Issues in Forest Conservation

Participatory Techniques For Community Forestry

A Field Manual

W. J. Jackson and A. W. Ingles

May 1998

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Participatory Techniques For Community Forestry

A Field Manual

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Australian Agency for International Development (AusAID)
IUCN-The World Conservation Union
World Wide Fund For Nature

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Preface

Over the last ten years, increasing use has been made of a wide range of participatory techniques that can tap local knowledge and engage local people in collaborative conservation and development initiatives. There are numerous publications now available that describe collections of participatory techniques, or 'toolkits', so it is reasonable for the reader to ask: "how is this one different?".

Descriptions of the various tools alone are useful, but for a practitioner, important choices still have to be made about how the tools should be used to get a specific job done in a particular setting, for example: which tools are most appropriate for each task? when should each tool be used? in which order? what should be done with the outputs? When we first became involved with promoting the use of these techniques in community forestry, we were reluctant to provide much formal guidance on making these choices, because two fundamental principle of using the techniques are encouraging and maintaining flexibility, curiosity and innovation; and avoiding overly mechanistic or prescriptive approaches to participatory work. While we still support this principle wholeheartedly, it has been our experience that managers and field workers do need at least some general guidance in how to use the participatory toolkit for implementing community forestry programmes.

This creates a dilemma. How much guidance should be given without threatening the necessary freedom to be flexible and creative? We have decided to present some information, advice checklists and formats that we have found useful in undertaking some of the common tasks of programme managers and field workers in community forestry, from planning work programmes to negotiating plans for forestration and forest management with rural people. We wish only to inform people about how participatory techniques might be used in community forestry, not to promote rigid guidelines about how they should be used. We have written this manual to help people make choices about how they will do their community forestry job.

This manual is different than other publications because it deals with the use of participatory techniques for specific tasks within community forestry (such as negotiating plans for collaborative forest management or for establishing plant nurseries) and sets out ideas about how the toolkit of participatory approaches can be used to complete such tasks. The manual is most relevant to the implementation of community forestry in Nepal. We know, however, that many of the tasks, problems, issues and choices of programme managers and field workers in Nepal are similar to those faced in natural resource management programmes in other countries. We hope that the ideas in this manual will be useful to other people, and we encourage all readers to debate, adopt or adapt any of these ideas for their own purposes.

The authors of this publication worked for the Nepal Australia Community Forestry Project (NACFP), a bilateral assistance project between His Majesty's Government of Nepal and the Australian Agency for International Development (AusAID). On behalf of AusAID, the managing agent for the project is ANUTECH Pty Ltd, a company owned by the Australian National University. The project goal is to increase the welfare and self reliance of rural communities by:

- increasing the availability of forest resources, facilitating the adoption of improved forest management by local forest users, improving the capacity of national and local organisations to mobilise resources for community development, and conserving and improving the environment.

The observations and opinions expressed in this publication are the authors and do not necessarily reflect any opinion whatsoever of AusAID or His Majesty's Government of Nepal.

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The inspiration for this work came from work by Terry Grandstaff, Robert Chambers, Gordon Conway, Robert Rhoades, James Mascarenhas, Don Messerschmidt and from our colleagues working in community forestry in Nepal and elsewhere. We are grateful to Yam Malla, Michael Nurse, Hukum Singh, Ram Chhetri, Denise Bond, Peter Baldwin, David Hinchley, Steve Hunt, Tony Bartlett, Bob Fisher and Don Gilmour for their contributions. There have been too many people involved in the development of the concepts in this guide to acknowledge all of them fully here. Nevertheless, we sincerely appreciate the advice we have received from people who share a vision for promoting simple, participatory techniques for community forestry. The illustrations were prepared by Kristal Jackson.

To improve readability we have generally omitted referencing papers and books throughout the text. However, we do acknowledge that parts of this publication have appeared as technical notes and discussions papers of the Nepal Australia Community Forestry Project.

Introduction

Who is this manual for?

Community forestry, like other forms of participatory natural resource management, calls for participatory techniques that:

- allow field workers to collect and analyse information about complex natural and human ecosystems;
- promote the participation of local people in forest management; and
- increase the capacity of local people to manage their own problems.

Participatory techniques involve more than just extending technical information to local communities. They require field workers to work in partnership with local communities to identify local problems and seek locally viable solutions to those problems. This manual provides a source book of ideas about participatory techniques. It is designed for programme managers and field workers involved in community forestry. It is not a blueprint for action. Manuals of participatory techniques should be used as a basis to develop tools and methods that are relevant to local situations. They should not be used as foolproof guidelines that need to be followed strictly.

The idea for developing this manual emerged from the shared experiences of many people working in Nepal, India, Thailand and Lao PDR. While the manual focuses on participatory techniques for community forestry in Nepal, many of the techniques described can be readily applied to other forms of participatory natural resource management.

Guidelines for teaching participatory techniques for community forestry can be found in *Community Forestry for Rural Development in Nepal: A Manual for Training Field Workers* (Jackson et al., 1996). A list of references and further readings is attached (pages 120-123).

How to use this manual

To make the manual less intimidating to new practitioners, and to help the reader find information, the volume is divided into five parts as follows:

Part 1 answers some common questions about participatory techniques for community forestry. Use this part as a quick reference guide and to find out where to look for more detail.

Part 2 describes Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA) approaches and sets them in the context of community forestry. Use this part to gain an understanding of why participatory approaches are important and how they can be used most effectively.

Part 3 outlines the RRA and PRA tools that are commonly used in community forestry, highlights how these tools can be used and provides cautionary remarks. Use this part as a detailed reference guide to find suggestions on how to use participatory tools in the field.

Part 4 provides guidelines on how to use combinations of participatory tools to develop participatory methods for community forestry. Use this part as a reference guide when undertaking field activities, including planning, negotiating hand-over of community forests, providing extension support and monitoring and evaluating programmes.

Part 5 includes copies of sample formats for recording information collected through participatory techniques. A list of references and suggested readings is included.

Part 1

Questions and answers about participatory techniques

What are participatory techniques?

Participatory techniques cover a wide variety of approaches, tools and methods that can be used in collaboration with local people to gather information about local conditions. Some participatory techniques are suited to gathering information; others are designed to promote people's participation. The two main participatory techniques described in this manual are Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA). Both RRA and PRA are designed to facilitate interaction between field workers and local people.

What are RRA and PRA?

RRA, or Rapid Rural Appraisal, emphasises the importance of learning rapidly and directly from local people. RRA involves tapping local knowledge and gaining information and insight from local people using a range of interactive tools and methods. PRA, or Participatory Rural Appraisal, involves field workers learning with local people with the aim of facilitating local capacity to analyse, plan, resolve conflicts, take action and monitor and evaluate according to a local agenda. For more information on RRA and PRA see Part 2

Conventional approaches to collecting information generally involve field workers gathering data through questionnaire surveys and formal forest inventories. Experience has shown that conventional methods of gathering information in rural settings commonly fail to provide timely, reliable, cost-effective and useful information. RRA and PRA approaches differ from conventional approaches in that field workers learn directly from local people. They tap local knowledge and gain information and insight from local people using a range of interactive tools and methods. Properly applied, RRA and PRA will yield locally relevant, timely, reliable, cost-effective and useful information. For more information on RRA and PRA see Part 2.

Which RRA and PRA tools are available for field workers?

Because many PRA tools can also be used in RRA, new practitioners are often confused about when and how to use the tools. The difference between RRA and PRA is that PRA aims to catalyse local capacity to deal with local problems through field workers learning with local

people. In contrast, RRA involves field workers learning from local people according to the field worker's agenda. RRA does not necessarily involve facilitating local capacity or empowering local people to act.

Common RRA tools include building rapport, cross-checking, semi-structured interviews, group meetings and workshops, sketch mapping and direct observation. In addition, forest profile by rapid assessment has been developed specifically for community forestry. The common PRA tools include building rapport, ranking, time charts, semi-structured walks, participatory mapping, participatory use of photographs, group meetings and workshops and direct observation. Details of RRA and PRA tools are given in Part 3.

How do I decide which participatory technique to use?

The choice of technique depends on the circumstance. As a general rule RRA is used to learn rapidly from local people and PRA is used when field workers need to empower local people to manage natural resources. RRA is particularly useful when field workers are planning for the efficient use of their own resources (finances, human resources and time), and when exploring the prospects for working in a local area. PRA should not be used during the earliest stages of community forestry investigations unless field workers are prepared to continue to support the forest user group after local interest has been raised. Details of RRA and PRA tools are found in Part 3. Details of how to combine the tools into participatory methods are found in Part 4.

How can RRA and PRA help me prepare a work plan?

RRA is a very useful approach when field workers need to plan the use of their resources (finances, human resources and time). In Nepal this is called range-post planning. RRA allows field workers to collect reliable and useful information from local people quickly. PRA should generally not be used for range-post planning, as the intention of range-post planning is not to empower local people but to plan for the efficient use of forestry department resources. Details of the use of RRA methods in range-post planning are found in Part 4.

How can RRA and PRA help me facilitate planning?

Both RRA and PRA approaches are used in facilitating forest user group (FUG) planning. Before field workers can empower a forest user group with the rights and responsibility for a community forest they need to collect social and physical resource information about the local area and the people who live there. RRA can be used to accomplish this without unduly raising the expectations of local people. When the legitimate forest users have been identified and field workers have a feel for the local situation, PRA approaches can be used. Details of the use of RRA and PRA methods in Forest User Group planning are found in Part 4.

Are these methods useful in community forestry?

Participatory methods are ideal for encouraging collaboration between field workers and forest user groups in monitoring community forestry. Many PRA tools can be used by forest users themselves to monitor the condition of their community forest or the activities of their forest user group. RRA techniques are useful for field workers to monitor activities in which the forestry department may have an interest (even if the forest user group does not); for example, the use of government funds for plantation establishment. Details of the use of RRA and PRA methods for monitoring and evaluating community forestry are found in Part 4.

Part 2

Participatory approaches for community forestry

Background

Community forestry involves groups of local people managing forests to support their farms and households. In Nepal such groups are referred to as forest user groups (FUGs). The promotion and support of community forestry is a major element of the Nepal government's policy for the forestry sector. Field workers involved in implementing this policy need to use techniques that:

- promote the participation of local people in forest management;
- increase the capacity of forest users to manage their own development; and
- provide reliable information that can be used to plan, monitor and evaluate the government's programmes.

Field workers sometimes have difficulties promoting the participation of local people in forest management. Often this is because the term "participation" means different things in different situations. For example, when local people contribute free labour for a forest plantation programme they are participants even though they may have been coerced. In contrast, when local people willingly assume responsibility for planning and implementing management of local forests they are also participants, albeit in a very different way. To promote participation in community forestry, field workers need to:

- consult with local people about community forestry issues;
- encourage collaboration between forest users and the government; and
- empower local people with the rights to manage a community forest in a manner consistent with local interest and the objectives of the community forestry programme.

These three aspects of promoting the participation of local people require field workers to adopt attitudes and behaviours that foster trust and mutual respect. To do this, field workers should initially use Rapid Rural Appraisal (RRA) techniques, since they promote rapid learning from local people but deliberately do not raise local expectations. Once field workers have identified the forest user group they can shift to using Participatory Rural Appraisal (PRA) techniques to promote the

participation of local people in managing their community forests. In other words, as the process of community forestry develops, the techniques used by field workers need to change from being consultative to being empowering.

For the purpose of this manual, we have classified participatory techniques into participatory approaches, tools and methods. These three terms refer to distinct but interrelated aspects of participatory action. By "approaches" we mean the overall procedures adopted for collecting information and working with local people. Community forestry requires approaches that involve local people as participants in the collection, analysis and use of information. The RRA and PRA approaches accomplish this. An alternative approach is Participatory Learning and Action (PLA) which incorporates elements of RRA and PRA but does not imply that the approach is rapid or that it can only be undertaken in rural settings or only involves appraisal. We have chosen to use the terms RRA and PRA as they are still widely used by field workers and in the literature. We recognise, however, that the terms RRA and PRA can be misleading.

By "tools" we mean specific RRA and PRA techniques that field workers use to collect information and facilitate people's participation. The tools are detailed in Part 3 of this manual. By "methods" we mean the selection, timing and sequencing of RRA and PRA tools in particular ways to meet the needs of community forestry. These methods are detailed in Part 4 of this manual.

The role of field workers

Field workers must plan, promote and monitor community forestry programmes in their work areas so that participatory development is facilitated at a local level. In Nepal the work area of the forestry department's field worker is known as a range-post. We use the term range-post throughout the manual to refer to the field worker's work area. To plan, promote and monitor community forestry programmes, field workers have two main responsibilities. Their first responsibility is for the efficient use of forestry department resources (finances, labour and time), and the second is to empower local people to manage

community forests. These responsibilities require field workers to operate at two levels. The broader level covers an entire range-post area, while the detailed level covers a single forest or patch of a forest. We call these two different modes of planning range-post planning and forest user group planning.

In range-post planning field workers plan for the efficient use of forestry department resources in their range-post area by:

- collecting information about their entire work area;
- setting work priorities; and
- allocating resources to meet these priorities.

In forest user group planning field workers plan for the empowerment of local people in a selected area by:

- collecting detailed information at the village level about the size and condition of forests and the nature of rural communities;
- identifying the group of people who have mutually recognised rights to use a particular forest;
- providing technical advice;
- negotiating collaborative agreements with forest user groups about how they will run nurseries, or manage natural forests or plantations; and
- monitoring and evaluating outcomes.

The fundamental differences between these two types of planning are summarised in Table 1.

Whether developing range-post work plans or negotiating collaborative agreements with forest user groups, field workers need to gather, analyse and store information. They can also use this information, and gather additional information, to monitor and revise forest management plans. Information gathering is a major task for field workers in each phase of planning.

Two types of information are needed to implement community forestry programmes. These are biophysical information and socio-economic information. Physical resource information includes such things as the location, area and condition of forests, shrublands and

grasslands. Socio-economic information includes such things as the nature of rural communities and forest user groups, their interests, needs and preferences, and existing arrangements for using and protecting forests. Although biophysical information is important, it is the socio-economic information that provides the key to successful community forestry.

Table I. Planning by field workers in range-posts

Type of planning: range-post planning	
purpose	to plan for the efficient use of forestry department resources in a range-post
scale	entire range-post covering multiple FUGs
role of field workers	field workers decide what information to collect, how and when
outputs	• range-post work plan • recommendations for FUG workshops • information for management information systems (MISs)
Type of planning: FUG planning	
purpose	to empower local people to develop and manage community forests
scale	usually a single FUG
role of field workers	forest users decide what should be in a plan
outputs	• operational plans for forest management, and/ or agreements for nursery operations and/or plantation establishment • information for MISs

How can field workers collect information?

Conventional methods of gathering information in rural settings, such as questionnaire surveys and formal forest inventories, commonly fail to provide timely, reliable, cost-effective and useful information for implementing community forestry. Such highly formal methods are unnecessary and inappropriate at this stage in the development of community forestry. Forest user groups do not usually need highly technical information to manage community forests.

Approaches, tools and methods that involve local people as participants in collecting and using information provide better alternatives than conventional surveys and inventories. The next section describes RRA and PRA; these are simply labels for approaches that emphasise the importance of learning directly from and with local people.

Rapid Rural Appraisal (RRA)

Rapid Rural Appraisal (RRA) refers to a set of approaches that emphasise the importance of learning rapidly and directly from local people. RRA involves tapping local knowledge and gaining information and insight from local people using a range of interactive tools and methods. RRA differs from conventional approaches that involve field workers in the field on their own. RRA approaches are participatory in the sense that field workers consult with local people while collecting data. However, a basic principle of RRA is that field workers learn and obtain information, take it away and analyse it. In this respect RRA is extractive in that information is gathered and used according to the needs and agendas of the field workers. RRA is founded on a number of principles and findings, such as:

- highly formal and conventional methods of gathering information often fail to provide timely, reliable and cost-effective information for rural development planning;
- brief, unstructured field visits by field workers can give rise to biases that undermine the usefulness of information collected during such visits;
- local people do not need to be interviewed formally to obtain useful information. Informal tools such as conversations, direct observations and mapping can be used instead;
- there is great value in field workers staying in the field for extended periods and undertaking unhurried observations and conversations with local people;
- the attitudes and behaviour of field workers and local people are important factors in the quantity and reliability of information that can be obtained; and
- local knowledge has validity and usefulness for community forestry and such knowledge can be obtained using an RRA approach.

For field workers, RRA provides an efficient and reliable way to rapidly collect relevant information from local people that can be used for:

- setting priorities for the efficient use of forestry department resources;
- collecting detailed information from local people about the size and condition of local forests and the nature of communities who use those forests;
- identifying who has the right to use a forest; and
- collecting detailed information about community forests, forest user groups, nurseries and plantations for the purposes of monitoring and evaluating community forestry programmes.

RRA allows field workers to learn from local people before they initiate action to empower these people. This helps to avoid incorrect identification of the forest user group. Some people argue that RRA requires an inter-disciplinary team. In routine community forestry work inter-disciplinary teams are usually impractical due to financial and other constraints. This is not a serious problem provided that field workers realise that they need to collect social and technical information, and they adopt an inter-disciplinary approach to field work.

Participatory Rural Appraisal (PRA)

Robert Chambers (1992) describes Participatory Rural Appraisal as "... a family of approaches and methods to enable local people to share, enhance, and analyse their knowledge of life and conditions, to plan, and to act". In other words, PRA approaches involve field workers learning with local people. Field workers act as facilitators to help local people conduct their own analyses, plan and take action. The ultimate aim of PRA is to empower local people with the capacity to plan and take action towards improving their own situation.

PRA is based on the following principles:

- local people are creative and capable and can do their own investigations, analyses and planning;
- field workers have a role as facilitators of rural development; and
- local people should be empowered to solve their own problems themselves.

The basic difference between RRA and PRA approaches is that RRA seeks to obtain reliable and useful information from local people for use by field workers through a participatory approach, while PRA seeks to facilitate learning, planning and action by and for local people. In either case, field workers need to be aware of:

- the characteristics of good RRA and PRA;
- the potential dangers associated with the adoption of such approaches; and
- the role of RRA and PRA in community forestry and some broad guidelines describing when specific tools and methods might be appropriate.

Characteristics of good RRA and PRA

Appropriate behaviour and attitude of field workers is the key to successful RRA and PRA. Good RRA and PRA are characterised by behaviour and attitudes that include:

- building rapport with men and women, rich and poor, young and old and people in different ethnic or social groupings;
- being aware of potential suspicions and taking action to dispel them;
- being friendly, interested, culturally sensitive, relaxed, and open and avoiding placing people in situations in which they feel uncomfortable;
- listening and probing and leaving space in conversations for additional comments;
- avoiding using RRA and PRA tools in a mechanical way by selecting tools to suit local circumstances;
- taking advantage of local events and activities rather than staging events and activities;
- engaging in conversations that have a two-way exchange of information;
- being patient but proceeding at a steady pace;
- seeking the views of the weaker, less powerful people or groups;
- sharing information;
- giving people time to communicate and consider ideas;

- being self-aware and self-critical, using personal judgement and concealing personal biases;
- learning from people, not lecturing;
- checking and rechecking the validity of information using different sources;
- frequently reflecting on what information has been gained and identifying gaps;
- identifying and testing assumptions;
- embracing error;
- trying to ensure that people's expectations are not raised too early;
- recognising that not all RRA and PRA tools are suited to all situations or all social groups;
- asking questions that invite explanations or viewpoints rather than yes-or-no answers; and
- scheduling RRA and PRA activities so that, as far as possible, they fit in with the seasonal and daily routines of local people.

RRA and PRA are not panaceas for facilitating community forestry or rural development. While they are valuable approaches they have limitations. Field workers need to be aware of the potential dangers associated with RRA and PRA.

Potential dangers

In adopting RRA and PRA approaches there is the potential danger that they can be:

- misused through superficial adoption of methods in the absence of complete understanding and adequate training;
- seen as a replacement for other forms of investigation and study even in situations where more formal or analytical research is called for;
- rushed if they are seen as providing shortcuts, thus yielding unreliable information;
- disruptive to social routines in the village;
- biased towards local people who have time and motivation to talk to field workers;
- time consuming if done properly;

- biased towards those people who appear to have knowledge; and
- either facilitated in a highly formalised way, or applied too rigidly and repetitiously, which reduces their potential effectiveness.

These dangers must be been taken into account when using this guide and applying the suggested methods and tools in the field.

RRA and PRA and community forestry

RRA and PRA require a flexible approach. RRA and PRA tools and methods, and the sequence in which they are used, should not be highly prescribed. Using RRA and PRA tools and methods as a blueprint for action suppresses innovation by field workers; such innovation is essential to learning from and with local people.

RRA methods and tools are suited for use by field workers when they are planning how to allocate their own resources (finances and human resources) and investigating community forestry. Field workers should not attempt to empower local people until they have enough information to understand the physical and social situation relevant to negotiating collaborative agreements. When field workers begin to negotiate the hand-over of a community forest, a PRA approach should be used, because the group of local people who will implement agreements have to be empowered to plan and act according to their interests and capacities. Field workers should also use PRA tools and methods while implementing, monitoring and reviewing community forestry activities. Some RRA tools can also be used in these stages of community forestry to collect information that is not essential to, or required by, the forest user group itself.

A great deal of care is needed when using PRA to ensure that short cuts are not taken. Field workers are often very busy and they sometimes find it easier to deal with people who have the time and interest to participate in PRA exercises. As a consequence, women, the elderly, the young, the poor and ethnic minorities are often ignored in PRA exercises. Field workers need to be sensitive to the dangers of empowering only one section of a local community. Good PRA often takes a long time and demands patience and commitment. Field workers need to ensure that they do the following:

- share information with local people;
- use participatory tools in a flexible way; and
- take care to use the most appropriate tools for the circumstances. For example, there is little point in using participatory mapping to collect information on topography if a detailed topographic map exists for the area.

Details of RRA and PRA methods for community forestry can be found in Part 4.

Part 3

RRA and PRA tools for community forestry

Part 3 provides descriptions of how to use a number of RRA and PRA tools in community forestry. Differentiating between RRA and PRA tools is often difficult, as many PRA tools can be used in a RRA mode. As a general guideline, the following applies:

- RRA involves field workers learning rapidly and directly from local people by tapping local knowledge and gaining information and insight from local people. In RRA field workers decide what information is to be collected, asa well as how and when. They use this information to plan and undertake future activities. RRA tools do not require local people to develop a sense of ownership for collecting or analysing the information.
- Field workers use PRA tools to learn with local people and to share knowledge and experience. PRA emphasises empowerment of and equity among local people. PRA involves field workers in facilitating local capacity to analyse, plan and take action according to a local agenda.

Building rapport

Field workers must build trust with a wide cross-section of local people to work effectively. This process is called building rapport. The objectives of building rapport are to develop communications and establish working relationships with local people. Building rapport is not only courteous, but it helps overcome suspicions and makes future work easier. Building rapport can be particularly difficult where there are language, cultural or religious differences between field workers and local people. Building rapport with rural women is particularly important. Women are often overlooked when forest issues are being discussed, in spite of the fact that they are often the most frequent and important users of forests and forest products. Although village women are often shy with people from outside their community, particularly men, both male and female field workers can successfully build rapport with women by being patient, tactful and resourceful.

Figure 1. A field worker building rapport with forest users

HOW TO USE THE TOOL

To build rapport, field workers should:

- when beginning work in a rural area, meet with village leaders and local officials to dispel suspicion. However, building rapport should not stop with just meeting these people;
- begin working with local people who are more approachable and have less to fear from field workers — for example, older people, shopkeepers and village health workers;
- clearly explain the reasons for coming to the area to a wide cross-section of local people, both men and women;
- show genuine interest in local issues;
- choose times and locations that are convenient for local people;
- ensure that the men in a village understand the motives for wanting to talk to the women; and
- adopt the behaviour and attitudes of good RRA and PRA (see Part 2).

CAUTION: Building rapport can be a slow process: be patient. Initially avoid asking too many detailed questions that may arouse suspicion and slow the rapport-building process. Remain impartial and avoid becoming aligned with local factions. Avoid making unrealistic promises. Rural women are often busy, and often shy with strangers, whether the strangers are men or women. Building rapport requires persistence.

Cross-checking

By using a combination of the tools described below field workers can build up an accurate picture of the situation in a village. It is important that field workers do not rely on a single source of information but cross-check to verify information and establish whether all necessary information has been collected. Cross-checking is also known as triangulation.

HOW TO USE THE TOOL

To verify and cross-check information field workers should:

- develop a checklist of issues (what to collect);
- write down ideas on how to collect information for each issue;
- use the checklist as a reminder when undertaking field work; and
- keep good records on where information came from and how confident they are with the accuracy of information.

Figure 2. A field worker cross-checking information with a key informant

CAUTION: Field workers should use a variety of techniques that provide information to enable cross-checking. They should recognise that an alternative source of information will not necessarily yield more accurate information. Each source of information is subject to potential bias. It is best to use at least three different sources of information when cross-checking. Cross-checking can be a slow process: be patient.

Key informants

Some people, like village elders, local leaders or school teachers, are very knowledgeable about forests and local needs and interests. These people are valuable sources of information and are called key informants. The objective of using key informants is to collect information and gain useful insights into issues in a short period of time. Such information and insights can be used to develop a checklist for further investigation using other RRA and PRA tools.

HOW TO USE THE TOOL

To use key informants field workers should:

- note any potential key informants who have particular knowledge about a subject or area — such people are often met while building rapport;
- engage key informants in semi-structured interviews, participatory mapping, participatory analysis of aerial photographs, semi-structured walks, ranking, short, and simple questionnaires, time charts (seasonal diagrams) and forest profiles by rapid assessment;
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2); and
- check the reliability of information collected through direct observation and cross-checking.

CAUTION: Opinions collected from key informants may not be representative of all groups in the area. Key informants will not be able to provide reliable information about all areas or issues.

Interest groups

People who share particular sets of interests make up an interest group. An interest group can be determined by differences in age, gender, ethnic group, wealth or status, or religious belief. Examples of distinct interest groups include:

- women who collect particular forest products;
- poorer farmers;
- richer farmers who often have trees on their own land; and
- shopkeepers who buy firewood.

The objective of working with interest groups is to collect information and gain useful insights into their distinct needs, interests and problems. Such information is essential when negotiating the management of a community forest with a forest user group, when assisting the forest user group to identify and resolve conflicts, and when promoting the rights of less powerful groups.

Figure 3. A field worker conducting a semi-structured interview with an interest group

HOW TO USE THE TOOL

When working with interest groups field workers should:

- prepare a checklist of potential interest groups;
- use the checklist when building rapport to identify interest groups. Note down in a field book the type of interest groups found and the names and addresses of potential contact persons;
- focus on building rapport with particular interest groups;
- engage interest group members in semi-structured interviews, participatory mapping, participatory analysis of aerial photographs, direct observation, semi-structured walks, ranking, time charts (seasonal diagrams) and forest profiles by rapid assessment;
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2); and
- check the reliability of information collected through direct observation and cross-checking.

CAUTION: It is not always possible to satisfy everyone's interests or to resolve every conflict. Avoid treating women as a single interest group. There are wide variations in wealth, status, caste, ethnicity, education and other characteristics between individual women.

Semi-structured interviews

A great deal of valuable information can be obtained by talking to people about their situation and the things that interest them. This is called a semi-structured interview and is one of the main tools used in community forestry. Semi-structured interviews can be used with individuals, key informants, interest groups and other small groups of local people. The objective of semi-structured interviews is to engage local people in conversations, usually prompted through a series of questions relevant to both the field workers and local people.

HOW TO USE THE TOOL

To undertake semi-structured interviews field workers should:

- prepare a list of topics for discussion and note these topics in a field book;
- select individuals, key informants, interests groups or small groups of local people to interview who will provide a wide cross section of information and opinions;
- select a time and location where the interview is less likely to be disturbed;
- use the prepared list of topics as a checklist, but allow for flexibility in the conversation so that issues can be explored as they arise in conversation;
- ask questions that are relevant to the person or group being interviewed;
- use an open-ended questioning style that seeks explanations and opinions rather than a yes-or- no answer. Ask, for example, "where do you collect fuel wood?" rather than "do you cut fuel wood from the government forest?";
- record the details of each interview in a field book;
- modify the list and the questions as new issues emerge and old issues become less critical;
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2); and
- check the reliability of information through direct observation and cross-checking.

CAUTION: Do not to take notes while undertaking semi-structured interviews until rapport has been built; people are often reluctant to talk freely if notes are taken. Write down key points after an interview is finished. Once rapport has been built seek permission from informants to take notes. After an interview explain to informants what has been written. Rural women are often busy, and are often shy with strangers, regardless of whether the stranger is a man or a woman. Field workers should be sensitive to the constraints facing women when undertaking semi-structured interviews. Avoid asking questions that are beyond the knowledge or experience of informants. Avoid giving opinions or using questions that may adversely affect the answers given. To be polite, local people will often agree with the opinions of field workers, even if they do not really agree.

Secondary sources

Using secondary sources supplements other techniques of information gathering in order to provide a richer picture of local conditions. Field workers can often gain access to a wide variety of secondary sources of information. Secondary sources of information include maps, local government records, range-post plans, MIS data, records held by the District Forest Office and other government agencies, national records (for example, census data), records and local knowledge of NGOs and records held by individual farmers and farmer groups.

HOW TO USE THE TOOL

Field workers should:

- seek out possible secondary sources of information and collect relevant data where possible;
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2); and
- check the reliability of information through direct observation and cross-checking.

CAUTION: Avoid collecting information just for the sake of it. Information from secondary sources may not be accurate or useable.

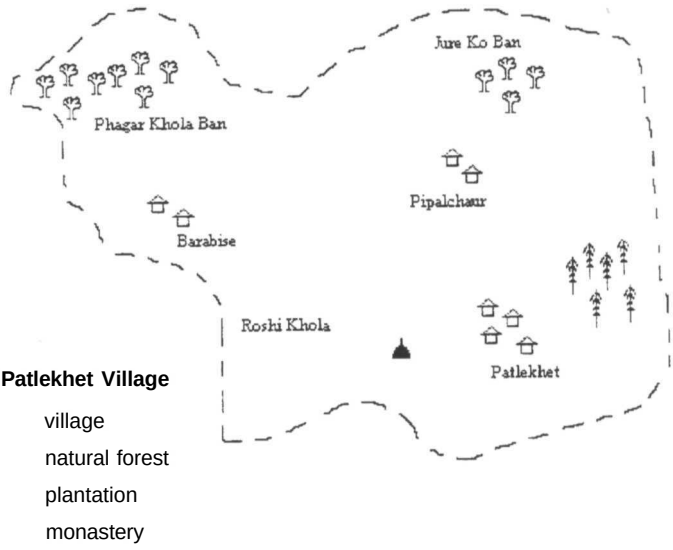
Sketch mapping

Sketch mapping uses a simple, hand-drawn map to record a variety of information about local physical resource and social conditions that does not usually appear on published maps. While field workers may consult local people while they are preparing sketch maps, the process of sketch mapping does not necessarily require that local people be treated as partners. Sketch mapping is an RRA tool, not a PRA tool.

Field workers can prepare sketch maps from memory, or draw them while viewing the area of interest. Sketch maps should be drawn in plan view (i.e. seen from above) into a sketch book or field book. A sketch map can be used to record the following:

- location of administrative boundaries;
- location of villages;
- topography and hydrology;
- type and location of farmlands;
- location and names of facilities (such as schools and water sources); and
- location, names and condition of forests.

Figure 4. An example of a sketch map



HOW TO USE THE TOOL

When preparing a sketch map field workers should:

- preferably select a location that provides a view of the area to be sketched;
- mark on the map the location name (map title), a north axis, a legend, the map maker's name and the date;
- sketch the major features of the landscape (ridges, rivers, roads) in plan view. By sketching these features first, the map is likely to have a slightly more accurate scale than if features are sketched randomly;
- try to avoid portraying nearby objects as large and distant objects as small;
- fill in the details required, trying to keep them aligned in respect to the positions they occupy in the landscape;
- where possible write in names of prominent features, villages, roads, forests and other features that may assist later when trying to relocate the map with the site or trying to transfer the information onto a more conventional map; and
- check and recheck the validity of information using different sources.

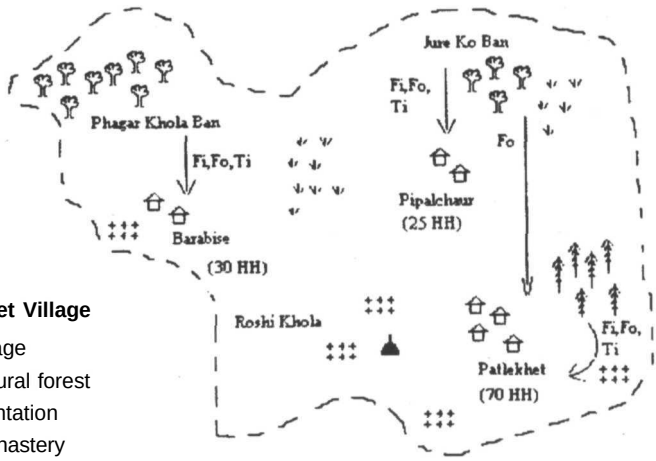
CAUTION: Sketch maps can be misleading; their scale is often less accurate than published maps and they therefore tend to simplify reality.

Participatory mapping

Participatory mapping is a form of sketch mapping. It requires field workers to collaborate with local people to prepare a simple but informative map, or set of maps, that record a variety of information about local physical resource and social conditions. Like sketch mapping, a participatory map can be used to record information that is not readily available from secondary sources, such as hydrology, land use, land tenure and infrastructure. Unlike sketch mapping, a participatory map is first drawn on the ground, a blackboard or large sheet of paper and then transferred into a field book or sketch pad. Participatory maps are usually prepared by local people with field workers acting as facilitators. This differs from a sketch map, which can be prepared without the assistance of local people if necessary.

Participatory mapping can be used by field workers to empower local people with the responsibility for managing community forests. Like sketch maps, participatory maps often have less accurate scale and boundaries than published maps. Accuracy can be improved by making sure to include sufficient information about the landscape (such as streams and ridges). By doing this, details of the map can be matched with, and then transferred onto, a more conventional map.

Figure 5. An example of a participatory map



A participatory map can be used to record the following:

- location of administrative boundaries;
- type and location of farmlands;
- location and names of facilities (such as schools and water sources);
- location, names and condition of forests used by local people;
- location of each village and the number of households and type of people that live there; and
- use rights and use patterns of local forests.

Participatory maps can vary from small-scale, general maps of the area to detailed, large-scale maps. A detailed map can be used to record:

- type and condition of individual forest patches, including planted areas;
- locations of particular resources, such as water sources, non-timber forest products; fuel wood and timber sources; and
- type, importance, seasonal use and source of forest products.

HOW TO USE THE TOOL

To undertake a participatory mapping exercise, field workers should:

- decide on the area of interest and the scale of the map to be prepared;
- schedule participatory mapping exercises so that they fit in as much as possible with the seasonal and daily routines of local people;
- choose physical surroundings where interruptions and distractions will be minimised, the ground is reasonably level and there is a view of the area of interest;
- gather a group of key informants, preferably both men and women. This is important because each group can have different knowledge of forest use patterns and use rights;
- try to keep the mapping groups small and limit the number of field workers;

- start by describing the purpose of the map, then make a mark on the ground to represent a prominent feature of the landscape (a stream, ridge, path or road). Ask local people to name this feature, write the name onto a slip of paper and place the paper on the ground beside the mark that represents the feature;
- try to avoid dominating the process; encourage local people to build the map themselves by adding features such as streams, ridges, roads, settlements, forests and forest boundaries. Forests can be represented by handfuls of grass, weeds or leaves;
- when it is completed, sketch the map (see Figure 5) into a field book. Mark the location name, a legend, the map maker's name and the date on the map; and
- give the participants a copy of the map, or, better still, encourage them to sketch a copy of the map themselves.

To improve the accuracy of a participatory map, the exercise should be repeated at other sites using different key informants. After each mapping exercise the field worker's copy of the map is adjusted by adding new information and discarding information that is inaccurate. Provided that sufficient features are drawn onto a participatory map, field workers can transfer the information to a topographic or other map and improve the accuracy of scale and boundaries.

CAUTION: Develop a basic understanding of the area before undertaking a participatory mapping exercise. This can be done by group walks, informal interviews, direct observation and secondary sources (particularly from existing maps). Participatory mapping can take a long time; be aware that local people can become frustrated with the process if you waste their time. The scale of participatory maps is often inaccurate and they should not be used in isolation from other tools. Field workers need to cross-check the reliability of information with other RRA and PRA tools. Some groups of local people do not like to use participatory maps, particularly if they consider that drawing on the ground is inappropriate.

Participatory analysis of aerial photographs

This is a similar technique to participatory mapping. An aerial photograph of the local area is used to stimulate discussion with key informants and small groups of local people. Aerial photographs can be used as interviewing tools for soliciting and recording spatial information (Fox, 1988: 7). This can include information that is not readily available from secondary sources, such as local names and land use. Participatory analysis of aerial photographs can provide valuable information for field workers, and can be used to empower local people with the responsibility for managing community forests.

Aerial photographs differ in quality, scale and perspective. Photographs that have a scale of 1:10,000 are usually referred to as large scale while aerial photographs with a scale of over 1:50,000 are small scale. Large-scale photographs are usually more useful for planning at the level of an individual forest user group, while small scale photographs are better for more general planning. Most aerial photographs are taken from directly above the ground looking down; these are described as vertical aerial photographs. Occasionally aerial photographs are taken obliquely to give a view looking sideways and downwards from above.

Because aerial photographs represent a true image of an area at a point in time, they do not have the problems of scale of sketch maps and participatory maps. Once local information is added to an aerial photo it is relatively easy to transfer the information to a more conventional map, or to produce a simple sketch map based on the photo.

Participatory aerial photo exercises can be used to record the following:

- location of administrative boundaries;
- type and location of farmlands;
- location of each village and the number of households and type of people that live there;
- location and names of facilities (such as schools and water sources);
- location, names and condition of forests used by local people;
- use rights and use patterns of local forests;
- type, importance, seasonal use; and
- source of forest products.

HOW TO USE THE TOOL

To undertake a participatory analysis of aerial photographs, field workers should:

- collect the appropriate photos and drawing equipment;
- schedule participatory analysis exercises so that they fit in as far as possible with peoples' seasonal and daily routines;
- choose physical surroundings where interruptions and distractions will be minimised, and where there is a view of the area of interest;
- gather a group of key informants, preferably both men and women. This is important because they can have different knowledge of forest use patterns, and use rights;
- try to limit the number of people and field workers;
- describe the purpose of the exercise and show the photographs. Identify a prominent feature on the photograph (a stream, village, ridge, path or road) and ask people to name this feature, then write the name on the photo with an erasable pen or wax pencil;
- encourage local people to identify, name and describe features such as streams, ridges, roads, settlements, forests and forest boundaries. Draw arrows to show where local people collect forest products. Ask questions that encourage local people to take control of the exercise; and
- at the conclusion, sketch a map from the features on the photo and give a copy of the map to the participants.

The exercise should be repeated at other sites using different key informants. Each time the field worker's copy of the map or photo is adjusted by adding new information and discarding inaccurate information.

CAUTION: Aerial photographs are expensive, easily damaged and are sometimes difficult to obtain, and should be stored and transported carefully. They are less useful in very steep areas due to distortions of land area and the effect of shadow. Develop a basic understanding of the area before undertaking this exercise, either by group walks, informal interviews, direct observation or secondary sources (particularly from existing maps).

Photographs

Although photographs are not commonly used for RRA or PRA they can be quite a useful tool for promoting discussion and confirming information.

HOW TO USE THE TOOL

One useful method is to take photographs of an area of interest from a nearby vantage point — perhaps a hill or ridge — and then to use an enlarged copy of the photographs, or a composite of several photographs, to facilitate discussion with and collect information from local people in the same way as described in participatory analysis of aerial photographs.

Another method is to collect photographs of subjects of interest; for example, different species of trees found in a community forest. These photographs can then be used to facilitate discussion on the use of particular species. There are numerous other ways in which photographs can be used.

CAUTION: Photographs are easily damaged and relatively expensive. Field workers need to take considerable care to ensure that the photographs are stored and transported in an appropriate way.

Direct observation

Direct observation is a very useful tool for collecting information. Observations can be made opportunistically as field workers travel around their area, or they can be made deliberately during a visit to observe specific situations or activities first-hand.

The objectives of direct observation are to:

- make qualitative or quantitative appraisals of relevant physical and social conditions; and
- cross-check information that has been collected using other tools.

Direct observation is particularly important because misunderstandings can occur if local people provide information that does not match with what is seen. Discrepancies can occur if local people have not completely understood what was being asked. If this happens it is usually because the questions were poorly phrased, too complex, or too general. By comparing direct observations with the information collected from other sources, additional questions can be posed to fill any gaps in knowledge of local conditions. This increases the accuracy and reliability of the information obtained.

Direct observation can also reduce the number of questions that need to be asked of local people. For example, there is little point asking a person if they are old and poor if field workers can readily see for themselves that the person is old, underfed, wears old and tattered clothes and lives in a small and modest house.

Figure 6. A field worker directly observing a forest with some forest users

HOW TO USE THE TOOL

To directly observe, field workers should:

- prepare a checklist of topics for observation and note these topics in a field book;
- look carefully and systematically at what is happening in villages and forests and take notes about the issues and topics that are listed on the checklist;
- use the prepared list of topics as a checklist, but allow for flexibility so that issues can be explored as they arise;
- undertake observations at various times of the day, week, month and year to reduce potential biases associated with the timing of observations;
- cross-check observations with information obtained through other methods;
- when observations contradict information gathered by other methods, cross-check; and
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2).

CAUTION: Undertake calibrations of local measures to allow information collected from different sources to be converted to standard weights or volumes. Potential biases can occur due to the timing of observations and the effect on behaviour of the presence of a field worker.

Semi-structured walks

Semi-structured walks are a combination of semi-structured interviews and direct observations undertaken during joint inspections with key informants, interest group members or other knowledgeable local people. They can generate much useful information and discussion; observations made during such walks can be used to stimulate, challenge and focus interviews, giving rise to exchanges of information that otherwise might not have occurred.

A transect walk is another type of semi-structured walk. Transect walks are more structured in that they are planned to include visits to locations that represent a range of situations or settings. Usually this is done to capture information along some ecological, physical or social gradient, thus producing a cross-section of conditions in a particular place.

HOW TO USE THE TOOL

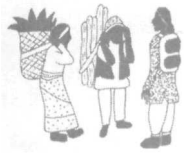
To undertake semi-structured walks, field workers should:

- select times when a semi-structured walk is less likely to cause disruption to local activities or be disturbed;
- locate key informants and other knowledgeable people who are willing and able to walk around the area and who will provide a cross-section of information and opinions;
- explain the general aim of the exercise and agree upon the purpose of the walk before setting out. Usually this will involve assessing the composition and condition of local forests, determining what products are available from these forests and reviewing who uses the forests and where they live. Alternatively, walks can be planned to analyse the condition of private forests and agricultural lands, common grazing lands or settlements. Field workers should allow for flexibility during the semi-structured walk so that issues can be explored as they arise in conversation or through direct observation;
- while undertaking the semi-structured walk, ask open-ended questions that seek explanations and opinions

rather than yes-or-no answers. For example, ask "what are the most important fodder trees in this area?" rather than "is ficus the most important fodder tree?". Field workers should show genuine interest and encourage the users to explain what is being observed along the way;

- record the details of observations in a field book, and on a transect diagram or sketch map;
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2); and
- check the reliability of information through direct observation and cross-checking.

CAUTION: Village women are often busy with farming and household tasks, and they are often shy with strangers, regardless of whether the stranger is a man or a woman. Avoid asking questions that are beyond the knowledge or experience of the person or group being interviewed. Avoid giving opinions or using questions that may adversely affect the answers given. To be polite, local people will often say they agree with the opinion of the field worker, even if they do not. Avoid treating the agenda as fixed and try to not ask questions according to a strict structure or sequence.



Ranking

Ranking is a useful tool for inquiring into the nature of local preferences and for helping local people to set priorities for forest management or other activities. Ranking exercises can be undertaken with individuals (key informants or other knowledgeable local people), interest groups or with groups that represent a mixture of interests. Ranking exercises are often conducted on the basis of gender to determine different preferences between men and women.

There are several ways in which ranking can be undertaken. For less complex issues local people can be asked informally to rank items or issues during semi-structured interviews. For more complex issues ranking can be undertaken by using pair-wise ranking or a matrix table. Pair-wise ranking is often simpler than ranking all items at once as it avoids the confusion that can sometimes arise from having too many items to rank at one time.

An example of pair-wise ranking

To obtain information about the nature of local people's preferences for fodder trees the field worker can begin with a pair-wise ranking exercise. This is done by asking a local person to identify the six most popular fodder trees grown locally. A pair-wise ranking chart is prepared showing the six species on both axes. The field worker then works through each combination of pairs by asking the local person to nominate and explain their preference. Each selection is written down

Figure 7. A ranking exercise

in the space provided until the chart is complete (see completed chart below). By adding up the number of times each species is mentioned the field worker can develop an idea of the most preferred local species. However, the real value of the pair-wise ranking exercise lies not in the absolute ranking but rather in the opportunity that arises for the field worker to ask questions about why the local person chose one species over another. By doing this the field worker can build up an idea of what attributes of fodder trees the informant considers to be important. For example, the informant may prefer a species because it is easy to grow, grows rapidly, can be harvested repeatedly, does not shade crops, is available from a local nursery, is nutritious for livestock or a host of other reasons. Eliciting this sort of information is often more important than the score that is obtained at the end as it provides a useful insight into the nature of local preferences. It also provides a starting point for a matrix ranking exercise as shown below.

Figure 8. Example of recording tables for pair-wise ranking

Top is a blank table; bottom is a completed table

Oak						
Fig						
Mulberry						
Tanki						
Ipil						
Siris						
	Oak	**Fig**	**Mulb**	**Tanki**	**Ipil**	**Siris**

Oak						
Fig	**Fig**					
Mulberry	**Mul**	**Fig**				
Tanki	**Tan**	**Tan**	**Tan**			
Ipil	**Ipil**	**Fig**	**Ipil**	**Ipil**		
Siris	**Sir**	**Sir**	**Sir**	**Sir**	**Sir**	
	Oak	**Fig**	**Mulb**	**Tanki**	**Ipil**	**Siris**

Rank:

Siris	**5**	**Ipil**	**3**	**Mulberry**	**1**
Fig	**3**	**Tanki**	**3**	**Oak**	**0**

An example of matrix ranking

Using the pair-wise ranking exercise (Figure 8) as an example, the field worker can develop a matrix table that lists local fodder species against the criteria used by local people to differentiate between species. Figure 9 shows how this is done. The field worker can then encourage local people to rank each species against each criteria. This can be done by placing a series of marks or objects in each square indicating how each species rates against each criteria. For example, by placing four pebbles in the square for the nutrition value of fig, the local person is indicating that the fig is highly nutritious. A lack of pebbles indicates "low" or "no" value. As the chart is filled in by local people, the field worker can promote discussion that elicits information on the nature of choices; for example, which criteria are considered important by local people for each species and why.

Figure 9. Example of a recording table for matrix ranking

	Oak	Fig	Mulberry	Tanki	Lucaena	Sirrus
easy to grow	•	••••	•••	••••	••	••
grows rapidly		••••	•••	••	••••	••••
doesn't shade crops	•	••	••	••	•••••	••
locally available	••	••••	•••••	••••	•	••
highly nutritious	•••••	••••	•••	••	••••	•••
multi-purpose	•••••	•	••	•••		•
can be lopped repeatedly	•••••	•••	•••	•••	••	••

If possible it is best to limit the number of items or issues to be ranked to less than ten; otherwise the exercise can become unwieldy. Ranking can be used for a variety of issues including establishing priorities for forest management works and harvesting. Field workers can then determine what technical advice and support the forest user group needs.

HOW TO USE THE TOOL

To undertake ranking, field workers should

- select times when ranking is less likely to cause disruption to local activities or be disturbed;
- locate key informants and other knowledgeable people who are willing and able to participate in a ranking exercise and who will provide a wide cross-section of information and opinions;
- explain the general aim of the exercise and agree upon the purpose of the exercise before commencing. For example, this may involve assessing local needs for forest products, determining what products are available from these forests and options for forest management. Field workers should allow for flexibility during the exercise so that issues can be explored as they arise;
- together with local people develop a list of issues or items that are to be ranked. For example, ask "what forest products do local people use in this area?";
- undertake the exercise using semi-structured interviews, pair-wise ranking or matrix ranking;
- record the details of the exercise in a field book as a list or matrix;
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2); and
- check the reliability of information through direct observation and cross-checking.

CAUTION: Ranking can produce inaccurate results if the local people are not clear about the criteria. Field workers need to be particularly careful when formulating questions and undertaking the exercise to ensure that everyone has a similar understanding of the criteria and goals of the exercise. Village women are usually busy with household tasks and are often shy with strangers; this may affect their ability to participate. Avoid asking questions that are beyond the knowledge or experience of the person or group. Avoid giving opinions or using questions that may adversely affect the answers given. To be polite, local people will often agree with the opinion of the field worker, even if they do not.

Time charts (seasonal diagrams)

Field workers need to collect information about the sequence of forest use and the cycle of agricultural activities to understand when local people will best be able to undertake forest management activities. This information can be obtained by using a time chart.

A time chart is prepared by drawing a two-dimensional matrix and writing the months of the year along one axis and the issues along the other. Field workers then encourage local people to fill in the matrix of the chart by marking the grid or by placing stones or other objects in appropriate places on the matrix.

HOW TO USE THE TOOL

Creating a time chart involves similar techniques to those used in participatory mapping. The time chart can be prepared on the ground, a large sheet of paper or a blackboard — each of these is equally successful.

To develop a time chart, field workers should:

- select times when the time chart exercise is less likely to cause disruption to local activities or be disturbed;
- locate key informants and other knowledgeable people who are willing and able to participate in a time chart exercise and who will provide a wide cross section of information and opinions;
- explain the purpose of the exercise before commencing. For example, field workers may wish to determine when particular products are available from the forest;
- agree on the issues or items (for example, when fuelwood is collected) then prepare a two-dimensional matrix by writing the months of the year along one axis and the issues along the other axis. Ask people to mark the grid by indicating when they undertake an activity (for example, when they collect certain products or intend to undertake certain management activities). By comparing a forest management time chart with a chart showing agricultural activities it is possible to identify conflicts or omissions;

- record the details of the exercise in a field book as a list or matrix;
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2); and
- check the reliability of information through direct observation and cross-checking.

CAUTION: Time charts can produce inaccurate results if local people are not clear about the issue. Field workers need to be particularly careful when formulating questions and undertaking the exercise to ensure that everyone has a similar understanding of the criteria and goals of the exercise. Village women are often busy with farming and household tasks, and are often shy with strangers; this may affect their ability to participate in the exercise. Avoid asking questions that are beyond the knowledge or experience of the person or group. Avoid giving opinions or using questions that may adversely affect the answers given. To be polite, local people will often say they agree with field workers opinion, even if they do not.

Short, simple questionnaires

Questionnaires are a useful but frequently misused tool. The objective of using short, simple questionnaires is to collect specific information on a topic, or range of topics, in a structured sequence. The answers given to questionnaires can be readily compared to each other and statistical analyses can be applied to the information to produce useful data.

HOW TO USE THE TOOL

To undertake short, simple questionnaires field workers should:

- prepare a questionnaire based on topics that have been raised during other RRA and PRA exercises;
- determine how to apply the questionnaire, considering sample size, sampling procedure and timing;
- test and retest the questionnaire and modify it as needed. It is best to test the questionnaire in the field, but not in the actual area where the questionnaire is to be finally administered;
- apply the questionnaire, collate the information and analyse the data;
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2); and
- check the reliability of information through direct observation and cross-checking.

CAUTION: Questionnaires are difficult to prepare and difficult to implement. The data that are collected using questionnaires can be unreliable if the questions are not clear to the local people. Questionnaires do not readily allow field workers to be flexible when conducting an interview and thus valuable information can be missed. To obtain statistically valid data a large number of questionnaires must be applied in a rigid manner according to predetermined selection criteria.

Workshops and group meetings

Workshops and group meetings are useful after rapport has been built and information has been gathered from key informants and interest groups. Workshops and group meetings can include information gathering, planning, negotiating, monitoring and evaluation. In some cases all these issues can be combined in one workshop or group meeting. A particularly useful workshop is one that brings together representatives of several forest user groups, where the objectives may also include such issues as awareness-raising, information transfer and extension. Workshops and group meetings can be conducted with interest groups, forest user groups or other groups of local people.

HOW TO USE THE TOOL

To hold a workshop or a group meeting, field workers should:

- select times and locations when the workshop or group meeting is less likely to cause disruption to local activities or be disturbed;
- prepare a checklist of topics for discussion and note these topics in a field book;
- encourage the group to select participants who are willing and able to participate and who will provide a wide cross-section of information and opinions;
- ensure participants understand the purpose of the workshop or group meeting before commencing;
- promote techniques that encourage participation. Try to avoid a lecture or classroom-style situation. Use open-ended questions to promote explanations and opinions;
- agree on the issues to be discussed and the rules of the workshop or group meeting;
- use the prepared list of topics as a checklist. Allow for flexibility in the conversation so that issues can be explored as they arise;
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2); and
- verify the reliability of information through direct observation and cross-checking.

CAUTION: Try not to overuse meetings as a means of gaining information. Develop skills to cope with difficult situations that sometimes arise; for example, when a conflict develops and tempers are raised, or when someone tries to dominate the decision-making process at the meeting. Information obtained at workshops or group meetings needs to be cross-checked by other RRA and PRA methods described in this manual. Workshops and group meetings should not be used as the primary tool for gathering information; the ideas expressed at such events often do not represent all interested parties. Workshops and group meetings in particular tend to favour elites and more vocal sections of rural communities. As a result, disadvantaged groups are often under-represented

Forest profile by rapid assessment

Many methods can be used to obtain information about forests. While formal forest inventories provide accurate information, they are often time-consuming and expensive. At this stage in the development of community forestry, formal forest inventories are unnecessary and inappropriate because local users do not need highly technical information to manage community forests. On the other hand, rapid assessment techniques provide a cost-effective approach to collect reliable and useful information for community forestry. By collecting forest information rapidly, field workers can allocate more time to investigating social issues and undertaking forestry extension, both of which are critical to the success of community forestry.

Inspecting a forest with a group of local people and key informants is a useful way to obtain information about the physical characteristics of a forest and social information about how a forest is used. This is called a forest profile by rapid assessment. The objective of such an assessment is to collect information on the location, tenure and condition of a forest. Field workers need this information to provide sound technical advice to forest users and to guide them in the development and implementation of forest management plans. A forest profile by rapid assessment can be used to collect the following information:

- **forest location** — administrative address and location relative to villages and other forests;
- **forest name** — the name as it is known to local people;
- **size** — an estimate of the area of the forest in hectares;
- **forest type** — a simple classification of the forest based on, for example, forest structure, species associations, and maturity;
- **forest heterogeneity** — the variation in forest type and condition over the area;
- **forest condition** — for each forest block[1], a simple description and classification of the forest based on soil cover, crown cover, regeneration and seed trees; and

1. Forest blocks are areas which, when compared to the forest as a whole, are relatively homogenous areas in terms of species composition, structure and function; plus other biophysical characteristics, and levels of disturbance and degradation.

- **opportunities for harvesting and silvicultural treatments** — for each forest block, the different opportunities for harvesting and silvicultural treatments.

To undertake a forest profile by rapid assessment, information about a forest is collected rapidly by asking local users questions, looking at the forest to estimate forest characteristics (ocular estimates), and preparing a sketch map or participatory map. This information can be entered onto a simple form such as that shown in Part 5, Table 10. Ocular estimates used for forest profiles must be calibrated from time to time in order to obtain reliable information from rapid assessments. This can be done by measuring a few small randomly located temporary plots and comparing the results with ocular estimates.

HOW TO USE THE TOOL

To undertake a forest profile by rapid assessment, field workers should:

- select times when the forest profile by rapid assessment is less likely to cause disruption to local activities;
- locate key informants and other knowledgeable people who are willing and able to visit the forest and who will provide a wide cross-section of information and opinions;
- explain the general aim of the exercise. Field workers should allow for flexibility during the assessment so that issues can be explored as they arise in conversation or through direct observation;
- record the name of the forest, its location, the tenure of the land, and the date that the information was collected;
- estimate the area of the forest, based on the opinions of the group and a measurement by eye;
- estimate by eye the crown cover of the forest, the stocking of shrubs or trees, the three most common species in the forest and condition of the forest using the simple forest condition categories presented in Part 5;
- adopt the behaviours and attitudes of good RRA and PRA (see Part 2); and

- check the reliability of information through direct observation and cross-checking.

To calibrate ocular estimates, field workers should:

- establish temporary plots, undertake simple inventories and forest boundary surveys, and compare the results with ocular estimates. Such calibration should be undertaken at the start of forest assessment and whenever field workers encounter new forest conditions; and
- measure more than one temporary plot to cover the variation in forest condition within a forest block. Accuracy of estimates is increased with the measurement of more plots.

CAUTION: Field workers should recognise that forest profiles by rapid assessment are not sufficient to monitor the condition of the forest over time.

Simple forest and shrubland inventories

Forest profiles by rapid assessment provide a useful first glance at the condition of the shrubland or forest but are not very useful for establishing a baseline description of biodiversity or the condition of the forest as an ecosystem. The forestry department and forest users will have an interest in obtaining some baseline description of forest condition for monitoring the impact of management systems in the future. Baseline information can be collected rapidly by field workers using simplified forest and shrubland inventory tools which provide some area-based measurements of vegetation and soil condition. Wildlife inventories are more difficult to undertake and require a substantial commitment of resources. Where a community forest is being managed for a specific wildlife-related objective, there is a strong case to develop and use some simple inventory techniques to measure specific wildlife values. However, a useful starting point for any baseline description of a community forest will be a simple vegetation inventory. Such inventories are described below.

Simple forest and shrubland inventories involve measuring the:

- quantity of tree and shrub vegetation;
- abundance of tree and shrub regeneration;
- number of plant species in various growth form categories; and
- extent of the soil's exposure to accelerated erosion.

Two separate rapid forest monitoring systems are necessary; one for shrublands and grasslands, one for forests. In shrublands, crown cover should be measured because it is easier than measuring diameters of stems, or undertaking destructive sampling of biomass to get a measure of the quantity of vegetation. In forests, the diameter of stems at a standard height above the ground should be measured and total basal area[1] calculated. This is easier to measure than crown cover or biomass. The measures for shrublands and forests are summarised in Table 1.

Because the condition of a community forest can vary considerably over a short distance it is important to take account of this variation as much as possible. A simple way to do this is as follows:

1. Basal area is the sectional area of a tree stem at breast height.

- divide the forest into blocks based on major differences in vegetation type and forest condition;
- delineate these blocks on a sketch map using identifiable natural features; and
- estimate the area and condition of each block.

Table 2. Measurements for monitoring biophysical condition of community forests

criteria	shrublands	forests
area	ocular estimates of block areas chain and compass boundary survey of whole forest	
quantity of vegetation	stocking counts of shrubs by species crown cover of grass/shrubs total basal area of trees	stocking counts of trees by species total basal area of trees
regeneration	stocking counts by species (shrubs and trees only)	
plant biodiversity	number of species observed in different growth form categories[1]	
exposure of soils to accelerated erosion	ground cover[2]	

Blocks become the basic unit for collecting information through simple inventories. The recommended basis for subdividing and classifying community forests for this purpose is outlined in Table 3. Once a community forest has been subdivided into blocks based on forest condition categories, measurements of vegetation and biodiversity can then be taken and recorded for each forest block, rather than for the community forest as a whole.

All of the observations, except area and those required to complete the list of plant species, are made on temporary plots located in each forest block using a grid system. Formats suggested for recording the inventory information can be found in Table 5.

1. The growth form categories used to stratify counts of plant species are: tree, shrub, grass, forb, fern, moss, and vine (McDonald et al., 1984).
2. Ground cover is the percentage of the ground surface which does not have exposed mineral soils.

Table 3. Vegetation types and condition categories for community forests

vegetation type	condition class	characteristics
grassland[1]	degraded	very sparse to sparse grass cover (<50%) extensive exposed soils
	stocked	moderate to high grass cover (>50%) soils mostly covered with vegetation
shrubland[2]	very degraded	low stocking of shrubs (<10,000 per ha) very sparse crown cover (<20%) extensive exposed soils
	degraded	low stocking of shrubs (<10,000 per ha) sparse crown cover (20 - 50%) soils mostly covered with vegetation
	stocked	moderate stocking of shrubs (>10,000 per ha) moderate crown cover (50 - 75%) few or no seed trees present (<100 per ha)
	fully stocked	moderate stocking of shrubs (>10,000 per ha) high crown cover (>75%) adequate seed trees present (>100 per ha)
conifer, etc.[3]	very degraded	very sparse crown cover (<20%) extensive exposed soils
	degraded	sparse crown cover (20 - 50%) soils mostly covered with vegetation
	stocked	moderate crown cover (50 - 75%)
	fully stocked	high crown cover (>75%)

1. Grassland: vegetation dominated by sod, tussock or hummock grasses (McDonald et al., 1984).

2. Shrubland: vegetation dominated by woody plants which are multi-stemmed near the ground, or which if single stemmed are less than two metres tall. An upper stratum of emergent trees may be present and comprise up to five per cent of the total crown cover.

3. Conifer, broad-leaf or mixed forest: vegetation dominated by woody plants more than two metres tall and with a single stem or branches well above the base. If 75 per cent or more of trees in a stand are coniferous, the forest is defined as a conifer forest. Similarly, if 75 per cent or more of the number of trees in the stand are of broad-leaf species, it is defined as a broad-leaf forest. All other combinations of trees are referred to as mixed.

HOW TO USE THE TOOL

To undertake a simple forest or shrubland inventory field workers should:

- select times when monitoring is less likely to cause disruption to local activities;
- discuss the objectives and method of inventory with the forest user group and explain why forest condition and biodiversity need to be measured;
- give the forest users time to consider the inventory, encourage them to suggest additional factors to monitor and invite them to accompany the inventory team;
- record the name of the forest, its location, the tenure of the land, and the date that the information was collected;
- prepare a sketch map of the forest or shrubland if one does not exist;
- divide the forest into blocks based on differences in vegetation type and forest condition;
- delineate these blocks on a sketch map, and then estimate the area of each block;
- decide on the dimensions of the temporary sample plots that will be established in the inventory, and calculate the area of each plot. Then review the total area of the forest block and calculate the number of temporary sample plots required to achieve a minimum sampling intensity of two per cent of the block area, with an absolute minimum of four plots per block to increase the likelihood that the sample is approximately representative of the forest block. A subjective determination of an adequate sample size may be obtained by using a running mean of the data gathered in sample plots. A minimum sampling intensity of two per cent is suggested as a compromise between workload and precision of estimates;
- the plots should be distributed systematically about the forest block. This can be done by drawing a simple grid system over a topographical or sketch map of the forest

block (which is based on a topographical map with known distances/scales). The spacing of the grid system is based on the number of plots required and the size of the block. The TSPs should be centred on the grid intersection points and be approximately equidistant from each other. Distances will depend on the size of the grid system;

- from the starting point of the grid calculate the distance and direction to the first plot; locate the first plot by pacing or by using a simple compass and tape or a pre-measured rope;
- in steep country use rectangular plots with the long axis aligned along the contour; this is the safest and fastest way to measure area. Depending on the density of vegetation, plot size should range from 5 x 10 m to 5 x 30 m;
- define plot boundaries; use a 10-m rope laid along the centre line and a 2.5-m rope stretched horizontally between the centre-line and the enumerator to show the outer limit of the plot as each side is measured;
- decide whether to undertake a Simple Shrubland Inventory (SSI) or a Simple Forest Inventory (SFI);
- measure and record details on the relevant plot sheet (SSI or SFI: see Part 5, Tables 13-16);
- once all details have been completed for a plot, calculate the distance and direction to the next plot, proceed there and repeat the measurements until all plots are completed;
- use plot results to calculate individual estimates of ecological criteria;
- summarise these estimates to give averages and standard deviations of each criteria for each block of vegetation; and
- discuss changes in forest size, type, composition and condition with the users.

CAUTION: A simple shrubland or forest inventory is useful only if it provides useable information for the forest user group and the forestry department. Because forest users generally do not need highly technical information field workers should provide the results of an inventory to users in a simple and understandable form.

Sharing information

Participatory techniques are powerful tools to collect and analyse information. They also offer field workers opportunities for developing partnerships with local people. Used properly, participatory techniques can empower local people to manage their own problems. Used improperly they can result in people being disadvantaged or create or inflame local conflicts. When field workers use participatory techniques they need to remember two important issues. First, they should collect information from, and work with, all groups of people in the community, not just the powerful and the rich. Second, they should ensure that the information they collect is shared with the local community and that it is used to ensure that decisions are equitable and rational.

This completes the general discussion of the RRA and PRA tools that you will need. Part 4 provides detailed methods that may be useful in the field. It is important to note that the following methods are suggestions only: they are not meant to be blueprints for action. Different situations call for the use of different methods.

Part 4

Participatory methods for community forestry

Introduction

This section describes methods of combining participatory tools for use in planning and implementing community forestry. Most of these methods have been tested extensively in the field. Nevertheless, they may not be applicable to all situations and are provided as guidelines only. The methods emphasise using the right tools at the right time. Using tools that empower local people too early in the process can lead to difficulties later. For example, if not all of the legitimate forest users are identified before the empowerment process is undertaken, the forest user group that is established may not be representative of all users. This usually leads to failure of the forest management plan.

The following section on range-post planning describes a technique that can be used to set priorities when field workers first start work in an area or whenever they want to reassess their priorities.

Range-post planning

The aim of range-post planning is to link the capacity and interests of local people with national objectives for forestry development. If such a link is not made then the implementation of community forestry in specific areas will be potentially wasteful of national resources and may fail to empower those people who have a genuine interest in participating in community forestry programmes.

Field workers therefore need to have an overall picture of rural conditions throughout their work area. This should include a general understanding about the status of forests and forest use, the people who live in the area, and their needs, interests and problems. This information allows field workers to set priorities for forestry department programmes based on the relative interests of local people and the condition of forests.

Field workers can undertake range-post planning by:

- referring to existing information and collecting new information about their work area;
- setting work priorities; and
- allocating resources to meet these priorities.

The objectives of range-post planning are as follows:

- to periodically generate a list of priorities and schedule of tasks to be undertaken within the plan period (usually one year), in consultation with senior staff;
- to maintain information about the present status of forests, forest use and forestry activities in a management information system (MIS); and
- to review the progress made in implementing community forestry.

Collecting and maintaining information

Table 4 summarises the information required for range-post planning. If this information does not exist, or needs updating, field workers will need to collect information using a range of RRA tools.

Initially, this information is recorded in field note books, simple forms and sketch maps. In the longer term, this information must be summarised and maintained in an MIS to survive the promotions, transfers, resignations and memory lapses of field workers. An MIS for a range-post should:

- be user friendly, so that a newly assigned field worker can have ready access to the information;
- contain up-to-date information that is reliable, accurate and sufficient for planning;
- be cost-effective; and
- ensure that information cannot be inadvertently lost or damaged.

The MIS should also store information collected for forest user group planning (see below) and can provide the raw data for district, regional and national summaries of community forestry developments.

Table 4. Information needs and tools used for range-post planning

information category	appropriate RRA tools, methods
forest names and locations	semi-structured interviews, semi-structured walks with key informants sketch mapping or participatory mapping secondary sources (e.g. existing forest profiles, operational plans and forestry department records)
forest types, sizes and biophysical condition	semi-structured interviews, semi-structured walks with key informants sketch mapping or participatory mapping secondary sources (e.g. existing forest profiles, operational plans and forestry department records)
forest use	semi-structured interviews, semi-structured walks with key informants sketch mapping or participatory mapping direct observation time charts (seasonal diagrams)
local forest management systems and silvicultural knowledge	semi-structured interviews, semi-structured walks with key informants sketch mapping or participatory mapping interest groups
nature of local communities	semi-structured interviews, semi-structured walks with key informants sketch mapping or participatory mapping interest groups direct observation secondary sources (e.g. local records, national census information)
community interest for participation in community forestry programmes, and current status of community forestry	semi-structured interviews, semi-structured walks with key informants secondary sources (e.g. forestry department records)

Developing a work plan

To develop a range-post plan the field worker should undertake the following steps:

- discuss community forestry development in the district with the District Officer;
- prepare a draft range-post plan that attempts to link local capacity and interests with forestry department capacity and interests; and
- finalise the plan by discussing and negotiating targets, activities and priorities with the District Officer.

The range-post plan should be discussed at regular meetings with the District Officer and adjustments should be made according to changing priorities and requirements for seasonal activities. The plan should be reviewed at least once a year, before the annual budget is prepared for the district.

When preparing a draft range-post plan, the following issues should be considered:

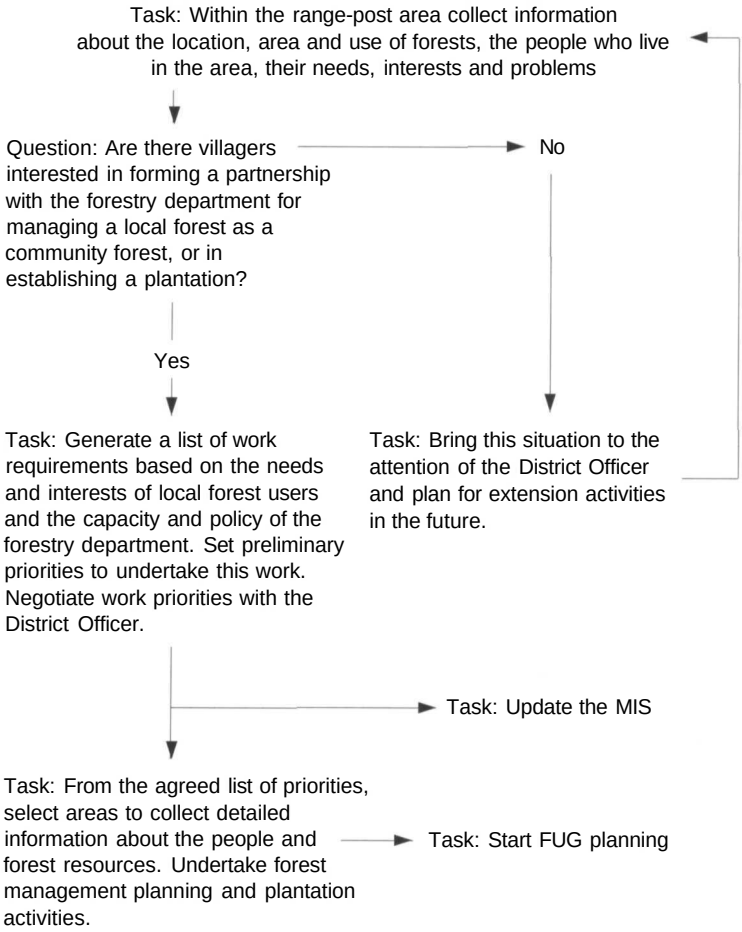
- the vision, law, policy, administrative guidelines, programmes and resources of the forestry department;
- the extent and nature of forests, trees and other natural resources;
- the capacity, interests and priorities of local people; and
- previous experience in implementing community forestry, including research findings.

The final plan should confirm the activities to be undertaken by the field worker, suggest a period in which these should be completed, and document instructions and agreements made with the District Officer. The plan should be used in a flexible way to ensure that work priorities can be altered as circumstances change.

Forest user group planning should be undertaken according to the priorities set out in the range-post plan. Figure 10 shows a flow chart indicating the approximate sequence of tasks that are needed in range-post planning.

Figure 10. Range-post planning

RRA tool kit	building rapport semi-structured interviews key informants and interest groups direct observation sketch mapping secondary sources ranking workshops and group meetings



Forest user group planning

Through the process of range-post planning, field workers will develop an overview of the people and the forests in the range-post area, and a list of tasks based on the needs and interest of local forest users and the requirements of the District Officer. To accomplish these tasks, field workers must facilitate forest user group (FUG) planning. The aim of FUG planning is to empower local people in forest management and to engage them in the planning, implementation and monitoring of community forestry programmes. Table 5 shows the four phases of FUG planning and the role of the field worker in empowering local people.

Table 5. The four phases of forest user group (FUG) planning

phase	role of the field worker
investigation	• collecting detailed information about the size and condition of local forests and the nature of rural communities who use those forests • identifying who has the right to use a forest
negotiation	• negotiating collaborative agreements with FUGs about how they will run nurseries, or manage forests or plantations
implementation and monitoring	• providing technical advice and assistance to FUGs to help them manage their forest and their user group • monitoring technical, social and financial progress of FUGs and community forests
review	• assisting FUGs to appraise, revise and renegotiate their operational plans

The next section describes the uses of RRA and PRA methods for investigation and negotiation. This is followed by a description of suggested methods for monitoring.

Investigation and negotiation

This section is about methods that can be used for investigating (collecting detailed information at the forest user group level and identifying the forest user group) and negotiating management agreements with a forest user group.

There are two quite distinct types of investigation and negotiation: one for forest management and the other for nursery and plantation establishment. Investigating and negotiating forest management is described first.

Investigating and negotiating forest management

Before field workers negotiate management agreements for community forests with local forest users they need to collect a variety of physical resource and socio-economic information to ensure that the correct users have been identified and the appropriate issues considered.

The physical resource information required includes:

- the location, names, area, type, tenure and current condition of forests and plantation sites;
- the potential of these forests to meet the needs of local people for forest products; and
- how the present condition of the forest, or the current availability of products, compares with the situation that existed five, ten or twenty years ago. If there have been changes, what reasons for them are given by local people?

The socio-economic information required includes:

- the nature of the community, including age structure, ethnic and religious groupings, ratio of males to females, occupations, literacy, interests and needs, power structures and disadvantaged groups;
- for each forest or patch of forest, who uses the forests;
- the residential location of forest users, and whether they are members of a forest user group or not;
- the views and concerns of any specific (interest) groups within the forest users regarding forest management, land use and the control of resources;

- the nature of any disputes that might have an impact on community forestry (e.g. over land tenure or resource use);
- the demand and preferences for forest products; and
- the contributions that users make, or are willing to make, towards community forestry.

More specifically, for each forest the following questions should be considered:

- which products are obtained, when and from where?
- who collects each product, when and why (are there differences in gender, age or wealth)?
- who is entitled to use the products from the forest?
- which products flow to which settlements and households from each forest area under investigation, and when are they collected?
- are there any shortages or other problems in obtaining these products?
- do people get a fair share? if not, why not?
- are there any problems or disputes in obtaining products and, if so, how are they resolved?
- what are the local perceptions about ownership of the forest? do they different from the legal tenure?
- are there local forest management systems or use practices?
- do these systems work well? if not, why not?

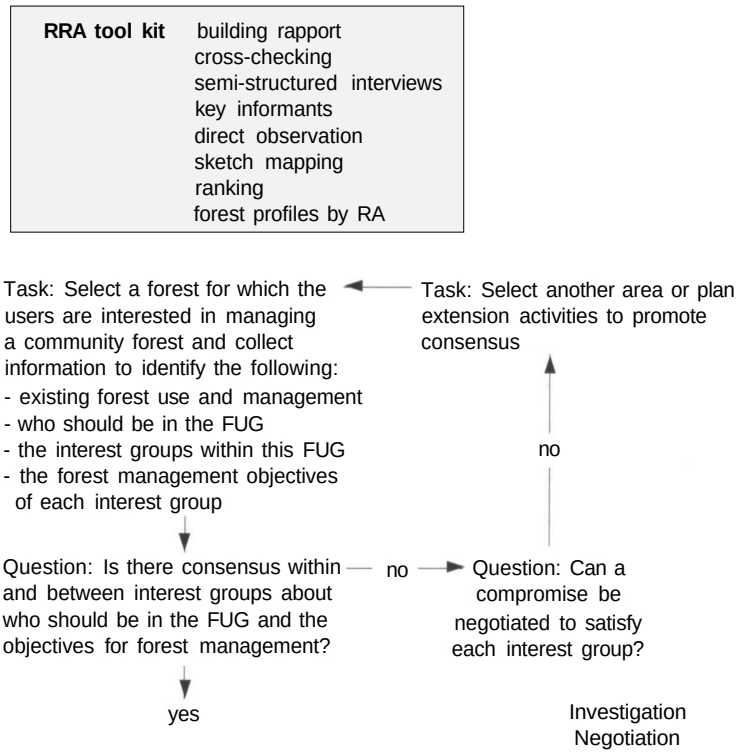
Often socio-economic and biophysical information can be collected at the same time using the same RRA and PRA tools. Table 6 summarises the information required for the investigation stage of FUG planning and indicates the tools that are most appropriate for each type of information.

Field workers will need to collect information using a range of RRA tools. A forest user group will very rarely be a homogeneous group in which all the individuals have the same views, needs and status. In negotiating successful forest management agreements, it is critical to identify interest groups and understand their needs and problems as well as their potential areas of conflict and consensus.

Only after field workers have collected sufficient and reliable information about the forest users, their forests and their interests should they commence negotiations for handing over a community forest. As field workers proceed from investigation to negotiation the approach should shift from RRA to PRA. This is because negotiations should be aimed at empowering forest users and PRA is best for this purpose. PRA encourages local people to collaborate fully in the community forestry process. This requires PRA tools and methods, such as participatory mapping and ranking, that the local people can understand and use. The process of negotiation is illustrated in Figure 11.

Information collected for range-post planning should be summarised and maintained in an MIS to survive the promotions, transfers, resignations and memory lapses of field workers. This information will be used again during FUG planning.

Figure 11. Investigating and negotiating forest management



PRA tool kit
workshops and group meetings
cross checking
semi-structured interviews
direct observation
participatory mapping
ranking

Task: Hold a workshop or group meeting (assembly) of the FUG to discuss:
- the objectives of community forestry
- the need for a constitution, operational plan and user group committee (UGC)

→ Task: Give the user group time to think about the issues. Hold another group meeting (or series of assemblies) to prepare the constitution, operational plan and application for community forest hand-over. Provide technical advice and use information gained during investigations to encourage the FUG to make equitable and rational decisions and to resolve conflicts.

↓

Question: Has the FUG considered and agreed upon UGC membership and the details of the constitution and operational plan?

yes → Task: Investigate whether the decisions made by the FUG are acceptable to the users and are technically feasible

↓

Question: Are the decisions made during the group meetings acceptable to FUG members?

no → Task: Facilitate further workshops and group meetings to finalize the UGC; redraft the constitution and operational plan

↑ no

PRA tool kit
semi-structured interviews
ranking
workshops and group meetings
cross-checking

Task: Help the FUG to finalize the application for community forest, the constitution and the operational plan and submit to the District Officer

↓

Question: Are the constitution and operational plan acceptable to the District Officer?

PRA tool kit
ranking
workshops and group meetings
cross-checking

↓

Task: Facilitate approval of the constitution and operational plan and registration of the FUG. Encourage the FUG to hold a group meeting. At the meeting inform FUG members of the details of the constitution and operational plan and their rights and responsibilities.

→ Task: Implementation and monitoring begin

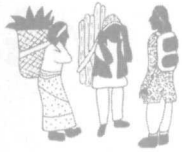


Table 6. Information required and appropriate tools for forest user group planning

information category	appropriate tools
general village information including, land tenure, land use, cropping patterns and livestock husbandry practices	• semi-structured interviews and walks with key informants • participatory mapping or participatory analysis of aerial photos • direct observation, time charts and secondary sources (e.g. range-post plan, MIS and farmer records)
forest names, locations, types, size and condition	• semi-structured interviews and walks with key informants; sketch mapping • secondary sources (e.g. range-post plan, MIS, forestry department records)
forest use and management including traditional or historical patterns of forest use; existing use rights of forest; type, importance and seasonality of inputs from forest to farm; and local forest management systems and silvicultural knowledge	• semi-structured interviews and walks with key informants • participatory mapping or participatory analysis of aerial photos • semi-structured interviews with interest groups and key informants • direct observation • time charts (seasonal diagrams), ranking • forest profiles by rapid assessment
community profile including: age structure; ethnic and religious groupings; male/female ratio; occupations; literacy; and identification of village leaders/elites and disadvantaged groups	• semi-structured walks with key informants • participatory mapping or participatory analysis of aerial photos • semi-structured interviews with interest groups and key informants • secondary sources (e.g. range-post plan, MIS, local records)
other socio-economic information including: the perceptions of forest users; and conflicts and cooperation within and between forest user groups	• semi-structured interviews with interest groups and key informants • ranking • workshops and group meetings • secondary sources (e.g. range-post plan, MIS, local records)
the need for, and community interest in, community forestry programmes, including plantation and nursery programmes	• semi-structured walks with key informants • semi-structured interviews with interest groups and key informants • workshops and group meetings
current status of community forestry activities	• secondary sources (e.g. range-post plan, MIS, FD records) • semi-structured interviews and walks with key informants and interest groups

Investigating and negotiating nursery and plantation establishment

Because nursery and plantation programmes require large investments of money and labour, field workers need accurate and relevant local information to assess the need for, and feasibility of, establishing nurseries and plantations. Before negotiating management agreements for establishing nurseries and plantations, field workers need to collect a variety of physical resource and socio-economic information. The objective of collecting this information is to gauge the technical, economical and social feasibility of a nursery and plantation programme.

In Nepal most nurseries and almost all community plantations are established through forest user groups. In some cases a single forest user group will operate their own nursery to produce seedlings for planting in their community forest. In other cases a forest user group may operate a nursery that provides seedlings to several other forest user groups. Because there are large variations in the way nurseries and plantations are established, it is difficult to provide a single guideline that will suit all circumstances. The following method for investigating and negotiating nurseries and plantations provides an example only; field workers will need to modify the method to suit local conditions.

Before investigating nursery and plantation establishment, field workers should have a general idea of the need for, and interest in, establishing plantations and planting trees. This information should have been collected during data gathering exercises at the range-post planning and forest user group level. The next step is to become familiar with local people, the locations and size of villages, hamlets, forests, existing plantations and potential plantation and nursery sites. Field workers should also develop an understanding of local ideas on forest management, the need for forest products and the degree of genuine interest in plantation activities.

If suitable land is available for establishing plantations, and there appears to be a genuine local need for plantations, field workers can collect more detailed biophysical and socio-economic information. They can begin by preparing a sketch map or a participatory map of the area showing the locations of the following:

- existing forests, plantations and nurseries;
- villages and hamlets, including ethnic groups, numbers and locations of households;
- potential plantation sites; and
- major geographical features, such as streams and ridges.

Once this is completed, field workers should:

- assess the forestry-related needs, interests and problems within the area. Interest in plantations and tree planting should be considered in conjunction with the need for management of existing forests; and
- assess the level of motivation towards running a nursery and planting trees. The willingness of local people to contribute in cash or labour to plantation activities is a major criterion for determining the feasibility of a local plantation programme (the availability of suitable plantation sites is not sufficient justification for establishing a nursery).

Table 7 summarises the information needed for investigating nursery and plantation establishment and indicates the tools that are most appropriate for each set of information.

Field workers should initially use RRA when investigating a potential nursery or plantation. PRA methods should only be used when field workers are sure that a programme is feasible. Field workers should avoid building up expectations among local people about the forestry department's ability to assist with nurseries and plantations until such a programme is considered technically, socially and financially feasible.

If there is a genuine need for plantations, and interest in operating a nursery, then the field worker should visit potential nursery sites and plantation sites with local people. The best site is one that does not involve a long distance from the nursery to the plantation sites or to a reliable water source or labour.

Table 7. Information requirements and tools for planning nurseries

information category	appropriate tools
general interest in, and need for, establishing plantations and/or planting trees	• semi-structured interviews and semi-structured walks with key informants • participatory mapping or participatory analysis of aerial photos • direct observation • secondary sources (e.g. range-post plan, MIS) • cross-checking
availability of land suitable for planting trees or a nursery (names, locations, tenure and current use of potential sites)	• semi-structured interviews and semi-structured walks with key informants • participatory mapping or participatory analysis of aerial photos • secondary sources (e.g. range-post plan, MIS, cadastral survey)
forest types, sizes and biophysical condition related to need for plantation	• forest profile by rapid assessment • semi-structured interviews and semi-structured walks with key informants • participatory mapping or participatory analysis of aerial photos • secondary sources (e.g. range-post plan, MIS, FD records)
technical information to determine feasibility of nursery sites (water, sand, soil, and labour availability)	• semi-structured interviews and semi-structured walks with key informants and interest groups • direct observation
social information including: the perceptions of forest users; the need for, and community interest in, participating in plantation, tree planting and nursery programmes; and conflicts and cooperation within forest user groups and between user groups and others	• semi-structured interviews and semi-structured walks with key informants and interest groups • ranking • direct observation • workshops and group meetings • secondary sources (e.g. range-post plan, MIS, local records) • cross-checking
potential management structures for the nursery	• semi-structured interviews with interest groups and key informants • workshops and group meetings

For each plantation site that will use the nursery, field workers should determine the potential requirements and preferences for seedlings. The procedures for identifying the forest user group for a proposed plantation are similar to those detailed above in "investigating and negotiating forest management" and are not repeated here. A simple format for recording information during investigations into nurseries and plantations can be found in Part 5.

Once field workers have established that a proposed nursery and plantation programme is technically and financially feasible they can investigate potential groups or organisations for running a nursery. Often a single nursery may be able to support the planting activities of several forest user groups. In this case, the needs of individual forest user groups should be matched with the output (quality, quantity and type) of seedlings produced from the nursery. Nursery managers need to be assured that the forest user groups will take the seedlings at the appropriate time. The potential level of contributions the local people can give towards the establishment and operation of the nursery should also be ascertained.

In considering the potential area of plantation, the field worker can help the nursery manager estimate the life of the nursery by calculating the types and numbers of seedlings to be produced. From this a tentative annual seedling production target can be calculated. While doing this, an appraisal can also be made of seed requirements for species which cannot be collected locally and consideration given as to how this seed can be supplied.

Once field workers have established consensus among the relevant forest user groups about the need for plantations, field workers should negotiate agreements for:

- operating a nursery; and
- supplying seedlings to nearby forest user groups and farmers.

Before negotiating a nursery agreement, however, field workers should ensure that the forestry department or another agency can provide financial support and technical advice to the nursery and forest user groups as needed.

The areas that are to be planted should be handed over as community forest to forest user groups before planting. The method for negotiating forest management described above is used for negotiating handover of plantation sites. In addition, if forestry department funds are to be used, field workers should negotiate an annual plantation target between the forest user group and the forestry department. An agreement is also needed between each forest user group and the nursery for the supply of suitable seedlings in a timely manner.

All partners to the nursery and plantation agreement must fully understand the details of the agreement and how to implement it. Local self-reliance can be promoted by developing linkages between the nursery and potential customers for seedlings. The following subjects should be included in a nursery agreement:

- a brief introduction of the rights and responsibilities of all partners to the agreement;
- a discussion of the objectives of the nursery;
- a description of the forest user groups who will use the nursery;
- a description of the nursery management group (this may be a single FUG, a group of forest user groups or even a part of a forest user group);
- details of operational procedures including:
  - site for the nursery;
  - criteria for selecting nursery worker(s);
  - details of cost-sharing and financial contribution arrangements for the nursery, including the nature of funding by the forestry department and other sponsors (agreed prices and funding arrangements for specified quality and quantity of seedlings and any other arrangements for funding);
  - the role of the nursery management group;
  - administrative, management and banking requirements;
  - seedling production targets, including the preferred types of species; and
  - details of agreements between the nursery and individual forest user groups and others to supply seedlings of an agreed quality and quantity.

Once the nursery management group has agreed on the contents of the Nursery Operational Plan, a management committee should be elected. If a committee has previously been formed, it is necessary to reconfirm it, because by this stage the users will have a much better understanding of what is required from the committee. If practical, the nursery committee should have representatives from each plantation forest user group that will use seedlings from the nursery.

Monitoring and evaluation

Community forestry aims to conserve forests while providing for the forest product needs of rural communities. To assess whether forest user groups are managing community forests in a way that achieves these aims, field workers and forest user groups need to monitor and evaluate community forestry programmes at the local level.

Field workers need to keep in mind two important issues related to monitoring and evaluation. First, monitoring and evaluation is not a one-off process; it needs to be repeated at intervals to be of real use. Second, monitoring and evaluation should be participatory, since both forest user groups and field workers have legitimate interests in the management of community forests.

Monitoring and evaluation needs may vary between the forest user group and field workers but in many cases they will be similar. In any case there is a need to develop monitoring and evaluation systems that seek the active participation of forest users so that partnerships between forest user groups and the forestry department can be fostered.

To be effective, monitoring and evaluation programmes should provide accurate, relevant and timely information. There are many types of monitoring and evaluation programmes used in community forestry; generally they can be classified as follows:

- monitoring the biophysical condition of forest; and
- monitoring socio-economic issues.

To date, monitoring and evaluation procedures are not very well developed for community forestry. Because of this, field workers will

often need to develop their own procedures, and work with forest user groups to develop appropriate procedures for monitoring.

Field workers must operate at two quite distinct but inter-related levels when monitoring and evaluating community forestry programmes. The broader level of monitoring and evaluation covers an entire range-post area; the detailed level covers a single forest user group.

At the range-post level field workers can plan for monitoring and evaluation by developing a simple range-post monitoring and evaluation plan that does the following:

- specifies what needs to be monitored and evaluated;
- establishes how information will be collected, analysed and then communicated to interested parties; and
- allocates the resources needed for monitoring (finances, human resources and equipment).

The range-post monitoring and evaluation plan is simply an extension of the range-post plan. Field workers should aim to maintain an overall picture of rural conditions and forest development activities in their entire work area. The information collected during range-post monitoring and evaluation can be used to reset work priorities within the range-post plan and to provide accurate, relevant and timely information to the forestry department.

Much of the information needed for monitoring and evaluation at the range-post level can be collected when undertaking monitoring and evaluation with a forest user group. Other information can be collected through direct observation. The next section describes monitoring and evaluating the impact of community forestry on forest condition, and the final section examines monitoring and evaluating the socio-economic aspects of community forestry.

Monitoring forest condition

The forestry department has an interest in whether community forests are managed in an ecologically sustainable manner and it will need to gather information in order to make such assessments. The forestry department is constrained in collecting reliable, accurate and useful information because of the following factors:

- the scattered nature of community forests;
- the lack of aerial photographs and other remote-sensing tools that can be used for monitoring changes in forest area and forest condition;
- the lack of road access;
- difficult topography;
- the lack of inventory systems; and
- a shortage of trained field staff.

In monitoring the impact of community forestry on forest condition, the following should be kept in mind:

- information has to be collected by field workers because user groups do not have the technical skills, infrastructure, time, or motivation to undertake periodic measurements and provide sufficient or reliable information to the forestry department;
- a rapid methodology is required because there is limited time available for periodic measurement of forests;
- the methodology should be simple so that it can be done by field workers with minimal training and inexpensive equipment; and
- measurements of selected characteristics must be accurate enough to allow forest changes to be detected within a relatively short period of time, say within five years.

Table 8. Resource information collected by RRA and PRA

topic	items
location of site	administrative address sketch map
area	estimated area measured area (optional)
land type	grassland/shrubland/forest plantation or natural conifer or broad-leaf list of dominant species
forest condition	average height stocking of shrubs or trees' crown cover[2] presence of regeneration
forest history	plantation history forest condition changes management system

To be useful in monitoring, the information shown in Table 8 needs to be collected for the same forest on several occasions for at least five or ten years. After each monitoring exercise the new information can be compared with the old to determine any biophysical changes that have occurred. This is useful for forest user groups as it allows them to review their management practices. It also helps the forestry department monitor the condition of community forests over time.

The following section describes a simple, rapid methodology for monitoring the impact of community forestry on the condition and biodiversity of plants. The methodology includes measures of the following:

- area by simple forest types;
- quantity of tree and shrub vegetation;
- abundance of tree and shrub regeneration;
- number of plant species in various growth form categories; and
- extent of the exposure of soils to accelerated erosion.

1. Stocking refers to the number of plants per unit area.
2. Crown cover is the percentage of the sample site within the vertical projection of the periphery of the tree or shrub crowns (McDonald et al., 1984).

In an ideal world, accurate maps of forest ecosystems would be made regularly from aerial photographs or satellite imagery and would provide area estimates for different forest types. Periodic measurements of ecological criteria would also be taken in forests at exactly the same location using a number of permanent plots. However, regular forest mapping is not done in Nepal at a scale appropriate for measuring changes in community forests. Permanent plots are not appropriate because they are expensive to establish and maintain and difficult to relocate. There is also a considerable risk that they would be treated differently than other areas by forest users.

Another approach is to use a combination of techniques. These techniques include:

- sketch mapping;
- visually estimating forest areas and condition;
- measuring a limited number of ecological criteria within temporary plots; and
- compiling a list of plant species observed within a forest.

The condition of a forest can vary considerably over a short distance. Accounting for variation in forest condition reduces the standard deviation of estimates of ecological criteria. A simple way to do this is to subdivide the forest into blocks based on major differences in vegetation type and forest condition. The area of each block is estimated after delineation on a sketch map using identifiable natural features, and the blocks become the basic units for future monitoring. The recommended basis for subdividing and classifying community forests for this purpose is outlined in Part 3: Simple Forest and Shrubland Inventory.

Measurements of vegetation and biodiversity should be taken and recorded for each forest block, rather than for the community forest as a whole.

Measurements of ecological criteria

The type of inventory systems used in community forestry should differ depending on whether the forest block being measured is a shrubland or a forest. In shrublands, crown cover should be measured; it is easier than measuring diameters of stems or undertaking destructive sampling of biomass to get a measure of the quantity of vegetation. In forests, the diameter of stems at a standard height above the ground should be measured and total basal area calculated; this is easier to measure than crown cover or biomass. The measures for shrublands and forests are summarised in Part 3.

All of the observations, except area and those required to complete the list of plant species, are made on temporary plots located in each forest block using a grid system. The use of temporary plots for recording forest condition is described in Part 3. The only equipment required is two lengths of rope, prepared forms, paper, pens and a tape to measure tree diameters and crown widths and gaps. A measuring party of two or three people is required, consisting of a trained party leader and one or two assistants who can be relatively unskilled. The results of repeated simple forest and shrubland inventories (described in greater detail in Part 3 and Part 5) are used as a set of indicators of changes.

Plot results are used to calculate individual estimates of ecological criteria for each block. The data for the blocks can be used to calculate an overall estimate for a forest. These block estimates are summarised to give averages and standard deviations of each criteria. The plot data and sketch maps must be stored in the nearest field office; the summaries should be forwarded for inclusion in a district-level management information system.

Monitoring and evaluating socio-economic aspects of community forestry user groups

(Adapted from Nurse and Chhetri, 1992)

Socio-economic monitoring and evaluation of forest user groups involves assessing self reliance, well-being, conflicts and consensus, risk, power and equity. Monitoring and evaluating all of these issues can be a complicated process that requires the specialist skills of social scientists. It is clearly impractical to expect all field workers to have social science training or to expect social scientists to undertake all socio-economic monitoring and evaluation of community forestry. Nevertheless, without socio-economic monitoring and evaluation it is impossible to determine whether community forestry is improving or maintaining the well-being of forest users.

Problems with well-being, equity and sustainability of forest user groups often arise because of one or more of the following factors:

- the forest user group has been incorrectly identified — either some legitimate users have been omitted from the group or some non-legitimate users have been included, or both;
- the forest users are unable or unwilling to make decisions concerning the management of their forest or the affairs of the group without assistance from outside the group;
- an external body interferes with the functioning of the forest user group;
- conflicts arise within the group or between the group and outsiders about the use of the forest, the distribution of benefits, the user group's funds or the affairs of the group;
- decisions and actions of the user group committee are not made public to all forest users and suspicions arise as to the actions of committee members; and
- decisions or actions of the user group result in some or all of the users being disadvantaged.

Table 9 indicates the type of information needed to monitor the socio-economic aspects community forestry. Power, equity and self-reliance can be assessed by reviewing membership of the forest user group, cost

and benefit sharing arrangements, financial management, conflict management and decision-making processes. Forest user groups that require little or no external support are more self-reliant than those who need continual support. Groups that are self-reliant are more likely to be sustainable in the long term.

The way in which forest products are harvested and distributed can provide insights into equity, particularly as to whether subsistence needs are being fulfilled. Similarly, information on the collection and use of forest user group funds allows field workers and forest user group members to consider the equity of financial management.

Monitoring forest user groups by field workers should involve the active participation of the members of that group. Information collected while monitoring equity and sustainability can be used by the field worker to raise awareness among forest users. It can also be used to design awareness-raising and training programmes designed to improve difficult situations.

Some information is also needed for the purposes of the forestry department. This information is used at the range-post, district and national levels to assess the overall performance of the community forestry programme. A simple format for recording some of the information needed to monitor the equity and sustainability of forest user groups is included in Part 5. Field workers need to recognise that they should use RRA and PRA tools to collect information in an informal way and record the details in a field book. Use the format as a guideline only.

Table 9. Information needed for monitoring social and financial aspects

topic	items	collection method
FUG identification	FUG membership	semi-structured interviews secondary sources (minute books) questionnaires direct observation participatory mapping
FUG self reliance	cost and benefit sharing arrangements conflict resolution decision-making processes	semi-structured interviews secondary sources (minute books) questionnaires direct observation participatory mapping
equity, risk and power	financial information use of FUG funds product use patterns who is involved in FUG activities	semi-structured interviews secondary sources (minute books) questionnaires direct observation participatory mapping

Part 5

Inventories and assessments

Table 10. Forest profile by rapid assessment

complete one form for each block of forest, shrubland or grassland

name of forest		
district		
Village Development Committee		
ward number		
range-post		
information collected by (your name)		
date information was collected		
Main vegetation type (check one)		
grassland * shrubland * conifer forest * broadleaf forest * mixed forest *		
write the names of the three most dominant species		
1	2	3
estimated area (ha)	measured area (ha)	
altitude	aspect	
local management? (circle)		yes/no
planted? (circle)		yes/no
forest change in last 5 years (circle)		now worse/same/better
year(s) of planting (if planted)		
forest handed-over as community forest? (circle)		yes/no
current stocking (if planted, seedlings per ha)		
Forest User Group code (if handed over)		
stocking class (if planted, circle one)		understocked/stocked overstocked
Other information		
participatory map, sketch map, VDC map or other? (circle one)		yes/no
reference number of forest block on map (if map exists)		
does a plant species list for forest block exist? (circle)		yes/no

Table 11. Forest condition characteristics

For forest or shrubland complete the following four forest condition characteristics (refer to Forest Condition Characteristic Tables 1 la-d), then use these characteristics to determine Forest Condition Class (see Forest Condition Class Table 11e). Grasslands are automatically classified as "very degraded forest". Definitions of grassland, shrubland and forest can be found in Table 12: Forest Conditions Definitions.

11a. Forest condition characteristic 1

soil cover	soil cover class (circle one only)
more than 50% of the soils are covered	high
25% to 50% of the soils are covered	moderate
less than 25% of the soils are covered	low

11b. Forest condition characteristic 2

crown cover (use for shrubland or forest only)	dominant crown cover class (circle one only)
more than 70%	dense
40% - 70%	moderate
20% - 40%	sparse
less than 20%	very sparse

11c. Forest condition characteristic 3

density of regeneration	regeneration class (circle one only)
more than 5,000 trees or shrubs per ha	dense
1,500-5,000 trees or shrubs per ha	moderate
500-1,499 trees or shrubs per ha	sparse
less than 500 trees or shrubs per ha	very sparse

Write the names of the three most dominant species in the regeneration:

1	2	3

11d. Forest condition characteristic 4

density of seed trees (use for shrubland only)	seed tree class (circle one only)
more than 50 seed trees per ha	high
10-50 seed trees per ha	moderate
less than 10 seed trees per ha	low

11e. Forest condition class

Use the four forest condition characteristics recorded above (Tables 11a-d) to determine a forest condition class for this block (see Table 12: Forest Condition Definitions).

condition class (circle one)

very degraded	degraded	medium	good

Comments (record the species that FUG members prefer most)

Table 12. Definitions

main vegetation type	definition
grassland	vegetation dominated by grass species and where the area covered by tree or shrub crowns is less than 10%
shrubland	vegetation dominated by woody plants that are multi-stemmed near the ground, or if single stemmed, are less than 2 m tall. An upper stratum of emergent trees may be present and comprise up to 5 percent of the total crown cover
forest	vegetation dominated by woody plants more than 2 m tall, with a single stem or branches well above the base. The area covered by tree crowns must exceed 10%
conifer forest	75% or more of the tree species present are coniferous
broadleaf forest	75% or more of the tree species present are hardwoods
mixed forest	all other combinations of tree species present
Forest condition characteristics	
forest condition characteristic	definition
soil cover	The percentage of the area assessed which has the mineral soil surface totally covered by either live vegetation or a layer of other plant material
crown cover (forest)	The percentage of the area assessed which is within the vertical projection of the periphery of tree crowns, where tree crowns are treated as opaque
crown cover (shrubland)	The percentage of the area assessed which is within the vertical projection of the periphery of shrub crowns, where shrub crowns are treated as opaque
regeneration (forest)	Seedlings, saplings and coppice regrowth of naturally occurring tree species that are less than 2 m tall
regeneration (shrubland)	Seedlings, saplings and other regrowth that does not originate from stumps above ground level, which are of naturally occurring shrub species and are less than 0.5 m tall
seed trees	Trees greater than 2 metres tall that have healthy, intact crowns capable of producing flowers and seed within one growing season

Figure 12. Forest profile by rapid assessment

Forest condition class				
Soil cover class	dominant crown cover class	regeneration class	seed tree class[1]	condition class
low or moderate	very sparse or sparse	very sparse or sparse	low	very degraded
			moderate or	
		moderate or dense	low	degraded
			moderate or high	
	moderate or dense	very sparse or sparse	low	degraded
			moderate or high	medium
		moderate or dense	low	
			moderate or high	
high	very sparse or sparse	very sparse or sparse	low	very degraded
			moderate or high	degraded
		moderate or dense	low	degraded
			moderate or high	medium
	moderate or dense	very sparse or sparse	low	degraded
			moderate or high	good
		moderate or dense	low	medium
			moderate or high	good

1. Ignore the seed tree class category for classifying forests; use for classifying shrublands only.

Table 13. Simple forest inventory (SFI) plot data form

(use this form for entering field data for one plot)

Name of forest		
Plot number		
Village Development Committee		
Ward number	Block number	
Information collected by	Altitude (m)	
Date information collected	Aspect	
Plot: length (m)	width (m)	area (ha)

13a. Regeneration count of useful tree species (regeneration is less than 2 m high)

- use this table to record the species and number of regenerating useful tree species
- insert species names in "species" column
- tally individual regenerating trees in "tally" column for each recorded species
- sum the count and enter in "no. of plants" column
- sum all useful species

No.	species	tally	no. of plants
1			
2			
3			
4			
5			
6			
7			
8			
9			
10	all other useful tree species		
	sum of all useful species		

Table 13b. Regeneration count of non-useful tree species (regeneration less than 2m high)

(use this table to record the species and number of regenerating non-useful tree species)

- insert species names in "species" column
- tally individual regenerating trees in "tally" column
- sum the tally give "no. of plants" column

No.	species	tally	no. of plants
1			
2			
3			
4			
5			
6			
7			
8			
9			
10	all other non-useful tree species		
sum of all non-useful species			

- from Tables 13a and 13b record the sum of all useful and non-useful species and calculate total regeneration
- calculate total regeneration by building total regeneration by the area of the plot

Sum of all useful species	
Sum of all non-useful species	
Total regeneration	
Total regeneration per ha (= total regen./plot area)	

Table 13c. Trees

- record species and DBH for of all individual trees within the plot (a tree is defined as being over 2m high)
- if there are more than 30 trees in the plot use a second page
- calculate BA for each tree with the formula BA = 3.1416 x (DBH/2 x DBH/2)
- sum total number of trees and total number of species
- sum all BAs to give a total BA for the plot
- divide the total BA by 10,000 then by plot area to give BA per ha

Tree no	species	DBH (cm)	BA sq. cm
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			

Tree no	species	DBH (cm)	BA sq. cm
24			
25			
26			
27			
28			
29			
30			
Total number of trees			
Total number of species			
Total BA (sum 1 to 30)			
BA per ha			

Table 14. Simple forest inventory (SFI) plot summary form

Use this form to summarize information for a single plot:

Name of forest	Plot number
Information collected by	Block number
Date information was collected	Plot size

14a. Total tree species in regeneration

Use data from Tables 13a and 13b:

- insert the total regeneration count and total regeneration per ha.

Total count of regeneration in the plot	Total regeneration per ha

Table 14b. Site occupancy by tree species

Use data from Table 13c:

- insert the names of the nine most common species in "species" column
- insert the BA of each tree for each species in "basal area ..." column (if there are more than nine species insert the BA of all other species in the bottom row of the "basal area ..." column)
- sum the BA for all species and insert in "sum of BA" column;
- sum "sum of BA" columns to give a total plot BA in sq. cm
- calculate the percentage of total BA for each of the nine most common species and all other species by dividing the "sum of BA" for each species by the total plot BA/100 and insert in "% of total plot BA" column
- sum all the BAs to give total plot BA in sq. cm
- divide the total BA by 10,000, then by the plot area to give BA per ha

species	basal area (BA) in sq. cm/ each tree/each species	sum of BA	% total plot BA
all other species			
	total plot BA in sq. cm		
	BA per ha in sq. cm		

Table14c.Forest structure

Use data from Table 13c:

- tally the number of trees in each of the DBH size classes and insert in "tally of..." column
- sum "tally of..." column to give "Total trees" (check against the total number of trees in Table 13c)
- for each DBH class divide the figure in "tally of trees ..." column by the plot size to calculate trees per ha

DBH size class (in cm)	tally of trees in each size class	trees per ha
0.1-5.0		
5.1 -10.0		
10.1 -15.0		
15.1 -20.0		
20.1 - 25.0		
25.1 - 30.0		
30.1 - 35.0		
35.1 - 40.0		
40.1 - 45.0		
45.1 - 50.0		
more than 50.0		
total trees		

Table15.Dominanttreespeciesrankedbybasalarea

Use this form to summarise information for an entire block (i.e. all plots). Use data from Table 14b from all SFI plot summary forms for this block to:

- insert the names of the 9 dominant species ranked by BA in "species" column
- for the 9 dominant species and all other species combined insert BAs from Table 14b into "BA in ..." column (i.e. put the species with the highest BA first)
- sum the BAs from each plot for each species and insert figure in "Sum ..." column
- sum all BAs (give a total block BA in square cm)
- calculate the percentage of total BA for each of the 9 most common species and all other species by dividing the sum of BA for each species by the total plot (BA/100) and inserting in "% total block BA" column

species	BA in sq. cm (from SFI plot summary forms Table 14b, third column)	sum of BA	% total block BA
all other species			
	total block BA in sq. cm		100%

Table 15a. Dominant species in regeneration

Use data from Tables 13a and 13b from all SFI plot forms:

- estimate the 5 most common regenerating species by number of plants and enter their names in "species" column
- for each of the 5 species and all other species combined insert the total number of plants recorded from each plot sheet in "tally ..." column
- sum the tally to give "total regen." and rank the counts (highest to lowest) in "rank" column.

species	tally of regen. trees from each plot	total regen.	rank
all other species			

Table 15b. Species diversity

Use data from Table 13c from all SFI plot forms:

total number of tree species recorded:	

Table 15c. Site occupancy

Use data from Table 13c from all SFI plot forms for this block:

- sum the total number of trees and insert in "sum ..." column
- from each plot sheet sum the total area of all plots and insert in "total area ..." column
- calculate total trees per hectare by dividing sum of trees by total area of plot

sum of trees	total area of plots	total trees per ha

use data from Table 14b from all SFI plot summary forms to calculate total BA for the block and insert in column 1
divide column 1 by 10,000 then by sum of plot sizes to derive column 2

column 1	column 2
total block BA	BA per ha in sq. cm

Comments

Table 16. Simple shrubland inventory (SSI): Plot data form

Use this form for entering field data for one plot

name of forest/ shrubland		
plot number		
Village Development Committee		
ward number		block number
information collected by		altitude
date information was collected		aspect
plot length	plot width	plot area

Table 16a. Shrub and regeneration count

Count all woody plants less than 2 m high

- record the species of shrubs and woody plant regeneration in "species" column
- insert tally of shrubs and regeneration in "regeneration 0-0.5 m" or "shrubs 0.51-2.0 m" column
- sum the tally and enter into "total no. of plants" column

no.	species	regeneration 0-0.5m	shrubs 0.51-2.0 m	total no. of plants
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15	all other shrubs/regeneration			
sum of shrubs/regeneration				

Table 16b. Shrub and tree crown separation

- select the tree or shrub nearest the centre of the plot
- beginning at this tree or shrub, measure and record ten crown gaps and ten crown sizes (if a tree crown overtops a shrub then enter zero as the crown gap)
- sum the ten crown gaps, insert in "sum" column and divide by ten, entering the answer in the "average" column
- sum the ten crown sizes, insert in "sum" column and divide by ten, entering the answer in the "average" column

crown separation	crown gaps and sizes in cm										sum	average
crown gaps (distance between crowns)*												
crown sizes (crown widths)												

If crowns overlap, the distance is negative by the amount of overlap.

Table 16c. Crown separation ratio

- from Table 16b, insert averages
- then divide the average crown gap by the average crown size to get the crown separation ratio

average crown gap	average crown size	crown separation ratio

Table 16d. Trees in shrublandplot (seepage 101)

- record species and DBH (note whether seed tree or not seed tree) for all trees within the plot over 2 m high
- calculate BA for each tree with the formula BA = 3.1416 x (DBH/2 x DBH/2) and sum the total number of trees and species
- sum BAs to give a total plot BA
- divide the total BA first by 10,000, then by the plot area to give BA per ha

Table16d.(continued)

tree no	species	DBHcm seed trees	DBHcm non-seed trees	BA sq. cm
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
total number of trees				
total number of species				
total BA (sum 1 to 25)				
BA per ha				

Table 16e. Site occupancy by regeneration, shrubs and trees

- from Table 16a insert the number of regenerating plants and shrubs
- from Table 16d insert the number of seed trees and non-seed trees
- sum the total number of plants in the plot
- calculate the number of plants per ha by dividing plant numbers by the area of the plot

	total number in plot	no. per ha
regeneration		
shrubs		
seed trees		
non-seed trees		
all woody plants total		

Table 17. Species information

Dominant species ranked by numbers: use data from Tables 16a-e

- insert the names of the 9 dominant species by numbers in "species" column
- for the 9 dominant species and all other species combined insert counts from plot forms into "number of plants" column
- sum for each species and insert figure in "sum" column
- sum column to give a total block count
- calculate the percentage of total for each of the 9 most common species and all other species by dividing the sum for each species by (total plot sum/100), and insert in "% total block" column

species	number of plants (from Tables 16 a-e)	sum	% total block
all other species			
	total number of plants in block		100%

Table 17a. Site occupancy by regeneration, shrubs and trees

- from Table 16e from each plot form insert the number of regenerating plants, shrubs, seed trees and non-seed trees in "total no..." column
- sum the total number of plants in the plot
- calculate the no. of plants per ha by dividing plant numbers by the sum of the area of all plots

	total no. of plants in plot	no. per ha
regeneration		
shrubs		
seed trees		
non-seed trees		
all woody plants total		

Table 17b. Basal area

- use data from Table 16d to calculate total BA of trees in the block and insert in "total block BA" column
- divide amount in "total block BA" column first by 10,000 and then by sum of all plot sizes to derive BA per ha in sq. cm.

total block BA	BA per ha in sq. cm

Table 17c. Crown separation ratio

- from Table 16c from each plot sheet insert crown separation ratio in first column
- calculate average crown separation ratio by dividing by number of plots

plot crown separation ratio	average crown separation ratio

Comments

Table 18. Rapid nursery site selection form

Complete one form for each nursery investigation

proposed nursery name	
District	
Village Development Committee	
Ward number	
range-post	
information collected by (your name)	
date information was collected	

Site description

land tenure of nursery site (circle one) national community forest private		
slope (degrees)	snow/frost problems	yes/no
altitude (metres)	erosion problems	yes/no
aspect	other problems	yes/no
describe the current use of the proposed area describe who uses the area		
Are there ownership or land use conflicts? (circle one) major minor none		
Is there local support for the nursery? (circle one) total some none		
Are there people who oppose the nursery? (circle one)		yes/no
If yes describe who and why		
Is nursery site large enough to achieve production?		yes/no
Is more land available if necessary?		yes/no

(attach a sketch map of the proposed nursery site showing location, relation to proposed plantations and sources of water, soil, sand, etc.)

Water

source (circle one)	national	VDC	community forest	private
present uses of water				
Do local people approve water going to nursery?				yes/no
Has water source been inspected in driest months?				yes/no
In driest months will water be sufficient for nursery?				yes/no
distance from water source to nursery				
pipe required	length		diameter	
proposed water storage				
tank (bags of cement required)				
water intake (materials required)				

Other requirements

Comment on the practicality of the proposed location in terms of:

sand source
soil availability
stone availability
Mycorrhiza source
local labour

Establishment

Proposed establishment time (month and year):

Support required from forestry department or other sources (describe)

_____

_____

Proposed nursery management structure (describe)

_____

_____

_____

Plantation areas

Location of the planting sites to be supplied from the proposed nursery

1. FUG name				
altitude		aspect		
distance from nursery to forest				
total area of forest (ha)				
type of seedling	number			total seedlings
	year one	year two	year three	
total				

2. FUG name				
altitude		aspect		
distance from nursery to forest				
total area of forest (ha)				
type of seedling	number			total seedlings
	year one	year two	year three	
total				

3. FUG name				
altitude		aspect		
distance from nursery to forest				
total area of forest (ha)				
type of seedling	number			total seedlings
	year one	year two	year three	
total				

Proposed seedling production from nursery

- Use the tables above to calculate the annual seedling requirement from FUGs. Remember to add extra seedlings for private planting and wastage.

type of seedling	number year one	number year two	number year three	total seedlings

Comments

Table 19. Monitoring community forest management

name of forest
Forest User Group (FUG) registration no.
District
Village Development Committee(s)
ward number(s)
range-post
information collected by (your name)
date information was collected

Forest user group (FUG) membership

name of village/hamlet	VDC and ward	number of households by ethnic group					total

Write comments in field book on the reasons for changes (if any) in the number of user households.

User group committee (UGC)

position	name	village, ward	ethnic group	m/f
Chairperson				
Vice-chair				
Secretary				
Treasurer				

How effectively does the UGC implement the decisions of the users?

(circle one)

always	usually	sometimes	never

Participation of users in assemblies

(record last two assemblies only from FUG minutes)

date of assembly	major decisions (e.g. amendment of plan)	no. of households present from each village	
		village	no. of h/h

Are decisions made by consensus of FUG? (circle one)

always	usually	sometimes	never

Comment on problems with equity regarding decisions

Do decisions reflect the needs of every interest group?

always	usually	sometimes	never

Comment on problems with equity regarding decisions

Table 20. Use of forest products

Record information on sale and distribution by FUG

forest product	quantity sold		remarks:
	quantity	amount	quantities freely distributed
timber			
firewood			
twigs			
fodder			
grass			
leaf litter			
leaf for bedding			
medicinal plant/herbs			
bamboo			
other			

Are forest products being used as per the rule of the Operational Plan? (circle one)

always	usually	sometimes	never

If not, what are the reasons?

Are all FUG h/hs obtaining forest products from their community forest? (circle one)

always	usually	sometimes	never

If not, why not? Comment on which user h/hs obtain products from their community forest.

Are people from outside FUG using forest products from their community forest? (circle one)

always	usually	sometimes	never

What other forests are being used by the FUG members? Write the name(s) of the forest(s).

Table 21. Financial management

Cash balance at beginning of fiscal year one:

Record income information (for the last two fiscal years only) from the FUG

fiscal year one income source	income	remarks
total income year one		
fiscal year two income source	income	remarks
total income year two		
total income: fiscal year one + year two		

Record expenditure information (for the last two fiscal years only) from the FUG

fiscal year one expenditure item	expenditure	remarks
total expenditure year one		
fiscal year two expenditure item	expenditure	remarks
total expenditure year two		
total expenditure: fiscal year one + year two		

Are most FUG members satisfied with the way the fund has been used? (circle one)

always	usually	sometimes	never

Cost sharing (total for past two years)

activity	comment on the nature of cost sharing between users and outsiders
protection	
pitting/planting	
weeding	
nursery operations	
pruning etc.	
other	

Conflict Resolution

Is the FUG able to resolve conflicts without external support? (circle one)

always	usually	sometimes	never

Decision-making and self reliance

Is the FUG able to make and implement sound decisions without external support? (circle one)

always	usually	sometimes	never

In the past two years has the FUG undertaken forestry operations without external support? (circle one)

always	usually	sometimes	never

If never, specify why not; if done describe what and when.

The following checklist may be useful when conducting semi-structured interviews and direct observation to assess FUGs. Record any information collected in a field book.

- Has the FUG been identified correctly? If not, how can this problem be resolved?
- How well do forest users understand their rights and responsibilities?
- How well do FUG members understand community forest policy?
- What conflicts, if any, have occurred and how has the FUG dealt with them?
- How are decisions made? At the committee or FUG assembly level?
- How are funds collected, managed and used? Do FUG members know about fund management and do they agree with how funds have been used?
- How have forest products been distributed? Do FUG members feel that such distribution has been fair?
- Is there a need for extension or training for the FUG?
- What changes, if any, are needed in the operational plan or constitution of the FUG?

Glossary

agroforestry	system of mixing agricultural or horticultural crops and or animals with woody perennials
annual programme	a compilation of development activities to be carried out for the year
biomass	the amount of living organic matter accumulated on a unit of area at a specified point in time: this includes grass, weeds, stems, branches, twigs, leaves and roots
community forest	a forest handed over to a user group for its development, conservation and utilisation for the collective benefit of the users
community forestry	the situation where forests are controlled and managed by the rural people who use them to support their farms and households
field worker	a person employed by the Forest Department, a project, or an NGO to implement community forestry activities in the field
forest management	the protection, improvement and utilisation of forest resources
forest users	people who are recognised by others as having rights to manage and utilise a communal forest
forest user group	a user group organised to manage and utilise a community forest
interest group	people who share similar interests and may be expected to face similar problems and share similar views
monitoring	an assessment of the efficiency with which a programme is implemented, including measurements of the quantity and timing of input delivery and output produced

operational plan	a legal document developed by the user group with the help of the field worker and approved by the District Officer, enabling the users to carry out management prescriptions
private forest	a forest planted, nurtured or conserved on any private land owned by an individual
protection forest	a forest managed by the government, predominantly for protecting the environment
religious forest	a forest managed for the maintenance of a religious site or the supply of products for the performance of religious rituals. It may or may not be managed by a religious institution
shrubland	vegetation dominated by woody plants that are multi-stemmed near the ground, or if single stemmed are less than two meters tall. An upper stratum of emergent trees may be present and comprise up to five per cent of the total crown cover
silviculture	the art and science of cultivating forest crops
user group committee (UGC)	a representative or executive committee of the user group formed by popular decision

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Endnotes

1. Basal area is the sectional area of a tree stem at breast height.

2. The growth form categories used to stratify counts of plant species are: tree, shrub, grass, forb, fern, moss, and vine (McDonald et al., 1984)

3. Ground cover is the percentage of the ground surface which does not have exposed mineral soils.

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