proposed in this section will be centred on community level issues, with more wide ranging aspects of the market introduced in the value chain analysis in the following Chapter. The analysis described will also be largely qualitative. For those interested in more quantitative analysis please refer to Ferrell *et al.* (1998) or Weiers (1986).

#### Objectives

The objectives of market analysis are to:

- Identify the key input markets for the community based NTFP activities.
- Identify the key output markets for the NTFPs at community level.
- Characterize the input and output markets, identifying the numbers and types of traders involved.
- Assess the level of understanding of the NTFP producers and collectors of market demands in terms of:
  - The existing options for NTFP trading.
  - Changes in marketing structures over time.
  - Sources of market information used at community level.
  - Perceived constraints of the existing markets.
- Assess the competition in the production of NTFP or NTFP substitutes.
- Determine the commercialization margins for the NTFP.
- Improve the community level understanding of NTFP markets by combining local and external knowledge datasets.

#### With whom?

Market analysis of an NTFP should be carried out at different levels if it is to generate information that will be useful for community level decision making.

1. All analysis should begin in the community with the NTFP in order to discuss access to input and output markets.
2. To supplement this local knowledge set, secondary data should be sought from key informants and organizations on large scale trends of the NTFP market.



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3. Information generated by the analysis should be returned to the communities and discussed in terms of how it can be used to increase the success of NTFP commercialization.
4. Where appropriate, information should be disseminated to forestry policy decision makers.

### How?

Market analysis is here divided into four components:

- a) Finding the data.
- b) Analysis of the internal environment.
- c) Analysis of the external environment.
- d) Consumer or client analysis.

### Step 1: Finding the data.

Data for market analysis can be divided into primary data collected by the investigators and the community, and secondary data that have been collected and documented by other people and organizations. There will be a need to combine both types of data, unless the market analysis is for a very local market. In the latter case primary data will suffice.

#### *Primary data*

Primary data can be collected on markets either with formal or informal surveys. Formal surveys require skills in planning and implementing a meaningful and statistically coherent process. They also require economic resources for their implementation. This type of data collection and analysis also largely excludes the collectors and processors from being involved. However, a well run and analysed formal survey can provide information on size of the market and can be used to make predictions of the market in the future.

The alternative research methods are informal surveys (sondeos) where key informants or focus groups are interviewed using semi-structured questionnaires. There is a problem with these methods in terms of their representative nature of the general market. However, the advantage of these methods is that they provide an opportunity for collectors and processors to be involved and hence see their market at first hand. They are also quick in generating information and can be implemented relatively cheaply. Some of the key issues for this type of data collection process have been covered in the community level research section, but it will do no harm to provide a checklist of key issues that an informal market survey should be looking for. The following questions are suggested:

- What are the important inputs and outputs for the NTFP activities?
- For each input for an NTFP activity
  - How many sellers are there?
  - How much do they sell?
  - At what prices?
  - Is there seasonality in when they offer and the prices?
  - Are there discounts for higher quantities?
- For each NTFP
  - How many buyers are there?
  - How much do they buy?
  - At what prices?
  - Is there seasonality in when they buy and the price they purchase at?

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- Are there premiums for product quality?

### **Secondary data**

Where the NTFP market goes beyond the local area further data are needed for a market analysis. In most countries there will be people, organizations or projects who have collected and documented data. Generally the national institutes of statistics will have data on:

- Populations
- Average incomes or poverty data (socio-economic status and the proportion of the population in each group)
- Age structure of the population
- They may also have price information, but this is likely to be limited to the commonly purchased products that are important in day-to-day and week-to-week expenditure. As most NTFPs do not enter this category this source of price data is likely to be very limited.

In addition, specialist organizations will have information on the quantities purchased and prices sold for products. These organizations are likely to represent groups of producers or traders or companies that offer market analysis services. The former may consider the information they hold to be sensitive and therefore may be reluctant to offer it freely to researchers, the latter may have spent money and resources collecting and storing market data and information and will probably expect to be paid for giving such resources. It is important to remember that data and information may also be required not just for the NTFP but also for the substitute products.

The search for and use of secondary data is a way of reducing costs for market analysis, particularly when examining the larger national and international markets.

### **Step 2: Analysis of the internal environment of the NTFP community level collectors and/or processors**

An important part of the market analysis is understanding the objectives, goals and production methods of the community level collectors and producers. Again the community-level research Chapter detailed the need for this kind of information, but the following checklist reinforces the importance of having this information to hand when researching successful NTFP commercialization:

1. Objectives – available from the community-level research chapter, but please check if all the information is available on:
  - a. Who are the collectors/processors?
    - i. NTFP availability
    - ii. Socio-economic status
    - iii. Skill and education levels
    - iv. Other available resources
    - v. Ability to raise finance
  - b. What are their objectives and goals in the commercialization of the NTFP?
  - c. Do these collectors/processors have a good market?
  - d. Is their market growing, staying the same or shrinking?
2. Production costs - Available from the enterprise budgets, but please check if all information is available on:
  - a. Quantity, quality, price and total value of the NTFP.
  - b. Quantity, price and total value of inputs (variable, labour and fixed costs).

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- c. The NTFP activity's profit, productivity and efficiency.
- d. The NTFP activity's sensitivity to changes in input and output prices.

It is noted that this internal environment is largely under the control of the community and therefore has some degree of flexibility. The internal environment also sets the parameters in terms of what can be supplied by the community in terms of quality and quantity of the NTFP produced.

### Step 3: Analysis of the External Environment

The external environment is largely out of the control of the community, but it is important to understand how the community engage with this environment and where necessary how this can be strengthened. Information and data for this environment can be sought first from the community itself, but ideally should be supplemented with secondary data from the organizations described above. The analysis of the external environment can be broken down into:

- **Competition** (this can be other NTFP producers and also producers of products that are substitutes for NTFPs). The key questions are:
  - who are they, what are their strengths and weaknesses, capacity, product, distribution, prices, promotion, their reaction in the face of a change, their likely changes in the future.

Failure to understand the competition puts in danger the success of any future investments in NTFP activities.
- The **economy** with data from the community-level research chapter and supplemented with secondary data sources. The key issues are:
  - The growth of the economy and where this is focussed i.e. is it across all socio-economic groups or concentrated in certain groups. This needs to be related to which are the current and potential clients for the NTFP and what happens to NTFP demand when these clients get richer.
- **Political** data from the communities on local political changes especially where a country has decentralized political systems. For the wider context, secondary data should be sought on regional and national level issues. Key information would be:
  - are there about to be elections or changes in political policies that could change regulations for NTFPs, taxes on NTFP sales or even subsidies for NTFP promotion.
- **Legal** – key issues are:
  - Are there regulations on NTFP product quality? This is probably of greatest relevance for NTFPs that are food and drink products. What are the regulations on the creation, running and closure of formal enterprises and businesses?
- **Cultural** – is there a cultural preference for the NTFP or is the product unknown outside the area of harvesting?
- **Technology** changes – data should be collected from the communities on their views of how NTFP activities may be improved, and information should be sought from other organizations working in similar areas. The key issue is:
  - Could a technological change affect the quantity and/or the quality of the NTFP? Could a technological change (e.g. in the domestication, processing, storage, transport or marketing of the NTFP) allow the NTFP commercialization to reach new markets?

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### **Step 4: Client and consumer analysis**

Some key questions need to be asked of the NTFP communities in order to understand how well they understand the demands of the end clients and consumers which are:

- What does the client do with the NTFP?
- Where do they buy the NTFP?
- When do they buy the NTFP?
- Why does the client buy the NTFP from the community?
- Why do potential clients not buy the NTFP?

### ***Market Classification***

It may also be helpful to classify the clients in terms of whether they want the NTFP for:

- Consumption – e.g. mushrooms, cocoa paste,
- Industrial use – e.g. rubber, palms
- Wholesaling – e.g. incense, cocoa beans
- Generation of national and international public goods – Governments in the conservation of the environment.

Clients and markets can also be classified by geographic location:

- International, which can also be divided into Latin America, USA, Europe, Asia
- National, which can be divided into the main cities or regions
- Regional
- Local

It is also important to state if the clients of the NTFP are real (i.e. they are buying the product now) or potential (i.e. they may buy the product in the future) and if the demand for the product is constant (i.e. the same each month or week) or seasonal.

It may be helpful with the community to fill in a simple table to express this type of classification (see Table 14).

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**Table 14. Simple market classification of NTFP products**

Product	Market location (Local, Regional, National, International)	Which country, city or region?	Who are the clients?	
			NTFP community	Final
Rubber products	Local, regional	The Beni and Atliplano, Bolivia	Local shops	Farmers, miners
Cocoa beans	Local	Wholesaler in the Beni, Bolivia	Traders	Chocolate Factories
Cocoa paste	Local, regional	Local families and families in small towns near to the collection and processing points	Families	
Copal & Incense	National, International	Argentina, La Paz, Cochabamba, Santa Cruz	Traders	Churches
Mushroom	Local, regional	Oaxaca, Mexico	Families, traders	Local & regional consumers
Dried mushroom	National	Mexico City	NGO	National consumers
Matsutake mushroom	International	Japan	Private company	International consumers
Pita	National	Northern states, Mexico	Local cooperative	Leather and craft workers
Palma Camedora	National, International	Mexico City, USA, Europe	Private trader	National & international consumers

### Analysis

#### **Market Integration and Commercialization Margins**

Equitability along the marketing chain is an important aspect of success for NTFP commercialization. The question is how to assess if the distribution of the value of the product is equitable or not? In a market where there is equitable distribution the difference between actors in the chain should reflect the costs of transport, processing and storage of the NTFP plus a level of profit which reflects the returns of similar activities within the economy. The starting point for this analysis is therefore information on the price paid and received for the NTFP by each actor in the chain from the collector through to the consumer. These data can then be used to calculate commercialization margins, which are based on information of the final unit price for the NTFP. The formula for calculating the margin is show below:

$$\text{Commercialization Margin} = \frac{\text{Difference between sale and purchase price of the product}}{\text{Consumer Price}} \times 100$$

The commercialization margins for the rubber chain described in the enterprise budget Chapter are presented in Table 15.

## NTFP COMMERCIALIZATION RESEARCH METHODS

**Table 15. Commercialization margins of the different actors in a rubber value chain in Bolivia (modified from Rushton et al, 2004).**

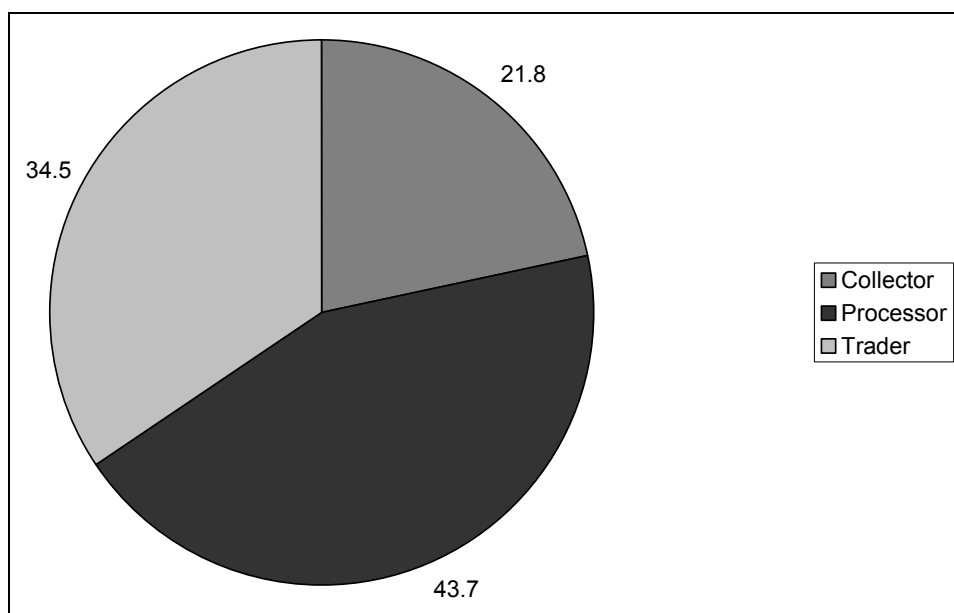
Actor	Price (Bs./Litre latex)		Margin (per litre latex)	
	Buying	Selling	Boliviano	%
Collector	3.41*	4	0.59	
Processor	4	12.03	8.03	43.72
Trader	12.03	18.37	6.34	34.51
Consumer	18.37			
Total			14.37	78.22
Final product value			18.37	100.00

\* Unit cost of collecting the latex

The calculation of the margin is made difficult for products that are processed or transformed when passing through the supply chain, and also for products which do not have a standard unit of measure throughout the supply chain. Therefore, it is not always possible to present this type of analysis for every NTFP.

An alternative to the commercialization margins is to calculate the proportion of the final price taken by the different actors in the chain. The estimation of the proportion of the final price taken by the different actors in the chain requires information on the end price for the product. There are difficulties in calculating these proportions if the product is processed or transformed when passing through the supply chain and if the unit of measure for a product changes. An example of this analysis is shown for the rubber processing chain in Figure 2.

**Figure 2. Proportion of the consumer price (US\$2.52/litre of latex) received by the different actors in the supply chain of rubber products for the mining and agricultural sectors in Bolivia from the community Santa Rosa de Challana.**



While the commercialization margins and the proportion of the final price taken by the different actors are of value in some situations and for some NTFPs, the fact that they do not take into account costs incurred by each actor in a chain can lead to a distorted impression of who gains and who loses. Where there are significant costs, be they transaction, transport or processing costs, these measures from the marketing chain can give distorted information about the apparent “profitability” of each actor

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in the chain. Such analyses should be the starting point of a much deeper cost and profitability analysis based on enterprise budget analysis of the NTFP activities of each actor along the chain. In addition there is a need for an understanding of the institutional context in which each actor is found and works. This will be discussed in more detail in the value chain analysis chapter.

### 6.1.1 Market trends

Markets are not static, in part because economic growth will change the socio-economic status of the NTFP clients and this often leads to changes in quantity and quality of the NTFP demanded by these clients. The trends in the NTFP market can be examined at local level with discussions on quantities of the product sold over a historical time period. It is also important to assess if the quality demanded has changed and if such changes have been accompanied with incentives to provide better quality. Or whether an NTFP that does not meet a certain quality either is not purchased or has a lower price. What should be remembered when carrying out such local level analysis is that the information at community level may be incomplete. This may be related to how traders pass on information from consumer to producer, or it may be a lack of skills in analysing data available on the market. In all cases it is recommended that the researchers visit markets outside the communities, preferably with community representatives, to gather extra data and information on market trends. Ideally, these data should be supplemented with secondary data and information. The local and external datasets then need to be assessed in terms of the community's ability to satisfy present and future demands for quantity and quality of the NTFP. The combination of data and information from the community context, enterprise budget and market analysis is key to generating plans to ensure successful NTFP commercialization in the future.

## 6.2 SUMMARY

The market analysis should provide the basis for developing a community strategy on how to improve the success of NTFP commercialization in the future. It is suggested that the market analysis data could be summarized as shown in Table 16.

**Table 16. Summary of the information that a sondeo of the NTFP market should provide with examples of latex and cocoa NTFPs from Bolivia.**

Product	Competition		Important Organizations	Exports	Local demand	For the locally produced NTFP		Recommendations and comments
	NTFP Product	Substitute product				Current markets	Potential markets	
Latex	Latex from other regions	Oil based rubber products	Processing companies in La Paz	None	For car parts, household goods and football bladders	Bolivia	Chile? Peru?	Changes in oil prices could increase demand for latex based rubber products
Cocoa	Cocoa from other regions	Cocoa from plantations	El Ceibo factory	Not known	For cocoa beans	Bolivia	USA, Europe	There are problems in passing demands for organic cocoa to producers

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### 7 VALUE CHAIN ANALYSIS

A value chain<sup>5</sup> 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. The enterprise budget and market analyses discussed in chapters 5 and 6 give the impression that all aspects of people's decisions, be they NTFP collectors or consumers, are based around the rationale of costs and benefits and the free access to information. This limited model of the world is useful in examining certain market situations, but in most markets there is a need to introduce an institutional context in which that market is found. Here we can examine who are the actors in the NTFP commercialization chain, what activities they carry out, what their profitability levels and opportunities are and what constraints they face in terms of regulations, investment in human capital and infrastructure. In reality we are placing the analysis into a framework of new institutional analysis, a branch of economics that has successfully argued that markets and commercialization do not change and develop through price signals alone.

This type of analysis has been called **value chain analysis**, which covers a wide range of topics from local level incentives to work in a NTFP commercialization chain to government regulations that affect how any person involved in this chain may work. For the manual there will be a limited presentation of the types of methods and background theory required for a thorough value chain analysis. These have been selected on the basis of their usefulness in the CEPFOR project. For those wanting more detailed information on value chain analysis they are recommended to refer to Kaplinsky and Morris (2000).

To some extent the value chain analysis brings together the data and information generated by the community-level research, enterprise budget and market analyses. It is a flexible tool that can be useful in identifying key constraints and opportunities within a NTFP commercialization chain.

#### Objectives

The objectives of value chain analysis are to:

- Identify the main actors or organizations in the commercialization chain from the input provider to the collector right through to the final consumer. Identify their specific activities.
- Identify the different routes to commercialize the NTFP, which could be what currently exists and what potentially is available or could be developed.
- Assess how well the marketing chain is working.

#### With whom?

A value chain analysis should be carried out with the following groups:

1. The initial stages of the analysis take place in the community to identify the important traders and markets and develop an understanding of how familiar the community is with the chain beyond this initial market point of contact.
2. Subsequent stages of the analysis should be undertaken with the traders and at markets identified with the community to determine what happens to the NTFP next and who is involved. The research should then move to the next actor along the chain, continuing until the end consumer is reached.

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<sup>5</sup> Value chains are also sometimes referred to as supply chains or marketing chains.



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3. Once a chain has been developed from producer to consumer, data gaps should be identified and filled with either primary or secondary data<sup>6</sup>. The latter will involve contacting people and organizations who have previously collected and documented important data and information.
4. The initial value chain analysis should be presented and discussed with the community, and where necessary modified. The final results should be retained within the community.
5. Where appropriate, the results from the value chain analysis should be disseminated to local authorities and forestry policy decision makers.

### How?

How to carry out a value chain analysis is split into three sections:

1. Description of the value chain.
2. Identification of important routes and actors in the chain.
3. Assessing the profitability, power and institutional environment of the key actors.

### **Step 1: Description of the Value Chain**

Data from producer, processor and trader interviews (from the community context and market analysis) can be used to develop a graphical representation of the NTFP value chain. Initially this should be done on paper and discussed with the research team and, where necessary, key informants to ensure that the routes for NTFP commercialization are accurate and well described. Such an analysis will identify:

- The key routes of trade for the NTFP. Where relevant, this includes routes for the unprocessed raw material and for the NTFP in its various processed forms.
- The important actors in the value chain and the activities they carry out. Principal activities include collection, cultivation, processing, transport and selling, but it is also important to note who is responsible for activities such as information or credit provision. In different chains the same activity may be carried out by different types of actors, e.g. trading may be carried out by a private trader or a community-based cooperative.
- The main consumers and who they are and where they are found.

Once a description has been agreed this can be transferred to an electronic format using a program such as PowerPoint<sup>7</sup>.

Some chains will be complex and involve different routes for commercialization, with consumers who have very different socio-economic status and geographic location (see Figure 3). This was the case for mushroom collecting communities investigated in Mexico. Some supplied fresh mushrooms to local markets, others supplied mushrooms to a drying factory for the sale of dried mushrooms to Mexican consumers in large cities, and collectors of matsutake mushrooms supplied an entrepreneur who exported the mushrooms for a Japanese market (see Figure 3). The interesting issue with this example is that the chains described had recent and important interventions. The drying factory was a significant change in technology, and the investment came from an NGO. This technological change had created a new market for the mushroom collectors.

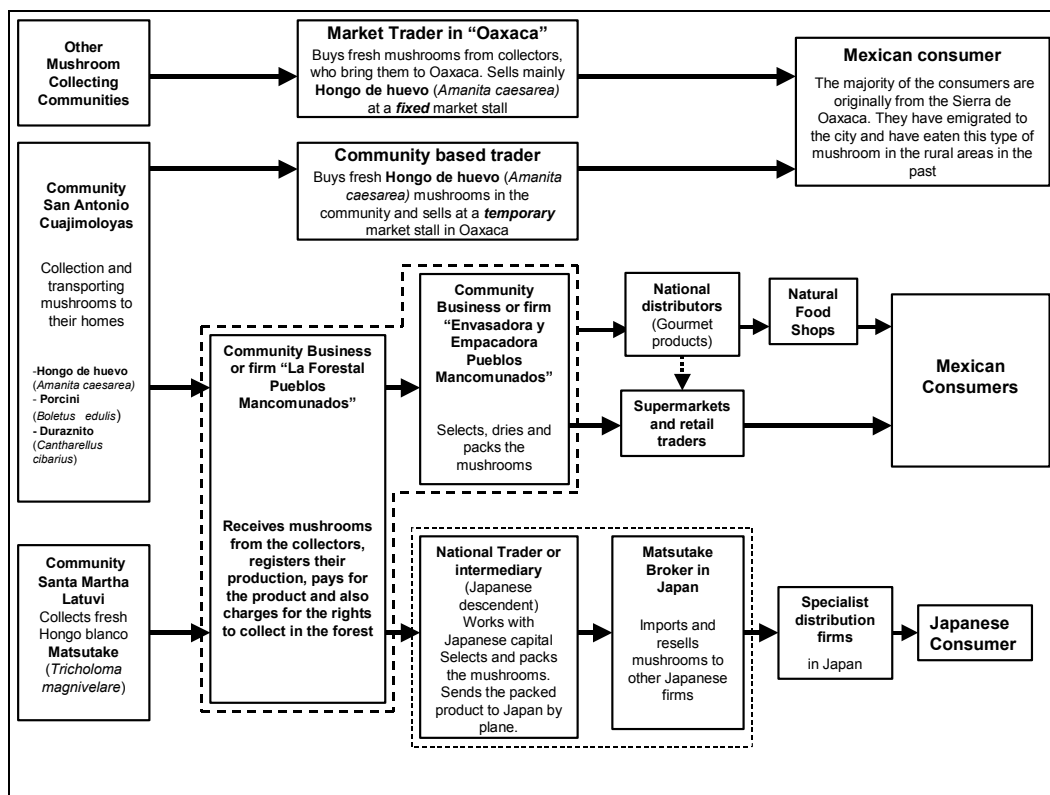
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<sup>6</sup> See market analysis chapter for a description of these data types.

<sup>7</sup> It is recommended that chains are not drawn in Word as they are difficult to copy and paste and edit. Note that PowerPoint images can be easily inserted into a Word document using Insert, Object, Create from File function.

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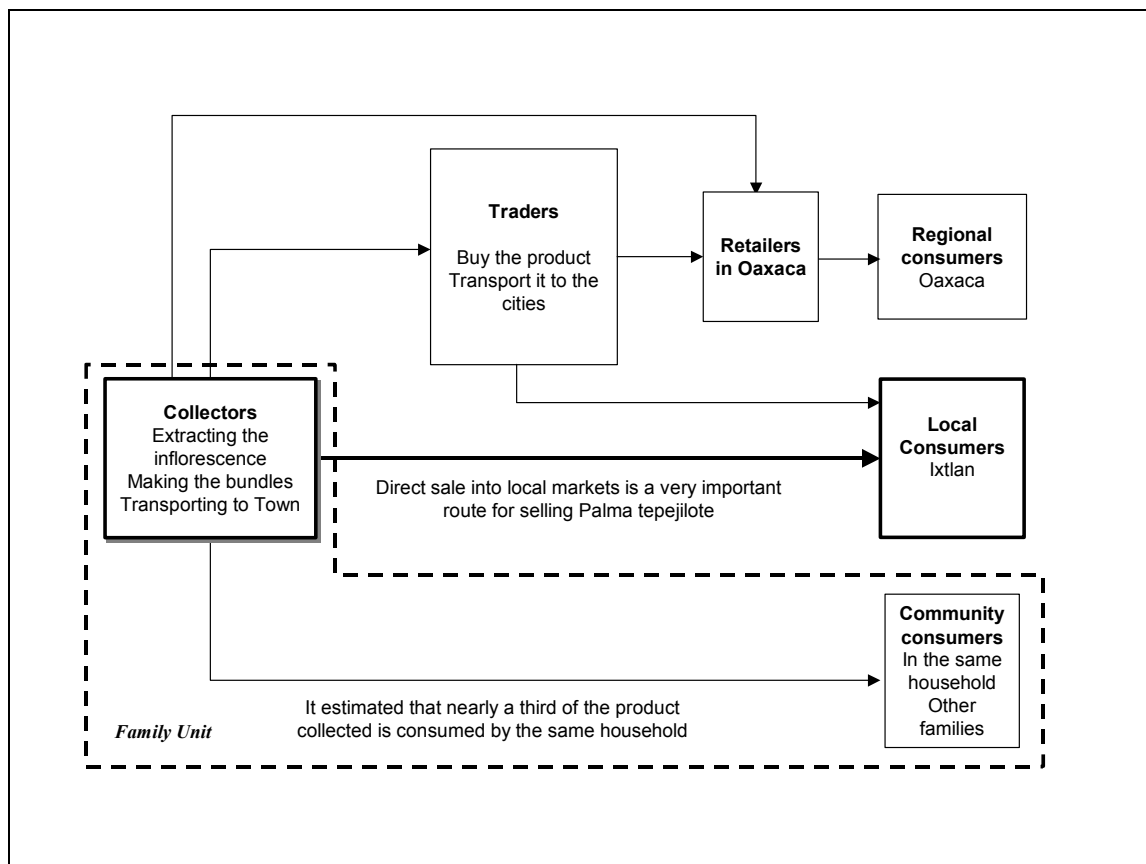
**Figure 3. The main supply chains for the mushrooms collected by the communities: San Antonio Cuajimoloyas and Santa Martha Latuvi, Mexico.**



Not all NTFP value chains are complicated and some will be dominated by local processing and consumption. In the case of *Palma tepejilote* in Mexico, there was strong local and cultural demand for the consumption of the inflorescences of this palm. A large proportion of the NTFP produced was consumed either in the same household in which it was collected or by local consumers. Only a small proportion of the product was sold to the nearest large city (see Figure 4).

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**Figure 4. The supply chain for Palma tepejilote in Mexico.**



### **Step 2: Identifying the important routes and actors in the value chain**

To identify the most important routes and actors in the NTFP value chain it is recommended where possible to determine the:

1. Number of collector/producers using the different routes within a chain.
2. Volume of product that moves through the different routes of the chain.
3. Monetary value that moves through the different routes of the chain.

A combination of 2 and 3 allows an analysis of the prices paid per unit, but this information needs to be combined with quality information as some routes may pay more per unit, but demand different qualities.

Some of this information may be sensitive and it will not always be possible to carry out a quantitative analysis of each route in the value chain.

### **Step 3: Assessing the profitability, power and institutional environment of the key actors**

Having identified the key actors or groups of actors in the chain in Step 2, where possible enterprise budgets should be developed for their NTFP activities following the guidelines provided in the enterprise budget Chapter. In addition these actors or groups of actors should be interviewed about the input and output markets for their NTFP activity, including the opportunities and constraints they perceive in terms of supply, demand and regulation of the activity.

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Information should also be generated on how important each actor or group of actors is in terms of their:

- Power to determine price.
- Role in setting quantity and quality standards.
- Provision of technical and financial support to assist producers or processors to meet these standards.
- Role in introducing innovations (from production to processing or marketing) that ensure the adaptability of the value chain to changing markets.
- Ability to search for and gain entry into new markets.

### Analysis

#### ***Equitability in the chain***

In an equitable value chain all actors should be reasonably compensated for their contribution, including labour, technical expertise, marketing skills, etc. The market analysis Chapter introduced two tools, that did not take into account the costs and profits of each actor, to assess equitability along the marketing chain. To provide a more adequate picture of equitability, enterprise budgets should be developed for each actor or group of actors along the most important routes of the value chain. These can then be compared in terms of profit generated per unit of output, returns per unit of labour and costs per unit of key input. Please refer to Tables 12 and 13 for this kind of information.

#### ***Governance of the chain***

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. The CEPFOR project investigated the governance of the NTFP value chains that were studied (Velde *et al.* in press), using a framework provided by Gereffi *et al.* (2003). This identifies five types of value chain governance:

1. *Markets*. There are repeated transactions amongst different actors but the costs of switching to new actors are low.
2. *Modular value chains*. Suppliers make products to a customer's specifications. Suppliers take responsibility for competencies surrounding process technology and incur few transaction-specific investments.
3. *Relational value chains*. There is mutual dependence regulated through reputation, social and spatial proximity, family and ethnic ties, etc.
4. *Captive value chains*. Small suppliers depend on much larger buyers for their transactions and face significant switching costs and are, therefore, "captive". These networks are frequently characterized by a high degree of monitoring and control by the lead firm, creating dependence on the suppliers.
5. *Hierarchy*. This implies vertical integration with managerial control.

The type of governance in a chain is dependent on three factors:

1. Complexity of inter-firm knowledge transfer required for transactions;

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2. The extent to which this information and knowledge can be codified and transmitted efficiently without transaction specific investment; and
3. Capabilities of actual and potential suppliers in relation to the requirements of the transaction.

Governance of a NTFP value chain is important because it can influence how the chain develops in terms of upgrading the product, process and functioning of that chain or by changing to a completely new chain. In the analysis carried out by CEPFOR one of the most important conclusions was that, where NTFP producers were geographically distant from end consumers, entrepreneurs were important in linking the producers with the consumers and ensuring successful NTFP commercialization. The important issue in this analysis is to determine the type of governance, why it has occurred and whether the governance that exists is facilitating success.

### ***Sustainability of the 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. The greater the resilience of a value chain, the less vulnerable the livelihood strategies of the actors in it are likely to be. It is important to examine the following factors to determine how well the actors in a value chain can recover from external shocks.

- Is there sufficient understanding of the plant and its management? Whether based on indigenous knowledge or acquired through NGO support, this can enable a community to avoid or manage diseases of the plant.
- How effective is 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.
- What ability is there to innovate? Innovation in resource management can help to 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 and the organization and flexibility to act upon the new information.
- How long is the value chain? Resilience is often greatest for shorter chains, i.e. where the product is sold locally. These value chains are also less demanding in terms of meeting the demands of sophisticated consumers.
- Where is market power concentrated? Market power is often more concentrated in value chains in which individual entrepreneurs play a key role in making the the connection between producers and distant consumers. These entrepreneurs are often very effective. Nevertheless, 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.
- How well organized is the community? At producer and processor level, resilience to external shocks can be improved through organization.

### **7.1 SUMMARY**

Value chain analysis is a method of bringing together many different aspects of NTFP research in order to identify constraints and opportunities for communities in their successful NTFP commercialization. It can enable communities to take decisions on:

- The advantages and disadvantages of processing to add more value to the product locally.
- The possibility of organizing themselves in groups within the community or with producers and/or processors in other communities to facilitate market access, increase the level and

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consistency of supply they can provide and therefore improve their negotiating power with traders.

- Possibilities for innovation in the value chain – at production, processing or trading level – to meet changing consumer demand.
- Options for closer relationships with key traders to reduce vulnerability to sudden changes in the market.
- How to obtain more detailed information on the price, quality and quantity requirements of different markets.
- Community activities to ensure the sustainability of the value chain.

### 8 CONCLUDING NOTES AND NEXT STEPS

The methods presented in this manual are by no means a definitive set but rather an introduction to a holistic approach. Methods are adaptable and need to be applied with flexibility, with success being underpinned by social, ecological and economic sustainability. Measuring what is sustainable is dynamic and dependent on changes in the general setting in which NTFP commercialization is found. For example what is considered to be economically viable and sustainable will reflect the alternative economic opportunities in society. Where these are improving or decreasing in relation to NTFP commercialization there will be a change in what is considered to be economically sustainable.

Although the CEPFOR research defines 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”, it is important to be aware that successful commercialization means different things to different people. Defining and agreeing success measures in relation to people’s needs and product characteristics is a good place to start research, and essential for project planning. Different communities, households, and the individuals within them, and the actors along a product value chain may all have very different perceptions of what constitutes success. Finally, definitions of success may be dynamic, changing in response to variations in socio-economic circumstances and the behaviour of the market.

#### 8.1 DEVELOPING INDICATORS FOR MONITORING AND EVALUATION

Having undertaken the research and analysed the data, there is now a need to go back to the community and present the results, review the objectives and develop a plan of action. Discussion around the findings can then be incorporated into a process of setting objectives with the community for NTFP commercialization activities in the future. There is a need for researchers (from NGOs, etc.) to work together with communities towards a joint agreement of what realistically can be achieved, and identify where external support may be needed, e.g. for the development of a business plan, or technology in plant domestication. This process is the first step in developing indicators for a Monitoring and Evaluation system to run in parallel with project activities.

Section 4.2.1 presented a methodology aimed to deliver a range of definitions of success. The next stage of this process is to establish how to measure and record these definitions. Here, we seek to establish a series of measurements, namely indicators, which can be used to determine whether NTFPs are impacting positively on the different aspects of livelihoods. The indicators should be measurable and could include: numbers of units, frequencies of events, time taken, etc. We also need to agree how these measurements should be recorded and acted upon.

- Divide focal groups into at least two new groups that include men and women.
- Direct the groups to the lists of definitions of success and ask them to discuss and agree the most appropriate measurement for each one.
- In plenary, go through each definition, soliciting responses from both groups and facilitating discussions of differences if they arise.
- Assess whether any of the indicators are “killer indicators”, i.e. if they turned out to be negative, the community would take a decision to stop/change their involvement in NTFPs because they reflect an unacceptable impact on livelihood. These should certainly be on the final list for the community to monitor as should up to 10 other indicators that are practical to measure. A few may be interesting but very difficult to measure and, if not essential, should be dropped.
- Still in plenary, ask groups how best these measurements could be recorded for long term monitoring (in writing, as pictures, in a book, by whom, kept where?).

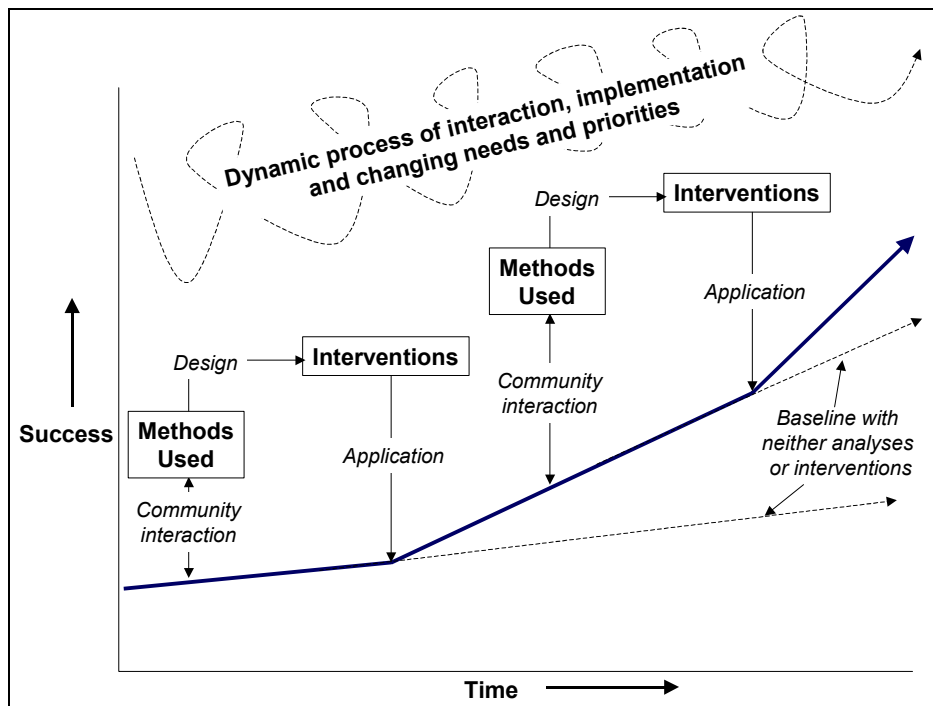
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- Continue to discuss who should be responsible for carrying out the monitoring and, if financial resources or skills are needed, who should provide these.
- Finally, decide who the monitors should report to (e.g. community assembly or community leaders) and who will take a final decision on any changes required in the NTFP commercialization system.

### 8.2 STEPS FOR THE FUTURE – THE TIME DYNAMIC

The methods are designed to identify opportunities and constraints that help to define intervention strategies. The implementation of such strategies is intended to aid successful development and reduce poverty and vulnerability. Monitoring of the implementation is an important component of achieving this goal and in the process will contribute to a more successful NTFP commercialization. This dynamic process of positive engagement with NTFP collecting families and communities will also change the order of opportunities and constraints, which implies that there will be a need to re-evaluate them in the future (Figure 5). Therefore, the methods proposed in this manual would ideally be re-applied to determine future opportunities and constraints and in the process re-define suitable intervention. If this can be a dynamic process then outside intervention will contain to be relevant and appropriate to general family and community development.

**Figure 5. The dynamic process of changing opportunities, constraints and levels of success in NTFP commercialization over time.**





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## 10 ANNEX I: FACTORS INFLUENCING SUCCESS AND DATA COLLECTION AND ANALYSIS TOOLS MATRIX.

For users of the CEPFOR Decision Support Tool, this matrix provides suggestions for data collection and analysis tools to obtain the information required to score the factors in the CDST. The 66 factors are listed in the left-hand column in the order in which they appear in the CDST. The various data collection and analysis tools described in this manual are listed across the top row. Information on most factors can be obtained from at least one tool. ‘Smiley faces’ indicate tools that may be particularly useful for obtaining certain information while ticks indicate other useful tools that can allow for triangulation.

☺ = preferred tool, √= additional methods

<b>FACTOR INFLUENCING SUCCESS</b>	<b>Interview and evaluation checklist: producer processor groups</b>	<b>Resource mapping: product id and access and tenure</b>	<b>Transect: Evaluating production and land management</b>	<b>Timeline: Capturing changes and trends</b>	<b>Seasonal calendars: analysing activities and resources</b>	<b>Institutional support diagram</b>	<b>Interview evaluation checklist: trader</b>	<b>Cross rank matrix</b>	<b>Enterprise budget</b>	<b>Markets &amp; market trends analysis</b>	<b>Value chain analysis</b>
F1. National trend in volume or value	√			√			√			☺	
F2. Local trend in volume or value	√			√	√		√			☺	
F3. Buyer number	√					√	√				☺
F4. Vertical integration						√					☺
F5. Combinability	√				√			√			☺
F6. Buyer link organization	√					√	√				☺
F7. Investment capital	☺						√				
F8. Credit	☺						√				
F9. Entrepreneurs						√					☺
F10. Regulations	√	√					√		☺		☺
F11. Subsidies for land use											

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<b>FACTOR INFLUENCING SUCCESS</b>	<b>Interview and evaluation checklist: producer processor groups</b>	<b>Resource mapping: product id and access and tenure</b>	<b>Transect: Evaluating production and land management</b>	<b>Timeline: Capturing changes and trends</b>	<b>Seasonal calendars: analysing activities and resources</b>	<b>Institutional support diagram</b>	<b>Interview evaluation checklist: trader</b>	<b>Cross rank matrix</b>	<b>Enterprise budget</b>	<b>Markets &amp; market trends analysis</b>	<b>Value chain analysis</b>
F12. Price variation	√			√			√	√		☺	
F13. Variable costs	√						√		☺		
F14. Returns to labour	√						√		☺		
F15. Fixed costs	√						√		☺		
F16. Perfect market							√			☺	
F17. Income elasticity							√				☺
F18. Consumer preference	√						√		☺		
F19. Losses	√						√		☺		☺
F20. Substitution	√			√			√	√		☺	
F21. Brand identity	√						√	√		☺	
P9. Accessible market	√	√				√	√				☺
F22 Integration into cash economy	☺					√	√				
H1. Traditional use	☺			√			√				
H2. Tradition link	☺			√							
H3. Technical management production	√		☺								
H4. Producer experience	☺		√	√	√						

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<b>FACTOR INFLUENCING SUCCESS</b>	<b>Interview and evaluation checklist: producer processor groups</b>	<b>Resource mapping: product id and access and tenure</b>	<b>Transect: Evaluating production and land management</b>	<b>Timeline: Capturing changes and trends</b>	<b>Seasonal calendars: analysing activities and resources</b>	<b>Institutional support diagram</b>	<b>Interview evaluation checklist: trader</b>	<b>Cross rank matrix</b>	<b>Enterprise budget</b>	<b>Markets &amp; market trends analysis</b>	<b>Value chain analysis</b>
H5. Processing required	☺		√		√						
H6. Technical processing	☺		√		√	√					
H7. Processors market information	☺						√				
H8. Trader characteristics	√						☺				
H9. Entrepreneur	√						☺				
H10. Innovation	☺			√			√				
H11. Labour combinability	√				☺						
H12. Women's involvement	√	√	√	√	☺						
H13. Technical information	☺		√			√					
H14. Technical support	☺					√					
H15. Health and safety	☺		√			√					
N1. Proportion wild harvested		☺		√				√			
N2. Proportion cultivated		☺		√				√			
N3. Competing land uses		☺	√								

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<b>FACTOR INFLUENCING SUCCESS</b>	<b>Interview and evaluation checklist: producer processor groups</b>	<b>Resource mapping: product id and access and tenure</b>	<b>Transect: Evaluating production and land management</b>	<b>Timeline: Capturing changes and trends</b>	<b>Seasonal calendars: analysing activities and resources</b>	<b>Institutional support diagram</b>	<b>Interview evaluation checklist: trader</b>	<b>Cross rank matrix</b>	<b>Enterprise budget</b>	<b>Markets &amp; market trends analysis</b>	<b>Value chain analysis</b>
N4. Overharvesting	☺	√	√								
N5. Poor harvesting	☺		√								
N6. Yield variation	☺	√	√								
N7. Quality variation	☹		√								
N8. Production per unit area	☺	√	√								
N9. Domestication	☺		√								
N10. Seasonal availability	√		√		☹						
N11. Resource management		☺	√	√	√						
N12. Rights of access		☺	√	√							
N13. Resource availability	√	√	√		☹						
N14. Pests and diseases	☺	√	√	√	√						
P1. Market information	☺					√					
P2. Perishability	☺										
P3. Infrastructure to production site	√	☺	√								
P4Communication network	☺			√		√	√				

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<b>FACTOR INFLUENCING SUCCESS</b>	<b>Interview and evaluation checklist: producer processor groups</b>	<b>Resource mapping: product id and access and tenure</b>	<b>Transect: Evaluating production and land management</b>	<b>Timeline: Capturing changes and trends</b>	<b>Seasonal calendars: analysing activities and resources</b>	<b>Institutional support diagram</b>	<b>Interview evaluation checklist: trader</b>	<b>Cross rank matrix</b>	<b>Enterprise budget</b>	<b>Markets &amp; market trends analysis</b>	<b>Value chain analysis</b>
P5. Energy	√			√					☺		
P6. Materials and facilities	√						√		☺		
P7. Storage requirements	☺								√		
P8. Transport	☺	√					√		√		
P9. Accessible market	☺					√	√				√
P10. Value per unit weight							☺		√		
S1. Women control income	√			√	☺						
S2. Community norms	☺		√	√		√					
S3. Community organization	☺		√			√					
S4. Equitable access	☺	√	√			√					
S5. Market power							☺		√		√

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### 11 ANNEX II - DEPRECIATION METHODS

There are three common ways of calculating depreciation:

1. straight line method – estimated by dividing the difference of the purchased and salvage price of the item by the number of useful years of its use.
2. diminishing balances method – estimated by taking a percentage of the remaining value of the item as the depreciation year on year.

Depreciation = (Estimated value the previous year<sup>8</sup>) multiplied by the percentage.

3. Sum-of-the-years'-digits method – estimated by multiplying the difference between the cost and salvage value of the item by the number of years before the item will be replaced divided by the sum of the years of useful life. For example in year 5 of an item with 8 years useful life for an item that cost \$2000 with a salvage value of \$200:

Depreciation (year 5) = (original cost minus the salvage value) multiplied by ((total years of useful life minus year the depreciation is calculated) divided by (sum of the digits of the years of life))  
 $(2000-200)*((8-5)/(1+2+3+4+5+6+7+8))$   
 $(1800)*(3/36)$

**200 Pesos**

Table 17 presents the estimation of depreciation using the different methods with an example of a capital item that cost 2000 peso, with a useful life of 8 years and a salvage value of 200 peso.

**Table 17. Estimation of depreciation using different methods (modified from Barnard & Nix, 1979).**

Year	Annual Depreciation method			Estimated value of the item (Write down value)		
	Straightline	Diminishing Balances	Sum-of-the-digits	Straightline	Diminishing Balances	Sum-of-the-digits
1	225	500	400	1,775	1,500	1,600
2	225	375	350	1,550	1,125	1,250
3	225	281	300	1,325	844	950
4	225	211	250	1,100	633	700
5	225	158	200	875	475	500
6	225	119	150	650	356	350
7	225	89	100	425	267	250
8	225	67	50	200	200	200

<sup>8</sup> This will be the original value in year 1