

DPI

Dak Lak

Rural Development Dak Lak - RDDL

Department of Planning & Investment



German Technical Cooperation (GTZ)

GFA Terra Systems / IP

COMMUNITY FOREST MANAGEMENT PLANNING



FACILITATOR'S FIELD GUIDE

2nd Draft Dak Lak, October 2004



Abbreviations

ACO	Agricultural Cadastral Office
CF	Community forest
Dbh	Diameter at breast height
FPD	Forest Protection Department
FPR	Forest Protection regulation
FSC	Forest Stewardship Council
Ha	Hectares
LUPLA	Land Use Planning and Land Allocation
NTFP	Non-timber forest product
PFRA	Participatory Forest Resource Assessment
RDDL	Project on Rural Development Dak Lak
SFDP-Song Da	Social Forestry Development Project - Song Da

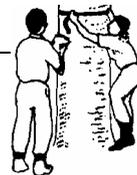


Contents

Introduction	4
Session 1. Introduction	8
Session 2. Blocking	12
Session 3. Block description	14
Session 4. Forest product demand	18
Session 5. Preparation for field work	20
Session 6. Plot measurement	25
Session 7. Data analysis	29
Session 8. Forest time-line (past)	36
Session 9. Preparing the table of goals, problems and opportunities	39
Session 10. Preparing the activities plan	43
Session 11. Evaluation & Closing	46
Annex 1 List of pictures for introductory session	47
Annex 2 Working with small groups	48
Annex 3 Fieldwork Handouts	49
Annex 4 Sample Plot Form - Evergreen and Semi-Deciduous Forests	51
Annex 5 Block Summary Form - Evergreen and Semi-Deciduous Forests	53

List of Tables

Table 1: Participatory Forest Resource Assessment and Management Planning Schedule	7
Table 2: Outline of the Community Forestry Process	11
Table 3: Block Description form	16
Table 4: Number of sample plots per block	17
Table 5: Layout for Forest Product Demand Assessment	19
Table 6: A plot recording team	26
Table 7: Sample plot form	28
Table 8: Block Summary Form	34
Table 9: Questions about the histograms	35
Table 10: Table of goals, problems and opportunities	42
Table 11: Block activities table	45



Introduction

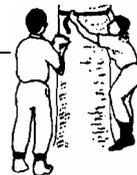
The approach presented in the following has been developed by SFDP Song Da out of field experiences and testing of the participatory forest resource assessment methodologies during the April-May 2003 in villages in Son La Province (Yen Chau District) and Lai Chau Province (Dien Bien District). Extensive project experience of working with villagers in these areas has allowed new ideas and techniques to be relatively quickly introduced - there were already good indications about what would work in the village situation based on what has been achieved in the past through participatory land use planning and development of forest protection regulations with village communities although in both villages where this testing took place, the capacity of villagers to understand fairly complex concepts and carry out complicated tasks was greater than expected. This material has also drawn on experiences of participatory forest management planning from a diverse range of other countries and situations, working on the basis that there are some general principles which can be applied more widely, and which are in fact important in making community forestry management successful. Existing methodologies have been adapted and modified to fit better into the Vietnamese and the local context by SFDP field staff. As a result, SFDP published a session material guide, providing for a detailed schedule on the facilitation of a three-day training course on participatory forest resource assessment and subsequent management planning. This document has been rearranged and supplemented in order to better fulfil the request for participatory forest assessment and management planning on the scale covering the entire village forest resource. Furthermore, the existing methodology of participatory forest management goal elaboration, an essential part of the forest management planning procedure likewise elaborated and published by SFDP Song Da, has been modified and incorporated to supplement the PFRA-methodology. Special thanks to respective staff of the SFDP Song Da has to be expressed at this stage for the selfless provision of their intellectual property and the permission to adjust it to the context of CBFM encountered in Dak Lak.

Who is this training material for?

This document aims at providing a clear guidance through the process of participatory forest resource assessment and planning at village level. It has been assembled with special reference to commune extension workers, ACO, FPD staff, project staff and possibly students from vocational training institutes.

What is participation?

This is a participatory training. This means that it is designed to allow participation of both farmers and supporting agency staff (ACO, FPD etc). Participation means that everyone is involved in all the activities. It does not mean that farmers have to do everything on their own nor that supporting staff have to do everything for the villagers. In community forestry, villagers will not be able to prepare their management plan without the technical skills and abilities of supporting staff to help them. On the other



hand the same supporting staff cannot prepare a management plan alone - they do not know the village forest area well enough and they do not know enough about the needs of villagers. Therefore, both groups (stakeholders) are important for this process. They all need to be involved and all need to participate together.

Participation by women

Women often collect and utilize different forest products than men. It is therefore inevitable to adequately involve them in the process of forest inventory and management planning right from the start. However, women are often reluctant to share their opinions and voice their concerns in meetings held with men. Separate meetings are often organised by the women's union representative. Regarding the described forest inventory and management approach, this would result in impracticability. Advice is therefore given to contact the women's union representatives of commune and village prior to each course, to ensure that an adequate selection of women is made for attendance of the various steps. Furthermore, to ensure that participating women are confident to share their opinions in the meetings, co-facilitation by the women's union representative should take place.

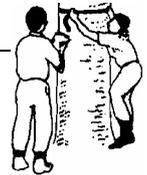
How can the material be used?

The time needed for the participatory implementation of resource assessment and management planning actually varies in dependence of the respective size of the village forest area and the single forest blocks. The facilitator needs to become familiar with the methodology before the start and also needs an overview of the whole planning process. This will help to steer the process in the direction of producing a community forest management plan.

Table 1 gives an overview of the three modules to be implemented in sequence in order to arrive at suitable forest management plans elaborated participatory by the villagers. The time needed for the second module largely depends on the number, size and local arrangement of forest blocks, generally ranging from 3 to 10 days.

The third module consists of data analysis, preparation of the tables of goals, problems and opportunities, as well as the writing of the 5-year management plans (Sessions 7, 9 and 10 respectively), which have to be carried out for each forest block in sequence. Session 8, the forest time-line, is only carried out once and the facilitator can decide when to schedule this exercise in the course of module 3.

In dependence of the total number of village forest blocks that have been included in the inventory process, the time needed to carry out this module should be around 2 to 4 days. After having finished module 3 an evaluation (as stated under session 10) should be carried out in order to revise the training progress and to identify where improvements are to be made in the future.



In case that the facilitation of training courses is aimed at, suitable for the adoption of the training for trainers approach, a schedule can be found at the end of this document.

Although session plans are described in some detail, the trainer should be flexible in the use of these materials within the broad planning methodology. Some exercises will work better than others in different villages, and the trainer needs to be able to respond rapidly to the developing situation rather than sticking rigidly to the detail of each session. Modifications will inevitably arise and are encouraged.

Each session has some trainer's notes as well as the actual session plan. These are designed to assist the trainer in organising each session by providing some reminders and points to note.

Finally, it is important to recognise that participatory forest resource assessment and the preparation of community forest management plans are only part of a participatory planning process. In the villages in SFDP-Song Da and RDDDL area, preliminary steps such as Land Use Planning and Land allocation (LUPLA) and Forest Protection Regulations (FPR) would normally have been completed with participating villages before starting to prepare the community forest management plan. Similarly management goals would have already been identified through the Elaboration of Management Goals for natural forests exercise and in many cases a village forest map will also be available. The material in these session plans therefore builds on earlier work and the participatory resource assessment and management planning alone will not be sufficient to develop all the capacities and skills and all the methodologies for villages to become self-reliant in natural resource management. The reader should consult other project training manuals and guidelines for details of these other methodologies.

Table 1: Participatory Forest Resource Assessment and Management Planning Schedule

	Session	Tasks and Outputs
1st Module Duration: 1 Day	1. Introduction (1 hour)	<ul style="list-style-type: none"> Ideas and experiences about community forestry Why do we need PFRA? Who benefits from PFRA? Principles of PFRA Participants expectations
	2. Blocking (1 hour)	<ul style="list-style-type: none"> Divide village forest into blocks using aerial photomap Estimate area of each block and agree on name for each block
	3. Block description (1 hour)	<ul style="list-style-type: none"> Complete block description form Presentation by each group
	4. Forest product demand (1 hour)	<ul style="list-style-type: none"> List of forest products used in village Estimate annual household demand Estimate annual village demand
	5. Preparation for field work (1 hour)	<ul style="list-style-type: none"> Explain tasks for PFRA Explain plot sample form Agree on roles of small groups Select block for measurement and agree on transect starting point Practice measurement systems e.g. transect (using sticks) measure dbh; layout and measure plots
2nd Module Duration: 3 - 10 days	6. Plot measurement	<ul style="list-style-type: none"> Practice locating and measuring one plot Locate other plots from starting point using transects (3 groups) Collect sample plot data (3 groups) Complete Plot Sample Form for every sample plot (3 groups)
3rd Module Duration: 2-4 days	7. Data analysis	<ul style="list-style-type: none"> Compile plot data (Block summary form) List of timber species and other species Prepare histograms/charts (2 groups) Presentation of histograms/charts Identify issues and opportunities Estimate harvest levels and work out some criteria for tree selection
	8. Forest time line (past)	<ul style="list-style-type: none"> Past and present forest situation Events in the village over the past 30 years
	9. Preparing the table of goals, problems and opportunities	<ul style="list-style-type: none"> Block management goals Forest products and species Forest product demand, availability, and balance
	10. Preparing the activities plan	<ul style="list-style-type: none"> Objective setting (utilisation, improvement, protection) Activities and descriptions Presentations by groups
	11. Evaluation & Closing	<ul style="list-style-type: none"> Review of participants' expectations Unresolved issues Future activities

Session 1. Introduction

- OBJECTIVES**
- To give participants a broad overview about community forest management- especially the idea of participatory forest resource assessment (PFRA)
 - To introduce participants and trainers

- OUTPUT**
- Participants will have a clearer understanding of the training topic (participatory forest resource assessment and management planning)
 - The trainer will have a clearer understanding of the participants needs and level of understanding

- MATERIALS**
- AO posters and pens
 - Copies of the training schedule
 - Copies of pictures for discussions (see Annex 1)

- TIME**
- 1 hour

TRAINER'S NOTES

- This introductory session will be much easier in villages where you (the trainer) are already familiar with the local village and forest situation. If you are completely new to the village, take some time to find out a little about it beforehand.
- Use this as an opportunity to find out something new. Try not to lecture. This might be difficult because the topic of the training might be unfamiliar for participants, and you will have to explain it to them. It is important that participants understand, from the start, the purpose of the training.
- The participants' introductions have been put towards the end of the introductory session. This is so that they will have a better idea of the training topic and are better able to give their expectations.

STEPS

- WELCOME** (1) Welcome the participants to the training. Tell them how long the training will take place and get them to agree on ground rules - starting and finishing times; arrangements for lunch and any other rules which you feel might be necessary.

- | | | |
|--|-----|---|
| COMMUNITY FORESTRY IN GENERAL | (2) | <p>Start by explaining to participants a few general ideas about forest management by villages e.g. Villages managing forests and harvesting products; Villagers measuring trees to see what is in their forest; Villagers improving their forests. Use pictures as a focus for discussion (see Annex 1). Ask <i>"Do you think this village could be in this situation?"</i> Ask them to explain their answers.</p> <p>Ask <i>"What would be the benefits for the people in this village if they could do this? What about poor people? What about women, children and men?"</i></p> |
| FOREST MANAGEMENT PLANNING | (3) | <p>Explain briefly the whole forest management planning process (see Table 2 below)</p> <ul style="list-style-type: none"> ● Bring the village together to discuss their forest (already done through LUPLA and Forest Protection Regulations) ● Forest resource assessment ● Prepare the management plan for the CF ● Approve the management plan (At District level) ● Implement the management plan ● Monitoring by village and external supporting agencies |
| WHAT IS PFRA? & WHY IS IT NEEDED? | (4) | <p>Explain that PFRA is about measuring the forest. Ask <i>"Why do you think it is necessary to measure the forest?"</i></p> <p>Possible answers:</p> <ul style="list-style-type: none"> ● To find out what is in the forest. Ask <i>"Why?"</i> ● To enable sustainable harvesting and management by villagers. Ask <i>"How will PFRA help to do this?"</i> ● For monitoring of forest condition. Ask <i>"Why?"</i> and <i>"How will PFRA help to do this?"</i> ● Because forest resource assessment will be needed for legal approval of community forest management plans |
| PRINCIPLES OF PFRA? | (5) | <p>Explain that PFRA has been developed so that it can be done by villagers. The important principles are:</p> <ul style="list-style-type: none"> ● Participatory - every step is done with village participation ● Simple - to allow the villagers to understand what is happening and to be able to do it ● Cost-effective - doesn't take too long or require much expense ● Relevant - produces only the information which is really needed for forest management ● Logical - a step-wise process where one step follows another |

- PARTICIPANTS EXPECTATIONS**
- (6) After giving this overview and explanation you now need to see how much the participants have understood and whether they feel it is relevant to their situation. This is done by asking for participants expectations.
 - (7) Ask each participant to speak briefly in turn. Each should give their name; explain what they think PFRA means; and describe what they expect to get out of the training.
 - (8) Note any points on a large sheet of paper to record people's expectations and understanding

Table 2: Outline of the Community Forestry Process

Developing the Village Level Institution	
Step Name	Source of information/comments
1. Preparing the village land use plan	Already completed during LUPLA and for protection through the forest protection regulation
Resource Assessment Planning Steps	
2. Prepare forest map	May be already completed during the LUPLA
3. Blocking	Based on the village forest map
4. Forest management goal exercise	Exercise may be already completed (see separate training guide number ...)
5. PFRA	5.1 Block description (all blocks) - Block Description Form 5.2 Plot measurement (selected blocks) - Sample Plot Form
6. Data analysis	6.1 Plot data compilation (from 5.2) 6.2 Preparation of histograms/charts (from 6.1)
Management Plan Preparation Steps	
7. Forest product demand assessment	From forest product demand exercise with villagers
8. Supply-demand relationships	From data analysis (Step 6.1 & 6.2) plus forest product demand (Step 7) and from management goals exercise (Step 4)
9. Problems, and opportunities	From the Block description (Step 5.1) and data analysis (Steps 6.1 and 6.2)
10. Objective setting	Based on Management goals exercise (Step 4) and Problems, issues and opportunities (Step 9) plus supply-demand relationships (Step 8)
11. Management activities and tasks	For a 5-year plan. Block-specific activities to achieve the objectives described in Step 10 including harvest quantities and criteria for carrying out activities
12. Writing FM plan	5 year plan (feeds into the VDP). Based on information and outputs of Steps 2-11
Approval of the Community Forest Management Plan	
13. CF Plan approval	Based on written plan - approval by District People's Committee Can use FSC criteria as the basis for approval
Elaboration of Annual Management Plan	
14. Writing Annual Management Plan	Specifying the activities identified in the 5-year management plans, including measures like fire prevention, stand improvement/enrichment and further forest management options (e.g. agro-forestry models). If applicable, indication of time-period and responsibilities.
Implementation	
15. Implementation of activities described in the plan	Implementation by villagers, but technical support from extension workers will be needed
Monitoring	
16. Monitoring activities and impacts	Including self monitoring by villagers and external monitoring by district/provincial agencies

Session 2. Blocking

- OBJECTIVES**
- To divide the village forest into separate areas (blocks) each with a specific management goal.
 - To estimate the total forest area available in the village and record the names and areas of different blocks

- OUTPUT**
- Identification and agreement by villagers on forest blocks
 - Table showing name and area of each block

- MATERIALS**
- Aerial photomap (at 1:5,000 scale) of the village showing village forest areas. A large-scale map at 1:5,000 works well although larger scale may also be available.
 - Transparency sheets (enough to cover the map) plus clips.
 - Whiteboard marker pens for transparency sheets and permanent markers to complete the map
 - Compass to orientate the map correctly

- TIME**
- 1 hour

TRAINER'S NOTES

- In some villages the village forest map might already be available from planning exercises completed earlier during LUPLA (see Training material Aerial photomapping Number ...). However the methodology described below is effective because it ensures good participation by villagers and helps them to describe their forest and understand the map. Therefore, even if you already have a map, consider following this methodology to make sure that villagers understand the map and the blocks. Remember that the participatory process is equally as important as the "output" of the step.
- The aerial photomap used for this exercise needs to be prepared in advance. On the enlarged photo forming the base of the map, village boundaries and contour lines should be added.

STEPS

- INTRODUCING THE PHOTOMAP AND THE DRAWING TECHNIQUE**
- (1) Introduce the aerial photomap (1:5,000 scale). Explain that it shows their village. Show it to the villagers. Ask them to look at it and try to spot recognisable features e.g. village, road etc.
 - (2) Ask them to orientate the map so that it is easier to understand i.e. so that north on the map really faces north
 - (3) Give time for villagers to examine the map. After a while explain that they will be marking the area of forest in the village on the map.

- (4) Put the transparent overlay over the map and use clips to temporarily hold it in place. Using a whiteboard marker (which can be erased) show them how they can draw on the overlay to delineate a boundary. Show them that it doesn't matter if they make a mistake because the lines can be easily erased
- DRAWING THE FOREST AND BLOCK BOUNDARIES**
- (5) Ask villagers to begin to draw lines around the forest areas in the village. Don't rush them, and let them work out where the boundaries are.
- (6) Once they have finished - look at the map and see if there are any inconsistencies e.g. shapes that are not closed; lines which don't join up. Ask questions about what they have drawn.
- (7) When the map looks complete, ask them to write the name of each part of the forest (block) on the map. Blocks will usually be distinct pieces of the forest with clear boundaries
- (8) Ask all the participants if they agree with the names and boundaries. At this point it will be useful if they can also give each block a number.
- MEASURING BLOCK AREA**
- (9) Explain that they will need to know the area of each block so that they can calculate how many trees there are¹. Ask if they can estimate the area of each block in ha
- (10) If they find it difficult to estimate the areas then show them how they can roughly measure areas using squares drawn on a piece of transparent sheet. If the map scale is 1:5,000 then a 2 x 2 cm square is equal to 1 ha. Write the area of each block on the map
- (11) When all the areas have been measured, make up a table showing each block, it's number, name and area.
- (12) Finally, go over the temporary lines drawn on the transparent sheet with a permanent marker. This will create a permanent map on the transparency.
- (13) Eventually the village should be given the photomap with marked boundaries to keep. A plastic laminated version can be prepared for them later and if necessary all the boundaries can be added into the GIS database.

¹ If the village and forest map have already been prepared on a GIS database, then it will be very easy to measure areas. However, the process of getting the villagers to do it is important - they will then understand how the area figures relate to "their" map. It is probably better to involve the villagers in the area measurement and use the GIS to check later for major errors and get more accurate area information. Don't just give villagers the area data and tell them what the area of their forest is without involving them!

Session 3. Block description

- OBJECTIVES**
- To briefly describe each block (based on villagers' own knowledge)
 - To decide whether any sample plots need to be measured in the specific block
 - To make a preliminary identification of any problems in the block

- OUTPUT**
- A completed Block Description Form for each block

- MATERIALS**
- Blank Block Description forms (one for each block)

- TIME**
- 1 hour

TRAINER'S NOTES

- This step can only be done by participants who know the village forest area well. If you have a mixture of villagers and others in the training, only the villagers will be able to describe each block well.
- An alternative to the steps described below would be to complete the Block Description Form whilst actually inside the forest e.g. during a forest walk, or during the management goals exercise. Doing it inside the forest is preferable to a classroom-based exercise, but it will take some time to visit every block (even in small groups) and during a short training it might not be possible but can be considered during actual preparation of the CF management plan. It is important to make sure that any forms completed by small groups are presented to the whole group for verification before continuing.

STEPS

- FORMING SMALL GROUPS**
- (1) Divide participants into small groups (see Annex 2). About 5 or 6 people for one group is sufficient. Explain that the purpose of this exercise is that each group will complete a description of each forest block using the forms provided.
 - (2) Show the participants the block description forms (see Table 3). Go through the forms and summarise the information from each section - it is probably not necessary to go into too much detail before starting providing that at least one person in the group can read and write.

- BLOCK DESCRIPTION FORMS**
- (3) The sections in the block description form are:
Access = Walking distance of block from village
Forest Type and Age = General description
Products = What forest products are in the block (including NTFPs)
Bamboo = The status of bamboo in the block
Fire = Whether fires are a problem in the block
Weeds = Whether weeds are a problem in the block
Grazing = Whether grazing is taking place in the block
Logging history = What timber harvesting has taken place
- COMPLETING THE BLOCK DESCRIPTION FORMS**
- (4) From your table showing the block names and areas allocate blocks to different groups and give each group enough block description forms. Keep the village forest map handy so that people can use it to check which blocks they are describing
- (5) Fix a time for groups to work (e.g. 1 hour) and ask them to begin working. Make sure that each group knows what to do, and during the work check frequently to see that they are not having difficulties.
- (6) At the end of the agreed time, ask everyone to gather into one group.
- PRESENTING AND DISCUSSING THE BLOCK DESCRIPTION**
- (7) Ask someone from each group to present the information they have recorded on each form. After each short presentation ask other participants if they agree with the information or if they have anything to add.
- (8) Explain that during the rest of the training you will only be measuring one block. Ask participants which block they think would be best to measure. Some criteria for this might include:
Access - if the block is too far away it will take too long to reach it during training
Products - a block where the answer to the question "*Can you harvest any forest products in the next 5 years?*" is yes would be most suitable for training.
Logging history - if the block is being repeatedly harvested it might be good to look at the resources in some detail to see if harvesting is leading to degradation
- (9) Agree on the block to be used for the participatory resource assessment.

Table 3: Block Description form

Date.....

Name of the village.....

Direction from village centre

Recorder.....



Name of the forest block..... Area [ha].....

Access	<i>What is the walking time from the village to reach the forest block?</i>		
	less than 1 hour	1-2 hours	More than 2 hours

Forest Type / Age	Forest dominated by Dipterocarp	<i>Forest age</i>		
	Forest with other species	mature	middle	young

Products	<i>Can you get any forest products in the next 5 years?</i>		Yes	No
	<i>If not, why do you think no products are available?</i>			
	<i>List 3 main forest products that can be expected from the forest block</i>			

Bamboo	<i>Is there any bamboo available in the block?</i>		
	plenty	some	none

Fire hazard	<i>When did fire last occur in the forest block?</i>			
	In the last 5 yrs	Not in the last 5 yrs	Not in the last 10 yrs	Never

Weed Invasion	<i>What is the situation with weeds in the block?</i>		
	More than 50% of ground covered	Less than 50% of ground covered (but common)	No weeds

Grazing	<i>What is the grazing pressure in the block? (check signs like cattle manure; trampled areas; very short grass; browsed shrubs and herbs etc.)</i>			
	High	Medium	Low	None

Logging History	<i>When was the last timber extraction carried out?</i>			
	Year of last green logging (living tree)		Year	
	Last extraction of dead and fallen trees		Year	
	Other special products harvested?			

Afforestation	Do you think afforestation is necessary in the block?		Yes	No
	How can funds be made available?			

**TRAINER'S
NOTES**

Adjusting the time needed for fieldwork

- 1) Once the number of forest blocks and the respective block areas are known, the total time needed for the establishment of sample plots can be estimated.
- 2) Refer to Table 4 to find out how many sample plots are needed for each forest block where farmers intend to harvest timber within the next 5-year period (as questioned during the previous exercise).

Table 4: Number of sample plots per block

Block area	Number of sample plots (20 x 10 m)
Less than 4 ha	at least 3
over 4 - 10 ha	at least 6
over 10 - 20 ha	at least 12
over 20 - 40 ha	at least 20
over 40 - 60 ha	at least 30
over 60 - 100 ha	at least 50
over 100 - 150 ha	at least 75
over 150 - 200 ha	at least 100
over 200 ha	at least 125

- 3) Each inventory team can establish about 10 sample plots per day, so in order to roughly arrive at the number of days needed in the field, divide the total number of sample plots needed, by the number of field-teams multiplied by 10.

Example: *Our village has 3 forest blocks that need to be inventoried as villagers intend to harvest timber in the next five years. The areas of those forest blocks have been approximated to be 170, 76 and 23 hectares respectively. Referring to table 4, 100 plots need to be established in the first block, while in the second and third block, 50 and 20 blocks need to be established respectively. In total, 170 sample plots are necessary. If 3 inventory teams are carrying out the fieldwork, 30 plots can be established on average per day. Thus, dividing 170 plots by 30 plots/day, approximately 6 days are needed.*

Session 4. Forest product demand

OBJECTIVES ● To find out which forest products are needed by villagers and the quantities required

OUTPUT ● A chart listing the main forest products used by villagers and showing the estimated quantities needed by each household

MATERIALS ● A0 poster and coloured pens

TIME ● 1 hour

TRAINER'S NOTES

- This exercise is described here as a whole group exercise. However it works well as a small group exercise especially if there are separate men's and women's' groups because men and women often have different forest product priorities. For example, women may mention a forest product which they collect or feel is important whilst men may fail to mention it. In this way you will get a more comprehensive list of products.
- Remember after any exercise which done by 2 groups you need to leave enough time for presentations to the whole group

STEPS

- LISTING FOREST PRODUCTS**
- (1) Sitting in a group with all participants, ask them to list the forest products they get from their village forest area (refer back to the management goals exercise). You might need to probe and question them to make sure that all the forest products are included. It might be necessary to divide general terms into different categories e.g. "bamboo" might be broken down into large bamboo (for construction); small bamboo (for weaving) and bamboo shoots (for eating).
 - (2) As people mention different products, list them down the left hand side of an A0 poster. Remember that you are not asking about their availability, but simply about what products people need and use.
 - (3) Once you are satisfied that the list you have is complete, make a second column. In this, try to write the average household requirement for each product per year (or if possibly the whole village requirement). Again this might take quite a lot of questioning and probing to find out. It is always important to cross-check any answer you get - don't just assume the first answer is right!

- VILLAGE FOREST PRODUCT DEMAND**
- (4) Draw a third column. In this try to estimate the whole village demand (per year) for each product. You can do this by asking how many households use the product and then multiply the figures.
 - (5) At the end of this exercise you should have an estimated forest product requirement for the whole village. It can never be 100% accurate, but it will give a good indication of the demand for different products.
 - (6) Keep the completed poster it will be needed later

Table 5: Layout for Forest Product Demand Assessment

Product	Household requirement (per year)	Annual village requirement

Session 5. Preparation for field work

- OBJECTIVES**
- To explain to participants about the field work which will be carried out during the next day
 - To save time during the field work and reduce confusion
 - To decide which block will be used for the field exercise and how many sample plots to measure in the block

- OUTPUT**
- All participants with some understanding of what the field work will involve
 - All participants familiar with their own group and their role in that group
 - Agreement about which block will be used for sample plot measurement

- MATERIALS**
- Coloured tape measure (dbh tape)
 - Two sets of ropes (20 m rope with a knot at 10 m and 2 x 10 m ropes with knots in the middle)
 - A0 poster and coloured pens
 - Aerial photomap with transparency overlaid showing forest blocks
 - Ruler for distance measurement
 - Discs of paper/card cut to the size of different diameter classes
 - Laminated handout showing how to measure plots (see Annex 3)

- TIME**
- 1 hour

TRAINER'S NOTES

- This session is to prepare for field work the next days. Field work will be easier if people have an idea about what they are going to do in advance. However, learning by doing is most effective with most village groups, so don't expect to be able to make everything clear after this session.
- It is probably best not to give equipment to groups at this stage - they may forget to bring it the next day. Try to make everyone familiar with the simple tools being used. Remember to ask villagers to come with knives for the field work!
- You also need to take time in this session to make sure that everyone knows which group they are in, where you will meet to start work the next day and at what time.
- Before starting this session you will have to plan the inventory work for the next days in theory. You can do that by following the directions stated on the next page.

PLANNING THE INVENTORY WORK

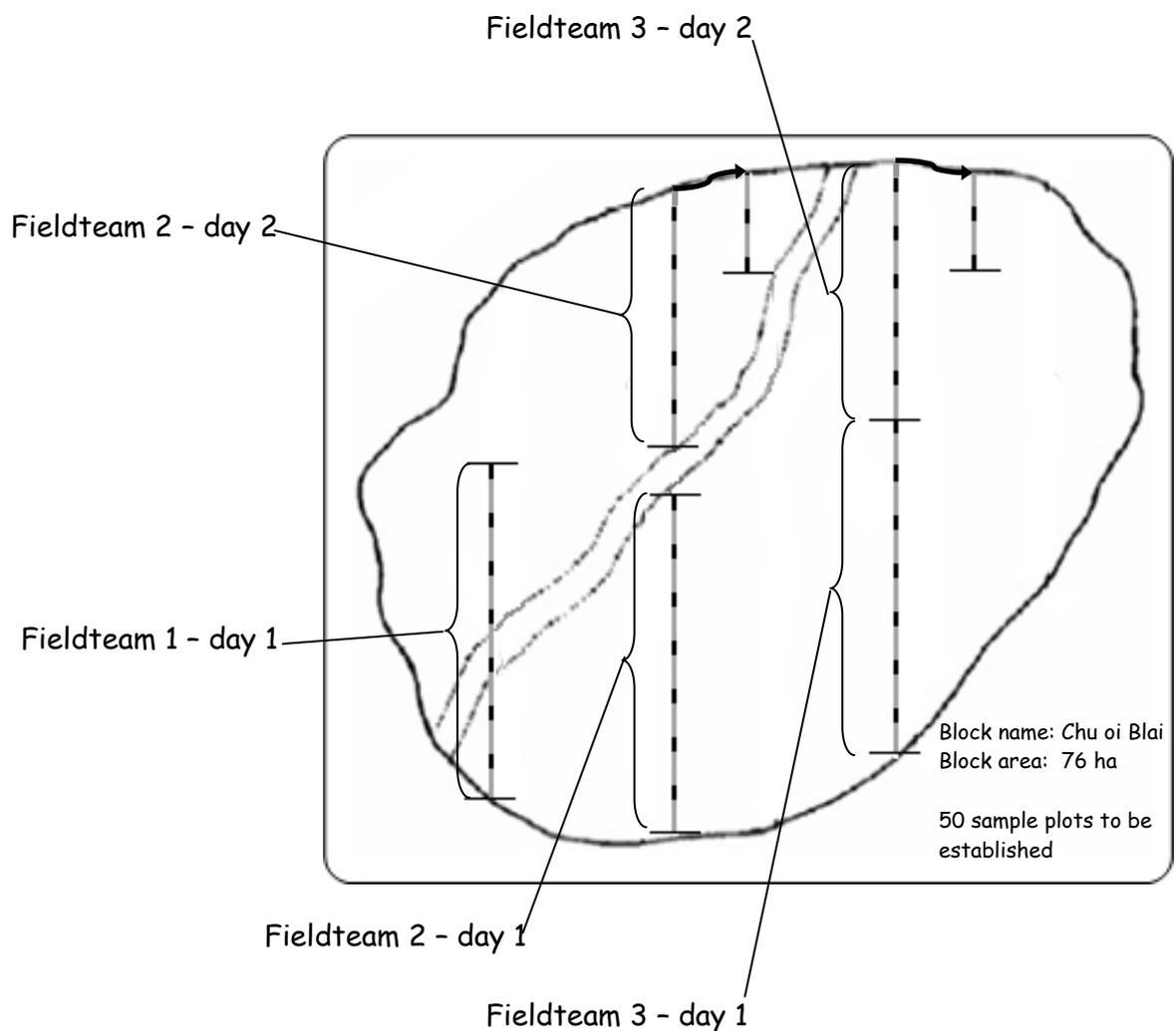
Estimating the length that can be covered by each inventory team in one day

- (1) Begin by approximating the number of plots that can be completed by one inventory team in a day. If this is the first time you carry out forest inventory, just assume 7 plots per team per day, based on experiences of previous participatory inventories.
- (2) Multiply the number of plots that can be completed by one team in one day by the length of one plot (20m) plus the distance between two plots (50m), to get the length of the inventory line, in metres that can be completed in one day. If we assume that 7 plots can be established by one inventory team per day, the distance covered in the field will be $(20m+50m) * 7 = 490 \text{ m}$.
- (3) Convert this distance to the appropriate distance on the map using the scale of the map. For instance, if the map has a scale of 1 : 10 000, this means that one centimetre on the map represents 10 000 centimetres on the ground. As there are 100 centimetres in one metre, 10 000 centimetres on the ground is the same as 100 metres on the ground, so:
a scale of 1 centimetre : 10 000 centimetres (1: 10 000)
is the same as
a scale of 1 centimetre : 100 metres.
Referring to our example used above, 490 meters on the ground covered by one inventory team per day is equal to 4,9 centimetres on the map (as $490 / 100 = 4.9$).
- (4) In the next step, you need to refer to the map indicating the forest blocks.

Using the planning map to plan the location of the inventory lines

- (5) The calculation of the total number of plots needed for each forest block should have been completed after the forest blocks have been described (refer to Session 3). In case this has not yet been done, refer to table 4 (page 16) to find out how many plots have to be established in each forest block.
- (6) Taking the total number of plots needed, the transect lines should be added onto the map. Place the transect lines perpendicular to the contour-lines in order to cover the maximum ecological gradient. Generally, transect lines should be spaced evenly throughout the forest block, but keep in mind that practicability is of utmost cruciality. For an example of how transect lines can be placed in a forest block please refer to the next page.

Example: Below you can see an example of how transect lines can be distributed fairly even over the block area. The example from page 16 is continued, displaying a forest block covering 76ha. Accordingly, a total of 50 sample plots are needed. Dividing this number by 10, we arrive at 5 field-team days. These days have to be assigned to our three inventory-groups, as displayed below. As becomes apparent looking at the distribution of plots below, 2 days are needed, whereas at the second day team 1 could already start with the inventory of another forest block. Alternatively, Team 1 can also assist team 2 and 3 in this block during day 2.



STEPS OF FIELDWORK	
INTRODUCTION	(7) Explain that the purpose of this exercise is to prepare for the field work the next day. Explain that the field work will be done in 3 small groups which will work separately. Explain that trees will be measured in small plots located in the forest.
	(8) Explain that the number of sample plots in each block depends on the size of the block. Table 4 (see page 17) shows how many plots will be required for different areas.
TRANSECTS	(9) Use an A0 poster to show how a transect will be taken from the edge of the plot to locate each sample plot.
	(10) Explain that sample plots will be 50 m apart along these transects. Refer to the handout (Annex 3) which shows how the transects are laid out in a straight line using sticks. Show how the 20 m rope will be used to measure the distance between plots.
LAYING OUT SAMPLE PLOTS	(11) Use the A0 poster to draw a plot layout. Refer to the handout (Annex 3) which shows this. Show the subplot size (10 x10m) and draw several trees inside the plot. Show how the two 10 m ropes will be used to mark the plot corners and explain that small sticks will be used to fix the corners.
MEASURING TREES	(12) Using your drawing, show how trees inside the plot will be measured and how trees outside will be excluded. Show the coloured diameter tape and explain that this will be used to measure the trees inside the plot. Show how to measure a tree using the coloured diameter tape. Explain that the colours represent different diameters. Let villagers try out some measurements with the tape
	(13) Give participants the paper discs of different diameter classes. Ask them to measure which colour each one is. Use this discussion to ask about trees of different sizes. Ask "What would a tree of this diameter be used for?"
REGENERATION PLOTS	(14) Explain that all trees over 1.3 m will be measured in the 5 x 10 m plots on the right hand side of the transect line. On the left hand side only trees with a diameter above 8 cm (starting from black diameter class) will be measured. Regeneration will be measured using smaller plots - one in each corner. Use the handout (Annex 3) to show this and mark the small plots on your drawing. Explain that there are 4 regeneration plots of (2 x 2m) and only trees less than 1.3 m (breast height) will be counted.
BAMBOO	(15) Explain that bamboo (large types of bamboo only) will be measured - not by diameter but simply by counting the number of culms (stems) in each 10 x 10 m plot.

- (16) Before finishing the session, make sure that everyone knows which group they belong to, who the group leaders are and which forest block will be visited the next day.

Session 6. Plot measurement

- OBJECTIVES**
- To measure actual tree numbers and diameters in the block
 - To assess the potential for forest product harvesting from the block
 - To identify other problems or opportunities in the block
 - To provide quantitative information for utilisation and monitoring

- OUTPUT**
- Completed Plot sample forms for each block being measured. (Number can vary depending on the number and size of forest blocks)
 - Participants (especially villagers) become familiar with the practical aspects of measuring plots
 - Participants gain insights about the general structure and composition of their forest blocks representing a common foundation for participatory determination of long-term forest management goals for each block.

- MATERIALS**
- Several plot sample forms and clipboards
 - Coloured tape measure (dbh tape)
 - 20 m rope
 - Ropes for laying out plot boundaries (two x 10m)
 - Copies of the plot layout description (see Annex 3)
 - Chalk for tree marking
 - 6 x 2 m long sticks/bamboos (these can be cut in the forest)
 - Village forest map

- TIME**
- 3 to 10 days (depending on number and size of the forest blocks and thus the number of plots to be measured).

TRAINER'S NOTES

- Field work will be carried out in 3 small groups. Each group will measure and record their sample plots separately. This will allow more plots to be completed and will give everyone a chance to actively participate
- For the first plot, everyone should work together to complete one sample plot. This will probably be a bit confusing at first, but participants will learn quickly and the next plots will be much easier to lay out and measure.
- For each team working in the field, the following different jobs are needed. Table 6 shows the composition of a recording team with 5 people. If there are too many people some will have no jobs and will not be able to be actively involved. Please note that the task of data recording should be taken over by experienced persons, preferably involved extension worker.

Table 6: A plot recording team

Name	Main job	Other job
Recorder	To write information on the plot sample form	To estimate slope and canopy cover
Measurer	To measure diameters using the coloured tape	To identify the tree species
Chalk person	To mark the trees with chalk	To decide whether each tree is suitable for timber
Rope person (x2)	To layout the plots with the 10 m ropes	To layout the regeneration plots (2 x 2m) and count regeneration
All	To assist with making the transects to locate the plot (using bamboos) and to measure the 50 m between plots using the 20 m rope	
5 people		

STEPS

LOCATING THE FIRST SAMPLE PLOT

- (1) With all participants, go to the starting point on the edge of the selected forest block. Use the village forest map to locate the spot exactly. At the starting point get villagers to show you on the map exactly where you are. Use the map to agree on a direction for the transect e.g. west or south. If possible, transects should run up and down the slopes rather than across.
- (2) Take a compass bearing (if you have a compass) to get a rough idea of the direction of the transect and to make sure that it crosses the block. One person holding a stick/bamboo stands at the starting point. A second person also holding a stick/bamboo moves ahead in the agreed direction as far ahead as can be clearly seen from the start. Finally, a third person carrying a stick/bamboo moves to the front. The person at the starting point then arranges the second and third persons to make a straight line (see Annex 3). Remember that a high level of accuracy is not needed, just the ability to move in a more or less straight line through the forest

LAYING OUT THE PLOT

- (3) When the line is more or less straight, measure 50m from the starting point using the 20 m rope. This is the location for the first plot. Mark this point with a stick pushed into the ground
- (4) Use the information in Annex 3 as a handout to see how to lay out the plot on the ground. The subplot is 10 x 10m. Corners are located by using the two 10 m ropes each of which has a knot tied in the middle to mark the centre.
- (5) Try to get the plot corners as square as possible and mark them by fixing the 10 m rope (in the loops) with small sticks

**RECORDING
PLOT
INFORMATION**

- (6) The recorder can now start to write information on the Plot Sample Form. For the Dry-Dipterocarp Forest, use Table 7. The sample form for Evergreen and Semi-Deciduous Forests hcan be found in Annex 4. Make sure the date, name of village and block and plot number are recorded first.
- (7) Estimate the canopy density. Use the picture in Annex 3 as a guide. Estimate the slope in the plot (steep, moderate or gentle). Circle the best description.
- (8) Start measuring trees in the plot on the right hand side of the transect line. For every tree more than 1.3 m in height measure the diameter at breast height (dbh) using the coloured tape measure.
- (9) For all trees you measure including trees of the natural regeneration, note whether it is a timber species or not by making an asterisk next to the tree name. You will need this information later during data analysis.
- (10) The measurer should call out the species name and colour (recorded with the tape measure). Also record whether the stem of the tree is straight enough and the species is suitable for it to be used for timber 😊 or not suitable for timber ☹️
- (11) After measuring and recording the tree, mark it with chalk to avoid counting it again.
- (12) After measuring the right hand side of the subplot continue with the left hand side and only measure trees above 8 cm dhb (black diameter class).
- (13) Next, layout the smaller 2 x 2 m plots in each corner using the 2 m sticks/bamboos.
- (14) In these plots, count the regeneration. Only count regeneration of species which will become trees (ignore shrubs and other plants).
- (15) Count how many large bamboos there are in the 10 x 10 m subplot counting the number of live bamboo culms. Ignore bamboo species with any use and dead culms.
- (16) After finishing the measurement for the entire 10x10 m subplot establish one further 10x10 m subplot adjacent to the old one by simply shifting the 10 line from the old plot boarder 20 m forward as shown in Annex 3.
- (17) When the information in the second subplot has been recorded, use the 20 m rope as before to move 50 m through the forest in a straight line to the location of the next plot.

Table 7: Sample plot form Dry-Dipterocarp Forest

Recorder..... Date..... Soil colour.....

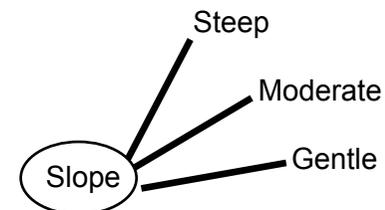
Name of the village..... Forest block #..... Local name of inventory area..... Sample plot number.....

Canopy coverage

⇒ Open

⇒ Normal

⇒ Dense



Local Tree Name (mark timber species with asterisk)	Regeneration (B)	(A)		☺ Timber Potential (A)							☹ No Timber Potential (A)						
	Under chest height	white	yellow	black	stripes	blue	dots	red	orange	wave	black	stripes	blue	dots	red	orange	wave

Total number of bamboo culms per plot

Session 7. Data analysis

- OBJECTIVES**
- To compile and summarise sample plot data for the block
 - To present the data in an understandable way for villagers using histograms
 - To discuss the implications of the data for forest management and forest product utilisation

- OUTPUT**
- Completed Block Summary Form for each forest block
 - Histograms showing timber trees of different sizes and all trees of different sizes
 - Some quantitative estimates of harvestable quantities (especially timber and fuelwood)

- MATERIALS**
- Block summary forms (1 per block)
 - Calculator
 - A0 posters, A0 transparency, coloured pens and highlighter pens
 - Large rulers (with scale)

- TIME**
- 3 hours (depending on the number of plots)

TRAINER'S NOTES

- Data compilation is probably the most difficult step in the process for farmers. A good recorder will be needed (preferably the extensionist or other person who can write and calculate well). Good organisation will help to get through this step - follow the steps carefully and lead the process well.
- It is not expected that farmers will be able to do the actual calculations themselves - probably they will always need support from an extension worker. By following the steps below, it is possible to calculate block totals directly from the plots. Just

Calculations

Subplot (A) $2 \times 10 \times 10\text{m} = 0.02 \text{ ha}$

Subplot (B) $2 \times 5 \times 10\text{m} = 0.01 \text{ ha}$

Regeneration plots (C) $8 \times 2 \times 2\text{m} = 0.0032 \text{ ha}$

If z is the number of plots in a block which were measured, then the total area covered by subplots (A) = $z \times 0.02 \text{ ha}$

For Subplots (B): The total area covered by plots = $z \times 0.01 \text{ ha}$

For regeneration plots: The total area covered by plots = $z \times 0.0032 \text{ ha}$

To get totals for the whole block, the block area (ha) is divided by these numbers

e.g. Factor a = $\text{Block area} / z \times 0.02$ and Factor b = $\text{Block area} / z \times 0.0032$

If you need to calculate per ha figures then simply divide the whole block totals by the block area e.g. $\text{Total per block} / \text{Area of block} = \text{total per ha}$.

follow the steps in sequence for calculating Factor a and Factor b and work out block totals

- Remember, the process you are going through with villagers is equally as important as the output. Farmers need to be aware that it is their own data which is being used in the calculations. Do this by actively involving them in giving their data to the recorder and by making sure that data analysis takes place immediately after field data collection - farmers will then know that the data is theirs which they have just collected.

STEPS

- (1) Prepare the block summary form in advance by filling in the boxes at the top of the form showing: village, block name, area, number of plots and Factors a and b (by calculation). Use table number 8 for the Dry-Dipterocarp Forest or the table provided in Annex 5 for the Evergreen and Semi-Deciduous Forests.
- (2) Ask the participants one after the other to name the different tree-species they measured during the fieldwork and write them on an A0-paper sheet for everybody to see. For every species named ask the question whether it is suitable for construction timber or not. If the question is affirmed by the group, mark the species name with an asterix. Fix this paper to the wall for everybody to see. This step is necessary to clarify which species are suitable for construction timber and which are not.
- (3) Sit in a semi-circle with the recorder in the middle. Distribute the completed Plot Sample Forms (one each) to participants who then sit around the recorder
- (4) Ask each participant in turn to read out the names of each of the species listed in their form. For each species, they should agree whether or not they are suitable for timber. Write all the timber species in one column on an A0 poster and all the non-timber species in another. Finally, there will be a list showing all the species which have been recorded divided into timber and non-timber. Make sure everyone agrees with this.
- (5) Ask participants to mark the whole row (with a highlighting pen) of all the timber species on their form so that they are clearly separated from the non-timber species.

COMPLETING THE BLOCK SUMMARY FORM

- (6) Ask the first participant to give the number of trees in the first diameter-class ("white trees") of timber species in their plot. To do this they will have to add the all numbers of this diameter-class which have been highlighted in green. The recorder writes this number on the Block Summary Form and asks the next participant to give the same information (number of trees in the first diameter-class of timber species) and so on until all participants have finished. Add all these numbers together to get the total number of trees in the first diameter.class in all plots, of timber species.

It is recommended that the facilitator adds up the numbers of trees for natural regeneration instead of asking the participants to do so. This is because respective numbers are usually very high, leading to confusion of participants. However, you should inform the participants about the fact that you are going to sum up the numbers for them.

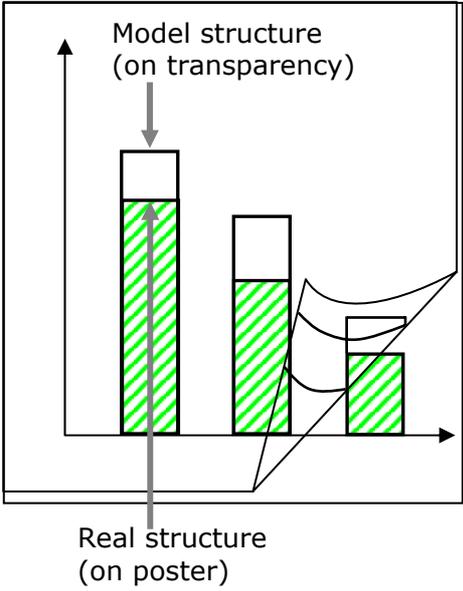
- (7) Repeat Step 4, but for "yellow" trees, again recording only timber species.
- (8) Continue with "black" trees, "stripe" trees etc. starting with trees that are suitable for timber 😊 and then those that are not 😞
- (9) Now ask participants to give their totals of all the remaining trees in the first diameter-class ("white trees" of other species). These are the ones which have not been highlighted. Add the total for all the plots and record this on the Block Summary Form. Do the same for all sizes (colours) until every farmer has given you all the data.
- (10) Finally ask the farmers to give you the total number of bamboo culms for each plot. Add all these totals to get the total for all the plots
- (11) To get the totals per block (all the unfilled boxes) multiply by the correct factor. This is Factor b for regeneration and Factor a for everything else.
- (12) Add the numbers in the rows to get totals for "All trees"
- (13) Divide participants into 2 groups. Explain that each group will try to draw a picture showing the information from the block. One group will draw a histogram showing the distribution of timber trees only. The other group will draw a histogram showing the distribution of all trees (all species). You may have to draw an example of a histogram on the A0 poster to show what is expected.
- (14) Make sure that both histograms have the same scale so that they can be compared easily by the participants.

**DRAWING
HISTOGRAMS**

**PRESENTING
THE
INFORMATION**

- (15) Histogram 1 uses data from the Block Summary Form row shown by the arrow marked 1. Histogram 2 uses data from the row marked 2. Make sure the histograms are: clearly drawn using colours to show size classes (and possibly drawings like small trees) and using only local language. Write the dbh classes under each bar of the histogram as well as drawing the colours so that participants have a clear idea of what size each colour represents. Ask each group to write titles and labels to show what the histogram represents
- (16) After participants finished drawing the histograms, allow some minutes for break and use this time to prepare a transparency showing the model forest structure. The transparency has to exactly fit to the scale of the histogram 2 as prepared by the participants (guidance for the design is given in the box below).
- (17) Invite participants to present their poster. Each histogram should be presented by someone from the group which drew it. Let them explain how they prepared the histogram; what it shows and any particular issues or potentials which it indicates.
- (18) After this place the transparency over the histogram 2 (total tree number) and introduce the idea of a model forest structure. This can best be done using examples the farmers are already familiar with. If for example an improved crop variety, such as bioseed, has been introduced to the village already, you can tell the farmers that the ideal forest model is somewhat similar. At the time bioseed was introduced to the village the people were told about the optimal spacing of the plants etc. This is the same with the ideal forest model, representing a productive forest that can satisfy the demand of the farmer. Following this, invite participants to explain what the histograms tell us about the forest resources in the block e.g. what is the available resource and what can be harvested? Some examples of questions are shown in table 9.
- (19) By thoroughly comparing the "real" forest structure against the given "ideal" structure, participants should be enabled to identify management options for their respective forest block. For example, if a lack of medium-sized trees is revealed, the management goal could be to protect the trees in this size-class and to ensure that enough smaller-sized trees are available to grow into medium-size in the future.

- (20) Note down any important points on a separate piece of paper because these will be needed later during the planning stage



Design of the histogram

The histograms as prepared by the participants present only the real forest structure (*dotted blocks* in the graphic). However, this has to be further compared against the model or ideal forest structure (*plain blocks* in the graphic). The model structure should be prepared by the facilitator and drawn on a transparency to be overlaid over the real forest structure as prepared by the participants. Consequently, the same scale of the histograms has to be agreed upon before start drawing.

Tip for facilitating the discussion on the histograms

If participants find it difficult to interpret the histograms it might be useful to show the "water bottle" example. Prepare 4-5 plastic water bottles and cut them open at different heights representing the different stem numbers of the model histogram. Fill the tallest bottle around $\frac{1}{2}$ full of water. Explain that this represents the smallest diameter class with many trees. When the trees grow bigger they will jump into the next diameter class - pour the water into the next smaller bottle. The bottle is already $\frac{3}{4}$ full. Again pour all the water into the next smaller bottle and let the surplus pour on the ground. Explain that the bigger the trees the more space they need. Consequently in the last bottle not all trees find enough space - the water pours over. The water that pours over is the amount of trees that can be harvested, as they would anyway die due to competition.

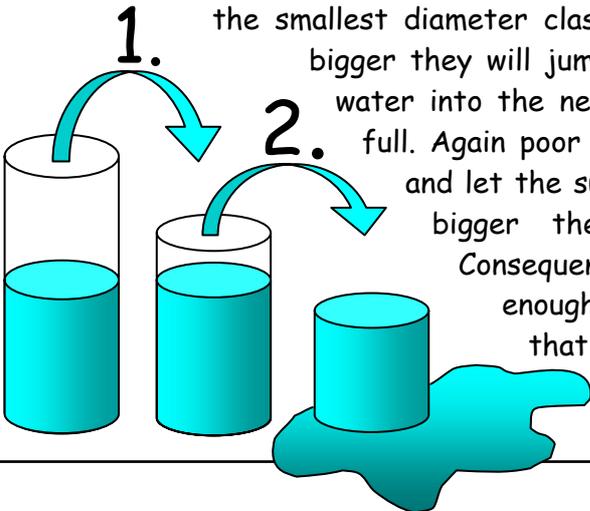
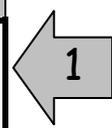


Table 8: Block Summary Form

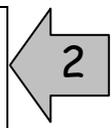
1) Village name		2) Block name		3) Block area in ha	
-----------------	--	---------------	--	---------------------	--

4) Total number of plots [z]		5) Factor a = Block area / z x 0.02		6) Factor b = Block area / z x 0.01		6) Factor c = Block area / z x 0.0032	
------------------------------	--	--	--	--	--	--	--

Species	Regeneration (< 1.3 m)		White (< 6 cm)		Yellow (6 - 8.9 cm)		Timber potential	Black (9 - 11.9 cm)		Stripes (12 - 14.9 cm)		Blue (15 - 17.9 cm)		Dots (18 - 20.9 cm)		Red (21 - 23.9 cm)		Orange (24-26.9cm)		Waves (> 26.9 cm)		
	Total in all plots	Per Block (x c)	Total in all plots	Per Block (x b)	Total in all plots	Per Block (x b)		Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	
Timber species							☺															
							☹															
Other species																						



All Trees																						
-----------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



Number of Bamboo culms in all plots		Number of culms per block Total culms of all plots x Factor a	
-------------------------------------	--	--	--

Table 9: Questions about the histograms

Young trees & regeneration
<ul style="list-style-type: none"> • What is the regeneration status of the forest? • How does it compare with the ideal situation in terms of numbers? • If the number is low, what is the possible cause? • What could be done to improve the regeneration status? • What will happen to the numbers of middle-aged trees in the future if the number of young trees is low?
Middle-aged trees
<ul style="list-style-type: none"> • What does the diameter distribution of middle-aged trees look like? • Are there any diameter classes where there are fewer trees in one class than there should be? • If so, what are the possible causes? • What could be done to improve this? • Are there any diameter classes where there are excessive number of trees? • What could be done to utilise these trees? • What will happen to adult (timber-sized trees) if the numbers of middle-aged trees is too low? • What can be done to avoid this?
Adult trees (timber trees)
<ul style="list-style-type: none"> • What is the status of adult (timber-sized) trees in the forest? • Are there enough timber trees to meet the village demand? • Are there enough timber trees to be able to cut some over the next 5 years, or 10 years? • If not, then why not? • If there are enough timber trees for harvesting, then how many could be harvested per year? • If not, then what can be done to increase the number of timber trees? • What is the number of timber species in all size classes compared with the total number of trees? If timber species are low in numbers, then what is the cause? • What can be done to improve the numbers of timber trees? • What other operations can be done to improve timber quality?

Session 8. Forest time-line (past)

OBJECTIVES

- To help participants get a better understanding about how the forest reached its present condition

OUTPUT

- A time line drawn on an A0 poster showing events which have affected the village forest.
- A clearer understanding by participants about changes to their village forest and what it was like in the past

MATERIALS

- A0 poster and marker pens
- Post-its or coloured cards

TIME

- 1 hour

TRAINER'S NOTES

- This is a useful exercise to carry out before starting to put together the actual forest management plan. It is good because it is easy to get people's participation and because it then allows you to follow a logical sequence during planning from past to the present and to the future forest management.
- Post-its are particularly good for this exercise because they can be quickly moved around on the time line.



STEPS

DRAW THE TIMELINE

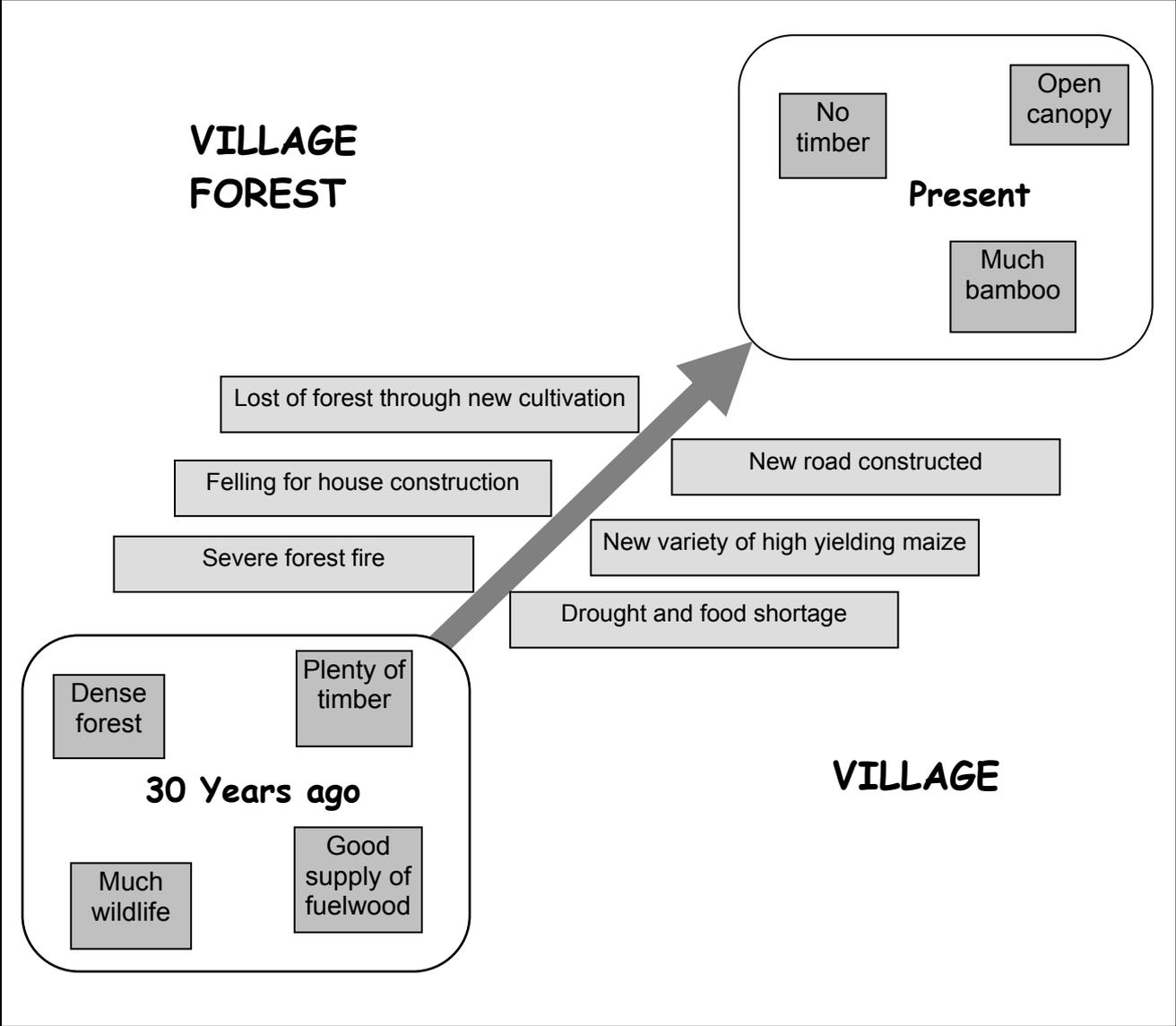
- (1) Start by explaining to participants that the purpose of the exercise is to look into the past and see what has changed with the village forest situation.
- (2) First get participants to draw a rough circle on the bottom left side of the A0 poster. Draw another circle in the top right side of the paper. Join these 2 circles with a thick arrow pointing from the bottom left to the top right.
- (3) Explain that the bottom circle represents the forest in the past (say 30 years ago) and the top circle represents the forest at the present time.

PAST AND PRESENT FOREST CONDITION

- (4) Ask participants to write on post-its words or phrases which describe the condition and situation of their village forest as it was 30 years ago. Stick these in the bottom circle. Then ask them to write words or phrases which describe the present situation of their forest and put these in the top circle.

- VILLAGE AND FOREST EVENTS**
- (5) Explain that 30 years have passed from the past situation to the present. Many events have taken place in the village during this period. Ask them to write on more post-its or cards some of the main events which have affected the village during this period. If possible they could also try to write the dates. Stick these below the line in an area marked village. Move them around until they are in sequence.
- (6) Write down on more post-its or cards events or situations which were affecting the village forest during this period. Again write dates if known. Put them in sequence above the time line.
- CONCLUSIONS**
- (7) This is now a time-line showing the history of the forest. Complete the exercise by asking more about some events e.g. whether there was any connection between events in the village, and what was happening to the forest at the same time.
- (8) Try to help participants to better understand some of the causes of the problems or situations which have led to forest degradation and its current status. By doing this participants will have a better vision of their forest for the future and a better idea of what needs to be done to reach that vision

Figure 1 Timeline of a village forest



Session 9. Preparing the table of goals, problems and opportunities

- OBJECTIVES**
- To start writing the management plan by focusing on goals, and current problems and opportunities with forest products
- OUTPUT**
- A completed A0 poster showing a logical progression from overall forest management goal, through to the actual site-specific supply and demand situation, and leading to identified problems and opportunities for the block
- MATERIALS**
- A0 poster and pens
 - Data sheets and histograms/charts from data analysis (from Session 8)
 - A0 poster from previous exercise showing forest product demand assessment (Session 4)
 - Block description forms for each block (from Session 3)
 - Completed information from the forest management goal exercise
- TIME**
- 1 hour

TRAINER'S NOTES

- It is better to complete the forest resource assessment for all blocks in the village forest before starting to write the management plan. This is because the demand information you have refers to the whole village but the supply information to each forest block. If you have only completed a few blocks, then your supply information will be incomplete.
- For training purposes you might have to go through this step with only the information from one block. This will be possible, but remember that the demand and supply balance cannot be worked out for only one block of the forest.
- This part of the process can be quite difficult. Each step needs to be slowly covered giving participants plenty of time to think about answers. It is useful to work through the steps reaching problems and opportunities first (e.g. before lunch) and then continuing after a break otherwise the session will get very long.
- It is essential to write down everything which is agreed (as described). The completed table effectively forms part of the management plan for that block. It is important that all points are written down before they are lost.
- This exercise brings together much of the information and ideas which have already been discussed and agreed - forming a logical objective-led management plan. There may be some repetition, but this is usually positive because it helps participants to think how the various ideas which have come out of the other steps fit together.

STEPS

(1) Prepare an A0 poster in the format shown below and write the name of the block along the top of the paper (see Table 9)

(2) Write the forest management goal for the block at the top of the poster. This can come from the results of the Forest Management Goal exercise (if it has been completed). The management goal is a long term goal describing what participants expect the forest block to be like in 25 years time. If you have not done the forest management goal exercise, then try to get participants to visualise and write down words and phrases to describe their future vision of the forest. Use the time-line exercise to help with this.

FOREST PRODUCTS

(3) Ask which are the main products which the villagers would like to be able to get from the block either immediately or in the future e.g. timber, fuelwood, bamboo, etc. Include in this any "services" such as water source protection or environmental conservation. Write these in separate columns under the block goal.

(4) Beneath each product list the main species which are preferred for these. This can again come from the Forest Management Goal exercise (if it has been completed) or from the participatory resource assessment. Otherwise villagers can give their preferences

FOREST PRODUCT DEMAND

(5) Beneath the species, write the demand for these products. This information will come from Forest Product Demand Assessment (Session 4). As far as possible write down actual quantities e.g. 300 timber trees are needed per year for the whole village.

FOREST PRODUCT AVAILABILITY

(6) Beneath demand, write the present availability of these products in the block. This will come from quantities calculated during Data Analysis (Session 8). As far as possible write quantities rather than just qualitative descriptions e.g. *"There are about 250 timber-sized trees in the block"*

SUPPLY & DEMAND BALANCE

(7) In the next row describe the balance between demand and availability for each product. e.g. Is there enough of the product to meet the local demand? You might not know this exactly, but it will be possible to give an impression e.g. *"some timber is available for harvesting, but not enough to meet the total village demand"*. Remember that this step will be difficult unless all blocks are completed first.

**PROBLEMS &
OPPORTUN-
ITIES**

- (8) Finally, try to list all the problems and opportunities in the block.
- Problem** usually means a shortage of a particular product e.g. *"insufficient timber to meet village demand"*; or *"not enough of a particularly preferred species"* e.g. Schima
- Opportunity** usually means a potential surplus (either already available, or if some action is taken) which can be harvested e.g. *"plenty of bamboo culms are now available"*; or *"much small-sized Schima is available at present which is growing well as a result of being properly protected."*
- Use the information from the Management Goal Exercise to identify problems and opportunities as well as information from the Block Description (Session 3) and the Demand and Availability balance in this table.

Table 10: Table of goals, problems and opportunities

Block name			
Management goal for block			
Main products			
Main species			
Demand (whole village)			
Product availability in block			
Demand and availability balance			
Problems and opportunities			

Session 10. Preparing the activities plan
--

OBJECTIVES

- To describe in detail the activities which will be carried out during the 5-year management plan for the community forest

OUTPUT

- A table showing management objectives and activities for each forest block
- Every activity described as far as possible by a task description, quantity, timing and responsibility

MATERIALS

- A0 poster & coloured pens
- Chart prepared during Session 9

TIME

- 1 hours

TRAINER'S NOTES

- This is the last step in the management planning process. It is designed to lead on directly from the previous step (problems and opportunities) and would normally be done immediately afterwards.
- Parts of this step can be quite difficult, although you should not have difficulty in getting participants involved in discussions since these are very specific questions and issues which have to be answered. It might be hard to reach specific conclusions.
- As with the previous step, remember to write everything down. If you cannot reach a clear conclusion (or if participants cannot agree) then you will have to return to the topic during a later discussion.

STEPS

- MANAGEMENT OBJECTIVES**
- (1) Try to think about management objectives in 3 categories. Normally every forest block would have management objectives coming under:
 - Utilisation
 - Improvement
 - ProtectionExplain that you will be starting to write down the activities which will be carried out over the next 5 years for the block and that these can be grouped into these 3 categories.
 - (2) Prepare an A0 poster as shown in Table 10. Write the three main objectives (utilisation, improvement and protection) in the boxes.

**ACTIVITIES
AND TASKS
FOR EACH
OBJECTIVE**

- (3) Get participants to think about the problems and opportunities with different products they identified in the previous exercise. For every problem and every opportunity there will often be a management objective which can come under one or more of these categories e.g. timber harvesting; bamboo harvesting (both under utilisation)
- (4) Ask participants what activities they think need to be carried out to reach these objectives. Probably they will have already mentioned them in earlier discussions. Write the general activity e.g. timber harvesting, in the box. Under activity.
- (5) For each activity try to get participants to break them down into a more detailed description and to write down more details about them. This can best be done by continuous questioning e.g. how?, what?, when?, how much? etc.
- (6) For example, if timber harvesting is an activity for the block, then you will need to know how much can be harvested (quantity) and during which years of the management plan (1-5) it will take place. For many activities this might be difficult and will require a series of questions: e.g. Is there any timber available for harvest from the block (look at the histograms)? How much should be harvested to ensure that the condition of the forest does not degrade (look at the smaller diameter classes and try to see how long it will take for them to grow to timber size)?
- (7) For every activity, ask participants to describe:
 - How it will be done? (description)
 - Who will do it? (responsibility)
 - When it should be done? (timing during the 5-year period. Just mark a cross in each year when the activity will take place)
 - How much of the activity? (quantity e.g. How much to be harvested? How many trees to be cut? How many to be planted?)
- (8) Work through the 3 objectives of utilisation, improvement and protection to discuss each of the activities in detail. For protection, it will usually be enough to refer to the existing Forest Protection Regulation (if they are in place), but ask further questions to see whether villagers can remember what these are and if they are being implemented.

Table 11: Block activities table

Block name		Block goal & silvicultural system								
Objective	Activity	Description	Quantity	Unit	Year					Responsibility
					1	2	3	4	5	
Utilisation										
Improvement										
Protection										

Session 11. Evaluation & Closing

- OBJECTIVES**
- To see whether participants expectations have been met
 - To identify improvements which could be made for the next training

- OUTPUT**
- Any particular points raised by participants

- MATERIALS**
- A0 poster with the list of participants' expectations taken from the introduction session
 - Coloured Pens

- TIME**
- 30 minutes (max)

- STEPS**
- (1) Tell participants that this is the last part of the training. Ask them to give their comments and tell them that these will be used to improve future trainings.
 - (2) Refer to the list of expectations from the introduction session. Go through the list and ask participants if these were met.
 - (3) Try to ask specific questions e.g. Which session did you learn most from? What did you learn that is new? Which parts of the training did you not understand?
 - (4) Make a note of any points raised.
 - (5) Finally, thank participants for their involvement in the training and perhaps say a few words to describe what you think has been most successful before closing the training.

Annex 1 List of pictures for introductory session

Picture	Questions to ask
1. Villager harvesting fuelwood in the forest	<ul style="list-style-type: none">• What is he doing?• Where do they (participants) get their fuelwood?• Do they get as much fuelwood from their village forest as they need?
2. Villager harvesting timber	<ul style="list-style-type: none">• What is he doing?• Do they (participants) get timber from their village forest?• Is there any timber available in their village forest?
3. Villagers sitting around a map and discussing	<ul style="list-style-type: none">• What are they doing?• Do they (participants) have a map of their forest?• Do they ever discuss in a group about how to use their forest?
4. Villager measuring a tree	<ul style="list-style-type: none">• What is she doing?• How is she measuring the tree?• Have they (participants) ever measured trees in this way?
5. Villagers looking at good forest	<ul style="list-style-type: none">• What do they think the people in the picture are looking at?• What do they (participants) think about the forest?• Is it good or degraded? How can they tell?• How does it compare with their own forest?

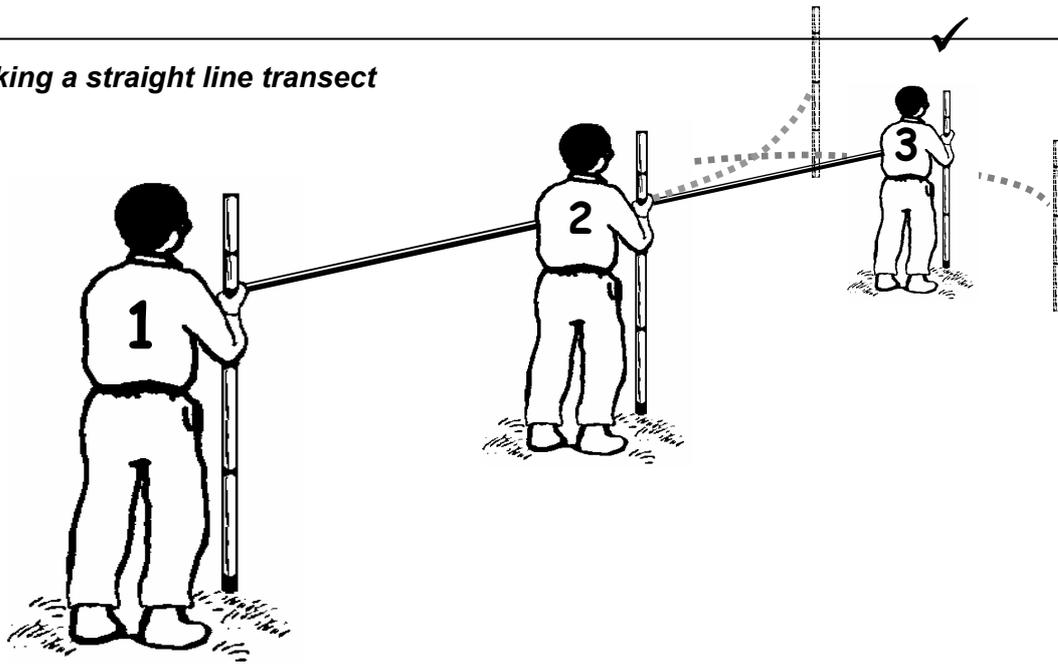
Annex 2 Working with small groups

Several of the steps during this training are best carried out in small groups. Before dividing into small groups here are some points to consider:

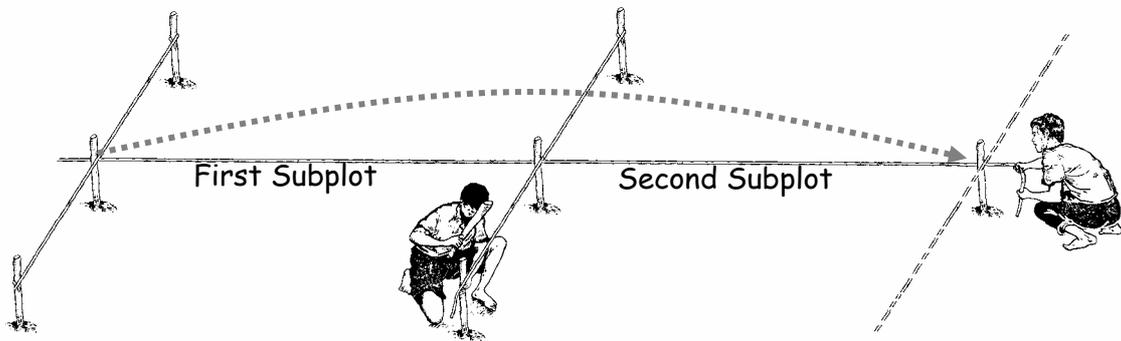
- Choose group members at random to make sure they are well mixed. The quickest and best way is by numbering each participant in turn depending on the number of groups needed e.g. if there are 2 groups ask participants to give themselves numbers 1 & 2 in turn.
- Once groups have been selected make sure that every group has a group leader. The task of the group leader is to organise the group, be responsible for equipment and make sure that the group completes the task assigned. The group leader is not expected to do all the work!
- A group also needs a recorder. The recorder is responsible for the written work of the group (filling forms and writing on AO posters). Obviously the recorder should be literate. Ask for volunteers for recorders - if there are none, then ask the group leader to choose someone making sure that the selected person is literate.
- Presenter. If there is to be a presentation of the group's work then a presenter is needed. The group leader can select presenters, but it is also possible to rotate presenters so that everyone gets a chance.
- Other participants. Make sure that everyone knows their role in the groups. Everyone should be expected to participate - people who aren't contributing to the group's discussions are not participating!
- Finally, the job of the trainer is to move between groups during their working sessions. Check to see if there are any problems or if they need any help. In the field this is difficult, so probably there will need to be additional trainers - enough for one trainer to be with each group.

Annex 3 Fieldwork Handouts

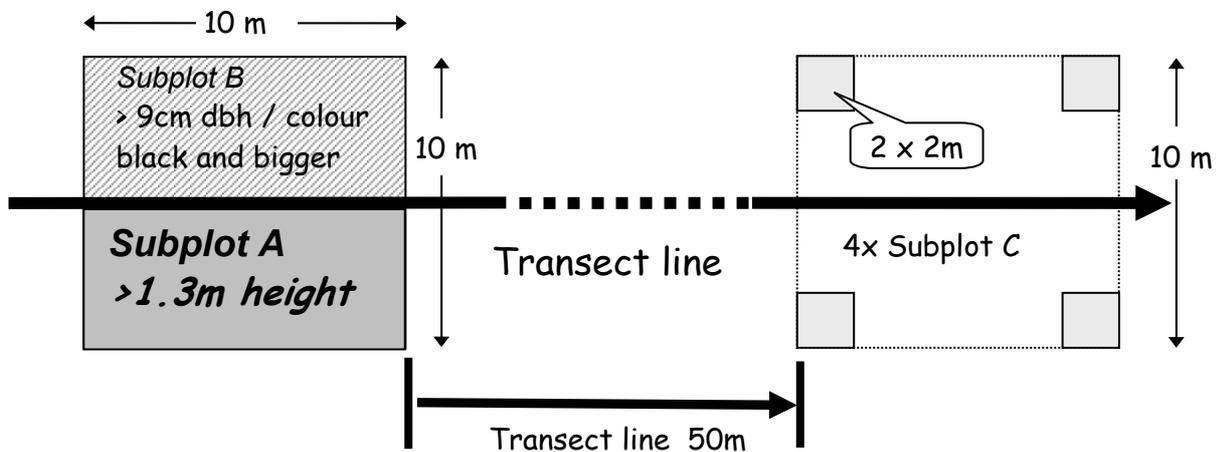
Making a straight line transect



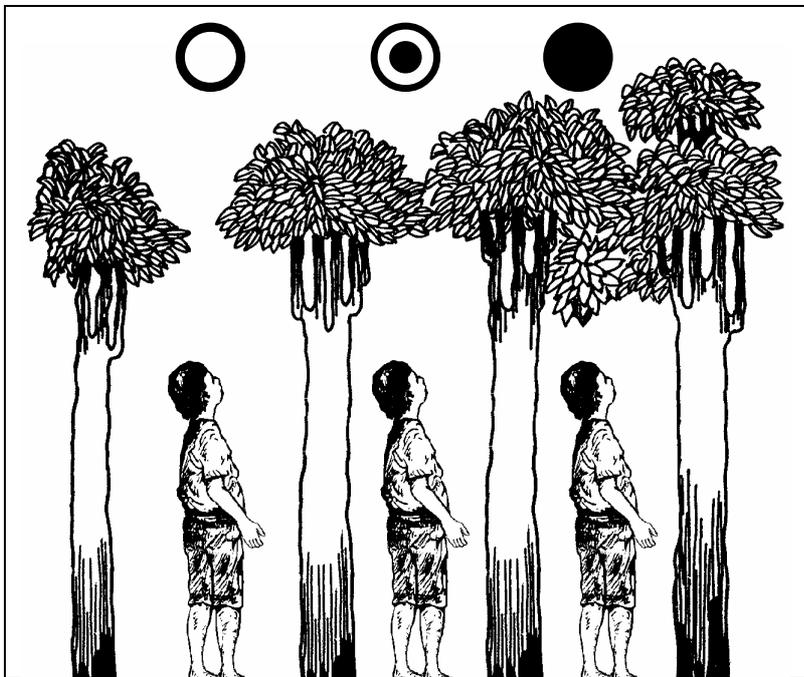
Plot demarcation as result of the line survey



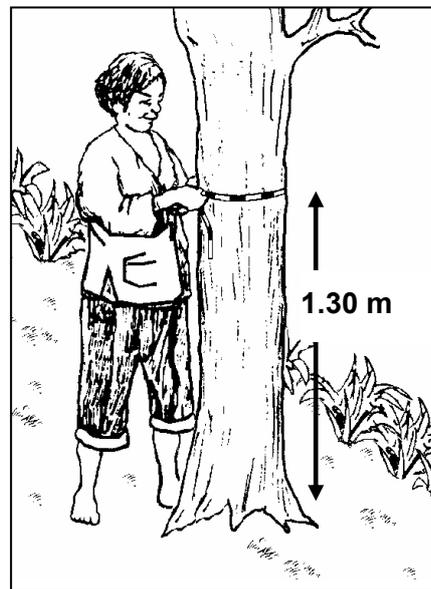
Design of subplot A and B for assessment of the growing stock



Grading of Canopy Coverage



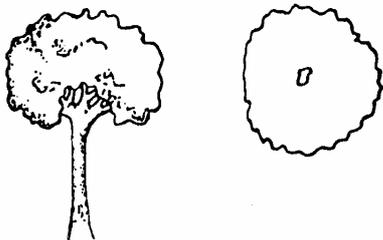
Measurement of Diameter at Breast Height



○ **Open**
before
canopy
closure
(0-40%)

◉ **Normal**
Adjacent crowns
meet, sky still
visible
(40-70%)

● **Dense**
crowns overlap,
no sky visible
(> 70%)



Trees with good timber
quality, straight pole and
round crown



Trees without timber
potential, main product
firewood, infection of the
stem, crown small
many dead branches



Annex 4 Sample Plot Form - Evergreen and Semi-Deciduous Forests

Recorder..... Date..... Soil colour.....

Name of the village..... Forest block #..... Local name of inventory area..... Sample plot number.....

Canopy coverage

⇒ Open

⇒ Normal

⇒ Dense

Local Tree Name <small>(mark timber species with asterisk)</small>	Regeneration (C)	(B)		☺ Timber Potential (A)							
	Under chest height	white	yellow	black	stripes	blue	dots	red	orange	wave	Purple



Due to limited space, the table continues on the following page. Cut out the missing part and glue it to this side before photocopying the form.

Total number of bamboo culms per plot	
---------------------------------------	--

Annex 5 Block Summary Form - Evergreen and Semi-Deciduous Forests

1) Village name	2) Block name	3) Block area in ha
-----------------	---------------	---------------------

4) Total number of plots [z]	5) Factor a = Block area / z x 0.02	6) Factor b = Block area / z x 0.01	6) Factor c = Block area / z x 0.0032
------------------------------	--	--	--

Species	Regeneration (< 1.3 m)		White (< 6 cm)		Yellow (6 - 8.9 cm)		Timber potential	Black (9 - 11.9 cm)		Stripes (12 - 14,9 cm)		Blue (15 - 17,9 cm)		Dots (18 - 20,9 cm)		Red (21 - 23,9 cm)		Orange (24-26,9cm)		Waves (27-29,9cm)		Purple (> 29,9cm)		
	Total in all plots	Per Block (x c)	Total in all plots	Per Block (x b)	Total in all plots	Per Block (x b)		Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	Total in all plots	Per Block (x a)	
Timber species							☺																	
							☹																	
Other species																								

All Trees																								
-----------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Number of Bamboo culms in all plots	Number of culms per block Total culms of all plots x Factor a
-------------------------------------	--

Schedule for the facilitation of a three days training-course

Day 1		Day 2		Day 3	
1. Introduction (1 hour)	<ul style="list-style-type: none"> Ideas and experiences about community forestry Why do we need PFRA? Who benefits from PFRA? Principles of PFRA Participants expectations 	6. Plot measurement (3 hours)	<ul style="list-style-type: none"> Practice locating and measuring one plot Locate other plots from starting point using transects (2 groups) Collect sample plot data (2 groups) Complete Plot Sample Form for every sample plot (2 groups) Complete about 5 sample plots per group 	8. Forest time line (past) (1 hour)	<ul style="list-style-type: none"> Past and present forest situation Events in the village over the past 30 years
2. Blocking (1 hour)	<ul style="list-style-type: none"> Divide village forest into blocks using aerial photomap Estimate area of each block and agree on name for each block 			9. Preparing the table of goals, problems and opportunities (2 hours)	<ul style="list-style-type: none"> Block management goals Forest products and species Forest product demand, availability, and balance
3. Block description (1 hour)	<ul style="list-style-type: none"> Complete block description form Presentation by each group 				
Lunch		Lunch		Lunch	
4. Forest product demand (1 hour)	<ul style="list-style-type: none"> List of forest products used in village Estimate annual household demand Estimate annual village demand 	7. Data analysis (3 hours)	<ul style="list-style-type: none"> Compile plot data (Block summary form) List of timber species and other species Prepare histograms/charts (2 groups) Presentation of histograms/charts Identify issues and opportunities Estimate harvest levels and work out some criteria for tree selection 	10. Preparing the activities plan (1 hour)	<ul style="list-style-type: none"> Objective setting (utilisation, improvement, protection) Activities and descriptions Presentations by groups
5. Preparation for field work (1 hour)	<ul style="list-style-type: none"> Explain tasks for PFRA Explain plot sample form Agree on roles of small groups Select block for measurement and agree on transect starting point Practice measurement systems e.g. transect (using sticks) measure dbh; layout and measure plots 			11. Evaluation & Closing (30 minutes)	<ul style="list-style-type: none"> Review of participants' expectations Unresolved issues Future activities

