

Guidelines
For
**COMMUNITY-BASED
FOREST
MANAGEMENT**



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Part I : Introduction

1.1 Background

In implementation of forest land allocation policy in the last 5 years Dak Lak province has tested and started the replication of forest land allocation to community, user-group and individual household. According to the statistics recorded by the Provincial Forest Development Department (FDD), around 20,377.5 ha of forests and forest lands (*excluding the areas contracted to the people under Decision 178/2001/TTg*) have been allocated to 14 village communities, 32 use-groups and above 500 individual households in 5 districts, namely Ea H'Leo, Krong Buk, Krong Bong, Lak and Ea Kar.

Consequently, the devolution in forest management has affirmed and officially adopted the good traditional practice of “**community-based forest management**” of the local ethnic minority communities in Dak Lak as well as in the Highland Area. The promotion of this forest management will support the enhanced role of villagers, particularly ethnic minorities in forest protection and development.

Apart from forest management by the government, the establishment and development of community-based forest management concept requires further adjustments and improvements in terms of institutionalization, financial and technical issues. In cooperation with Rural Development Daklak, Department of Agriculture and Rural Development (DARD) has established pilot models on community-based forest management in Lak and Ea H'Leo districts. The guidelines for “**Community-based Forest Management**” have been developed based on the experiences made in the pilots.

These guidelines were presented in an evaluation workshop at provincial level on 02-03/12/2004, where necessary amendments and supplementary information have been determined. Respective changes have been incorporated in the guidelines according to the results of the workshop. DARD would like to express its gratitude to the consultant team including Mr. Đặng Thanh Liêm – national CF expert, DoNRE staff and Assoc. Prof, Dr. Bao Huy, from Tây Nguyên University for their support in the elaboration of these guidelines.

1.2 Objectives and target group of these guidelines

Forest land allocation aims at providing land tenure security, which is in terms believed to enhance the ability of forest land receivers to invest into forest development and to provide incentives for long-term sustainable forest management. Forest land allocation thus represents the initial step in the process of community-based forest management, aiming at establishing sustainable use of forests. Furthermore, regarding the ability of local communities to enforce and protect allocated forest land, a clear understanding about the rights and responsibilities is inevitable. The latter is achieved as an outcome of a participatory process in which local communities are enabled to identify their specific set of forest protection regulations and linking it to the legal framework set by the government.

Once forest protection regulations have been elaborated in collaboration with the local community, the latter needs support in the elaboration of forest management plans, enabling them to analyse their forest resources while taking their needs into consideration during the planning process. Regarding the subsequent implementation of established forest management plans, guidance and technical training has to be provided to ensure proper implementation. Last not least, cost-effective monitoring and evaluation mechanisms have to be put in place.

Objectives of these guidelines:

- ◆ Provide users with the principles, approaches, and technical methods employed in the process of community-based forest management, emphasising the participation of respective stakeholders in the entire process.
- ◆ Provide unified procedures for the establishment of Forest Protection Regulations and Forest Management Plans, as well as guidance for necessary follow-ups in the process of CBFM.

Users of these guidelines:

Users of these guidelines are governmental agencies and facilitators of relevance for the CBFM process. This comprises in particular staff of the forestry cadres of DARD, the Forest Protection Department and respective District Units, the Agriculture and Cadastral Office, Commune Forestry Board, Commune agroforestry extension worker ...

1.3 General introduction of the guidelines and directions for use

The document at hand comprises 4 parts :

- ◆ **Part I – Introduction:** Containing general information about the background of community-based forest management in Dak Lak, as well as objectives and users of the guidelines.
- ◆ **Part II – Forest Protection and Development Regulations:** Consisting of an overview of governmental laws relevant for forest protection, principles for the establishment of village forest protection regulations, as well as main content of steps of the methodology.
- ◆ **Part III – Community Forest Management Planning:** Comprising principles for community-based forest management planning, as well as respective steps of the planning process and important technical details.
- ◆ **Part IV – Follow-up activities and framework for CBFM:** The guidelines at hand focus on the technical aspects of forest protection regulation establishment and subsequent forest management planning. All technical measures described are according to recent developments in the province and even the national level. However, it is important to realise that sustainable forest management by local stakeholders does not end with the establishment of management plans. Decentralisation of management planning and implementation of respective measures stated in the plans furthermore requires that capacities of local stakeholders with regard to forest management are enhanced. Meanwhile, respective governmental agencies and administrative bodies need to have a clear role about their mandate, to ensure that monitoring and supervision can take place effectively.

Part II: Forest Protection and Development Regulations

2.1 Principles for the establishment of forest protection regulations

The Village Forest Protection and Development Regulations methodology is being developed to respond to the government identified need and interest to build farmers' capacity in designing their own forest regulations and therefore improving the management of forest resources.

The methodology aims to build each farmer's capacity to analyze their forest resources and traditional regulations, eventually identifying and adopting the forest regulations that will best respond to farmers' and government's forest management needs. The purpose is also to assist the Forest Protection Officers to establish a rapport of trust, respect and exchange of information with local communities.

Consequently the methodology is not meant to instruct farmers on how the forest regulations should be prepared but through participatory training methods to provide them with tools and skills which will enable them to analyze their own forest resources, and to generate new ideas on forest regulations.

Regarding the elaboration of forest protection regulations, the following principles apply:

2.1.1. The establishment of forest protection regulations must be inline with current governmental policies and laws

The following laws are of importance regarding the elaboration of forest protection regulations:

- ◆ The law on Forest Protection and Development 2004;
- ◆ The law on Land 2003
- ◆ Decision No. 45-1998/QĐ-TTĐ, December 21, 1998; on the execution of state management over forests and forestry lands;
- ◆ Circular No. 56/1999/TT/BNN-KI, march 30th, 1999 providing a guideline on developing forest protection and development regulations in local communities;
- ◆ Decree No. 139/2004/NĐ-CP dated June 25, 2004 on administrative punishment regarding forest management, protection and forest product management; replacing Decree No. 77/1996/CP and Decree No. 17/2002/ND-CP
- ◆ Resolution No. 15/2002/NG-HĐND, dated 11 July 2002 of Dak Lak People's Council, including the Regulation on Establishment and Issuance and Implementation of the Village Forest Protection Regulations in Dak Lak Province.

Village regulations should be designed in line with policy and advocacy of the Party and Government as well as the Law. At the same time village regulations should be in harmony with the fine traditions and customs of the village.

The village regulations should be inspected by the respective Forest Protection Unit and approved by the District People's Committee.

2.1.2 Increase people's participation and strengthen the communities' capacity

Increased people's participation at village level in the decision-making process to identify and agree on suitable forest protection and development regulations will greatly assist communities in improving the management of their forest resources.

In addition to the contributions that will be provided by local leaders in designing the village regulations, attention has been paid to identify and to include elements that will promote a greater involvement of individual community members and in particular a greater involvement of women in the decision-making process. Women are of equal importance regarding the management and protection of forests, and have therefore to be equally considered during the establishment, enforcement, and monitoring of village forest protection regulations.

In this respect the village regulations should be clear, specific, easy to understand, easy to implement, suit the village forest condition and village future plans in forest development, and should be adequately disseminated amongst members.

To build communities capacity in resource management is seen as a pre-requisite for the successful design, self-enforcement of forest regulations, and a socially acceptable utilization of forest resources.

2.1.3 Provide a flexible approach

Communities vary from one to another in terms of physical, social and economic environments, leadership, cohesion amongst community members, and relation with local authorities. In some communities the forest regulations can be finalized in a short period of time, while in other more time will be needed to sort out conflicts of interest, and different opinions on specific issues.

The methodology present hereafter has therefore been designed in a way allowing each community to develop their own forest regulations within a flexible period of time and to consider the forest regulations related issues most relevant to them. This is reflected in the planned number of the village meetings, which may vary from two to three days, the duration of each meeting which may vary from half-day to a full day, and the main issues to be discussed during the village meeting(s).

2.1.4. Role of the Forest Protection Officers

The role of the Forest Protection officers is to assist the community members during the whole process to design the village forest regulations (from preparations to dissemination and monitoring), to facilitate the village meetings, and to provide adequate information of forest related issues when required.

The facilitators task is to be accepting, supportive, and most important to be able to establish a pattern of communication that creates a climate trust and safety, eventually increasing the flow of information and cooperation amongst group members.

The facilitator, a field officer or group leader is trained in adult education principles, facilitation skills, participatory training and group decision-making methods, and has implemented the methodology at least once as part of her or his training.

2.1.5. Role of community members

The village head, representatives of the Village Management Board and the Women's Union are responsible for organizing and moderating the meeting.

The community members take part in the meeting and actively contributing in the decision-making process on village forest regulations. Since women are the major users of forest resources their presence and contributions during the whole meetings is a pre-requisite for the successful design and implementation of sound forest regulations. Their attendance and active participation has to be encouraged and supported.

A secretary should be appointed to take minutes of the meeting and to help to compile the results of the discussions.

2.2 Description of Process to Design Village Forest Protection Regulations

An overview of the steps and their specific content, needed for the elaboration, monitoring and evaluation of forest protection and development regulations is provided in the following. The methodology consists of 7 major steps:

- ❖ Step 1: Preparation
- ❖ Step 2: Village Meetings
- ❖ Step 3: Finalization of Village Forest Regulations Document for Approval
- ❖ Step 4: Approval of Village Forest Protection Regulations
- ❖ Step 5: Dissemination of Forest Protection Regulations at Village Level
- ❖ Step 6: Monitoring and Enforcement of Regulations
- ❖ Step 7: Periodical Review of Village Forest Protection Regulations

Step 1: Preparation

The following outputs have to be achieved as a result of Step 1:

- the village (or commune) land use map, and other government regulation documents have been gathered;
- existing data on forest resources, and village socio-economic data has been reviewed;
- a meeting at commune level comprising all village heads has been organised, in which all participants are informed about the planned process to participatorily establish village forest protection regulations;
- respective village forests have been visited and a general understanding about the present situation and general conditions, as well as main farmers concerns in forest management have been assessed;
- the women's union representatives of the commune and the village(s) have been informed well in advance to the village meetings (Step 2).
- Women's union representatives of commune and village(s) have made a selection of women for the participation during the village meetings (Step 2).
- Women's union representatives of commune and/or village(s) have agreed to act as a co-facilitator during the village meetings (Step 2), in order to ensure that women are encouraged to raise their concerns in the course of village forest protection regulation establishment.
- the respective Village Management Board(s) has been informed about:
 - the FPR process that will take place, its approach and the objectives;
 - what they can expect and what is expected from them;
 - who should attend the village meetings;
 - agreed on the date of the first day meeting.

Step 2. Village meetings

The following outputs have to be achieved as a result of Step 2:

- In a series of meetings, community members have discussed and agreed upon their village-specific set of forest protection regulations
- At least 20 - 40% of all members participating in the village meetings are women;
- Women's union representative of commune and/or respective village co-facilitates the meetings;
- An effective mode for dissemination of the protection regulations within the village has been identified by village representatives;

Participants: Forest Protection Field staff, Commune head, Commune Forestry Board, Village head, Village patriarch, Women's union representative(s), key-farmer of the village.

Duration & Location: Carried out in the village, about 3 entire days for village meetings (alternatively also ½ day village meetings can be organised).

Additional Material: A blueprint of a violation-case report to be used by the villagers is presented in Form 1.

Form 1 Violation Case Report

People' Committee of
Village:.....
No:...../200.....

SOCIALIST REPUBLIC OF VIETNAM
Independence - Freedom - Happiness

**MINUTES OF VIOLATING
FOREST PROTECTION AND MANAGEMENT REGULATIONS**

Today at date
in (location where the violation takes place).....

Representatives of Forest management and protection group including:

Mr:.....
Mr:.....
Mr:.....
and
The detector (or the witness):.....

make this minutes of violation of forest protection and management regulation to the following persons:

Name	Age	Occupation	Current residence

for.....
.....

Violation exhibits are:
.....
.....

Means of action are:
.....
.....

This is to proclaim that all the violation exhibits and means of action are taken to the village for settlement as per village forest protection and management regulation.

The minutes is made into three copies, read in plenum, and jointly signed.

Violator

Detector (witness)

For the FPMG

Date.....

Form 2 **Format of the regulations document to be submitted for approval**
(this format can be used to make photocopies and to distribute them to farmers)
Regulation on Forest protection and development

Activity	To be allowed			Not to be allowed	Compensations
	Location	Quantity	Time	Location	
1 – Timber exploitation <i>(With a letter of approval)</i>					
- Wood					
- Bamboo					
- Bamboo shoots					
- Other NTFPs					
2 - Burning forest for upland cultivation					
3 - Animal grazing					
4 - Wildlife animal hunting					
5 - Forest fire prevention					
6 - Benefits					
7 – Duties					
8 - Responsibilities					
- Village head	- Fines for the first time of violation: from 5,000 VND to 50,000 VND per case				
	- Making reports/minutes to higher authorities when over responsibilities				
- Forest protector(s)					

Village head

Commune People’s Committee

District People’s Committee

Dak Lak, date _____

Supplementary Information:

- The identification and finalization of village forest protection regulations is comprised of:
 - Identification of main problems the village has with forest management;
 - Participatory classification of all forest land located within the village territory;
 - Participatory establishment of regulations concerning the utilisation of all major forest products;
 - Villagers are informed about the current situation regarding the hunting of wildlife;
 - Participatory establishment of regulations for fire prevention;
 - Participatory establishment of regulations for cattle grazing;
 - Benefits and duties of forest owners and protectors are identified;
 - The procedure for fining, compensations, and awarding has been clarified;

Step 2.1 Identification of main problems the village has with forest management

The following outputs have to be achieved as a result of Step 2.1:

- Farmers will have exchanged the main problems they feel they have in forest management
- Farmers will have made a list of problems/issues they would like to discuss during the meeting

Duration: 45 minutes

Material: Hat or basket, small paper, pens, tape or pins *Detailed Proceedings:*

- Each farmer writes one main issue or problem she/he would like the meeting to consider, or to be taken into account.
- Cards are collected in a hat (anonymously) and read out loud in front of the group.
- Cards are grouped according to problems (topic) avoiding duplications.
- A final list of the main problems the farmers would like to consider during the meeting is made.
- The order of the topics to be discussed later in the meeting might be revised, starting from the one farmers have indicated they are more concerned about.

Note: This exercise can also be done in group of 2 (instead of individually), especially in case some of the participants does not feel confident in writing.

Step 2.2 Participatory classification of all forest land located within the village territory

The preparation of a simple forest map may help the group to visualize and/or identify the main features of their forest such as boundary, as well as different forest areas, their location

and condition, present uses, bare lands, streams, roads etc. Thus the map provides a clear picture of the forest at a glance.

When used as a point of discussion this map gives participants a common orientation towards the resources within the forest area, which will assist them in the design of forest regulations according to each area.

The following outputs have to be achieved as a result of Step 2.2:

- Farmers will be able to identify the position of their forest on the map;
- Farmers will be able to distinguish different forest areas, their location and conditions;
- Farmers will have classified their forestland according to forest function classification

Duration: 1 –2 hours

Material:

- Present land use map of the village, showing the various forest areas. The preferable scale is 1:5000. Aerial photomaps (at scale 1:5000) of the village represent the most suitable option in technical terms, depending on availability.
- Transparency sheets (enough to cover the map) plus clips.
- Whiteboard marker pens for transparency sheets and permanent markers to complete the map.
- Compass to correctly orientate the map.

Detailed Proceedings:

1. The existing land use map or previously drawn LUPFLA map is overlaid with a transparency and whiteboard markers used to identify various features and areas.
2. During this step farmers will:
 - mark/draw the location of their forest on the map by different areas classified as “Production”, “Protection”, and” Special-use”, including local names given to each area;
 - indicate/write/draw the main forest conditions.
 - label the various features (such as streams, mountains etc.) and areas identified on the map using existing local names in order to enhance their orientation
3. While making the map promote group discussion on the characteristics of each identified forest area to share individual perceptions and to reach a consensus on each area. Involve at least 6 or 7 people in making the map, including women.
4. The map is presented and explained by one farmer to all. Amendments are made if requested by farmers.
5. If appropriate, after the completion of the map, the group conducts a short forest walk to visit the areas and confirm (or change) boundaries and descriptions.
6. The map is left on the wall for all to see, and after completion of the meetings, the map will be stored in the village for future reference.
7. In case that the map includes many corrections, two or three persons are assigned to re-draw the map to make it more clear.
8. The map is used during the elaboration of the VFPDR.

Some suggestions to facilitate the group discussion

- Where is your village?
- Where are the main roads, rivers, springs, and cemetery?
- Where is north and south?
- Which are the areas for plantation, holy, production, and protection?
- Can you indicate them on the map? (Their location and boundary)
- Can you identify different forest conditions?
- Are you using different forest areas for different purposes?
- In which area is harvesting not allowed (timber and/or firewood, bamboo, others)?
- Which forest areas are considered to be better or poorly managed?

Step 2.3 *Participatory establishment of regulations concerning the utilisation of major forest products*

During this step farmers will identify and agree on which regulations farmers think are most appropriate to regulate the harvest of each forest product by each of the previously identified forest areas.

The forest map previously prepared will help farmers to visualize each area.

The following outputs have to be achieved as a result of Step 2.3:

- Farmers will have identified the forest products they want to regulate;
- Farmers will have discussed and agreed on regulations to be applied to each product and each area;
- Farmers will have identified and agreed on the level of fine to be applied.

Duration: 1 ½ hours

Material:

- Stationary (Flipcharts, Markers, Pins).
- Village forest map.
- List of main problems.
- Copies of table form in A4 format.

Detailed Proceedings:

1. Facilitate a quick brainstorming to identify which forest products farmers would like to include in the regulations. At the end write the final list of products on a flipchart and fix it on the wall for all to see.
3. Copy the table on the next page on an A0-paper sheet and put it up for all participants to see (use the table provided on the next page).
4. Ask farmers to divide into three (3) or four (4) groups and ask each group to discuss and write on paper for each forest product:

-
- What is allowed, location, when, quantities, by each forest area indicated on the map,
 - what is not allowed and where
 - compensations to be paid
 - the fine to be applied
 - alternatively you can also provide each group with the same table as drawn on the A0-paper on A4 format to facilitate the group discussion.
 - Hand over one table form on A4 paper to the secretary and explain to her/him that she/he will need to fill it out once the groups come to an agreement.
5. Ask a representative of each group to present her/his group finding to all. Promote and guide discussion if disagreements on regulations arises so that a consensus is reached
 6. Assign one participant to fill out the big table form by noting all issues agreed upon by the groups.
 7. Meanwhile, the secretary should copy the points from the big table onto the small table (on the A4 paper). This final table will be attached to the approval document.

Note: Often farmer concentrate only on the quantity of forest products. Depending on local situation there could be more important details that could be included in the regulations in particular the time and modality of the harvest.

After making the list of products to consider, to increase farmers' participation especially women, it is suggested to divide the participants into smaller groups (3 or 4) and then combine their findings in plenary session. The composition of the groups is very important and can vary according to situations.

Some suggestions to facilitate group discussion

- Which are the important forest products you want to include in the regulations?
- Which are the farmers/groups entitle to harvest forest products?
- By product:
 - * Where it can be harvested?
 - * Where it cannot be harvested?
 - * When is the appropriate time for harvesting?
 - * What quantity is each household or community allowed to harvest?
 - * How harvest should be done? (harvesting formalities)
 - * What compensation should the transgressor asked to pay?
 - * What fines should be applied to violators?

Table of regulations for harvesting forest products

Product	Area allowed			Area not allowed (Location)	Compensations and Fines	Modality of harvest
	Location	When	Quantities			
Fuelwood	Area A and B (local names)	Once a month (date)	One load per household	Area C and D	4,000 /1cm dia.	
Bamboo shoots Variety (name)	Area B (local name)	Once a year (date)	20 shoots per household	Area C and D		

Step 2.4 Villagers are informed about the current situation regarding the hunting of wildlife

The following outputs have to be achieved as a result of Step 2.4:

- Farmers will have gained insights about the change in the abundance of wildlife in their village forest areas, as well as the underlying reasons.
- Farmers are informed about current governmental regulations concerning hunting and harvesting of wildlife.
- Farmers will have identified suitable levels of fines and compensations in case of violations.
- Farmers will have learned more about rare and protected species in the province.

Duration: 1 hour

Material:

- Stationary (Flipcharts, markers, pins),
- Village forest map,
- List of main problems,
- List of rare and protected species in the province.

Detailed Proceedings:

1. Prepare a flip chart divided into four columns with the heading "Past", "Present", "Reasons for changes", and "Proposed solutions".
2. Through a plenary session ask farmers to list all the wildlife (animal, insects and plants) they remember to have seen in the past and in the recent years (present) in their forest. Write the local names on the chart under each heading for all to see.
3. Ask farmers to exchange their experience and views on the reasons why species have disappeared or appeared in their forest. The reasons for changes in wildlife.
4. Ask farmers what actions could help to increase and /or protect wildlife in their forest.
5. Inform farmers that according to government regulations the hunting and harvesting of wild animals is prohibited (as stipulated in Decree No.139/2004).

-
6. Ask farmers to indicate which fines/compensations they would like to apply for hunting of the various animals encountered in their forest.
 7. Assign a farmer to write the main points on an A0- paper for all to see.

Some suggestions to facilitate group discussion

- Which animal do you remember you have seen in the past (20-30 years ago)?
- Which animal did you see last and this year (present)?
- What do you think are the reasons for the change?
- Do you know which one are rare and protected species in the province?
- What should we do to improve the situation?
- Which animal can be hunted and in which area?
- Which plants can be harvested and where?
- Where animals and plants cannot be hunted and harvested?
- Where hunting and harvesting is prohibited?
- What fine should be applied?

Example of flipchart

Past	Present	Reason for changes	Solutions
Specie Specie	Specie		

Step 2.5 Participatory establishment of regulations for fire prevention

The following outputs have to be achieved as a result of Step 2.5:

- Farmers will have discussed and agreed on how forest fire should be prevented;
- Farmers will have agreed on individual responsibilities to prevent forest fires;
- Farmers will have agreed on the composition of the fire prevention group and its responsibilities;
- Farmers will have identified and agree on compensation and fine to be applied.

Duration: 45 minutes

Material:

- Stationary (Flipcharts, markers, pins),
- Village forest map,
- List of main problems,
- List of rare and protected species in the province.

Detailed Proceedings:

1. Guide a plenary discussion by asking farmers to discuss, one at the time, the following:
 - How can a fire prevention plan be organized?
 - What should be immediately done in case of fire?
 - Who is the main responsible for mobilizing the whole village in case of fire?
 - Should a fire prevention group be appointed?
(often forest protection groups have also responsibilities for fire prevention)
 - If yes, should the work of the group be paid?
 - Is there any funding for this? If not, how will they be paid? From where?
 - How should we deal with households who intentionally avoid participating in the fire prevention?
 - How should we deal with households where only elderly people live?
 - How should we deal with households where only mother and child are present at the time of fire?
 - What do we do when fire has been provoked by a nearby village member? Who has the authority to intervene?
 - What compensations should be paid by the violator?
 - What fine should be paid by the violator?

Note: It can be helpful to write the question on an A0- paper sheet and to discuss them one by one, again assigning one participant to write down the main points agreed upon. These points can then also be copied by the appointed secretary on A4 paper and be signed by all participants.

3. Follow the discussion, ask questions to involve silent people, control dominant people, help the group share ideas;
4. While the discussion is going on write the main decisions on the board (or chart) for them to see.

Note: To promote people's participation (and individual contributions), this exercise is better done in smaller groups asking each group to discuss on the list of questions and to share results with all.

Step 2.6 Participatory establishment of regulations for cattle grazing

The following outputs have to be achieved as a result of Step 2.6:

- Farmers will have discussed and agreed on regulations to be applied to regulate grazing in each forest area;
- Farmers will have identified and agree on compensations and fine to be applied.

Duration: 45 minutes

Material:

- Stationary (Flipcharts, markers, pins),

-
- Village forest map,
 - List of main problems,
 - List of rare and protected species in the province.

Detailed Proceedings:

1. Copy the table form presented on the next page on an A0-paper and put it up for everyone to see.
2. Explain that according to government regulations¹ grazing is allowed in production forests.
3. Inform villagers thoroughly about the negative impacts cattle grazing has on the natural regeneration of forests. You can draw pictures of a forest before and after grazing to demonstrate the harm to natural regeneration. Ask the farmers how their forest will look like in the future in case there are no small trees to replace the bigger ones. It is essential that you explain this issue carefully, as farmers are usually focussed on their cattle and are seldomly aware of their negative impact on the forest.
4. Assign one participant to write the main findings on the big table form.
5. Guide a plenary discussion by asking farmers to discuss, one at the time, the following:
 - Which area is designated for grazing?
 - If there is no area designated, which land/areas could be used for grazing?
 - Modalities for grazing?
 - In the agricultural and forestland how to settle dispute between owner, protector and violator?
 - If they don't come to an agreement who should be involved? Who has the authority to intervene?
6. What compensation should be paid for grazing in the forest areas?
7. What fines should be paid for grazing in the forest areas? According to Decree 139/2004, Article 12, for the first time grazing is detected in a prohibited area, a warning or punishment up to 100.000VND can be issued, if less than 25 trees have been damaged. In case that more than 25 trees have been damaged, a fine ranging from 4000 VND up to 6000 VND per tree can be issued. Additionally to that, the violator has to replant the damaged trees.
8. While the discussion is going on assist the respective participant to write the main decisions in the table form for all to see.
9. Provide assistance for the secretary, copying the main point noted on the big table into the table on A4 format.

Some suggestions to facilitate group discussion

- In which forest area is cattle grazing prohibited?
- Which ones are designated areas for grazing?
- In case of damage how the cattle owner and the damaged owner should resolve?
- If they cannot resolve, who has the authority to intervene?

Example of table to be used to summarize farmers decisions

¹ Decision No. 178/2011/QD-TTg allows for cattle grazing in production forests

Type of domesticated animal	Who is allowed to graze	Area allowed		Area not allowed	Compensations and Fines
		Location	Time		
Cattle	All villagers	Areas A and B (local names)	All year	Area C (local name)	
Goats	All villagers	Area B (local name) agricultural land	All year	Area D (local name)	

Step 2.7 Benefits and duties of forest owners and protectors are identified

The following outputs have to be achieved as a result of Step 2.7:

- Farmers will have identified the benefits and duties of forest owners and forest protection/fire prevention group;
- Farmers will have identified who has the authority to fine violators;
- Farmers will have identified the amount and source of funding to pay for the work of the village protection group;

Duration: 1 hour

Material:

- Stationary (Flipcharts, markers, pins),
- List of main problems.

Detailed Proceedings:

1. Explain that in order to clarify rights and duties, it should be distinguished between types of ownerships and management responsibilities.
 - a) Natural forest and planted forest, managed by the community
 - b) Natural forest managed under protection contracts
 - c) Forest land allocated to households with Red books
 - d) Forest land where households or individuals invest to plant forest themselves
2. Explain to villagers that as for b) and c) rights and duties are clearly stipulated in protection contracts and Red books. *(Discuss on benefits and duties if necessary)*
3. Explain that as for d), the investor have rights to gain benefits from forest in the time of harvesting. He must pay tax for Government. He is in charge of protecting and managing forest according to VFPRs.
4. Discuss with villagers on rights and duties of a):
 - Do we need a forest keeper ?
 - Do we need to establish a protection group ?
 - How much money do the protection group get from forest protection activities ?
 - Do we pay money to them or allow them to harvest a certain volume of forest products?

-
- What are the protection group's tasks ? Is it necessary to carry out regular checks ?
 - How can we mobilize villagers to participate in forest protection activities ?

Note: If protection contracts and funding are available, protection and management of contracted forest must be implemented following rights and duties stipulated in the contracts. It should discuss on what can be done if the funding source is not available so far.

Step 2.8 The procedure for fining, compensations, and awarding has been clarified
The following outputs have to be achieved as a result of Step 2.8:

- Farmers will have identified the rights of village heads;
- Farmers will have identified punishments and fines;
- Farmers will have identified the amount of compensation and awards;
- Via the clarification of the procedure of how to deal with violation cases farmers will have gained confidence to report violations detected

Duration: 1-2 hours

Material:

- Stationary (Flipcharts, markers, pins),
- List of main problems.

Detailed Proceedings:

1. Discuss on village head's rights: village head has authority to make fines of 5,000 VND to 50,000 VND per case of violation if the value of violated forest products does not exceed 50,000 VND. If the value exceeds 50,000 VND, it must be transferred to higher authority for handling (according to Resolution 15/2002/NG-HDND, Chapter 2, Article 8, Point 9 on monetary punishment). Discuss the rights of village head in mobilizing villagers to take patrols, check and seize illegal forest products.
2. Repeat previously identified fines and punishments. Discuss carefully on these issues in order to make it socially acceptable. It should apply educational, persuasive and harmonious methods and light punishments.
3. Discuss with villagers on awards for people who identify violators and solve violation cases. It should identify clearly who are awarded (forest owners, people identifying violators and solving violation cases etc.) and how many percent of fines is used for awards, put into village's or commune's budgets. E.g: Total money of punishments and compensations can be divided as follows: Person detecting violations will receive from 20 to 30 %/case. Person arresting violators and solving violations will receive from 20 to 30 %/case. The remaining will be kept in village budgets/funds.
4. Make a sketch of a forest and a person offending against the village forest regulations (e.g. somebody cutting a big tree – tell the participants that he is an outsider to make the violation clear). Now draw another person who spots the violation and tell the people that this person would be them. Now ask what they would do in such a case.

Questions to be asked should include:

- What is immediately done in such a case?
- Whom can you get to help you?
- What do you do in case the violator is armed?
- Who can make the compensation claim?
- Who fills out the violation case report?
- Which information is needed?
(refer to Form 2 for a violation case form containing all the important information).

5. Appoint one farmer to note the main points on an A0-paper for all to see.
6. If necessary make another example and let the villagers discuss by themselves for ten minutes before presenting their results. Also give them the previously made list of regulations to check on compensations etc.

Hints for discussion:

- How can disputes be solved ?
- Which level of fines should be reported to higher authorities ?
- Is it necessary to make records ? if yes, who do it ?
- What about the first warning ? the second warning ?
- Is it necessary to file of all violations?

Notes: As villagers often lack knowledge about the procedures of how to handle violation cases, enough time should be allowed for this exercise in order to make sure that this exercise is carried out thoroughly, making frequent use of examples

Example of table to be used to summarize farmers decisions

RIGHTS, COMPENSATION PROCEDURES, OBLIGATIONS AND BENEFITS
1. Right to claim compensation
2. Procedures
3. Obligations
4. Awarding

Step 3. Finalization of village forest regulations document for approval

The following outputs have to be achieved as a result of Step 3:

-
- Forest protection regulations have been written down in a simple document, understandable by the villagers;
 - The final regulation document has been presented in a plenary village meeting, giving the household representatives an opportunity for final revision;
 - Village head and Village Management Board have been supported in the process of finalisation and submission of the village forest protection regulation document to the Commune People's Committee;

Participants: Forest Protection Field staff, Commune head, Commune Forestry Board, Village head, Village patriarch, Women's union representative(s), key-farmer of the village..

Duration & Location: Carried out in the village. About 1 day for village plenary meeting, finalisation and submission of forest protection regulations.

Additional Material: A format of a regulation-document to be submitted for approval is presented in Form 2.

Step 4: Approval of village forest protection regulations

The following outputs have to be achieved as a result of Step 4:

- The District People's Committee has consulted the forest protection station for the approval of village forest protection regulations;
- The Judiciary Section of the District People's Committee, finally responsible for the approval, has approved or declined the village forest protection regulations.

Participants: District People's Committee and Forest Protection Unit.

Duration & Location: District People's Committee and Forest Protection Unit. The process of approval/decline of village forest protection regulations takes 2 – 3 months.

Step 5: Dissemination of forest protection regulations at village level

The following outputs have to be achieved as a result of Step 5:

- Respective Forest Protection staff, cadastral unit of commune, and commune agroforestry extension staff have organised a village meeting to inform villagers about the approval. As a result of this meeting, the following issues are clarified:
 - All modifications that have been made by the DPC during the approval;
 - The responsibilities of each villager are clarified;
 - A seasonal monitoring and evaluation plan is established;
 - Clarified how the regulations are disseminated in the village;
 - A commitment paper is issued, bearing the villagers signatures signifying their agreement with the regulation.

-
- Following the approval meeting, respective village forest protection regulations are enacted;
 - Based on the ideas of men and women in the village meetings, forest protection officer support the community to disseminate VFPRs effectively.

Participants: Staff of the Forest Protection Unit, Commune Head, Village head, Village Management Board, Commune agroforestry extension staff, all members of village

Duration & Location: 1 day village meeting.

Step 6: Monitoring and enforcement of forest regulations

The following outputs have to be achieved as a result of Step 6:

Responsibilities regarding the implementation, monitoring, and evaluation of forest protection regulations are according to the different levels of authority as follows:

- District level:
 - Agriculture and Development section co-ordinate to guide the commune and village levels in enforcing the regulations;
 - Forest Protection Unit is the core assisting body to the District People's Committee in monitoring and enforcement of the regulations;
 - Forest Protection Unit is responsible for timely dissemination of the printed fire prevention plan issued by the forest protection sector.
- Commune level:
 - Commune Forest Protection- and Cadastral officers take responsibilities to provide feedback of the approved VFPRs to the commune;
 - The Commune has filed a copies of each set of respective village forest protection regulations;
 - The Commune has assigned a person to check and monitor the collection of fines at the village level and handle commune level violations.
- Village level:
 - The Village Management Board has assigned one of its members to be responsible for enforcing, monitoring, and evaluation of the regulations;
 - The Village Management Board is responsible for the dissemination of the regulations to all households of the village;
 - Villagers themselves are the main responsible to ensure that regulations designed by them are followed.

Participants: DPC, FPU, CPC, Commune agroforestry extension staff, Village head, Village Management Board, villagers.

Duration & Location: Ongoing, at village, commune and district levels.

Step 7: Periodical review of village forest protection regulations

The following outputs have to be achieved as a result of Step 7:

Village forest protection regulations are evaluated regularly:

- Forest Protection Regulations are reviewed at least every 3 years, to adopt them to recent policy changes or changes;
- The Village Management Board and the Forest Protection Officers organize a village meeting to determine whether it is necessary to adjust the VFPRs;
- If necessary in the village meeting, existing village forest protection regulations are adjusted, rewritten and submitted for approval. This process is implemented in the same procedure as described above;
- The role of the forest protection officer is to support this process, facilitate the Village Management Board to finalize the document, follow the approval procedures as well as disseminate the new village forest protection regulations.

Participants: DPC, FPU, CPC, Commune agroforestry extension staff, Village head, Village Management Board, villagers.

Duration & Location: Ongoing process; at village, commune and district levels.

Part III: Community-Forest Management Planning

3.1 Principles for the elaboration of community-forest management plans

3.1.1 Participatory – every step is done with the participation of villagers

Participation of both farmers and supporting agency staff (ACO, FPU etc) has to be ensured throughout the entire process of forest management planning. 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 during this process. They all need to be involved and all need to participate together.

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 respective forest inventory and management approach, this would result in impracticability. In order to ensure participation of women, the women's union representatives of commune and village are to be contacted well in advance, 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, a representative of the Women's Union from commune and/or village has to co-facilitate respective meetings.

Participation during the entire process will (i) support stakeholders to gain confidence in the techniques which will enable them to independently carry out future resource assessments (ii) reduce the workload of the involved agencies like Forest Protection Units and (ii) establish mutual trust and exchange of information between Forest Protection staff and local stakeholder.

3.1.2. Simplicity of methodologies and tools applied in the management planning process

In the context of community forestry development in Vietnam appropriate methods to assess and analyse forest resources have to be based on simple participatory measures rather than on inventories and planning tools of scientific accuracy. A scientific inventory is likely to produce a set of data that local people would find extremely difficult to interpret. If forest users were not properly involved in the resource assessment and analysis, they would not have a sense of ownership over the results and thus be unwilling to follow a management plan developed from that data. Consequently, simplicity of guidelines is important to ensure that understanding, enforcement, and monitoring of forest management planning is within the capacity of the forest user group. Because full participation by local forest users must be ensured during the entire process, use has to be made of simple but effective techniques of forest inventory and subsequent data analysis.

3.1.3. Cost-effectiveness

Given the extent and remoteness of the forest land areas that have been allocated to village communities, it is inevitable to ensure a high degree of cost-effectiveness concerning the methods and tools used during the management planning process. Cost-effectiveness means, that the desired results are achieved with the lowest quantity of inputs required, or in other words, that the best use is made of the resources available. In the context of forest management planning, as well as subsequent implementation and monitoring, cost-effectiveness is ensured via actively involving local stakeholders in the entire process (participation), which is achieved by making use of methods which are easily understood and implemented by the latter (simplicity).

3.1.4. Relevancy

The main implication of cost-effectiveness is that procedures only yield information, which is relevant for forest management planning. The principles participation and simplicity furthermore confine the information relevant for forest management. The latter being the main reason why no tree heights are measured and volumes are calculated, as this information is difficult to analyse and convert into practicable measures of forest management. Instead, definition of the number of trees and diameter class are quantified as practicable criteria for implementation and monitoring within the capacity of farmers and supportive staff.

3.1.5. Forest Management Planning as part of a Participatory Planning Process

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. Preliminary steps comprise Land Use Planning and Land allocation, as well as the establishment of Forest Protection Regulations. It is a crucial prerequisite that these steps have been successfully completed and that existing and potential conflicts have been taken care of prior to initiating the forest management planning process.

3.2 Description of the Community-Forest Management Planning Process

The process of community-forest management planning, from preparation until the elaboration of annual management plans for respective forest blocks, is described in the following chapters. Necessary follow-up measures regarding the implementation and monitoring of respective management plans are described in the next chapter. The specific content, required outputs, participants, and locations of each step are described in detail in the following chapters. The process consists of a logical sequence of 10 steps:

- ❖ Step 1: Preparation
- ❖ Step 2: Blocking
- ❖ Step 3: Block Description
- ❖ Step 4: Participatory Forest Resource Assessment

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- ❖ Step 5: Data Analysis
 - ❖ Step 6: Forest Product Demand Assessment
 - ❖ Step 7: Demand & Supply Relationships and Identification of Goals, Problems, and Opportunities
 - ❖ Step 8: Elaboration of 5-year Forest Management Plans
 - ❖ Step 9: Approval of 5-year Forest Management Plans
 - ❖ Step 10: Elaboration of Annual Forest Management Plans

Step 1: Preparation

The following outputs have to be achieved as a result of Step 1:

- Assessment of suitability of forest land allocation, in particular:
 - Assessment of participation by local stakeholders;
 - Suitability of mode of forest land allocation;
 - Adequate consideration of entire village community.
 - Assessment of prevailing and potential conflicts about land use within and between villages/communes
- The village land use map is available (as a result of LUPFLA);

Options:

Aerial photo-maps or satellite images represent valuable tools for the forest management planning process, however, respective maps need to be of adequate quality and there are considerable costs involved in obtaining respective maps at a scale of 1:10000.

Details/Description:

A thorough review of the former forest land allocation process is inevitable prior to proceeding with forest management planning. This comprises an assessment of existing and potential land use conflicts within and between respective villages. If respective conflicts are not taken care of prior to management planning, a great potential exists that these conflicts hamper the process and consolidate especially during implementation. Meetings comprising key-farmers and village representatives, as well as household interviews represent possible instruments for the assessment of former forest land allocation. It has to be ensured that all households in the village have been adequately considered in the process of forest land allocation and that the mode of allocation (household, user-groups, or entire village community) is suitable.

Following the assessment of forest land allocation and respective conflicts, villagers need to be carefully informed about the planned forest land allocation process. In particular about the benefits and duties associated with forest land ownership. Again, a village meeting is a

suitable tool to pass on the necessary information, allowing for feedback from household representatives.

Time:

Depending on the quality and the size of forest land allocation, as well as the conflicts encountered, this step can take from days to even weeks. The village information meeting takes 1 day.

Step 2: Blocking

The following outputs have to be achieved as a result of Step 2:

- Identification and agreement by villagers on forest blocks, each with a specific management goal
- Table containing the name and area of each forest block

Materials:

- Present land use map of the village, showing the various forest areas. The preferable scale is 1:10000 is preferable. Aerial photomaps (at 1:10,000 scale) of the village represent the most suitable option in technical terms, depending on availability. If a GPS receiver is used to verify the forest block boundaries, the map needs to have UTM-coordinates.
- Transparency sheets (enough to cover the map) plus clips.
- Whiteboard marker pens for transparency sheets and permanent markers to complete the map.
- Compass to correctly orientate the map.

Location: Meeting held in the village and visit to the forest.

Participants: Group of key-farmers, village head, representatives of village management board and village social groups, commune agroforestry extension worker, forest protection staff, staff of Agriculture and Cadastral Office.

Duration: 1hr for identification of block boundaries on the map;
½ - 1 day for field verification, depending on size and location of forest blocks.

Detailed Proceedings:

- Introducing the land use map and drawing techniques:
 - Introduce the land use map. 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.
 - Ask the participants to orientate the map so that it is easier to understand i.e. so that north on the map really faces north
 - 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.

-
- 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:
 - 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. It is recommended to make frequent use of natural boundaries, such as rivers, mountain ridges, etc.
 - 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.
 - 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.
 - 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 the area of each block
 - Explain that it is necessary to know the area of each block so that they can calculate how many trees there are. Show the participants how they can roughly measure areas using squares drawn on a piece of transparent sheet. If the map scale is 1:10,000 then a 1 x 1 cm square is equal to 1 ha. Write the area of each block on the map.
 - When all the areas have been measured, make up a table showing each block, its number, name and area.
 - Finally, go over the temporary lines drawn on the transparent sheet with a permanent marker. This will create a permanent map on the transparency.
 - Participatory field verification of block boundaries
 - Using a compass for field orientation. Alternatively, a GPS receiver can be used (if available), to accurately determine boundary points in the field.
 - Points recorded with the GPS are transferred into the UTM-map manually, i.e. each drawn by hand copying the respective coordinates.
 - During the participatory field verification of forest block boundaries, a participatory description of the forest blocks is carried out (refer to step 3 for details.)
 - Eventually the land use map with marked boundaries should be handed over to the village. A plastic laminated version can be prepared for them later.

Options:

Data about the plot boundaries, which has been recorded with the GPS hand-receiver, can be digitized and stored in a GIS-Database, which makes it very convenient for future reprinting of the maps. However, it has to be considered that the District level authorities do at present do not endue over the necessary resources to achieve this.

Step 3: Block Description

The following outputs have to be achieved as a result of Step 3:

- Each forest block has been briefly described, based on villagers' own knowledge

-
- The decision has been made whether any sample plots need to be measured in the specific block.
 - A preliminary identification of any problems in the block has been accomplished.
 - A preliminary determination of management goals for every block (possibility to revise following the resource assessment)

Materials:

- Block Description forms (one for each block)
- Stationary

Location: Part of the block description to be accomplished during the field verification of block boundaries. Additional completion in the meeting held in the village.

Participants: Group of key-farmers (especially those who know the village forest area well), village head, representatives of village management board and village social groups, commune agroforestry extension worker, forest protection staff, staff of Agriculture and Cadastral Office.

Duration: Partially in conjunction with Step 2, additionally 1hr for completion of block description forms in village meeting.

Supplementary Information:

Three forest types are distinguished, namely *dry-dipterocarp forests* and *semi-deciduous forests*. **Dry-dipterocarp forests** occupy the major share of the land and main species include *Dipterocarpus intricatus*, *Dipterocarpus tuberculatus*, *Dipterocarpus obtusifolius*, *Dipterocarpus alatus*, *Castanopsis sp.*, *Shorea obtusa*, *Pentacme siamensis*, *Canarium album*, *Celia sp.*, and *Tarrietia cochinchinensis*. Generally, respective forest stands are rather open spaced and the majority of the trees shed their leaves during the dry-season, lasting for about four months, from December until March. **Semi-deciduous forests** exhibit a considerable difference in species composition as well as stand structure. Some of the prevalent species are *Den nam la (Vitex quinata)*, *Huynh (Tarrietia cochinchinensis)*, *Lanh nghanh (Cratoxylum formosum)*, *Gao (Anthocephalus indicus)*, *Bang Lang (Lagestroemia sp.)* and *Sang le (Lagestroemia calyculata)*, *Cam xe (Xylia dolabriformis)*). Only a few dipterocarp-trees are encountered, the main species being *Dau trai (Dipterocarpus intricatus)*. The vertical stand structure is segmented into three main strata, resulting in a densely closed canopy and the presence of abundant regeneration, an indicator for the fact that the respective forest type is generally encountered in areas exhibiting favourable water supply and better soil conditions. **Ever-green forests also** exhibit a considerable difference in species composition, but it is the same of stand structure with semi-deciduous forest. The component is complex with mixed species.

Detailed Proceedings:

- Participants are divided into small groups. About 5 or 6 people for one group is sufficient.
- Show the participants the block description forms (**Table 1.1**). 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. 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
- 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.
 - Fix a time for groups to work (e.g. ½ 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.
 - At the end of the agreed time, ask everyone to gather into one group. 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.
 - Additionally, participatory stand descriptions can be carried out to enable participants and facilitators to gain further insides about the forest structure, distribution of tree-species in the upper-, medium-, and lower strata of the forest, light conditions (degree of canopy closure). Participatory stand description forms are furthermore helpful for re-checking the information provided by the block decription, as well as the determination of the long-term forest management goal. A stand description form is presented in Table 1.2.
 - In order to complete the stand description, divide participants into two or three groups and let them step by step determine the information required on the stand dscription form.
 - Conlcuding stand description, all groups should go through the gathered information together and discuss their findings, resulting in the discussion and determination of the long-term management goal for the forest block.

Table 1 Block Description form

Date.....

Name of the village.....

Direction from village centre

Recorder.....



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

Access	What is the walking time from the village to reach the forest block?				
	less than 1 hour	1-2 hours	More than 2 hours		
Forest Type / Age	Forest dominated by Dipterocarps		Forest age		
	Forest with other species		mature	middle	young
Products	Can you get any forest products in the next 5 years?			Yes	No
	If not, why do you think no products are available?				
	List 3 main forest products that can be expected from the forest block				
Bamboo	Is there any bamboo available in the block?				
	plenty	some	none		
Fire hazard	When did fire last occur in the forest block?				
	In the last 5 yrs	Not in the last 5 yrs	Not in the last 10 yrs	Never	
Weed Invasion	What is the situation with weeds in the block?				
	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	When was the last timber extraction carried out?				
	Year of last green logging (living tree)		Year		
	Last extraction of dead and fallen trees		Year		
	Other special products harvested?				
Afforestation & Enrichment	Do you think afforestation/enrichment is necessary in the block?			Yes	No
	How can funds be made available?				

Table 2 Stand Description Form

Name of the village..... Direction from village centre

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

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

Forest Type	Forest with one very dominant species		Forest age		
	Mixed forest with bamboo		mature	middle	young
	Mixed timber forest				

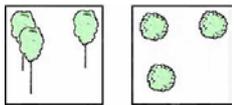
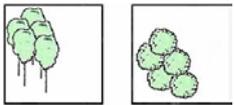
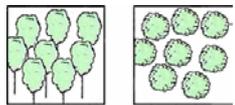
Soil	Colour			Water availability			Fertility /Productivity		
	Grey	Red	Yellow	Dry	Well-drained	Water-logged	Poor	Medium	Rich

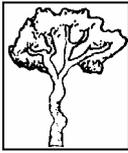
Area covered by bamboo?	How big is the area covered by bamboo?		
	Big (over 50%)	Small (under 50%)	none
	How is bamboo distributed?		
	Scattered in single clumps	In bigger groups	Pure in larger area

Degree of closure of the forest stand		Remarks
How much light is coming down to the natural regeneration?	Open – lack of big trees, understorey only scattered, ground infested with bamboo and/or weeds	
	Big gaps – bigger trees spaced more than a crown-extent away, no regeneration or understorey	
	Light – crowns are not more than one crown extent away from each other	
	Closed – crowns of the trees are touching each other	

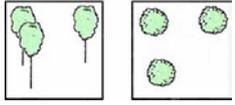
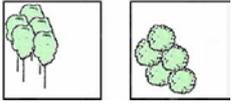
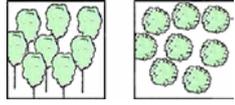
Weed Invasion	What is the situation with weeds in the block?		
	More than 50% of ground covered	Less than 50% of ground covered (but common)	No weeds

Biggest trees in the upper layer (> 25 cm dbh red colour)		Possible Use
What are dominant species?	1)	
	2)	
	3)	
	4)	
	5)	

How are big trees distributed?	Scattered single trees	In groups	Evenly over entire area	Remarks
				

How do most of big trees look like?	Straight	Crooked / twisted	Infected/diseased	Remarks
				

Trees under the canopy (10 – 25 cm black to blue colour)		Possible Use
What are dominant species?	1)	
	2)	
	3)	
	4)	
	5)	

How are medium trees distributed?	Scattered single trees	In groups	Evenly over entire area	Remarks
				

Seedlings in the natural regeneration (0,2 m - 1,30 m)		
Count the number of seedlings in 4 times 2x2 m plots scattered in the area		
More than 8 seedlings (> 5000 seedlings/ha)	4-8 seedlings (2500-5000 seedlings/ha)	Less than 4 seedlings (< 2500 seedlings/ha)
Good	Fair	Poor

Step 4: Participatory Forest Resource Assessment

The following outputs have to be achieved as a result of Step 4:

- Actual tree numbers and diameters have been measured in accordance to the required sample intensity in respective forest blocks, providing quantitative information for utilisation and monitoring.
- Completed Plot sample forms for each block that has been measured. (Number varies depending on the number and size of forest blocks)
- The potential for forest product harvesting from the various forest blocks has been assessed.
- Further problems or opportunities of the forest block, important for forest management have been identified.
- 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:

- A0 poster and coloured pens
- Village forest map with transparency overlaid showing forest blocks
- Ruler for distance measurement
- Discs of paper/card cut to the size of different diameter classes
- Plot sample forms and clipboards
- Coloured tape measure (dbh tape)
- Set of ropes, one for each inventory team (20 m rope with a knot at 10 m and 2 x 10 m ropes with knots in the middle)
- Laminated 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)

Location: Preparation of the field-work, including the distribution of required sample-plots within the forest block on the map, as well as an explanation of the sample plot technique to the participants is done in the village. Actual sample plot establishment in the respective forest blocks.

Participants: Group of key-farmers (especially those who know the village forest area well), village head, representatives of village management board and village social groups, commune agroforestry extension worker, forest protection staff, staff of Agriculture and Cadastral Office.

Duration: About 1hr for preparation; time needed for field measurements depend on size, number and location of forest blocks, generally ranging between 3 to 10 days.

Supplementary Information:

Sample plot size varies in dependence of forest status. For natural forests in primary condition; class IV) the total size of one sample plot is 400m², consisting of four “10 x 10

meter-compartments”, established along transect lines. For regenerated forests (after exploitation or shifting cultivation; classes II_A, II_B) and exploited natural forests (classes III_{A1-A3}), the total size of one sample plot is 200m², consisting of two “10 x 10 meter-compartments”, established along transect lines. This difference in total size of the sample plots is due to the abundance of trees per given area in both classes of forest. Refer to **Figure 1** for details about the sample plot design. The minimum-total number of sample plots needed, is displayed in **Table 2**.

Figure 1 Sample-plot design

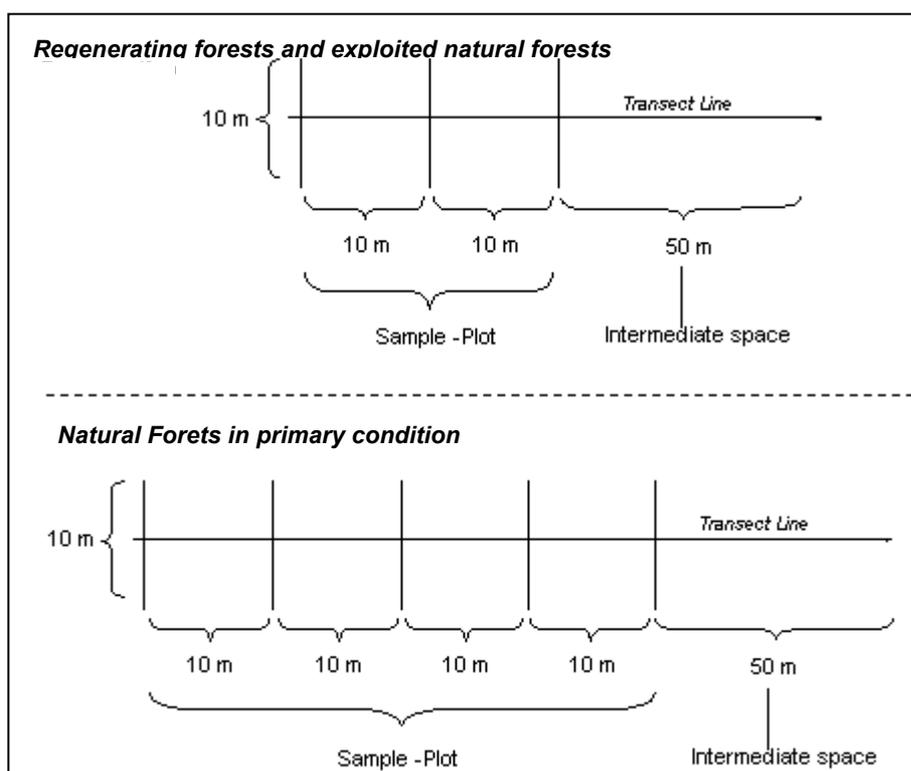


Table 3 Minimum number of sample-plots for regenerating and natural forests

Block Area	Minimum number of sample-plots	
Less than 4 ha		2
over 4 - 10 ha		4
over 10 - 30 ha		8
over 30 - 70 ha		15
over 70 - 120 ha		25
over 120 - 200 ha		35
over 200 ha		50

Detailed Proceedings:

1) Preparation

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

- The number of plots that can be completed by one inventory team in one day has to be approximated. If this is the first time forest inventory is carried out, 7 plots per team per day can be assumed, based on experiences of previous participatory inventories.
- The number of plots that can be completed by one inventory team in one day is multiplied by the length of one plot (20m or 40m) 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 $(20m+50m) * 7 = 490$ m in regenerating forests and $(40m+50m) * 7 = 630$ m in natural forests.
- Convert this distance to the appropriate distance on the map using the scale of the map. 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 $490 / 100 = 4.9$) and equivalently 630 m on the ground is equal to 6,3 centimetres on the map.
- Using the planning map to plan the location of the inventory lines
- The total (minimum) number of plots needed for each forest block is determined referring to **Table 2**.
 - Taking the total number of plots needed, the transect lines should be added onto the map. Transect lines have to be placed 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 keeping in mind that practicability is of utmost cruciality.

2) Field work

➤ Formation of inventory-teams

- Prior to starting with the establishment of sample-plots, villagers have to be grouped into inventory-teams. The members of an inventory team are displayed in **Table 3**. It is inevitable that the person responsible for recording the data is a communal extension worker or other qualified staff, as this task should not be taken over by villagers themselves to avoid mistakes during data recording.

Table 4 **Members of an inventory-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	To identify the tree species

	coloured tape	
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		

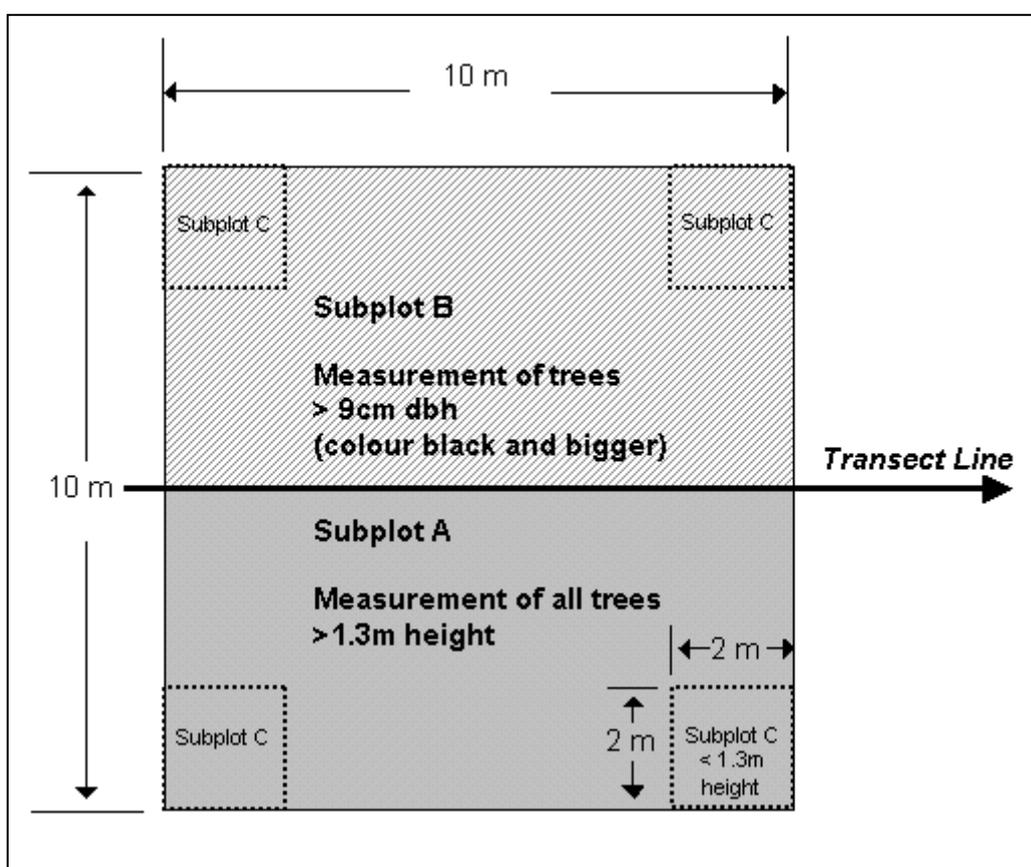
➤ Establishment of sample-plots

- The village forest map is used to locate the spot exactly and 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.
- A compass bearing is taken to obtain the direction of the transect line and to make sure that it crosses the block. A high level of accuracy is not needed, just the ability to move in a more or less straight line through the forest (it should be avoided that field teams select the location of sample-plots deliberately, for example predominantly in areas of better forest conditions, as this would lead to biased results).
- Sample-plots are established 50 meters apart from each other. Using the two 10 meter ropes, compartments of each sample-plot are established. The number of compartments per sample-plots depends on the forest classification (regenerating or natural forest; refer to **Figure 1** for details about the plot design).

➤ Measurement of trees

- Each compartment is divided into several subplots, and trees are measured according to their size, as displayed in **Figure 2**.
- All trees above 1.3 m height are measured in the 5 x 10 m plots on the right hand side of the transect line (refer to **Figure 2**, Subplot A). On the left hand side only trees with a dbh above 9 cm will be measured (Subplot B). As smaller-sized trees (0 – 9 cm dbh) have a higher abundance than the larger-sized trees (above 9 cm dbh), confining the measurement of the smaller-sized trees to half of the plot is done to save time without decreasing accuracy.
- Regeneration will be counted establishing 2 x 2 metre plots (Subplot C) – one in each corner (**Figure 2**). Only trees lower than 1.3 m (breast height) will be counted (number per species).

Figure 2 **Composition of a compartment**



- Coloured diameter-tapes are used for the measurement of tree-diameters, the different colours in dependence of the diameter-range are displayed in **Table 4**.
- All trees measured are to be marked with white chalk to prevent double-measurements.

Table 5 **Relationship between diameter-classes and colours, as displayed on the coloured diameter-tapes**

Diameter-class (cm)	0 – 5,9	6 – 8,9	9 – 11,9	12 – 14,9	15 – 17,9	18 – 20,9	21 – 23,9	24 – 26,9	27 – 29,9	> 29,9
Colour	White	Yellow	Black	Stripes	Blue	Dots	Red	Orange	Waves	Purple

- For all trees with dbh bigger than 9 cm, assessment whether the tree has potential to yield timber suitable for construction purposes. The assessment is done based on local knowlegde, i.e. the villager themselves assess whether the particular tree has potential to be used for construction purposes (houses, animal stalls, ect.). Criteria are inter alia: species, stemform, diseases
- The number of living bamboo culms in the 10 x 10 m compartments are counted. Bamboo species without any use and dead culms are not counted.

➤ Recording plot information

-
- All information is recorded on Sample Plot-Forms. One sample plot form is used for all the compartments of the respective sample-plot (refer to **Figure 1** for details). A sample form for Dry-Dipterocarp Forest is presented in **Table 5**.
 - The following information have to be recorded on each sample plot form:
 - Date, name of village and block and plot number
 - Canopy Coverage: **Open** = before canopy closure (0 – 40%)
Normal = adjacent crowns touch, sky still visible (40 –70%)
Dense = crowns overlap, sky not visible (> 70%)
 - Slope: gentle, moderate, or steep
 - Each tree species is recorded with its local name.
 - Each species which has the potential to yield timber for construction purposes (assessment based on local knowledge !), is marked with an asterix.
 - For each tree-species separately, the number of trees in the various diameter-classes, as well as natural regeneration is recorded. A distinction is made between trees of timber potential and such of non-timber potential.

Table 6 Sample plot form Dry-Dipterocarp Forest

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

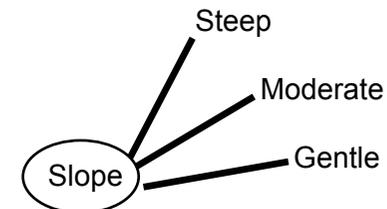
Name of the village..... Forest block #..... Local name of inventory area..... Sample plot number.....

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

Step 5: Data Analysis

The following outputs have to be achieved as a result of Step 5:

- Data from the sample plots are compiled and summarized for each forest block (completed block summary forms for each forest block)
- Data is presented in an understandable way for villagers (histograms showing timber trees of different sizes and all trees of different sizes)
- Implications of the data for forest management and forest product utilisation have been discussed
- Quantitative estimates about harvestable quantities (especially timber and fuelwood)

Materials:

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

Location: Village

Participants: Group of key-farmers (especially those who know the village forest area well), village head, representatives of village management board and village social groups, commune agroforestry extension worker, forest protection staff, staff of Agriculture and Cadastral Office.

Duration: About 3 hrs, depending on the number of blocks.

Supplementary Information:

1. Factors for the calculation of tree numbers per forest block

The tree-numbers contained within the sample-plot forms have to be aggregated and extrapolated in order to obtain figures which are representative for the entire area of the respective forest blocks. As the area of measurement within the sample-plots varies in accordance to the dimension of trees (refer to **Figures 1 and 2** for details), so do the extrapolation-factors. Moreover, the total size per sample-plot is also different for regenerating and exploited natural forests (200 m²) and primary natural forests (400 m²). **Table 6** provides an overview over the different areas sampled within one sample-plot.

Table 7 Area sampled per sample- plot, according to tree dimension and forest status

Tree dimension	Area sampled per sample-plot (ha)	
	Regenerating and Exploited Natural Forests (II _A , II _B , III _{A1-A3})	Natural Forests in Primary Condition (IV)
Natural Regeneration	0.0032 ha	0.0064 ha
Trees < 9 cm dbh	0.01 ha	0.02 ha
Trees ≥ 9 cm dbh; and bamboo-culms	0.02 ha	0.04 ha

To extrapolate the tree-numbers in the various diameter-classes and natural regeneration for the entire forest block area, the following formular applies:

$$N_{\text{block}} = n_{\text{sample}} \times \frac{\text{Area}_{\text{block}}}{(n_{\text{plot}} \times \text{Area}_{\text{sample}})}$$

Where:

- N_{block} = Number of trees in respective diameter-class or natural regeneration per forest block
- n_{sample} = Number of trees in respective diameter-class or natural regeneration in all sample plots
- $\text{Area}_{\text{block}}$ = Area of the forest block
- $\text{Area}_{\text{sample}}$ = Area sampled per sample-plot (Table 6)
- n_{plot} = Number of sample plots established in forest block

2. Ideal Forest Models

Ideal forest models are needed as a benchmark against which the actual forest status is compared to quantify sustainable numbers of trees for harvesting in the various diameter-classes. An ideal forest model is a stemnumber-diameter distribution, representing a productive forest that can satisfy the timber demand of the farmer. Ideal forest models have been elaborated for **dry-dipterocarp forests** and **semi-deciduous forests** and are presented in **Figure 3** and **Figure 4**.

Figure 3 Ideal Forest Model - Dry-Dipterocarp Forests

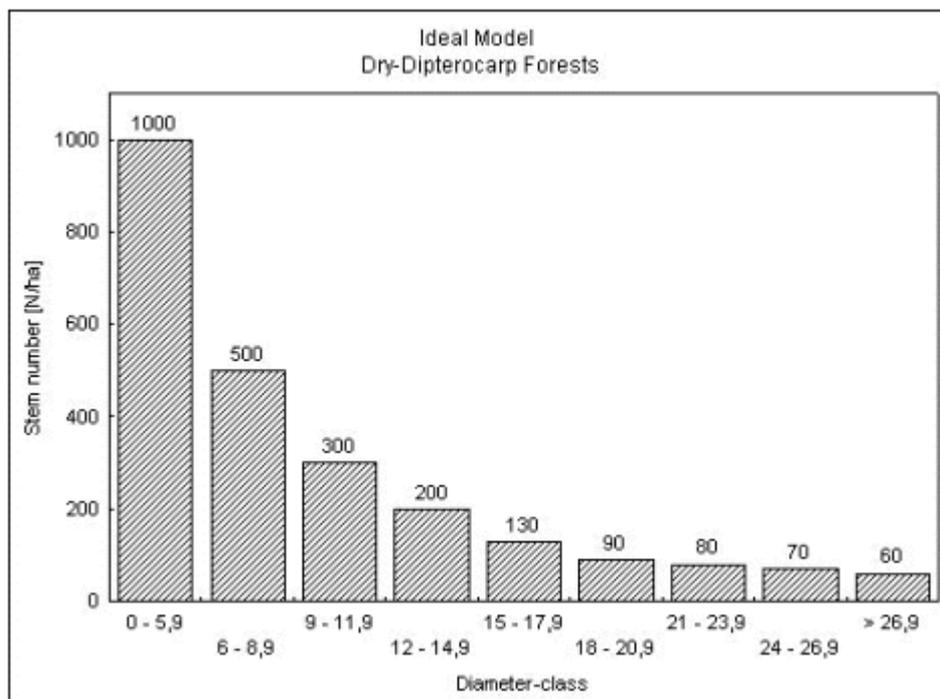
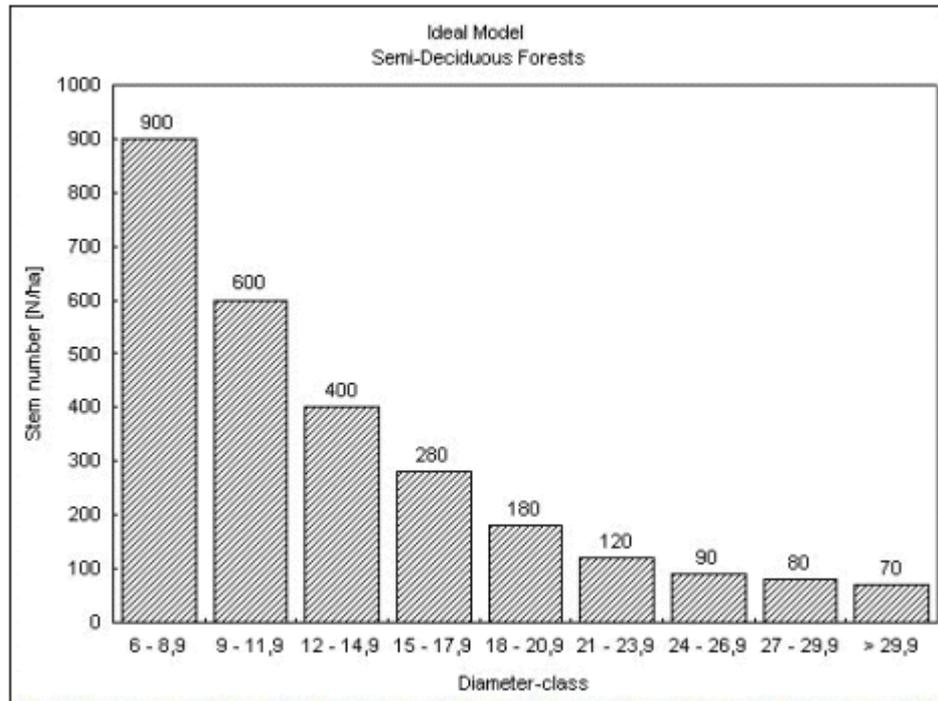


Figure 4 Ideal Forest Model - Semi-Deciduous Forests



The ideal forest models presented in **Figures 3 and 4** have been tested in Dak Lak and Gia Lai but are of preliminary nature, subject to revision and further adoption in the future. On the National Workshop on Community-Based Forest Management², elaboration of ideal forest models for all seven agro-ecological zones has been agreed to be an important achievement in the near future. Until respective efforts have not been carried out, the ideal forest models presented in **Figure 3** and **Figure 4** are taken as reference in the process of forest management planning.

NOTE: The tree-numbers displayed in Figure 3 and Figure 4 are per ha values. To calculate the tree-numbers of the ideal model for the respective forest block, simply multiply the numbers given in Figure 3 and Figure 4 by the area of the forest block (in ha).

Where:

$$N_{i_{\text{Block}}} = N_{i_{\text{ha}}} \times \text{Area}_{\text{Block}}$$

$N_{i_{\text{Block}}}$ = Number of trees of the ideal model for a respective forest block

$N_{i_{\text{ha}}}$ = Number of trees of ideal model per ha (as stated in Figure 3 and 4)

$\text{Area}_{\text{Block}}$ = The area of the forest block in ha

Detailed proceedings:

² Organized by the National Working Group on Community Forest Management in Hanoi, 30th of November 2004.

1) Compilation of a species-list

- All species contained within the sample-plot forms are listed and grouped according to timber or non-timber potential (assessment according to local knowledge).
- Species list will be compiled in the local (minority) language, as well as in Kinh.
- For each species listed, the purpose according to the farmers is listed (e.g. timber, medicinal, other special uses ...)

Table 8 Block Summary Form

1) Village name		2) Block name		3) Block area in ha	
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4) Total number of plots [z]		5) Factor a = Block area / z x Factor		6) Factor b = Block area / z x Factor		6) Factor c = Block area / z x Factor	
------------------------------	--	--	--	---	--	--	--

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	<i>Per Block</i> (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)							
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	
-------------------------------------	--	--	--

The following steps are conducted for each forest block separately:

2) Completing the block summary form

- Sample-plot forms of the respective forest block are equally distributed among the participants.
- For each diameter-class, the total number of trees measured in the sample plots are recorded.
- For each diameter-class, the total number of trees that are of timber potential (species and stemform) are measured in the sample plots are recorded.
- The total number of bamboo-culms from all sample plots are recorded.
- Calculated totals (trees and bamboo-culms) are extrapolated, to get their respective totals for the forest block. Therefore, the figures have to be multiplied by the correct factor. Refer to the *supplementary information* above for respective factors.
- An example of a block-summary form is presented in **Table 7**.

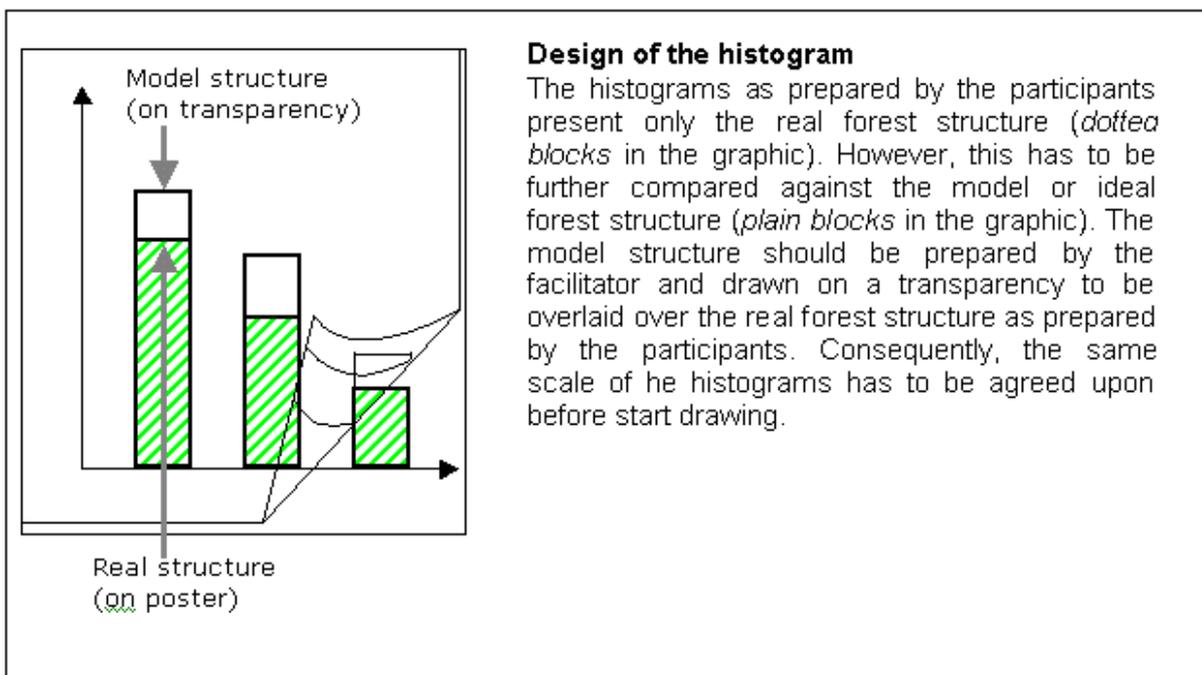
3) Drawing histograms

- Two histogram are drawn:
 - One histogram displaying the total number of trees per diameter-class of the respective forest block
 - One histogram displaying the total number of trees per diameter-class of trees that are of timber potential
 - Both histograms have to be drawn in the same scale to ensure that they can be compared easily.
 - Bars of both histograms should be coloured in accordance to the colour displayed on the diameter-tape (**Table 4**).

4) Interpreting and evaluating histograms

- Both histograms are compared to obtain information about the quality of the stand in terms of providing timber.
 - Respective bars of both histograms are compared one by one by the participants.
- The ideal forest model is prepared on a transparency (refer to *supplementary information*)
- The transparency showing the ideal model is laid over the histogram displaying the total number of trees in the various diameter-classes (refer to **Figure 5** for details).
- “Ideal” forest structure (= ideal forest model) and “real” forest structure are compared to enable the identification of management options for the 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. Some examples of questions to be answered are presented in **Table 8**.
- Any important points are noted on a separate piece of paper because these will be needed later during the planning.

Figure 5 Tips for the design and facilitation of discussion of histogram and ideal forest model



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

1. 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.

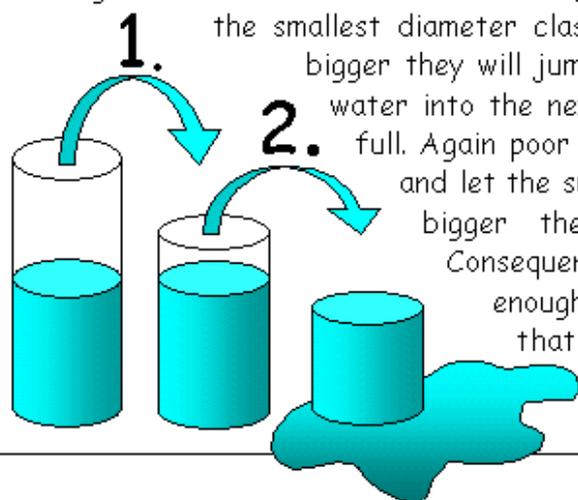


Table 9 Exemplary questions about the histograms

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?

Step 6: Forest Product Demand Assessment

The following outputs have to be achieved as a result of Step 6:

- A chart listing the main forest products used by villagers and showing the estimated quantities needed by each household, as well as for the entire village.

Materials: A0 posters, coloured pens

Location: Village

Participants: Group of key-farmers, village head, representatives of village management board and village social groups, commune agroforestry extension worker, forest protection staff, staff of Agriculture and Cadastral Office.

Duration: 1 hr

Detailed proceedings:

- 1) Listing forest products
 - Participants list the forest products they get from their village forest area (refer back to the management goals exercise).
 - 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).
 - All products mentioned are listed on an A0-poster (refer to **Table 9** for details)
- 2) Estimating the amount of timber needed for each product
 - For all the products listed, which are made of wood (furniture, houses, firewood, etc.) the average number of trees in the various diameter-classes is estimated. Drawing of sketchmaps is a suitable option to get adequate estimates (for example drawing the various parts of a house and estimating the timber needed for each part).
- 3) Estimating the average annual number of units per product needed by one household
 - For each product it is estimated how many units the average households needs per year. Some products will of course only be needed every several years(for example houses).
- 4) Estimating the total demand for forest products of the entire village
 - With the information about how the average amount of timber needed for each product and the number of units needed each year by an average household, all that is needed for the calculation of the average annual demand for timber is the total number of households of the respective village.
 - For reasons of comparability (the demand and supply are compared in the next step to identify opportunities and problems), it is suggested to calculate the 5-year demand for timber and other forest products.

Table 10 Layout for Forest Product Demand Assessment

Product	Requirement per unit of product³	Average annual requirement (units per household)	Village requirement (Number of units / 5 years)⁴

³ For all units which are made of timber, the average number of trees in various diameter-classes is estimated

⁴ Besides the average number of units needed by the village in the 5-year planning period, the number of trees in various diameter-classes is calculated.

Step 7: Demand & Supply Relationships and Identification of Goals, Problems, and Opportunities

The following outputs have to be achieved as a result of Step 7:

- 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 (Step 5)
- A0 poster from previous exercise showing forest product demand assessment (Step 6)
- Block description forms for each block (from Step 3)
- Completed information from the forest management goal exercise

Location: Village

Participants: Group of key-farmers, village head, representatives of village management board and village social groups, commune agroforestry extension worker, forest protection staff, staff of Agriculture and Cadastral Office.

Duration: 1 hr

Detailed proceedings:

1) Preparation

- To facilitate this step, it is recommended to prepare an A0-poster in the format shown in **Table 10**.
- The forest management goal for the block is written in the top of the poster. 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. This can come from the results of the Forest Management Goal exercise (if it has been completed). Use the time-line exercise to help with this.
- It is recommended to **start this step with forest blocks that provide the most products** (i.e. that are in better condition and located in suitable distance).

2) Forest products

- The main products which villagers would like to be able to get from the block either immediately or in the future (e.g. timber, fuelwood, bamboo, etc.) are listed in the separate columns under the block goal. Respective products can also include any "services", such as water source protection or environmental conservation.
- For each product, main species are listed. This can again come from the Forest Management Goal exercise (if it has been completed) or from the participatory resource assessment.

Table 11 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			

-
- 3) Forest product demand
 - Beneath the species, the demand for these products is listed. Respective information comes from Forest Product Demand Assessment (**Step 6**).

 - 4) Forest product availability
 - Beneath demand, write the present availability of these products in the block. Respective information come from quantities calculated during Data Analysis (**Step 5**).

 - 5) Demand & Supply Balance
 - 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?”*)
 - In order to find out whether the village demand for timber and other forest products can be satisfied from the forest blocks, **start with the better forest blocks first**. Deduct the timber supply in the respective block from the total village demand. Then, as you move on to the next block, deduct the respective timber supply from the remaining village demand. Proceed like this until the village demand for forest products has been fulfilled or the result is that the village demand cannot be satisfied entirely in the next 5-year planning period.

 - 6) Problems & Opportunities
 - Based on the Block Description (**Step 3**), as well as the Demand & Supply Balance, problems and opportunities of the forest block are identified.
 - 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”
 - 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 *Bang Lang (Lagestroemia sp.)* is available at present which is growing well as a result of being properly protected.”

Step 8: Elaboration of 5-year Management Plans

The following outputs have to be achieved as a result of Step 8:

- To describe in detail the activities which will be carried out during the 5-year management plan for the community forest.
- 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 and pens
- Chart prepared during **Step 7**.

Location: Village

Participants: Group of key-farmers, village head, representatives of village management board and village social groups, commune agroforestry extension worker, forest protection staff, staff of Agriculture and Cadastral Office.

Duration: 1 hr.

Supplementary information:

Management objectives comprise **3 categories**. These categories are **Utilisation, Improvement & Development**, and **Protection**. All activities which will be carried out in the planning period (i.e. in the next 5-years) are grouped into these 3 categories. During this step, participants have to think about the problems and opportunities with different products, as 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).

Detailed proceedings:

1) Preparation

- Prepare an A0-poster in the format presented in **Table 11**. Write the three main objectives (utilisation, improvement and protection) in the boxes.

2) Identification of activities and tasks for each objective

- Necessary activities to reach the objectives are identified. The general activity (e.g. timber harvesting) is written in the box. Under activity.

Table 12 5-year Forest Management Plan (Block activities table)

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

-
- Each activity is broken down into a more detailed description. Key questions to be answered are how?, what?, when?, how much? etc. - *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)?*
 - For every activity, it has to be described:
 - How it will be done;
 - Who will be responsible for the implementation;
 - The time frame. The latter is just roughly indicated by making a cross for each year (1 from to 5) in which the activity is going to be carried out;
 - Respective quantities (e.g. How much bamboo is going to be harvested? How many trees are going to be harvested? How many trees are going to be planted?)
 - Each of the respective activities in the 3 objectives (utilisation, improvement & development, protection) have to be discussed in detail. For protection, it will usually be enough to refer to the existing Forest Protection Regulations (if they are in place), but it should be assessed whether villagers are aware of their regulations and implement them accordingly.

Step 9: Approval of 5-year Forest Management Plans

The following outputs have to be achieved as a result of Step 9:

- 5-year Forest Management Plans are approved by the DPC, if necessary, amendments are made and discussed with the village forest management board.

Materials:

- Completed 5-year Forest Management Posters for each forest block (**Step 8**)
- 5-year Forest Management Plan - Blueprints (A4-Approval Form displayed in **Table 12**)

Location: Village, DPC.

Participants: Group of key-farmers, village head, representatives of village management board and village social groups, commune agroforestry extension worker, forest protection staff, staff of Agriculture and Cadastral Office, representatives of the CPC.

Duration: 1 hr. for preparation of approval documents;
2- 3 months for approval of the 5-year Forest Management Plans;

Detailed proceedings:

- 1) Completion of approval documents
 - All information contained within the 5-year Forest Management Posters have to be transferred to the smaller A4-Approval Form (**Table 12**).
 - Each completed A4-Approval Form has to be signed by the participants of the management planning process.
- 2) Submission of documents for approval
 - Signed A4-Approval Forms are submitted to the CPC. CPC is responsible for timely submission of the forms to the DPC.
- 3) Approval of 5-year Forest Management Plans
 - The DPC is responsible for approving the 5-year Forest Management Plans⁵. Assistance in the process will be provided by ACO.
 - Following the approval, respective documents are send back to the CPC.
- 4) Handing over of approved 5-year Forest Management Plans

⁵ As stipulated by the new law on forest protection and development, passed by the National Assembly on the 10th of November 2004. To be enacted on the 1st of April 2005.

-
- CPC is organising a village meeting for handing over of the approved 5-year Forest Management Plans.
 - In case that amendments were necessary prior to the approval, CPC is responsible for informing the village representatives.

Table 13 Approval Form

Commune People's Committee of
Village Forest Management Board

5-YEAR FOREST MANAGEMENT PLAN
VILLAGE..... - COMMUNE..... - DISTRICT.....
(from to)

includes:

- Table of village forest products demand in the next 5 years (1)
- Comparison of actual forest structure against ideal forest model (1 /block)
- Table of goals, problems and opportunities (1 /block)
- Block activities table (1 /block)
- Block summary form (1/block)

Date.....

Date.....

COMMUNE PEOPLE'S COMMITTEE.....

VILLAGE FMB.....

Date

EA H'LEO DISTRICT PEOPLE'S COMMITTEE

Step 10: Elaboration of Annual Forest Management Plans

The following outputs have to be achieved as a result of Step 10:

- Activities contained in the 5-year Forest Management Plans are broken down into Annual Forest Management Plans.

Materials:

- Approved 5-year Forest Management Plans (**Step 9**)
- Annual Forest Management Plans (refer to **Table 13**)

Location: Village

Participants: Group of key-farmers, village head, representatives of village management board and village social groups, commune agroforestry extension worker.

Duration: 1 – 3 hrs., in dependence of the number of approved 5-year Forest Management Plans

Detailed Proceedings:

1) Preparation

- Prepare an A0-poster in the format presented in **Table 13**.

2) Determination of specific activities for the planning period

- Identify and quantify specific tasks for each activity stated in the 5-year Forest Management Plan.
- Respective time periods and responsibilities (if possible names of respective households are indicated) for the various activities are indicated in the Annual Management Plan.
- While measures have to be specified and wherever possible indicated with respective time-periods and responsibilities, objectives should be broadened to include measures like fire prevention, timber stand improvement, agro-forestry and afforestation. However, it is important that the final decision about respective measures remains with the forest land owners, taking into consideration their requirements and restrictions in terms of labor availability.
- Annual Forest Management Plans are signed by village representatives, as well as households which have been stated under responsibilities.

3) Submission of Annual Management Plans to CPC

- Completed and signed Annual Forest Management Plans are submitted to the CPC.
- CPC hands over the Annual Management Plans to the Commune Forest Management Board (CFMB).
- The CFMB is responsible for checking whether the activities contained within the Annual Forest Management Plans are inline with the respective 5-year Forest Management Plan.

Part IV: Follow-up Activities and Framework for CBFM

4.1 Introduction

Technical procedures described in **Part II** and **Part III** of this guidelines are in accordance with recent developments at the national level⁶. It is important to realise that sustainable forest management by local stakeholders does not end with the establishment of forest protection regulations and management plans. Decentralisation of management planning and implementation of respective measures stated in the plans furthermore requires that capacities of local stakeholders with regard to forest management are enhanced. Meanwhile, respective governmental agencies and administrative bodies need to have a clear role about their mandate, to ensure that monitoring and supervision can take place effectively. Part IV therefore pursues the objective to provide an outlook over respective follow-up measures, which have to be transformed into guidelines once practical experiences are available. Moreover, suggestions are made concerning the administrative framework that has to be established in regard to monitoring and supervision of the CBFM process.

4.2 Silviculture guidelines

4.2.1. Introduction

In order to ensure that the elaborated management plans are implemented appropriately, silvicultural capacity building at the grassroots level has to be provided. Issues that have to be addressed comprise the determination of trees suitable for harvesting and tending operations, as well as the implementation of a suitable harvesting technique.

In the following, the choice of a silvicultural system suitable for the context of community forest management in Dak Lak is introduced and simple rules of thumb for field-implementation are provided. A method of directional felling is promoted, making use of simple tools such as saws, axes, and wooden wedges.

4.2.2. Choice of a suitable silvicultural system

In order to assure that the proposed silvicultural system can be realized effectively by the target groups, leading to sustainable management of the forest resource, the restrictions and management goals of the latter have to be adequately taken into consideration. In community forestry the primary concern of forest management consists in satisfying the demand of timber and non-timber forest products (NTFPs) for own consumption. This usually implies frequent harvests of relatively small quantities of timber and NTFPs, contrary to the larger economically feasible cutting volumes needed by forest enterprises to ensure their efficient management. Several interviews with local forest users indicated that their primary concern is to obtain suitable timber for the construction of houses as well as the production of pepper-poles. Firewood was said to be mainly cut from dead trees, as well as from harvesting debris. The silvicultural system which has been identified suitable in this context is termed single-tree selection and is briefly explained in the following, prior to the presentation of tree selection criteria.

In situations where local forest user groups demand a different set of products from their forests, alternative silvicultural systems are needed.

⁶ Important issues related to community forest management have been discussed in the 'National Workshop on Institutional and Regulatory Framework for Community Forest Management in Vietnam', organised by the National Working Group on Community Forest Management in Hanoi, 30th of November 2004. Respective topics comprised in particular standards for forest resource inventories, forest management planning, as well as respective organisational responsibilities and benefit sharing. It is expected that the proceedings of the national workshop will influence current policies related to community forestry. Proceedings are forthcoming.

4.2.3. Single tree selection

Under this selection system, scattered single trees or small groups of trees are selected over the whole forest area and removed. Such trees have reached larger size, suitable for construction timber. Where conditions are favourable, natural regeneration comes up in the gaps so created. The result is an uneven-aged or irregular type of forest in which all size-classes of trees are mixed together over every part of the area. Such perfect distribution is seldomly found, and trees of a particular size-class usually occur in small groups resulting from the coming up of regeneration in gaps.

In order to maintain the forest in a healthy and productive status, something more is required than the rather mechanical removal of exploitable trees:

- a) **Thinnings** among the various size-classes of trees might be necessary in order to ensure that the young saplings are freed from suppression and that defective stems of any size are removed wherever they are interfering with better ones. Such thinnings and liberations can be made along with the fellings of trees of exploitable size, the whole forming one operation. This is especially important, considering the limited time rural people are able to spend on forest management, as their primary concern is often the achievement of food security via agricultural production and livestock raising.
- b) **Felling** generally involves the removal of dead and dying trees; trees that are diseased, misshapen or otherwise defective or lacking in vigour, particularly if they are interfering with better stems or promising groups of young growth; and trees of exploitable size, particularly if defective or lacking in vigour.

The advantages of the single tree selection system, if carried out properly, are that a constant forest cover is maintained, reducing the exposure of the soil, thereby providing protection against erosion and leaching (which is of special importance during the rainy season). The system is very flexible so that best possible use is made of each part of the site. All seed years can be used for regeneration and seedlings are well protected. The disadvantages are that considerable silvicultural skill is needed in marking the trees to be felled, as it is one of the most intensive systems and that felling and extraction must be done with great care.

As local forest users are generally able to identify suitable trees for the manufacture of desired products, criteria for the selection of trees to be harvested has to ensure that the residual stand is kept in a vital growing condition, enabling the sustainable provision of timber, while at the same time guaranteeing that the protection functions of the ecosystem are not being impaired by the current management.

In the following, a catalogue of criteria is presented, comprising important issues that need to be considered in the process of identifying suitable trees for felling, as well as measures of timber stand improvement. Furthermore, two exercises are presented, enabling the forest user to gradually identify those issues. Since the learning process is of outmost importance in order to ensure that participants are able to apply the suggested measures independently, a handout for the facilitation of field-work has been elaborated (refer to **Annex 3**).

4.2.4. Selection criteria for harvesting and stand improvement operations

The initial task of harvesting is the selection of harvestable trees based on a set of selection criteria. This set is presented in the following table. As stated earlier, further silvicultural measures are necessary in order to maintain (or convert) our forest in a healthy growing condition. These measures are called timber stand improvement and are listed in **Table 14** (from number 7 onwards).

Table 15 Criteria for the selection of trees to be harvested and stand improvement measures

No.	Criteria	Description/Justification												
1	Trees harvested have to be within the limit set in the forest management plan	As a result of forest inventories, the number of trees per diameter-class are quantified and written down in the 5-year management plan. Respective numbers are furthermore broken down to get the annual number of trees to be harvested (annual management plan). The harvesting of trees in various diameter-classes does not have to exceed the numbers stated in the annual management plans. In case that no forest inventories have been carried out (i.e. in forest blocks which are regenerating) and merely trees are harvested for stand improvement, criteria 2 to 10 apply.												
2	Tree has to be outside the buffer zone of streams and rivers	Protection of riparian zones to ensure clean water supply, as well as for ecological reasons. <table border="1" data-bbox="826 831 1279 1169"> <thead> <tr> <th>Stream width between banks</th> <th>Stream buffer zone width</th> </tr> </thead> <tbody> <tr> <td>< 1 m</td> <td>no buffer zone</td> </tr> <tr> <td>1-10 m</td> <td>20 m</td> </tr> <tr> <td>11-20 m</td> <td>50 m</td> </tr> <tr> <td>21-40 m</td> <td>80 m</td> </tr> <tr> <td>> 40 m</td> <td>200 m</td> </tr> </tbody> </table>	Stream width between banks	Stream buffer zone width	< 1 m	no buffer zone	1-10 m	20 m	11-20 m	50 m	21-40 m	80 m	> 40 m	200 m
Stream width between banks	Stream buffer zone width													
< 1 m	no buffer zone													
1-10 m	20 m													
11-20 m	50 m													
21-40 m	80 m													
> 40 m	200 m													
3	Exclude steep slopes (> 21%)	Harvesting of large trees becomes dangerous, as the felled tree can easily become uncontrollable when sliding down the slope. The falling tree can harm smaller sized trees which grow further down the slope. Furthermore, areas of slopes larger than 21% are prone to erosion.												
4	Ensure that the post-harvest gap size (upper canopy) is not larger than the extent of two mature canopies.	To avoid negative impacts such as soil erosion or upcoming of competing ground vegetation (e.g. weeds, bamboo).												
5	Presence of replacement tree in the understorey	Identify a tree in the understorey that has potential to grow into the gap created by the harvest.												
6	Presence of mother tree within a range of 40 m	To ensure that gaps can be regenerated naturally.												
7	Harvest mixed species	Mainly for reasons of maintaining biodiversity. Do not harvest any species which are extremely rare.												
8	Cut diseased and poorly shaped trees.	Reducing the risk for diseases to spread in the forest stand and enhancing the quality of your future crop.												
9	Identify and mark potential crop trees.	The presence of understorey trees, able to grow into the opened canopy, is important to ensure a continuous canopy cover and supply of timber. Select trees of suitable species, which are of good vigour (check crown form) and quality (straight stem and no diseases).												

10	Liberate potential crop trees if appropriate.	<p>Concentrate the increment on the potential crop trees by liberating their crowns from competition by neighbouring trees (only if crowns are interfering).</p> <p>If trees of the understorey make crown-contact, cut the one whose crown reaches up furthest into the crown of your potential crop tree.</p> <p>If two trees of the same quality stand next to each other, cut the weaker one.</p>
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4.2.5. Timber harvesting

The actual harvesting of timber represents another crucial element of silvicultural capacity building at the grassroots level. The silviculture system proposed in the previous chapter is most suitable for forests where trees of all dimensions (from natural regeneration up to timber-sized trees) are growing together somewhat randomly. Based on the selection criteria listed in **Table 14**, single trees are selected for harvesting. The felling technique is insofar important as it has to be assured that the damage to the remaining trees is minimized. This can only be done if the logger is able to decide in which direction the tree is actually going to fall.

In the context of CFM, harvesting has to be achieved with locally available tools, which is the reason why in the following, only a saw, an axe and wooden wedges are used. The consecutive steps which lead to the safe felling of a tree are presented in **Table 15**.

Table 16 Steps of directional felling

Step	Task
0	Cut wooden climbers over 2 cm dbh at least six month prior to any harvesting activity.
1	<p>Determine a suitable felling direction. Therefore, take into account the surroundings, the natural lean and balance of the tree, as well as direction and power of the wind.</p> <p>a) Surroundings</p> <ul style="list-style-type: none"> ● do not fell the tree into an area where a lot of pole-sized trees are standing, but instead try felling it into more open areas to avoid damage to the residual stand ● avoid felling the tree across ditches, hollows or lying logs ● fell across contour lines to avoid that the tree is rolling downhill uncontrolled <p>b) Check the natural lean and balance of the tree</p> <ul style="list-style-type: none"> ● take a look at the crown and the stemform – is the tree leaning over to one side? ● use wooden wedges to prevent the saw from jamming if you fell against the natural lean (refer to step 4) <p>c) Take wind speed and direction into account</p> <ul style="list-style-type: none"> ● as this can strongly influence the direction in which the tree is going to fall
2	Ensure that the area is clear of people.

-
- 3 Trim buttress roots and coppice growth at the base of the stem to make a perfect cylinder. If the tree is rotten at the base of the stem, do not cut the buttresses, but cut the tree above!
-

4 Cut the tree:

- use a crosscut saw to make a cut of about 1/5 to 1/3 depth of the tree-diameter (this cut will be the base of the kerf)
- use an axe to cut out the kerf (approx. 45%)
- use the crosscut saw to make a cut on the other side of the tree (see picture Annex 5)
- use wedges if necessary to prevent the saw from jamming

STOP! – When the tree shows any signs of giving, clear the danger zone!

BEWARE! – The butt of the falling tree might kick back, so do not stand behind it!

4.3 Administrative Framework for CBFM

The concept of CBFM and respective methods and tools are principally new to involved staff from state agencies (e.g. FPU, ACO, CFMB). It is therefore crucial to set-up a practical system for the implementation of respective forest management plans, especially concerning the harvesting of timber. Besides technicalities (i.e. record books for harvested timber), responsibilities and mandates of respective agencies in the process of CBFM have to be identified.

Following the elaboration of 5-year forest management plans, respective measures contained within those plans are specified for the next year. Besides determination of the amount of timber to be harvested, so-called 'annual forest management plans' can contain measures of afforestation/forest rehabilitation if requested by forest owners. The annual forest management plans should then form the basis for the annual budgeting of planned forest management operations within the Village Development Plan (VDP).

The following steps are a proposal for the implementation of the forest resource utilisation, especially emphasising the link between village and commune administration (the link between village- and district-level):

- 1) Households make proposal to the VFMB for the amount of timber to be harvested
- 2) VFMB aggregates individual proposals by villagers and compares them with the annual management plan
- 3) VFMB determines which households are allowed to harvest timber
 - Set of criteria needed for prioritisation of households
 - Annual plan should contain contingency to compensate for unforeseen events
- 4) VFMB passes harvesting proposals on to the CFMB
- 5) CFMB compares amount contained within the harvesting proposal with the annual forest management plan of the village
- 6) Following the approval, CFMB signs the proposals and sends them back to the village
- 7) CFMB informs FPU about ongoing harvesting
- 8) FPU has the right to control/intervene the village level operations at any time of the process

- 9) Every tree hauled back to the village is measured by the VFMB
 - Refining the amount of timber needed for various products to enhance the effectiveness of future demand assessment.
 - Basis for tax calculation in case that timber is commercially sold in the future
 - Use of volume-tables to facilitate the determination of log-volumes
- 10) Information about harvested amount of villagers fed back to the CFMB
 - Harvesting log-book of VFMB as basis

A proposal for the implementation and monitoring of timber harvesting is presented in **Figure 6**. A proposal for the practical implementation of benefit sharing is still outstanding and has to be elaborated prior to commercial harvesting of timber by local stakeholders. The same holds true concerning the role of the commune in the process of CBFM.

Figure 6 Proposal for implementation of timber-harvesting procedure

