Sustainable Management of Natural Resources in Central Vietnam

SMNR-CV

MANUAL

COMMUNITY-BASED FOREST MANAGEMENT IN QUANG BINH PROVINCE

December 2007
(2nd revised version)

GFA Consulting Group

gtz

ded Deutscher Entwicklungsdienst Vietnam

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Björn Wode, Marianne Meijboom, Vu Van Manh and Nguyen Van Hop

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Preface

This adjusted second version of the manual on Community Based Forestry Management (CBFM) is developed by the project "Sustainable Management of Natural Resources in Central Vietnam" (SMNR-CV), which is supported by GTZ and implemented by GFA and DED. The manual builds on existing CBFM experience in Vietnam of other projects, including GTZ's former "Social Forestry Development Project", GTZ's current "Rural Development Project Dak Lak", the Project on "Forest Rehabilitation and Forest Management in Quang Nam, Quang Ngai, Binh Dinh and Phu Yen" supported by the Kreditanstalt für Wiederaufbau (KfW) and the "Extension and Training Support Project for Forestry and Agriculture in the uplands" implemented by Helvetas.

The manual is designed for the specific situation of Quang Binh province with forest land allocation expected to be completed on a provincial scale by mid of 2008, implemented by the project on "digital mapping and issuance of forestry land use right certificates" following Decision 672/QĐ-TTg. Under the project, natural forests and barren land for allocation are allocated to individual households for protection and sustainable development.

Despite options for forest land allocation to group of households or entire communities being stipulated by national laws the majority of land titles in Quang Binh province is expected to be issued to individual households only.

Consequently, the term Community-based Forest Management as used in this manual has to be understood as a form of management in which individual forest owners are forming groups for joint forest management. However, the individual land titles and possibly benefit sharing still remains at the individual household level.

We hope that this manual can contribute to the development of practicable and relevant follow-up procedures after forest land allocation to ensure a sustainable and economic viable development and utilisation of natural forest resources in Quang Binh province.

This document is considered a "living document" to be continuously adjusted and complemented by lessons learnt during field implementation. Comments from relevant institutions, and colleagues working on different aspect of CBFM are highly appreciated to contribute to the development of CBFM planning procedures for Quang Binh province and Vietnam in general.

Please send your comments and contributions to the following address:

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Abbreviations

CBFM	Community-based Forest Management
CFMB	Commune Forest Management Board
CPC	Commune Peoples' Committee
DARD	Department of Agriculture and Rural Development (at provincial level)
DBH	Diameter at Breast Height (1.3 m)
DED	German Development Service
DPC	District Peoples' Committee
FIPI-QB	Forest Inventory and Planning Center in Quang Binh Province
FLA	Forest Land Allocation
FPD	Forest Protection Sub-Department (at provincial level)
FPDR	Forest Protection and Development Regulations
FPU	Forest Protection Unit (at district level)
GIS	Geographic Information System
GPS	Global Positioning System
GTZ	German Technical Cooperation
Hh	Households
KfW	Kreditanstalt für Wiederaufbau
NTFP	Non Timber Forest Product
NREO	Natural Resources and Environment Office (district level)
PLUP	Participatory Land Use Planning
VFMB	Village Forest Management Board
SMNR-CV	Sustainable Management of Natural Resources in Central Vietnam

Introduction

This manual builds on the material developed by the former "Social Forestry Development Project" Song Da, the project on "Rural Development Dak Lak" (both supported by GTZ), the Project on "Forest Rehabilitation and Forest Management in Quang Nam, Quang Ngai, Binh Dinh and Phu Yen" supported by KfW, and the project "Extension and Training Support Project for Forestry and Agriculture in the uplands", supported by Helvetas.

In recognition of the kind provision to utilise these valuable experiences the author would like to express his sincerely thanks to the respective persons who contributed to these results.

The manual at hand reflects the specific situation in Quang Binh province and provides i) an introduction to the concept of Community-based Forest Management, and ii) technical as well as administrative procedures for facilitating CBFM planning procedures together with the local population.

It is important to recognise that planning procedures as described in this manual are only part of a participatory planning process starting with Forest Land Allocation[1] and the development of Forest Protection and Development Regulations[2]. This manual therefore builds on the outcomes of previous planning procedures to be completed before CBFM can be initiated. The user therefore needs to assess the planning status of the respective village before implementing any CBFM related activities as detailed in this document.

Before any forest management can be initiated, information about the total forest area, ownership, function and spatial distribution of forest types have to be identified and legally recognised. This process is facilitated through participatory forest land use planning and land allocation with the issuance of land use certificates (Red Books) to ensure the long-term security to invest labour and finance into forest management and protection.

In 2004, the legal basis for allocation of forests to group of households and to entire communities has been provided by the new Forest Law (29/2004/QH11).

Following the results of LUPLA, increased rights and obligations are transferred to local communities to protect and sustainably manage forests within their village boundaries. Consequently, a legal framework has to be developed to regulate and enforce the newly gained ownership rights over the allocated forest resources. In this process, the community members develop site specific village Forest Protection and Development Regulations (FPDRs) which can be enforced by themselves and are socially accepted.

CBFM is relatively new to Vietnam and especially Quang Binh province. Therefore, CBFM should be carefully piloted and monitored in order to assess its potential to strengthen forest management, including forest development and forest protection, while at the same time increasing people's (legal) benefits from the forest resources they manage.

This manual is written as a tool for those who will work with villagers in developing, elaborating and implementing their CBFM plans. This can be project staff, extension workers or staff from supporting agencies of the district and/or commune level who act as facilitators and support local villagers in CBFM.

The manual consists of two parts. The first part provides an overview of the steps for CBFM. The second part offers practical guidance and exercises for the participatory implementation of the forest resource assessment and the elaboration of the 5-year CBFM plan.

Furthermore, formats required during CBFM (including forms for the establishment of the village and commune forest management boards, an example of a CBFM plan, application forms and proposals, and record books) are provided in the respective appendices.

[1] See the project manual on Participatory Land Use Planning and Forest Land Allocation for further details
[2] See the project manual on Forest Protection and Development Regulations for further details

Context of Community-based Forest Management in Quang Binh

The term ***community forestry*** normally refers to a form of forest management in which entire communities are handed over (allocated) long-term user rights over State forest resources and are protecting, sustainably managing and utilizing forest resources for their environmental benefits and as contribution to their livelihood development.

In the context of Quang Binh province however, forest land has been almost entirely allocated to individual households resulting in rather small forest plots under one land use certificate per household (some below 0.5 ha in size). Forest allocation to entire communities has not yet taken place despite of this option being stipulated in the Law on Forest Protection and Development and Circular 38/2007/TT-BTT, dated 25th April 2007.

In view of FLA allocation procedures such small forest plots are ensuring a high level of equity of sharing forest resources among community members. However, management, protection and monitoring of such fragmented forest patches is extremely difficult to handle for individual forest owners and the local administration alike.

Under these circumstances, the formation of forest user groups with joint planning, reporting and approval procedures are proposed as a practicable management concept and is described in the manual at hand.

This concept of individual ownership but joint management and protection is in the following referred to as ***Community-based Forest Management*** (CBFM) to be distinguished from the conventional concept of Community forestry as defined above.

Justification for Community-based Forestry Management

In the past, the state was the main body responsible for the development, conservation and management of the national forest resources. It was thought that proper forest management can best be assured by the state because 1) forest management is complicated and forests fulfill many functions in terms of production of essential raw materials and environmental services, 2) forests are not only of importance in the locality but can also exert their environmental services to the region (e.g. watershed protection) and because 3) the production cycle in forestry can take up to several decades.

In other words, local people were considered to lack the capacity and technical skills to manage forests properly, and of being unaware of the regional importance of forests. This train of thought led to the assumption that effective forest management could only be achieved by excluding local people from the resource.

However, it is gradually recognized that people living in remote areas require access to forest products to meet their basic daily needs and are able to manage forests sustainably. Small timber (for e.g. house construction), fuel wood, medicinal plants, forest fruits and vegetables etc. are all essential for the survival of people living in marginalized forested areas. Furthermore, it is also acknowledged that even state forest enterprises face difficulties and lack the resources for good forest management.

Therefore, forest land classified as production forest is increasingly allocated to individual households, groups of households and villages for their direct management with the aim to improve both the forest management and livelihoods of those who need the forest resources for their livelihood. Forests classified as “Special Use forest” or “Protection Forest” will remain under the management of the state in order to safeguard the maintenance of the environmental services of these areas.

Basic principles

This manual is based on the following basic principles:

1. CBFM can only be sustainable if procedures are in line with the current legal policy frame
2. **Participatory** - an independent follow-up of planning procedures can only be expected if the people concerned have been fully involved in all decision-making processes and fully understand the planning results. If people do not develop a self-interest in forest management and a sense of ownership in the decision-making process, implementation will be half-hearted, probably misunderstood and will more likely fail.
3. **Simple** – to allow everybody to understand what is happening and to be able to do it
4. **Cost-effective** – to ensure that local available resources are sufficient to implement CBFM procedures
5. **Relevant –** to ensure that CBFM planning produces only information which is really needed for forest management
6. Strengthen the sustainable management of forest resources while mitigating potential negative impacts
7. Reflect local peoples' needs to access and use forest resources (and not merely focus on forbidding the extraction of forest products)

Role of facilitator

Depending on the local situation, there are different organizations that can take the initiative and facilitate CBFM in the field. Organizations at the district level such as the Office of Natural Resources and Environment (NREO), the Forest Protection Unit (FPU) and the Economic Division can provide support and facilitate villages in the development and implementation of CBFM plans in cooperation with staff at the commune level and with overall backstopping support from the provincial level. It is of major importance that CBFM plans are developed according to the interests of the user-group/village and are based on the available forest resources. Long-term objectives of CBFM, such as improved forest management and livelihood improvement can only be realized if CBFM is carried out according to the interests of the villagers and is based on the actual forest status. The people who support CBFM in the field should therefore ensure the participation of all user-groups in the development of CBFM plans and guarantee the compliance with technical and legal procedures during field implementation.

Part I: Methodology for CBFM

The major CBFM planning procedures towards a legal approval of a 5-year forest management plan, plan implementation and benefit sharing arrangements are illustrated in the flowchart below.

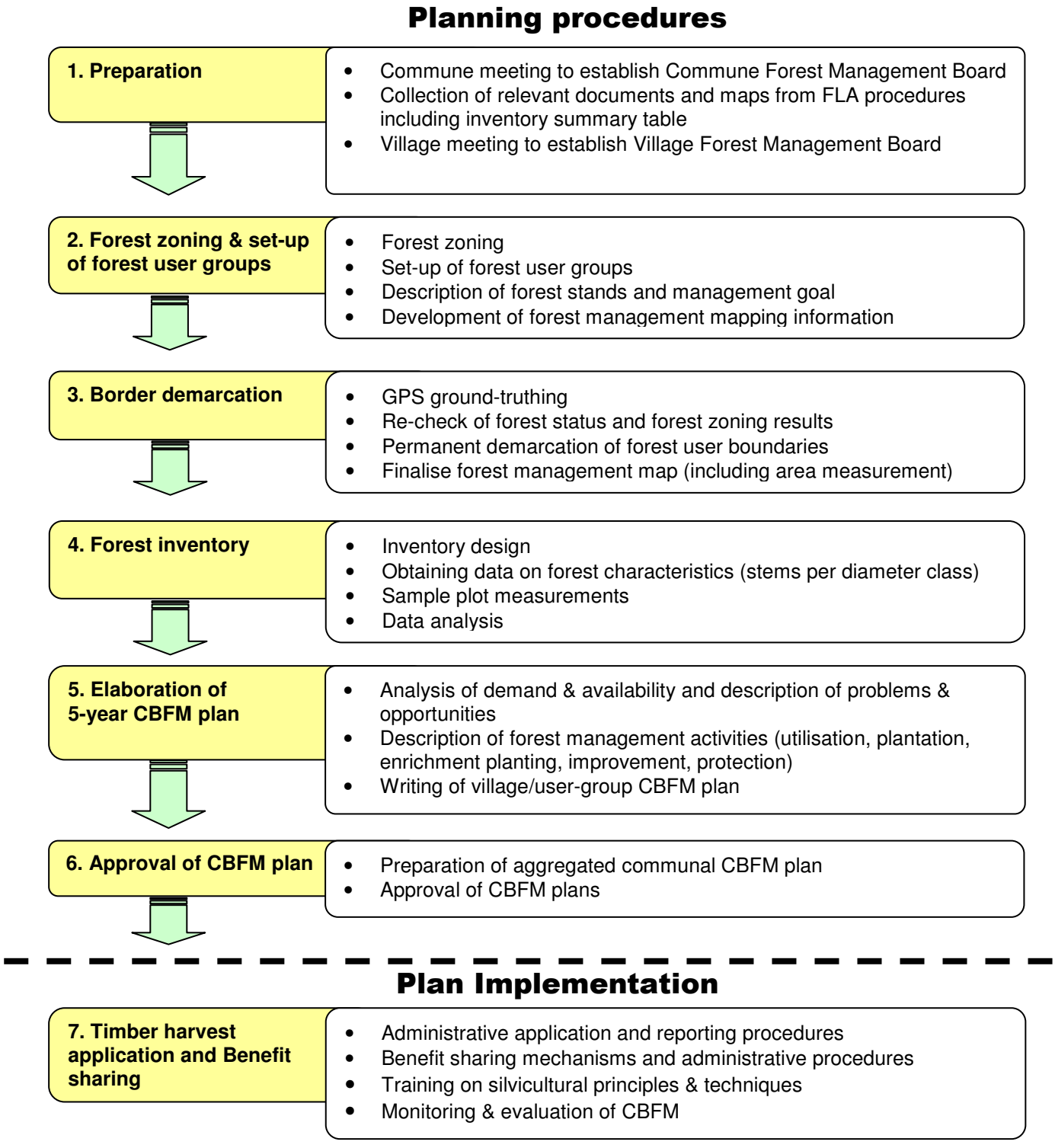

Figure 1: Steps and activities of CBFM

1.1 PREPARATION

Activities:

1. *Commune meeting and set-up of Commune Forest Management Board (CFMB)*
2. *Collection and analysis of relevant documents and maps*
3. *Village meeting and set-up of Village Forest Management Board (VFMB)*
4. *Training of commune staff, village leaders and key villagers*

Before CBFM can take place in the field a number of preparatory steps need to be conducted in order to have the organisational structures and required information in place for a cost- and time effective implementation.

The required activities are briefly described in this chapter.

In part II practical exercises are provided for main implementation steps in CBFM up to the development of 5-year forest management plans. For each exercise the needed materials, required time and detailed steps are listed. It is recommended to carefully study all exercises beforehand and prepare the needed materials before commencing with the implementation.

1.1.1 Commune meeting and set-up of CFMB

Commune meeting participants to establish the CFMB include representatives of the CPC, the commune cadastral and forestry staff, FPU and leaders of all concerned villages.

Meeting objectives:

1) Agreement on CBFM procedures (steps and activities)
2) Agreement on organisational arrangements for development of CBFM schemes in the commune
3) Establishment of Commune Forest Management Board
4) Assignment of staff to collect relevant documents and maps
5) Agreement on suitable areas/villages for CBFM
6) Information of communal staff and village leaders on establishment of CBFM schemes
7) Preparation of commune working plan

Agreement on CBFM procedures

Prior to the implementation all involved stakeholders have to reach an agreement to strictly follow the CBFM procedures as described in the manual. It has to be emphasised that the **process** (the way on how things have been done) is of equal importance as the **outcome** (what has been developed).

Agreement on organisational arrangements for CBFM

CBFM is comprising a number of planning, reporting and monitoring procedures at different administrative levels (grass roots up to district or even province).

Consequently, clear responsibilities for functional organisations have to be in place to support communication and effective cooperation at different levels to support local forest user groups during administrative and technical procedures.

Communal forestry staff and *FPU* are responsible to provide technical support and to monitor the development of CBFM plans and its implementation;

Village leader and *head of the group* are responsible the development of the CBFM plans, its implementation including the organization of meetings and to inform the communal staff and FPU.

Furthermore the head of the user-group and the village leader should ensure that the CBFM plans are submitted to the commune authorities and that permission is obtained for selective timber cutting once the plans have been approved by the district authorities.

In order to ensure an effective cooperation between all stakeholders the establishment of Commune and Village Forest Management Boards is essential.

Establishment of Commune Forest Management Board

The Commune People Committee forms the lowest recognised administrative unit in Vietnam and is the direct communication link for grass root level to higher authorities. Consequently, a steering organisation comprising relevant commune authorities has to be established to guide CBFM implementation in the field. The CFMB has to be established by legal decision of the DPC (see Appendix 1 for a format for a legal decision on the establishment of CFMBs).

Main tasks and responsibilities in the context of CBFM comprise:

- backstopping support in the elaboration of the 5-year CBFM plans
- monitor and evaluate the implementation of CBFM in the villages
- assess, review and approve the submitted proposals for timber harvest for self-consumption and commercial sale
- assess, review and submit 5-year CBFM plans to the district authorities
- ensure that CBFM activities are carried out according to Vietnamese law (including payment of natural resource tax in case of commercial timber extraction)

Proposed members comprise:

- Vice-chairman Commune Peoples' Committee
- Cadastral staff
- Local Forest Ranger
- Commune Forestry staff

Collection of relevant documents and maps

To assist each village in elaborating their CBFM schemes, and making the village meetings effective and successful a number of documents and maps need to be collected by the assigned CFMB member beforehand.

The following documents and maps should be collected if available:

- Cadastral documents related to forest land allocation, including lists of individual households and groups of households that received forest land with the respective areas and forest status and the forest land allocation map
- Forest vegetation result map based on the provincial re-classification of three types of forest from 2006
- Relevant forest policies such as Decision 178/2001/QD-TTg on the benefits and obligations of households with allocated forest land, the forest protection and development law (25/2004/L-CTN), Decision 40/2005/QD-BNN
- "Forest Protection and Development Regulations" as formerly developed and approved by the DPC of all villages where CBFM will be executed.

- Any sketch maps developed during the elaboration of Forest Protection and Development Regulations

Agreement on suitable areas/villages for CBFM

The success of CBFM schemes depend on a number of criteria to be considered during the selection process such as:

- Availability of forest resources from which people can obtain immediate benefits in form of forest products for self-consumption or sale;
- Dependence of local population on forest resources and awareness for the need for sustainable forest management
- Social cohesion (for example in certain ethnic minority villages) among the community or user group

Community based forest management cannot be imposed upon forest users but has to be requested by the people. Therefore, forest users have to be properly introduced to be main ideas and objectives of CBFM before they can make an informed decision.

To facilitate this process a commune meeting in the respective commune has to be organized in which the objectives, specific tasks and benefits of a CBFM model are introduced to representatives of the commune and the involved villages.

Especially long-term benefits and rights, which may be out of the planning horizon of stakeholders, have to be revealed in details. Based on this meeting the village representatives then pass the information on to their villages and support them during the decision-making process. Prepared leaflets can help as reminder, provide guidance and ensure that no information will be left out during the dissemination in the village meetings.

If communities express their interest in applying for CBFM they are requested to inform their commune authority.

Preparation of commune workplan

After the selection of villages has been completed, a general implementation schedule has to be drafted with clear responsibilities, locations, and required budget for stationary and organisation of meetings. The CFMB is the responsible organisation to facilitate this process.

For the field work on CBFM it is useful to prepare village maps based on the communal/village FLA map. The village map should show the plots allocated to the households/groups of households, the areas and the location of the forest blocks and compartments. This village map will be used as a reference for the development of CBFM plans and will be used to select the sites for the participatory forest inventory.

1.1.2 Collection and analysis of available information

After the assigned staff from the CFMB has completed data collection a preliminary data analysis is conducted in form of aggregating all information per village into the table form as provided below:

Table 1: Overview of the allocated forest land per user group

Village: Commune:

Forest user (hh, user group, village)	**Local name of area**	**Unit**	**Compartment**	**Plot**	**Area (ha)**	**Forest status**

1.1.3 Village meeting and establishment of Village Forest Management Board (VFMB)

Following the outcome of the previous planning steps villages where CBFM will be implemented have been identified. Before starting the CBFM process in a village, a village meeting needs to be organised in which all organisations, unions, all heads of the allocated individual households and heads of user-groups are present. The facilitator (member of the CFMB) moderates the meeting supported by the respective village head.

Meeting objectives:

1) introduce CBFM to the village
2) discuss the organizational arrangements for CBFM implementation and establishment of the VFMB
3) develop a workplan for CBFM plan elaboration in the village

Introduction of CBFM to the village

The facilitator provides a brief introduction of CBFM to the meeting participants and explains main steps and activities involved. Especial attention has to be paid to properly introduce benefits and obligations (as stated in the respective village FPDRs; Decision 178/2001/QD-TTg) of community members in CBFM.

Organizational arrangements for CBFM and establishment of the VFMB

The village is the key unit for CBFM in terms of protection, planning, reporting, and utilisation of forest resources which requires a functional organisation to guide and coordinate the individual activities of individual households or user groups.

The Village Forest Management Board forms the contact point for any higher administration to obtain information on the real implementation in the field.

The VFMB has to be established by legal decision of the CPC (see Appendix 1 for a format for a legal decision on the establishment of VFMBs).

Main tasks and responsibilities in the context of CBFM comprise:

- Assistance to user-groups in the preparation of CBFM plans and timber harvesting applications
- Submission of 5-year CBFM plans to the CFMB
- Monitoring and evaluation of CBFM in the villages in cooperation with the CFMB
- Collection, aggregation and submission of proposals for selective timber cutting for both domestic use and commercial purposes to the CFMB
- Maintenance of a logbook on implementation of CBFM activities

Proposed members comprise:

- Village head
- Women Union representative
- 2-3 key villagers

The key villagers should be selected based on the following criteria:

- Good understanding of forest resources and forest management
- Respected by other villagers
- Motivated and interested in CBFM

Workplan for CBFM plan elaboration in the village

Prior to the implementation a rough workplan and time schedule needs to be developed and agreed upon by the community. A suitable period during the year should be selected avoiding high seasons of agricultural harvest or any village festivities especially of ethnic minorities.

1.1.4 Training to members of the CFMB and VFMBs

Facilitating villagers through the entire procedures towards the elaboration of forest management plans requires substantial technical and communication skills.
These skills cannot be expected from district or commune staff but requires some technical training input before implementation can be facilitated.

Training should cover the following contents:

- Basic principles of CBFM and its practical implications
- Steps, activities and procedures in CBFM
- Policies and decrees related to CBFM (Forest Protection and Development Law (25/2004/L-CTN), the Decision on rights and benefits for households with allocated land (178/2001/QD-TTg) and the decision on harvesting forest products (40/2005/QD-BNN).
- Participatory tools for CBFM plan elaboration

1.2 FOREST ZONING AND ESTABLISHMENT OF USER GROUPS

Activities:

1. *Forest Zoning*
2. *Forest block description and reassessment of forest status*
3. *Set-up of forest user groups*
4. *Forest user group boundary demarcation*

After organisational and planning procedures for the implementation have been established, the real field implementation of CBFM in a respective village can be initiated.

Zoning

The first and most important step is to identify areas of different kinds of forests and the respective type of ownership for each area. This will form the basis for the development of user groups, plan elaboration and benefit sharing arrangements after timber harvest.

Forest Zoning refers to the identification of forest areas with similar **forest status** and **forest type** which will be treated as independent management unit for which a separate forest inventory has to be conducted and a separate forest management plan to be developed.

Forest management blocks can be part of the entire forest allocated to a village, the area managed by one user group or an area comprising several individual land use certificates.

The number of forest management blocks will define the number of inventories and management plans to be developed later.

A forest management block does not need to consist of one continuous forest patch only but can comprise several smaller patches with scattered location in the village area.

Forest management block definition:

A unit or subdivision of a forest type. It is an aggregation of trees occupying a specific area and sufficiently uniform in composition of species, age, size, and stocking, such that the same management recommendations would be appropriate for the entire area.

It has to be noted that the term forest management block as used in this manual does not refer to the division of forest areas according to Decision 8/2001/QD-TTG but to an area of forest in which forest users will apply similar forest management under one management plan.

Description of the forest management block

The identification of forest management blocks as conducted in the previous step requires a field verification regarding the forest status and type following a standardised forest block description form. The process is supported by the local forest ranger and the VFMB.

The description form is further intended to analyse potentials and problems for the specific forest blocks which have to be considered during the plan development.

Field verification is required as available mapping information regarding forest status and type are often not detailed enough and/or outdated.

In case the field verification requires changes to the results of the previous step, adjustments on the mapping information have to be done accordingly.

Set-up of forest user groups

In case village forest resources are issued to the entire community during the forest land allocation process (one red book per village) no user groups have to be defined for a specific forest block.

However, in case of individual red book certificate holders a discussion has to be facilitated in which the advantages and disadvantages of forest user group management will be introduced to villagers.

After villagers have understood the concept of joint management of forest management blocks, the formation of user groups (e.g., based on personal preference) is supported by the facilitators (CFMB and VFMB members).

It is recommended that forest owners with forest plots adjacent to each other form a group to manage the forest land together. Especially land that is located relatively far away from the residential area and which is thus difficult to manage on an individual basis should be merged into a larger user group for effective protection and management.

The process has to be facilitated during a village meeting with participation of all households who have been allocated forest land. During this meeting the formation of groups will be discussed and agreements need to be made about the organisation of the groups and a head of group to be elected.

Box: Formation of user-groups

In many areas in Quang Binh province, long narrow strips of forest land have been allocated to individual households. Although this ensures the equal distribution of forest land among villagers, it hampers practical forest management because the plot boundaries are unclear or difficult to maintain. Therefore, it is recommended to form user-groups. Households with allocated forest land adjacent to each other should form groups for the management of their forest land and share duties such as protection and benefits. Each group should appoint a head, who is the contact person and responsible for the elaboration and implementation of a CBFM plan in participation with the group members. The group members should discuss among themselves the arrangements of sharing duties and benefits. Protection duties can for example be shared through rotational patrolling. For benefit sharing the members can for example discuss who has the first priority to extract timber if forest resources are limited.

Forest user group boundary demarcation

Forest resources can only be managed, protected and monitored if clear boundaries, visible for in- and outsiders, are marked in the field.

Only the outer boundary of the respective forest management block needs to be demarcated in the field as the same management, protection and utilisation will be applied by the user group and monitoring and evaluation will also be conducted at the level of the user group.

In case the user group has defined specific regulations for individual benefit sharing based on the individual red books the members should themselves find suitable ways to further demarcate the individual household boundaries inside the forest management block.

Marking of outer boundaries is conducted by use of GPS hand receivers based on the mapping information from the Forest Land Allocation.

In order to apply GPS receivers existing mapping information has to be converted into UTM system before waypoints can be copied from the map into the GPS receiver.

In case all boundaries are following clearly visible landmarks like rivers or roads no GPS ground-truthing is required and boundaries can be directly demarcated in the field.

1.3 PARTICIPATORY FOREST INVENTORY

Activities:

1. Sample plot measurements
2. Data analysis and definition of sustainable harvest level

Reliable data about existing forest resources is crucial to ensure sustainable forest management and the only technical way to obtain such data is to conduct a precise forest inventory.

In case a comprehensive forest inventory has been conducted during the process of forest land allocation as stipulated in Circular 38/2007/TT-BTT, sufficient planning data is already available to elaborate the first 5-year forest management plan after FLA.

In the case of Quang Binh however, such inventories have not taken place and consequently an independent forest inventory for the purpose of natural forest management needs to be conducted for each forest management block falling under the forest status IIa and above (forest with standing volume).

Forest areas of Ic or below, classified as bare land do not require any forest inventory as no standing volume has developed yet.

Sample plot measurements

Inventory design is strictly following the technical description as defined in Annex 7 of Circular 38/2007/TT-BTT and based on Decision 684 BNN. Field implementation is supported by local forest rangers in cooperation with the respective forest users.

Data collection is conducted in rectangular sample plots of 500m² (20x25m) delineated in the field by use of nylon ropes. In mountainous areas slope corrections are further conducted to calculate the required length of the sample plot on the slope (see Part II of this manual for further details).

Sample plots are randomly distributed on a systematic grid net laid over the survey area with a sample intensity of around 1-1.5% depending on the forest status.

Inside the sample plot all trees from 8cm DBH and above are assessed by tree name, diameter class and timber potential. It is important that the measurements are carried out accurately and carefully, because the sample plot outcomes will determine the quantities that can be extracted from the forests without having negative impacts on the resource base.

Diameter classes are measured by use of a modified measure tape with colour bands indicating various diameter classes.

As no volume figures of forest stands are obtained for CBFM, also no height measurements are required in the field.

Data collection is carried out by a measure team of one technical staff (recorder) and two villagers (measurers). Full participation of villagers is considered crucial to ensure that forest users will understand the outcome of the inventory, create a sense of ownership over the inventory outcome and are willing to comply with the results during implementation. Furthermore, it will result in a significant reduction of the workload for the administration (e.g. Forest Protection staff).

Data analysis and definition of sustainable harvest amount

Timber harvesting is the most important silvicultural intervention in forest management and has to be based on clear and practicable benchmarks which can easily be assessed, monitored and enforced by local forest users and the administration.

In community forestry, simple but reliable indicators for sustainable utilisation levels are needed which can a) satisfy the varied demand of the local forest user and at the same time b) ensure sustainability of the forest resource.

In conventional forestry, the volume in cubic meter of solid timber is used as unit for planning, implementation and controlling. Harvest levels are defined in volume per hectare or as percentage of the total standing volume.

In contrast to conventional inventories in which harvesting levels are defined by volume of solid timber, the CBFM concept only applies number of trees per each diameter class (no volume estimates!) as practicable criteria for planning, implementation and controlling within the capacity of farmers and supportive commune and district staff.

Providing quantifiable options for timber utilization throughout all diameter classes is crucial to reflect the divers demand of forest users which would not be possible by use of a conventional method, e.g. minimum harvest diameter concept.

Stem number per diameter is a very transparent and accountable unit which can be easily measured by local people and field staff and allows a very precise description of planned silvicultural interventions which cannot be achieved by use of general volume figures only.

Inventory results are visualised in form of histograms and harvest amounts are quantified by comparing actual stem numbers as obtained during the forest inventory with stem numbers defined in a so-called sustainable forest model (SFM). The SFM is representing the structure of a well-developed, productive forest under sustainable management.

In case the stem number of trees (as measured during forest inventory) for a given DBH class exceeds the respective number as defined in the SFM, the surplus trees are allowed to be utilised.

Any timber extraction is therefore aiming at **improving the current forest structure** towards the desired SFM structure in an iterative process of repeated thinning cycles. All silvicultural interventions will consequently lead to an improved stand structure after utilization instead of a degradation of forest resources as often seen under large concession management.

A SFM provides an effective monitoring tool within the capacities of both local field staff and local communities which helps to improve transparency, accountability and improving villagers confidence in dealing with government agencies e.g. for timber harvest application.

Aggregated inventory results form the basis for the forest management plan development, estimation of sustainable harvesting levels as well as information for future marketing and trade.

The SFM as presented below has to be understood as preliminary model only, to be constantly adjusted when further research data has been made available.

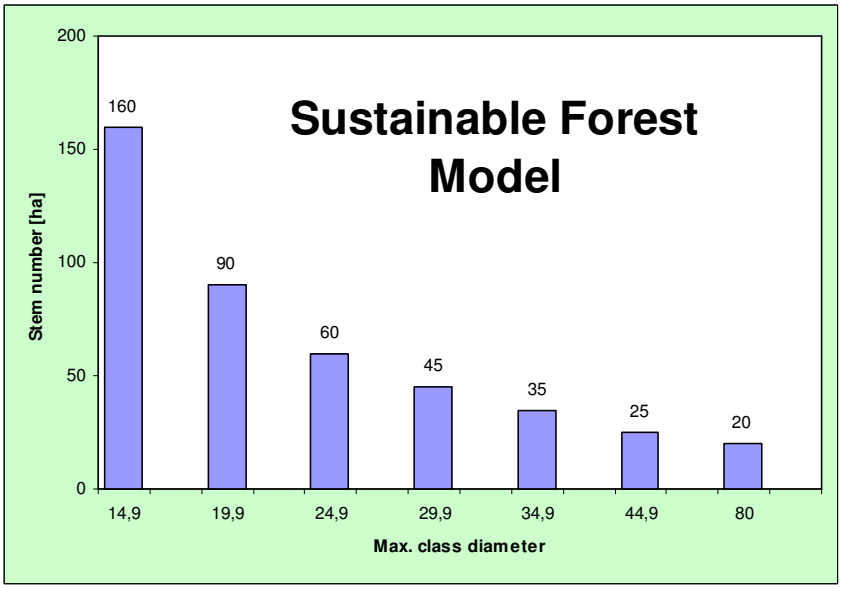

Figure 2: Preliminary Sustainable Forest Model of natural forests in Quang Binh province

1.4 ELABORATION OF 5-YEAR CBFM PLAN

Activities:

1. Identification of forest management goal
2. Identification of five-year harvest amount
3. Description of forest management activities
4. Writing of the village/ user-group CBFM plan

Based on the data obtained during the inventory forest management plans are developed for each forest management unit supported by the local forest rangers and the VFMB.

VFMPs are elaborated for a period of five years to provide the medium-term stability that is needed to guide consistent implementation of sustainable forest management activities as prescribed in the plan.

Activities in the CBFM plan elaboration include the identification of objectives for forest management, the description of the major activities related to selective cutting, plantation &

enrichment planting, stand improvement techniques and protection, and finally the writing of the CBFM plan. Part II provides practical guidelines for the development of participatory CBFM plans.

After 5 years the planning cycle starts again with a new participatory forest resource assessment as stipulated in the new Law on Forest Protection and Development.

VFMPs provide clear benefits for villagers as well as supporting staff. On the one hand, administrative procedures e.g. application for timber harvesting can be approved on the basis of reliable quantitative information about the condition of forest resources and monitoring can be based on the fulfilment of the annual work plan as prepared by the community. On the other hand, villagers will gain more confidence in dealing with government agencies when applying for harvest operations due to transparent and accountable planning data developed by themselves.

Two distinct formats for natural forest and plantations are provided in Appendix 2 as planning and reporting procedures for plantations and natural forests have to be done separately.

Plantation forest requires no detailed inventory for planning and harvesting operations instead requires only brief information about the species age and stocking.

The below mentioned description is therefore focusing on the development of forest management plans for natural forests.

Identification of forest management goal

As the potential of natural forest stands differ in terms of species distribution, productivity and functions, the management system has to be tailored based on the existing resource.

Consequently, a clear vision of the future forest structure has to be defined and a consistent management applied during the entire production period.

A management goal is described for example as “natural mixed broadleaf forest with dominant *Chukrasia tabularis* for production of high-value construction timber of above 30 cm DBH”.

The management goal for each zone can differ and not all the plots/zones need to be transformed into high value mature forests. A management goal could for example also include a woodlot for the extraction of fuel wood, e.g. “Castanopsis forest for acorn and firewood production”..

A management goal is mainly defined by asking: “what products you want to produce in your forest and how should your forest look like in 20-30 years to provide these products?”

The differences between the present forest status and the desired future forest structure will then define the management regime to be applied.

Table 2: Examples for potential management goals and related activities based on the actual forest status

Actual forest status	Management goal	Activities
> IIA- poor, medium and rich forest	Medium and rich forest (> IIIA2) for timber harvesting, fuel wood & NTFP collection and biodiversity conservation.	▪ Selective cutting (based on DBH class distribution figures) ▪ Protection ▪ Stand improvement (especially in forests of < IIIA1)
IIA-III A1 Poor forest	Poor forest (IIB/IIIA1) for fuel wood & NTFP collection and selective cutting of small timber	▪ Stand improvement (including thinning + pruning for fuelwood collection & some removal of undesired species) ▪ Protection ▪ Enrichment planting with NTFPs and timber trees

Facilitating this planning through a participating approach helps local people to understand how and why management decisions are made and ensures that their demand and expectations are incorporated in the results. It is assumed that forest user groups who have the opportunity to express their needs and incorporate their local knowledge into the process have an increased sense of ownership and are willing to take over management responsibilities in the long run.

It is recommended to have no interventions other than protection for the sake of biodiversity conservation in limestone forests because limestone forests are very susceptible to exploitation and regenerate very slowly.

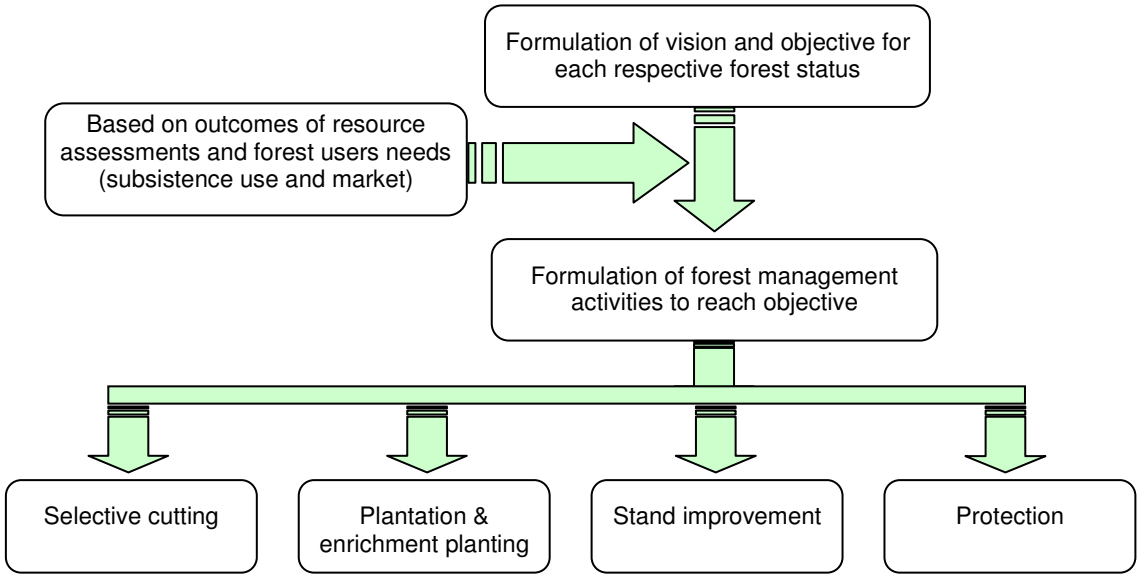

Figure 3: Overview for the formulation of forest management objectives

Identification of five-year harvest amount

Following the data analysis of the forest inventory the total harvestable timber amount has been defined per diameter class. This amount has to be understood as maximum possible amount. However, the forest users do not need to exploit this total amount but have to identify their demand and define the amount of timber they want to extract in the next five years.

In case of insufficient forest product supply the existing problems and opportunities for forest management should be further described. For each problem there should be an activity identified to overcome the problem while for each opportunity an activity can be identified to make use of the surplus of forest products.

The harvest amount has to be defined in terms of stem number per diameter class only.

It has to be noted that in Quang Binh province official procedures for commercial timber harvest from natural forests by local people are not yet in place. At present, only ethnic minorities are allowed to extract timber from natural forests for house construction according to Decision 134/2004/QD-TTg.

However, the national policy frame clearly stipulates these rights and several pilot implementations in other provinces have been successfully tested as well.

During the planning of the timber harvest, it has to be noted that valuable and rare timber species as mentioned in Decree 48/2002/ND-CP are not allowed to be harvested.

Description of forest management activities

The most important part of the CBFM plan is the activity plan. The activities can in general be categorized into four major groups including:

Utilisation: selective cutting, the removal of mature, timber-sized trees by feeling and extracting their stems

Improvement: thinning which means the removal of a selected number of trees or competing vegetation (climber, shrubs) in densely stocked forests to create sufficient space for potential crop trees to grow into large diameter. Enrichment planting is a further means to improve the forest quality in areas with insufficient number of trees or lack of suitable tree species to reach the management goal.

Protection: all activities to protect the forest from natural (fire, diseases, grazing) and man made hazards (illegal logging, land conversion).

Each management activities should be defined as detailed as possible in the plan by asking open questions such as:

- How it will be done? (description)
- How much of the activity? (quantity e.g. How much to be harvested in number of trees per diameter class.)
- Who will do it? (responsibility)
- When will it be done? (year, season)
- What species to be planted …?

Timber utilization has to be understood as selective cutting of trees only. No clear felling is allowed under any circumstances in natural forest.

Timber harvest is further detailed in silvicultural guidelines and has to be strictly enforced to minimize negative impacts on the remaining forest during the harvest. A list of criteria have to be checked for each individual tree to be extracted before a final decision can be made on whether to cut or protect the tree.

Stand improvement includes activities such as thinning, pruning and removal of non-valuable plants to promote the growth of valuable plants/trees.

The purpose of thinning is to enhance the growth and quality of trees through the removal of undesirable trees (e.g. crooked, diseased, non-commercial species) which compete with valuable trees, as well as the removal of some of the valuable trees if there are too many of them. The maximum number of trees that can be cut is derived from the DBH class distribution figure in comparison with the figure of the ideal forest structure. Thinning is thus also a form of selective cutting.

Pruning is the removal of branches that hinder the development of a good tree form, as well as to reduce fire hazards. For species with strong coppicing potential and many coppices developing from one stump only the strongest should be kept and given the chance to further develop to a mature tree in case timber is desired. For fuel wood production a number of coppices can be left for further growth.

The removal of shrubs, vines, lianas and other un-desired species is carried out to reduce competition for space, light, water and nutrients and allow valuable species to reach maturity. Weeding will help to establish tree seedlings and increase the survival rate.

Enrichment planting is normally carried out in poor forest or areas that are poor in regeneration. The aims of enrichment planting are to accelerate forest regeneration and to increase the

productivity of the forest in order to meet the demand for forest products. Enrichment with NTFPs, such as rattan, can furthermore increase the short-term benefits of a poor forest stand.

The selection of species depends on the aim of the plantation. Most local people are interested in fast growing tree species that can be harvested in 8-10 years such as Eucalyptus and Acacia. The negative environmental impacts of Eucalyptus, especially the deterioration of the soil and the high consumption of soil nutrients and deep underground water, are presently well-known and therefore the establishment of Eucalyptus plantations is not promoted.

At present, plantations with fast growing hybrid acacia are encouraged by the administration, but it remains to be seen if the soil and water is not negatively impacted by this species after a number of rotations. Therefore it is recommended to set up mixed plantations with fast growing species to increase relative short term benefits with slower growing native species such as Lat hoa (*Chukrasia tabularis*), Tram do (*Aquilaria crassna*) or others in order to mitigate the negative impacts on the environment.

Protection is mainly regulated in the approved village Forest Protection Regulations, however some specific activities like the construction of a fire break or further specifications on the timing or responsibilities should be added into the management plan.

For example new established plantations or additional plantings in natural forest areas might need to be fenced to protect this areas from grazing damage. The user group should discuss among its members how the protection of the forest land will be organized. For example the group members can decide to take turns in patrolling and protecting their forest land.

Non-Timber Forest Products utilization should not detail quantities (e.g. kg, loads, meter, etc.) but instead clearly define harvesting techniques that can ensure the sustainability of the resource as at present no reliable data of harvest levels nor techniques for inventories are available for most species.
Further details on the use of NTFPs should be available in the approved village Forest Protection and Development regulations.

Box: Examples for description of harvesting regulations for NTFPs

Scaphium macropodum
Fruit collection is limited to collection of fallen fruits from the ground. Any cutting of trees or branches or entire trees is strictly forbidden.

Calamus sp.
Selective cutting of only mature rattan individuals, avoid damage to immature rattan individuals or seedlings (only harvest rattan canes when the cane is at least 5 m long).
No damage to the root system during harvesting.
Clumps with less than six individuals cannot be harvested.
Stems are cut above the base at 15 - 20cm height.

Writing of the village/ user-group CBFM plan

After all the above mentioned activities have been discussed and it is clear how, when, and where activities will be implemented, the user group/community has to document all information into a comprehensive CBFM plan per forest management block. Depending on the forest resource (natural forest or plantation) two different formats are to be used as provided in Appendix 2.

Management plans are working documents and should be made available for and used by everyone who has a decision-making role. Consequently, one copy of the plan (as A0 poster or A4 copy) has to remain with the forest user group. The plan format and the plan details can be hand written in case no photocopy facilities are available.

The plan has to clearly document and justify the choice of the selected silvicultural system to ensure that all management levels have a clear understanding of what they are doing and why.

1.5 APPROVAL OF 5-YEAR CBFM PLAN

Activities:

1. Submission of CBFM plan to CPC and DPC
2. Appraisal and Approval of CBFM plan

Submission of CBFM plan to DPC

After reaching consensus among the community/forest user group members the five year forest management plan is submitted to the Commune People Committee by the village Forest Management Board. The Commune People Committee is appraising the plan and forwarding it to the District People Committee.

Appraisal and Approval of CBFM plan

The DPC is consulting the Forest Protection Unit of forestry related issues of the management plan and is issuing legal approval for the five-year planning horizon. The signed and stamped management plan is then returned to the Commune Forest Management Board, who is further forwarding the plan to the Village Forest Management Group.

The responsibility of the VFMG is to disseminate the information to all stakeholders and if keeping the signed plan as legal evidence.

1.6 TIMBER HARVEST APPLICATION AND BENEFIT SHARING

Activities:

1. Timber harvest application
2. Benefit sharing mechanism
3. Monitoring and Evaluation

Forest utilisation is defined for a planning horizon of five-years as stated in the approved forest management plan clearly specifying the number of trees per diameter class proposed for harvest.

Despite an approval of the total planned harvest amount, the actual harvest and utilisation of timber requires further application and reporting procedures and in case of commercial timber extraction a detailed taxation according to national law.

The herein proposed benefit sharing mechanism is drawn from experiences from a CFM pilot[3] in Dak Lak province and is in line with the legal policy frame on taxation of natural resources and policies on forest protection and development.

However, some procedures as proposed in the following differ from current policies on benefit sharing as stipulated in Decision 178[4] and are understood as technical proposal to contribute to current forest policy development in Vietnam.

[3] Conducted by the GTZ-RDDL on request of the Department of Agriculture and Rural Development Dak Lak province

[4] 178/2001/QD-TTg on the benefits and obligations of households and individuals assigned leased or contracted forest and forestry land

Consequently, procedures as described in this guideline require further approval at provincial level before an application at provincial scale can be initiated.

The described benefit sharing mechanism is detailing options under i) self-consumption of timber within the community and internal benefit sharing among community members or forest user group members and ii) commercial timber sale with arrangements for taxation between forest users and state authorities.

The entire harvesting design, tree selection, implementation, and reporting is entirely based on stem number per diameter as only planning unit.

Volume calculations are only required for commercial timber sale at the log yard to be conducted by forest technicians in order to apply with regulations for the deduction of natural resource tax.

Timber harvest application

Timber harvest is permitted in all diameter classes as defined by the Sustainable Forest Model following the varied demand of local forest users.

The decision on the scale, timing and purpose for timber harvest has to be made by the local forest users and documented in the annual forest management plan to be forwarded to commune authorities for approval and district authorities for timely information.

However, commercial timber harvest can only be considered after the local demand for self-consumption (house construction, fencing etc.) has been satisfied.

At least two weeks prior to the harvest, the identification, permanent marking and listing of trees to be extracted has to be completed following the instruction of the silvicultural guideline and planning results forwarded to the CPC.

Regardless the purpose of the harvest (self-consumption or commercial sale) identical planning, preparation and harvest application procedures have to be completed as shown in table 4 under point 1 to 3.

Table 4 details technical and administrative procedures for a) commercial sale and b) self-consumption of timber from natural forest resources described by Task, Description and Responsibilities.

A) Procedures for commercial timber sale

After the permitted number of trees have been harvested, skidding is organised and the logs transported to the log yard for storage before selling and for legal hammering and registration by District Forest Protection officers.

Timber has to be officially sealed by FPU and to be accompanied by an official letter in order to be legally sold and traded. In order to issue these documents, Forest Protection Unit (FPU) has to control correctness of the harvesting operation in the forest and approve the legality of each log with the official seal. This is done with a hammer, marking the forest protection icon (KL – Kiểm lâm) on the log. In addition, an official accompanying letter is issued. Hammering is conducted at the log yard in line with Decision 69/2001/QĐ-BNN-KL. The forest user is responsible for providing the harvest design and the timber list and has to permanently number trees with oil paint.

The provincial/municipal People's Committees shall specify the specific tax calculation price for each kind of natural resource under the Ministry of Finance's guidance.

The tax rate is defined for each specific natural product group by the Ministry of Finance as stipulated in Decree 68/1998/ND-CP and is provided in table 3 below.

Table 3: Natural resource tax rates for different categories of forest products

Groups and categories of natural resources	Tax rate (%)
Timber logs Group I	40
Timber logs Group II	35
Timber logs Group III, IV	25
Timber logs Group V, VI, VII, VIII	15
Impregnated -, Mangrove-, Sandal wood	25
Wood used as raw materials for paper production, masts	20
Pit props	15
Bamboo, Anise, cinnamon, cardamom	10
Tree branches and tops, firewood, medicinal plants, others	5

Source: Extract from Decree 68 on the implementation of the amended Ordinance on Resource Tax

The timber tax groups from I to VIII are defined at national level and are available at the respective Forest Protection Department in each province for reference.

Natural resource tax is paid by the village/forest user group to the District Finance Unit which in return is issuing the legal tax receipts for the community.

After deducting natural resource tax and actual harvesting costs (felling, forest cleaning, transporting of timber to log yard), a further levy of 5% is going to the CPC/CFMB for forest development activities within the commune area and as compensation for labour of involved staff from the existing administrative structure.

The village can request reinvestment from this source into their village forest area if proposed in the approved five-year forest management plan.

Remaining revenues are shared among the forest users in accordance with regulations agreed upon by the forest user group/community.

In view of the workload for the involved administrations, commercial timber harvest should be limited to one time per year during dry season (to minimise soil damage during skidding).

Communities/forest user groups are allowed to independently contact and select potential timber sellers and conduct independent market surveys if desired.

Besides timber, communities which have been allocated forest land can enjoy benefits from NTFP consumption, and can conduct afforestation and enrichment planting under current state policies.

B) Procedures for self-consumption

Self-consumption of forest products is exempted from any public charges as mentioned under commercial timber sale (Circular 153, Chapter IV, section 4). Consequently, no state taxes or duties are applied under this benefit sharing option. In case of red books certificates issued to the entire community, the local people themselves can decide on reasonable levels of village-internal compensation for individual consumption of forest products from a common resource like the village forest.

The compensation is administered by the Village Forest Management Board and used for forest protection and development activities and for the operation of the Village Forest Protection Group and the Village Forest Management Board.

If agreed by the community extreme poor households can be exempted from any kind of financial compensation for the utilisation of timber for house construction or renovation.

As forest products are not leaving the village area and not enter the commercial market no legal approval of the harvesting request and no hammering of the logs by the Forest Protection Unit is required.

Table 4: Administrative and technical procedures for forest utilisation and benefit sharing in CBFM

No.	Task	Description	Responsibility
1.	**Planning and approval procedures for Forest Management Plan development**		
1.1	Development of five-year Forest Management Plan	The five-year FMP has been developed based on a technical sound forest resource assessment with full participation of villagers.	VFMB support organisation, Community implement, FPU provide technical assistance on request
1.2	Approval of five-year FMP	The five-year forest management plan requires legal approval at district level.	CFMB acknowledges and submits to DPC; DPC appraises and approves
1.3	Development and approval of Annual Work Plan	The five-year FMP is broken down into annual work plans, which only requires approval at commune level. The AWP has to be forwarded to the Forest Protection Unit for their information before implementation of silvicultural activities in the field can start.	VFMB organises and forwards to CPC to be approved. CFMB forwards a copy to FPU
2.	**Preparation for Annual Work Plan implementation; harvest application and reporting**		
2.1	Preparatory village meeting	Presentation of planned harvesting activities for next planning period based on the approved five-year forest management plan and annual work plan.	VFMB is organising plenary village meeting
2.2	Decision on forest products utilisation	The VFMB is organising a village meeting to identify the demand for timber for self-consumption from all forest-user groups. In case that demand for self-consumption is high and timber supply is limited/likely to be insufficient, no commercial timber sale will be carried out for the planning period. Commercial sale has to be understood as surplus after satisfying the village demand for self-consumption of timber.	VFMB is organising plenary village meeting; community is defining demand for timber for self-consumption and sale
2.3	VFMB identifies forest blocks for harvesting	Based on the AWP and field checks, forest blocks are defined for selective harvesting.	VFMB meeting; consultation by Forest Protection Unit and CFMB
2.4	Harvest planning, skidding network planning	A harvest plan is developed and tasks assigned for all harvest related activities (Harvest Action Plan) such as: ▪ Tree marking, climber cutting, felling, cleaning, clearing and preparation of trails for transportation, skidding, maintenance… ▪ Determining timing, responsibilities, financing and locations.	VFMB meeting; consultation by Forest Protection Unit or State Forest Enterprise technicians on request

2.5	Tree marking and writing of tree list for harvesting	Following the harvest action plan households are selecting trees for harvesting (based on the silvicultural guidelines). Trees are permanently marked with numbers at breast height and below the felling scarf. All selected trees are recorded in a tree list with number, species, and diameter class referring to the diameter at breast height (see Appendix 4, Table 5) Forest Rangers can randomly check the tree marking results if desired, however no approval of the tree marking is required.	VFMB is supervising implementation; Forest Protection Unit and CFMB is randomly monitoring the implementation
2.6	Information about planned harvest forwarded to commune and district authorities for their information	In principle, only one commercial harvesting should be carried out per year per village to limit the time and resources needed by the administration. The harvest action plan and the accompanied tree list are forwarded to the commune for their information and will be submitted to the Forest Protection Unit. No legal approval is required for the harvest action plan as long as the harvest quota is within the limits of the five-year quota and the Annual Work Plan. The harvest action plan has to be provided to the administration at least two weeks before harvest. The administration assesses this information and compares the number of trees to be cut per forest block with the annual forest management plan and five-year management plan of the respective forest block. In case no feedback has been received from the administration within the given period, the harvest activities can be implemented.	VFMB compiles tree marking and harvest planning data and forwards to CFMB; CFMB forwards to Forest Protection Unit for their timely information; If required Forest Protection Unit revises the tree marking in the field
2.7	VFMB organises the implementation of the harvesting action plan at village level	VFMB organises village meeting and discusses timing and assigns households for specific tasks.	VFMB is organising plenary village meeting; community is defining timing and responsibilities.

3.	**Harvesting operations**		
3.1	Harvesting implementation	Marked trees are harvested following the provided silvicultural guidelines. Trimming and crosscutting at the harvesting site. If required motor-manual on-site processing for large timber. Total harvest amount (including main stem, big branches and fallen trees) listed including number of trees, species, length and mid-diameter.	Logging crew implements harvesting; VFMB supervises implementation and records harvesting results

3.2	Post-harvest monitoring	Assessment of logging damage, felled trees, logging site, forest cleaning and forest status post-harvest.	VFMB is checking the harvesting site
3.3	Timber skidding	Skidding of timber to the selected log yard List of trees at the log yard compared against tree marking list.	Logging crew organises skidding to log yard. VFMB is compiling timber list and monitors transportation
3.4	Cleaning of harvest site	Cleaning of harvesting remains and collection of firewood from crown material following silvicultural guidelines	Logging crew is cleaning harvest site; community collects firewood

4.	**Inspection of harvest, timber consumption and benefit sharing arrangements**		
4.1a	**Timber utilisation for commercial sale**		
4.1.1	Inspection of log yard and hammering	Forest Protection Unit together with VFMB are inspecting the log yard and hammering all logs for sale. Calculation of log volume by Forest Ranger and VFMB. Harvested trees are compared against the original list of trees. All trees are recorded in a timber list (species, mid-diameter, length, volume, tax group). FPU signs the list of registered trees that have been harvested.	Forest Protection Unit together with VFMB and commune authorities is inspecting the log yard; Forest Protection Unit hammers registered timber with seal
4.1.2	Selling of timber at log yard and transport	Timber is sold at the log yard to the buyer who is responsible for further transportation	VFMB organises sale supported by CPC, Forest Protection Unit, Financial Section
4.1.3	Natural Resource Tax	Forest user group is paying natural resource tax according to timber tax groups.	District Finance Unit issues tax receipt
4.1.4	Pay levy to CPC/CFMB	After deducting natural resource tax and actual harvesting costs (felling, forest cleaning, transporting timbers to log yard), a 10% share is deducted for CPC/CFMB.	CPC/CFMB issues levy receipt
4.1.5	Village internal benefit sharing	In case **red books** have been allocated **to entire communities** the revenues are managed by the VFMB and allocated to general village development, forest development and/or distributed amongst the households of the village according to individual needs and work input. In case **red books** have been issued **to individual households** the forest user groups have to define regulations on how to share the revenues among the user group members.	VFMB and CFMB are supervising and monitoring village internal share of revenues
4.1b	**Timber utilisation for self-consumption**		

4.1.1	Distribution of harvest amount among community	Following the timber request of individual households (see step 2.2) timber is distributed for self-consumption among the community members.	VFMB is distributing timber to individual households
4.1.2	Village internal benefit sharing	Based on the approved Forest Protection and Development Regulations, timber consumers are paying the defined amount to the VFMB to replenish the village forest development fund.	VFMB is managing village forest development fund and supervises the book keeping

Monitoring & evaluation of CBFM

Monitoring[5] of the implementation of CBFM activities is important to assess whether CBFM has led to the intended impacts of improved forest management and increased (legal) income from forest resources. Furthermore, monitoring of the activities helps to identify difficulties, solutions and best practices. A record book of the extracted trees per DBH class and the fees paid should be kept by each user-group and the VFMB. From these records the number of extracted trees and the derived income can be calculated and evaluated (see appendix 5).

Forestry inventories are needed in order to monitor the impacts of CBFM on the forest status. Every 5 years a forest resource assessment will be carried out, which includes the presentation of the results in histograms of the DBH class distribution. The new inventory results can then be compared with former figures and against the SFM. In this way the progress towards a better forest structure can be evaluated.

Both, the monitoring and the evaluation should be carried out by the user groups and the village management board under supervision from technical staff. For the evaluation of the impact of CBFM including the comparison of the stem number diameter class distribution in the histograms, the support of the FPU and the commune forestry staff is needed.

[5] Monitoring is the ongoing collection of information in order to assess the actual progress made and to identify difficulties, solutions and best practices.

Part II: Practical guidance on CBFM planning procedures

This part offers practical guidance and exercises for the implementation of participatory forest inventories and elaboration of 5-year CBFM plans as briefly summarised in Part I. Although exercises are described in detail, the facilitator should be flexible in the use of these materials for the elaboration of CBFM plans. Some exercises might work better than others in different villages, and the facilitator needs to be able to respond rapidly to the developing situation rather than sticking rigidly to the detail of each exercise. The exercises can be understood as a framework that needs to be adapted to the real situation in each village, to the time schedule and to other local conditions. This means that sometimes exercises should be repeated, changed or connected with other exercises. Modifications will inevitably arise and are encouraged.

The exercises are designed to encourage full participation of villagers and to provide clear guidance on the process for facilitators. Full participation means that everyone is involved in all the activities. However, it does not mean that villagers have to do everything on their own nor that facilitators have to do everything for the participants.

Local villagers will not be able to prepare their own CBFM plans without the technical skills and abilities of facilitators to help them. On the other hand, facilitators cannot prepare a CBFM plan alone because they do not know the local conditions well enough and they do not know enough about the needs of the local stakeholders.

Each CBFM exercise describes the objectives, the required time and materials and provides step by step guidance for the facilitator to conduct the exercise (including formats for A0 posters and handouts for participants). The facilitator needs to become familiar with each session before implementation and also needs to have an overview over the whole CBFM process.

Participants of the CBFM planning process can be representatives of each forest user group or selected key-villagers in case the forest land is allocated to the entire village. It is important that women are also selected as one of the representatives of the user groups as men and women have often different (forest) products priorities.

Finally, it is important to recognize that CBFM requires continuous coaching and learning for both, the forest users and the facilitator. A few days meetings alone will not be sufficient to develop all the capacities and skills to apply CBFM in the field. The exercises in this manual only focus on the development and elaboration of village CBFM plans and do not include exercises to develop and/or improve techniques for harvesting, planting, stand improvement and/or protection. Capacity building in these silvicultural techniques should be provided after the CBFM plans have been approved.

Table 5: Tentative implementation schedule

Day 1	**Objectives**
Introduction *(30 min)*	▪ Introduce the concept of CBFM ▪ Introduce participants and facilitators ▪ Get expectations from participants
Forest Zoning and Establishment of Forest user group *(~3 hours, depending on the available information)*	▪ Divide village forest into forest management blocks each with a specific management goal ▪ Develop a sketch map on distribution of forest management blocks ▪ Identify size of forest management blocks
Forest Block description and Re-assessment of forest status *(~3 hours; depending on walking distance to forest)*	▪ Describe each block based on existing knowledge ▪ Discuss major opportunities and challenges of present forest management ▪ Conduct an ocular assessment on forest status
Forest user group boundary demarcation *(Depending on the number and size of forest blocks)*	▪ Conduct GPS ground-truthing of user group boundaries ▪ Permanently mark boundaries in the field
Day 2	**Objectives**
Participatory Forest Inventory *(Depending on forest status and size of the forest block)*	▪ Provide quantitative information on forest resources ▪ Form measure teams and instruct teams ▪ Develop forest inventory design ▪ Conduct forest inventory
Data analysis *(~3 hours; depending on the number of measured sample plots)*	▪ Compile and summarize sample plot data for each forest block managed by a user group ▪ Present the data in an understandable way for user-groups using histograms ▪ Discuss on implications for forest management and forest product utilization
Day 3	**Objectives**
Elaboration of 5-year CBFM plan *(2 hours)*	▪ Describe in detail activities for each user-group that will be carried out during the 5-year management plan in the forest under their management ▪ Develop 5-year CBFM plan
Evaluation and closing *(30 min)*	▪ See whether participants expectations have been met ▪ Identify improvements required for next implementation

2.1 Introduction

An independent follow-up of CFM planning procedures can only be expected if the people concerned have been fully involved in all decision-making processes and by this developed a sense of ownership over the planning results. If people do not develop a self-interest in forest management and are fully involved in the decision-making process, implementation will be half-hearted, probably misunderstood and will more likely fail.
Therefore, full participation throughout all planning processes is as equal important as the planning result itself.
The process as described in the following is intended to guide forest users through all required planning procedures to develop their forest management plan as legal basis for sustainable forest management.

Objectives
- To introduce the concept of CBFM
- To introduce participants and facilitators
- To get expectations from participants

Time needed 30 min

Material A0 paper, markers and colour cards, copies and A0 poster of the tentative schedule for implementation, copies of the steps and activities in CBFM

Steps
1. Welcome participants. Present the objectives of the work, the steps that will be followed, the time that might be required and the expected role of participants. Show the agenda of the CBFM planning and briefly introduce all steps.
2. Let participants introduce themselves. Ask participants to agree on certain ground rules – starting and finishing times; arrangements for lunch and any other rules which might be necessary.
3. Briefly introduce the concept of CBFM as a follow-up after forest land allocation in view of supporting the local forest user in the sustainable utilisation of their allocated forest resources. Explain that we will focus on the management of natural forest resources as for afforestation there are only very few organisational and reporting procedures to be considered at all.
4. Explain that forest management plans will be developed by a user group or the entire village depending on the form of land allocation (to individual households, groups of households or village communities) that has been implemented.
5. Explain the steps in the CBFM process (see the overview of the CBFM steps and activities in Part I of this manual).
6. Explain that this implementation will only focus on the development of CBFM plans and not on silvicultural techniques to improve forest management. Training on silvicultural techniques should be provided once the CBFM plan has been approved. The CBFM plans should be developed by villagers for themselves; the facilitator will only support them to develop suitable plans.
7. After this introduction on CBFM, ask participants to write down on a colour card what they expect from the CBFM process. Collect the colour cards and go through them. Explain which expectations are correct and which ones are beyond the agendas objectives.
8. Note the expectations on an A0 poster and keep results for later reference during the session on evaluation. Handout the copies of the main steps on CBFM to participants.

2.2 Forest Zoning and Establishment of Forest user group

Forest Zoning refers to the identification of forest areas with similar **forest status** and **forest type** of the identified forest management blocks will be treated as independent management unit for which a separate forest inventory has to be conducted and a separate forest management plan to be developed.
Forest management blocks can be part of the entire forest allocated to a village, the area managed by one user group or an area comprising several individual land use certificates.

Definition of forest management block:

A unit or subdivision of a forest type. It is an aggregation of trees occupying a specific area and sufficiently uniform in composition of species, age, size, and stocking, such that the same management recommendations would be appropriate for the entire area.

Objectives

- To divide the village forest into separate areas (forest management blocks) each with a specific management goal
- To develop a sketch map showing the distribution of forest management blocks in the village area
- Identify the size of each forest management block

Time needed 3 hour (depending on the available information)

Material A0 paper, markers, white board markers, bottle of ethanol, permanent markers, transparency sheets, Forest status map (prepared during PLUP-FLA process), forest land allocation map, available red books, copy of table on forest land areas received by household groups (part of the cadastral documents), summary table of forest characteristics if available (based on Circular 38).

Steps

1. Present the objectives of the exercise.
2. Show the forest status map as prepared during the PLUP-FLA process. Ask participants to orientate the map so that north on the map really faces north.
3. Give an overall explanation of the Vietnamese forest classification system (Group I - barren/shrub land, Group II - regenerating forest and Group III - poor to rich exploited forests, Group IV - primary forests).
4. Put the transparent overlay over the village FLA map and use clips to temporarily hold it in place. Using a whiteboard marker 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 (by using ethanol).
5. Ask participants to draw lines around forest areas they consider as being of similar kind in terms of:

   forest status (e.g. IIa or IIIa1) and
   forest type (e.g. semi-deciduous or pine forest) so that they can be considered one forest management block.
6. Don't rush them, and let them work out where the boundaries are.
7. 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 (e.g. who is the owner, what project supported the afforestation, etc.) and write the information next to the forest block on the transparency.

8. When the map looks complete, explain that similar forest areas can be grouped as one forest block for future management.
9. **Note: the following steps are only required in case natural forest has been allocated under red books to individual households.**
10. Facilitate a discussion on the advantages and disadvantages of individual or joint forest management. (Complete the table below through guiding questions)

Table 6: Advantages and disadvantages of forest management by user groups

Organisation form	Inventory/ Planning	Reporting/ Approval	Protection	Boundary demarcation	Benefit sharing
Individual household					
Group of households					

11. Facilitate a discussion to complete the table form as shown at the end of this exercise.
12. Point out that planning and reporting is better carried out in groups to reduce the workload for the administration (less application forms) and forest user (shared labour during inventory and plan preparation).
13. Under the point “benefit sharing” emphasise that despite being organised in a forest user group, benefits from forest utilisation could still be divided based on the individual ownership as stated in the red book and that this decision has to be made by each forest user group alone.
14. After individual forest owners agreed to join in forest user groups the area and respective members per user group have to be defined.
15. Based on the prepared transparency overlaid on the FLA result map, identify adjoining forest owner plots which could be merged into one forest user group. Invite participants to discuss on the personal preferences of joining in a specific group.
16. Forest user plots should have a minimum size of at least 10 ha of continuous forest vegetation to ensure a minimum size for effective planning and reporting.
17. Record the name of each household per forest user group and the respective forest area and get each individual to sign on the document.
18. Demarcate forest user plot boundaries (only the outer boundary of the forest user group forest needs to be defined on the transparency and to be later demarcated in the field).
19. Identify the total area of each forest user plot and write the size and the name of each forest user group on the transparency. Copy the results in a table as provided below.
20. Wrap-up the exercise by summarizing the main results.

Table 7: Total forest land area (ha) managed by user groups

Name of user group members	***Unit***	***Compartment***	***Block***	***Area (ha)***	***Forest status***

2.3 Forest Block description and Re-assessment of forest status

Following the outcome of the previous step a number of forest management blocks have been delineated on the FLA map.
However, available mapping information regarding forest status and type are often not detailed enough and/or outdated and therefore need to be verified in the field before further planning steps towards a forest management plan can be conducted.

Objectives

- To briefly describe each forest management unit based on existing knowledge
- To discuss the major opportunities and challenges of current forest management
- To conduct an ocular assessment of the forest status

Time needed 1 hour

Material A0 paper, markers and sufficient blank description forms (one for each forest management block)

Steps

1. Present the objectives of the exercise.
2. Facilitate each forest user group to independently complete a forest description form of each of their forest management blocks. In case areas of similar forest status and type have been divided among several user groups only one description needs to be completed for all.
3. Distribute the forms and go through the forms (all representatives of the user groups should get one form). Summarize and explain the information that is needed per section.

   Access: Walking distance from the village to the forest stand

   Management goal: The main production aim of the forest management block
   Main criteria include:

   i) main desired products (timber, firewood, NTFP),
   ii) mixture in the stand (e.g. 70% timber species, 30% firewood species),
   iii) names of species that can provide these products,
   iv) diameter class required for the specific product,
   v) production cycle required for each product (e.g. timber production with a rotation of 30 years, firewood with a rotation of 5 years only).

   Forest age: Mainly for afforestation sites or forest after shifting cultivation
   Dominant species: List most dominant/abundant plant species that are present and are characteristic for the plot (those species are not necessarily used)
   Products: Mention here if members of the user-group are currently extracting timber or NTFPs (NTFPs include species such as fuelwood, rattan, bamboo, medicinal plants, forest fruits and vegetables, mushrooms, etc.) from the plot or expect to do so in the near future (within 5 years). List the species or explain why extraction is not carried out (e.g. too far, no valuable species, not enough trees, etc).
   Forest hazards: State the degree of forest hazards like weed invasion, fire, grazing.
   Problems: List the major problems faced in the plot such as fire, weed invasion, illegal exploitation, free grazing or other problems. If there are other problems, mention these problems in detail.
4. Divide participants into survey teams and decide which team will go to which block.
5. Let each team conduct their survey in the field (30 min. excluding time for walking to the block)

6. While in the forest stand furthermore conduct an ocular assessment of the forest status following the following definition:

Group I:
Land without forests or with no forests at the moment, only covered with grasses, shrubs or scattered trees and bamboos with a cover of less than 0,30%. Depending on the status, this group is divided into:

- IA: vegetation of grasses and shrubs.
- IB: vegetations of shrubs, and some scattered timber trees or bamboos.
- IC: regenerated timber trees as well as vegetation as under IA and IB. Forests classified as type IC only apply to land with regenerated timber trees of more than 1 m high and more than 1,000 trees/ha.

Group II:
Recovered forests with pioneer trees of smaller diameter. Based on the status and origin, these forests are classified as:

- IIA: Forests that are recovered after slash-and-burn practices. Characterized by pioneer trees with high light requirements, quick growth, even-aged with one single storey.
- IIB: Forests that are recovered after being over-exploited; majority of these forests include young tree/plant communities of species that have a relatively high light requirements, complex species composition, uneven-aged and unclear dominancy of species.

Under the forest canopy of this forest status, there might be some timber trees but with limited volume. Classified into this type is only forest with an average DBH of less than 20 cm.

Group III:
Secondary forests and/or affected forests. Forest that has been exploited to different extend, which affected the structure and composition of the primary forest. Depending on the level of exploitation and the regeneration capacity of the forests, forests of this group are classified into 2 types:

- IIIA***:*** is characterized by forests that have been under tremendous exploitation and little timber remains for harvesting. The primary structure of the forests has been completely affected and is basically changed. Forests of this type are divided into three sub-types:
  - *IIIA1:* For forests which have been exploited until depletion, the forest canopy is fragmented, some high and large trees at the over storey might remain but these are of poor quality and climbers, shrubs and bamboos are prevalent.
  - *IIIA2*: For forests which have been over-exploited but which is already recovered. It is characterized by trees belonging to the middle storey and the majority of them have a diameter of 20- 30 cm. Forests have 2 storeys or more, of which the upper storey has an scattered canopy, which is mainly formed by middle storey trees, while some scattered big and strong trees are growing over this canopy.
  - *IIIA3 :* Forests which have been exploited or developed from forests of type IIIA2. Forest canopy closed with 2 or multi story stands. It is characterized by (and differs in this aspect from the forest status of type IIIA2), a higher quantity of trees with some trees having diameter above 35 cm suitable for timber harvesting.
- IIIB: is characterized by forests under selective cutting for precious and good timber but the primary forest structure is not yet remarkably affected; the production capacity of this forests is still high; forests are rich in volume and many trees have lateral roots.

Group IV
Mature primary and secondary forests which have not been exploited. The forests have a stable structure, multi-storey, with different diameter classes but sometimes lack a middle storey and/or under storey. Forests of this group are classified into two types:

- Type IVA – Primary forests
- Type IVB – Recovered secondary forests

7. After all teams are back, let a representative of each group present their results.
8. Analyse the results together:

   Access:

   - less than one hour distance is suitable for fuel wood collection
   - 1-2 hours mainly timber & NTFP collection
   - more than 2 hours, only valuable timber and NTFP extraction

   Timber: If timber is or expected to be harvested in the coming 5 years, a forest resource assessment is needed (see next steps)

   Problems: If invasion of weeds is a major problem, no harvesting of timber should be allowed to avoid further opening of the canopy, if grazing, fire or illegal exploitation are mentioned special measurements should be included later on in the CBFM plan to overcome these problems.
9. Cross-check the field results with the planning outcome from the forest zoning exercise and make adjustments if required.
10. Finally, go over the temporary lines drawn on the transparent sheet with a permanent marker. This will create a permanent map on the transparency.
11. Identify the areas where sample plot measurements are needed (in the plots where extraction of timber is to be expected) based on the village map.
12. If available user group boundaries should be added into a GIS database.
13. Wrap-up the exercise by summarizing the main results.

Plot description form

Access	**How long do you walk from the village to reach the forest stand?**		
	less than 1 hour	***1-2 hours***	***more than 2 hours***

Management goal						
Forest Type / Age	***Natural forest***			**Forest Age / Status**		
	Plantation			***mature***	***middle***	***young***

What are dominant species?		**Use**	
		Use	
		Use	
		Use	

Products	**Can you harvest any products in the next 5 years?**	**Yes**	**No**
	If not, why do you think no products are available?		
	What forest products that can be expected from the forest stand		
	Timber	***Fire wood***	***NTFP***
	Others		

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

Fire hazard	**When did fire last time occur in the forest stand?**			
	Every year	***In the last 5 yrs***	***In the last 5 - 10 yrs***	***Never***

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

Degree of closure of the forest stand	**Look 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 not more than one crown extent away from each other	
	Closed – crowns of the trees are touching each other	

2.4 Forest user group boundary demarcation

Once forest management plots have been identified on the transparency laid over the FLA village map these boundaries have to be permanently demarcated in the field. Only if boundaries are clearly visible for in- and outsiders effective management, protection and enforcement of user rights can be guaranteed.

Objectives

- To conduct GPS ground-truthing of user group boundaries
- To permanently mark boundaries in the field

Time needed Depending on the number and size of forest blocks

Material FLA result map, transparency showing forest user group boundaries, GPS hand receiver, red oil paint.

Steps

Preparation

1. In case FLA mapping information is only available in the national VN2000 map datum, either the mapping information needs to be converted into UTM system or a GPS is required which has been customised to the VN 2000 datum (Vietnamese Mapping Agencies are renting out GPS with customised datum).
2. In case all boundaries are following clearly visible landmarks like rivers or roads no GPS ground-truthing is required and boundaries can be directly demarcated in the field.

Field work

1. Copy a sufficient number of waypoints (~25m distance between points) a) directly from the FLA map or b) from the GIS database into the GPS hand receiver.
2. Invite representatives of the respective forest user group and the neighbouring groups to join in the field trip.
3. One technical staff is operating the GPS receiver and at every defined waypoint a permanent oil paint mark will be placed identifying the exact border and the name of the owners including a reference number to be added into the map.
4. Border demarcation is conducted by the respective forest user/group as stipulated in Circular 38/2007/TT-BTT.
5. Only mark the outer boundary of the entire area of the forest management block of the respective forest user group.
6. In case villagers want to also demarcate their individual plot boundaries, they should find an agreement with the respective neighbours to ensure a conflict-free result.
7. Finally, all forest user group boundaries have to be demarcated in the field and the exact size of each forest management block (in hectare) calculated as basis for the inventory.

2.5 Participatory Forest Inventory

Remember this exercise is only required if no FLA inventory has been carried out in the same year. For the first year after FLA with existing inventory all data for the development of management plans should be available already from the FLA inventory.

Reliable data on the current forest resources is essential for the CBFM plan development and future management. Based on the existing resources, management activities such as selective cutting, stand improvement and enrichment planting can be identified. Furthermore inventory results are useful for the monitoring an evaluation of the impacts of CBFM on the forest stand.
It is useful to discuss clearly how sample plots are measured during forest inventory in order to be more effective in the field. Field work will be easier if people have an idea why and what they are going to do in the field. However, learning by doing is most effective with most villagers, so don't expect to be able to make everything clear after a theoretical introduction only.

Objectives

- To provide quantitative and qualitative information on forest resources for forest management plan development
- To form measure teams and instruct teams
- To identify the forest inventory design (number of sample plots, location of sample plots)
- To conduct forest inventory

Time needed Depending on forest status and size of the forest block

Material Sufficient copies of tally sheets, markers, chalk, adjusted measure tape (see instructions below), tape measure 30m, set of two ropes (20 m rope with a knot at 10 m) with loops at the ends, forest status map, blank sample plot forms, pencils, compass, hatchet

Steps

Preparation

1. Sufficient measure tapes depending on the number of measure teams have to be prepared in advance by supporting staff following the below described design.
2. Present the objectives of forest inventory and stress the importance of carrying out the plot measurements accurately. The obtained data during the sample plot measurements will determine if timber extraction is feasible.
3. Explain that the field work will be done in small teams which will work separately.
4. Explain that the number of sample plots in each plot depends on the size of the plot and the status of the forest (according to Decision 684/1994/QD-BNN).

Table 8: Sample intensity based on forest status

Forest status	Sample area (% of total area)
Regeneration forest (IB, IC)	No sample required (no standing volume)
Recovered and poor forest (IIA, IIB, IIIA1)	1%
Medium and rich forest (IIIA2, IV)	1.5%

5. To calculate the number of sample plots per forest block and the distance between sample plots the following calculations are required:

- Sample area= $\frac{\text{Forest block in square meter}}{100 \times \text{sample intensity}}$
- Number of sample plots= $\frac{\text{Sample area}}{\text{Plot size}}$
- Grid net distance= $\frac{\text{Forest block in square meter}}{\text{Number of sample plots}}$

Use a transparency to draw the grid net with the calculated grid distance (refer to the scale of the map for the correct distance). Lay the transparency over the respective forest block and draw transect lines by connecting grid net points in lines. Locate the transect lines so that they cut the contour lines (running up or down the slope). Explain that depending on the location at the slope (e.g. foot hill, shoulder, rim) the growth and yield of the same forest can differ to a great extend and that therefore the transect lines always have to run up- or downhill to get a representative sample of all different sites.

6. The starting point of the transect line should be easily recognisable in the field. A compass bearing should be used to follow the transect line in a more or less straight direction when implementing the inventory.
7. Use the A0 paper to draw a plot layout. Sample plots are designed in a rectangular shape of 500m² (20x25m) and temporarily marked by nylon ropes as shown in the following figure.

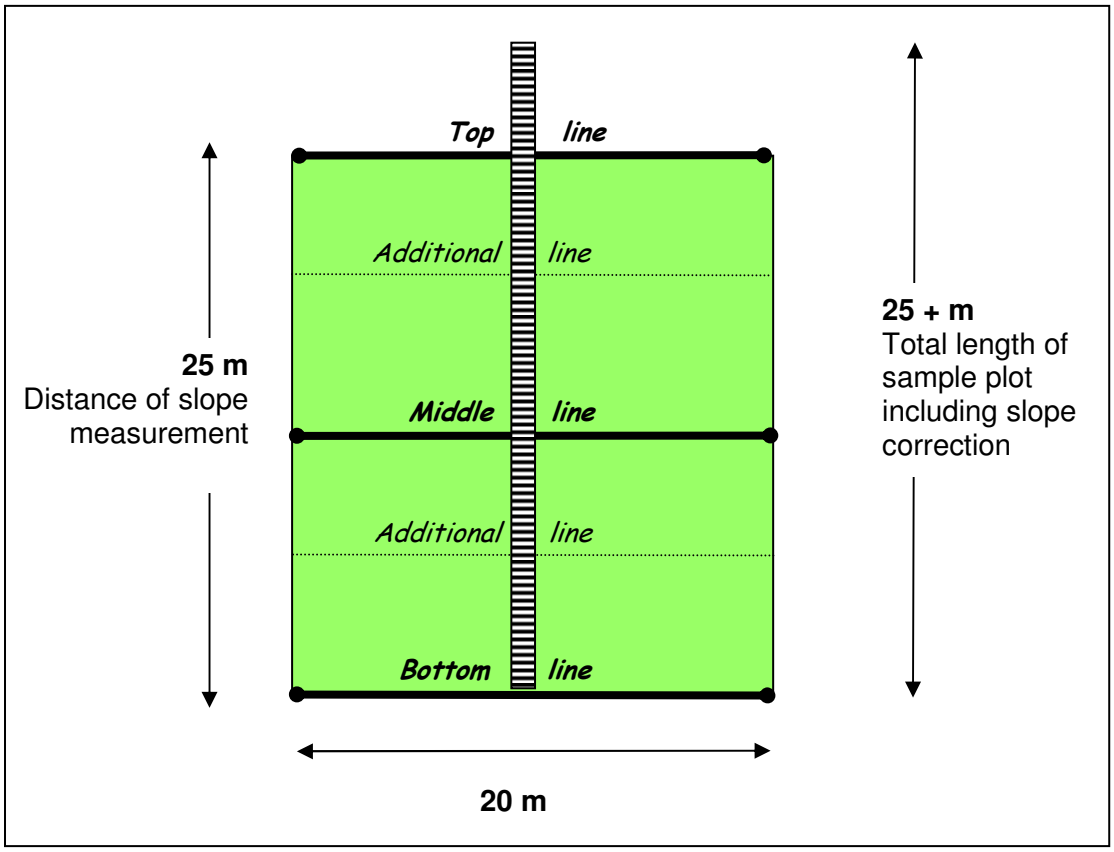

Figure 4: Lay-out of sample plots in the field

Field work

8. With all participants, go to the starting point on the edge of the selected forest block. Use the village forest map to locate the spot exactly. At the starting point (as agreed on the map before) get villagers to confirm on the map exactly where you are.
9. One farmer is lying out a straight 25 m line using the 30 m measure rope. The technician is directing him to layout a straight line.
10. In mountainous areas a slope correction is required for accurate measurements. In this case, a slope measurement is conducted from the starting point of the plot and is targeting one persons face at the uphill side of the plot in 25m distance. The additional length (slope correction table on the slope measure tool) is added to the total plot length following the transect line.
11. Bottom and top plot boundaries are located by use of 20 m nylon ropes laid out rectangular (90° right angle) to the transect line. Depending on the visibility of the forest two or more additional lines have to be laid out inside the sample plot area to identify whether border trees have to be measured or have to be excluded.
12. The recorder can now start to write information on the Plot Sample Form. Make sure the date, name of village and block and plot number are recorded first.
13. Inside the sample plot all trees ≥ 8cm diameter at breast height are recorded with tree name (local or scientific name), colour diameter class and potential to provide construction timber.
14. The timber potential is based on whether the stem of the tree is healthy/straight and a good timber species or whether the tree is poorly formed or diseased and not suitable for timber.
15. After measuring and recording a tree, it is marked with chalk to avoid double counting.
16. Further count how many bamboo poles are available in the plot and record according to size class at the bottom of the inventory sheet.
17. After one sample plot has been completed follow the transect line to the next sample plot location according to the calculated distance between sample plots.

Name	Main job	Support to technician
Recorder (Technician)	Find plot location on transect line or by GPS Measure slope Record tree data	Mark transect and plot starting point
Two Measurers (Farmer)	Measure diameter class (colour) Define tree species Decide whether each tree is suitable for timber Chalk tree	Layout transect line (top point) Layout plot line (20m) Remove ropes after completed measurements

Diameter class	Class width	Min. Girth [cm]	Colour
08-14,9	7cm	25,13	yellow
15-19,9	5cm	47,12	black
20-24,9	5cm	62,83	stripes
25-29,9	5cm	78,54	blue
30-34,9	5cm	94,25	dots
35-44,9	10cm	109,96	saw
>45	open	141,37	red

Girth and diameter class measure tape

In case forest inventory has been conducted during the process of PLUP-FLA the same measure tapes can be used for the CBFM inventory.
DBH is measured in diameter classes represented by colour bands (see table below).
Diameter tapes are made out of durable plastic tape measures (cm scale) covered with coloured masking tape or directly coloured with permanent markers

Sample plot form: trees DBH ≥8cm (entire 20*25 m sample plot)

Province		District		Commune	
Village		Date		Recorder	
Forest block		Plot No.		Slope	
Forest owner		Forest compartment		Forest block	

Local tree name (mark timber species with asterisk)	☺ **DBH (cm) of healthy/straight trees**							☹ **DBH of trees without timber potential (poor form, diseased/infected trees)**						
	Yellow	black	stripes	blue	dots	saw	red	Yellow	black	stripes	blue	dots	saw	red
Number of Bamboo poles		**Big size**				**Medium size**				**Small size**				

2.6 Data analysis

Data compilation is probably the most difficult step in the process for participants and has to be carried out slowly without rushing the participants. A good recorder will be needed (preferably the technician or another person who can write and calculate well). Good organisation will help to get through this step.

It is not expected that participants will be able to do the actual calculations by themselves – probably they will always need support from a technician.

Remember, the process you are going through with participants is equally important as the output. Participants need to be aware that it is their own data which is being used in the calculations.

Objectives

- To compile and summarize sample plot data for each forest management unit
- To present the data in an understandable way for user-groups using histograms
- To discuss the implications of the data for forest management and forest product utilization

Time needed around 3 hours (depending on the number of measured sample plots)

Material Sample plot summary forms (at least 1 per user group), completed sample plot forms, calculators, A0 paper, markers, rulers with scale

Steps

Data compilation

1. Divide the group according to the forest management blocks for which an independent inventory has been conducted and ensure that each group has the completed sample plot forms for the forest block under their management, and a summary form. (Or in case the forest land was allocated to the village, ensure that each group has the filled in sample plot forms of a specific block and a summary form for that block).
2. Each group needs one recorder who starts with fillings in the data at the top of the summary form showing: village, area (ha), user-group (or zone), number of plots, etc.
3. Ask each group to read out the names of all recorded tree species. Participants should agree for each tree species whether it is suitable for timber or not. If a tree species is considered a good timber species an asterisk will be placed after its name on the sample plot forms. The facilitator can write the names of the timber species on a flipchart as a reference for all participants. Make sure everybody agrees with the list. (For Kinh people this proved to be very difficult as almost all species are used depending on the availability- a distinction between timber and non-timber species therefore might be sometimes not feasible).
4. Explain the summary form and let each user-group compile the data recorded from the completed sample plot forms.
5. Explain participants to start with yellow diameter class (8-15cm). Explain to first start with trees that are suitable for timber ☺ and after this continue with those that are not ☹.To do this they will have to add all numbers of trees with an asterisk in this diameter class. The recorder writes this number on a piece of paper and asks the next participant to give the same information (number of trees in the first diameter class) and so on until all participants have finished. Add all these numbers together to get the total number of trees (timber species) in the first diameter class in all plots and write it in the column for “yellow” trees in the Block Summary Form.
6. Continue with the next higher diameter class until the highest (red) has been completed.
7. Now ask participants to give their totals for trees without asterisk (trees that can not provide timber) starting with the first diameter-class (“yellow” ☹). Add the total for all the plots and

record this on the Block Summary Form. Do the same for all sizes (colours) until every participant has provided all the data to the recorder.

8. To get the totals per hectare (all bold framed boxes) multiply by factor a (see block summary form).
9. Add the numbers ☺+☹ for each colour-row to get totals for "All trees".

Data analysis

10. Divide participants into 2 groups. Explain that each group will try to draw a picture showing the information from the block. One group will draw a histogram showing the distribution of timber trees only. The other group will draw a histogram showing the distribution of all trees (all species). You may have to draw an example of a histogram on the A0 poster to show what is expected.
11. Histogram 1 uses data from the Block Summary Form row shown by the arrow marked "1". Histogram 2 uses data from the row marked "2".
12. Make sure that both histograms have the same scale so that they can be compared easily by the participants.
13. Ensure that histograms are: clearly drawn using colours to show size classes and only local language. Write the dbh classes under each bar of the histogram as well as drawing the colours so that participants have a clear idea of what size each colour represents. Ask each group to write titles and labels to show what the histogram represents.
14. After participants finished drawing the histograms, allow some minutes for break and use this time to prepare a transparency showing the model forest structure for Quang Binh province. The transparency has to exactly fit to the scale of the histograms as prepared by the participants (guidance for the design is given in the box below).
15. Invite participants to present their poster. Each histogram should be presented by someone from the group which drew it. Let them explain how they prepared the histogram; what it shows and any particular issues or potentials which it indicates.
16. After this, place the transparency showing the "DBH class distribution model over the histogram prepared by the groups, and introduce the idea of a sustainable forest model (SFM). After this, invite participants to explain what the histograms tell us about the forest resources in the plot e.g. what is the available resource and what can be harvested? Some examples of questions are shown below.
17. Introduce the idea of a SFM by using the example of a water bottle (see end of this session).
18. Explain that depending on the water level two main forest management options can be identified:
    - Bottle not yet full = insufficient stem number per diameter class indicating strict protection required
    - Water spills over = sufficient stem number per diameter class indicating options for harvesting
19. By thoroughly comparing the "real" forest structure against the given SFM, participants should be enabled to identify management options for their respective forest block. For example, if a lack of medium-sized trees is revealed, the management could be to protect the trees in this size-class and to ensure that enough smaller-sized trees are available to grow into medium-size in the future.
20. Note down any important points on a separate piece of paper because these will be needed later during the writing of the management plan.
21. Wrap-up the meeting by summarising the main outcomes from the forest inventory data analysis.

Forest inventory summary form (per forest management block)

1) District		2) Commune		3) Village	

4) Forest block ID		5) Block area [ha]		6) Total number of plots [z]		7) Factor a = 1 / z x 0.05	

	Timber potential	Yellow (8 – 14,9 cm)		Black (15 – 19,9 cm)		Stripes (20 – 24,9 cm)		Blue (25 – 29,9 cm)		Dots (30 – 34,9 cm)		Saw (35 – 44,9 cm)		Red (>45cm)	
		Total in all plots	Per ha (x a)	Total in all plots	Per ha (x a)	Total in all plots	Per ha (x a)	Total in all plots	Per ha (x a)	Total in all plots	Per ha (x a)	Total in all plots	Per ha (x a)	Total in all plots	Per ha (x a)
Tree number	Yes														
	No														

All Trees													

Bamboo poles	**Big size**		**Medium size**		**Small size**	

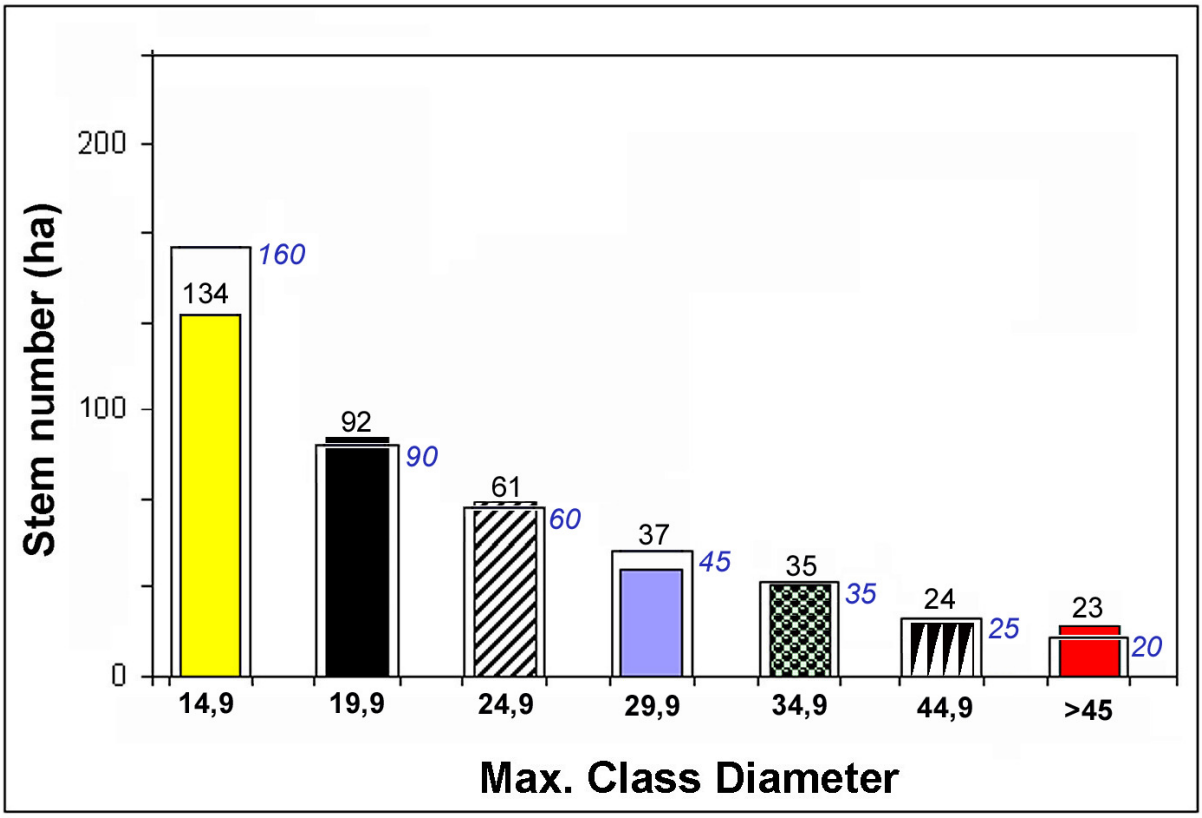

Figure 5: Example of the analysis of sustainable harvest amount based on stem number diameter distribution

The **sustainable forest model** is represented by blue italic numbers (transparent histogram)

The **actual inventory results** are represented by black regular numbers (coloured histograms).

When comparing the individual diameter classes the following harvest amount can be identified:

2 trees per hectare from black diameter class (15-19,9cm dbh),

1 tree per hectare from stripe diameter class (20-24,9cn dbh),

3 trees per hectare from red diameter class (>45cm).

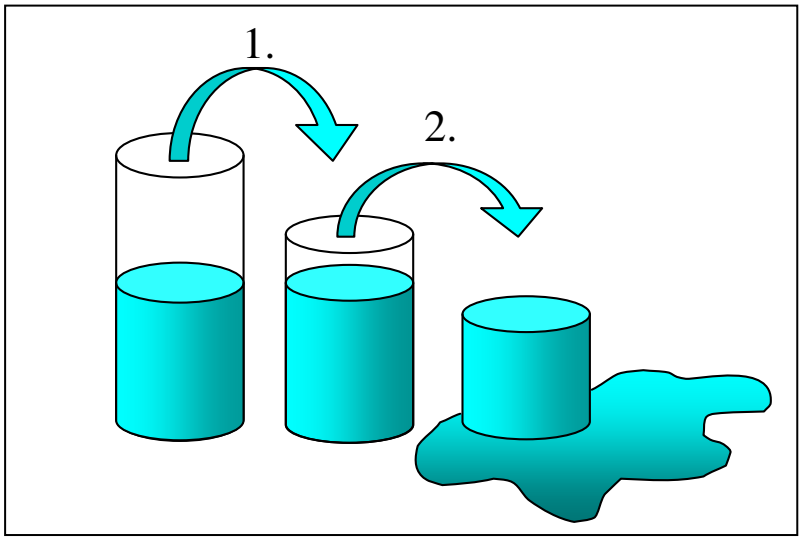

Figure 6: Tip for facilitating the discussion on the histograms

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 diameter classes of the model histogram. Fill the tallest bottle around ½ full of water. Explain that this represents the smallest diameter class with many trees. When the trees grow bigger they will jump into the next diameter class – poor the water into the next smaller bottle. The bottle is already ¾ full. Again poor all the water into the next smaller bottle and let the surplus poor on the floor. Explain that the bigger the trees the more space they need. Consequently in the last bottle not all trees find enough space – the water spills over. The water that spills over, is the amount of trees that can be harvested, as they would anyway die due to competition.

Guiding questions on the discussion on the forest inventory hsitogram

Young trees & regeneration
▪ 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
▪ 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 a surplus number of trees? ▪ What could be done to utilize 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)
▪ What is the status of adult (timber-sized) trees in the forest? ▪ 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?

2.7 Elaboration of 5-year CBFM plan

The final and most important part of the CBFM planning process is the writing of a forest management plan to be submitted for legal approval to district authorities.

Objectives

- To describe in detail the activities for each forest management unit that will be carried out during the 5-year management planning period
- To develop the village CBFM plan for approval

Time needed 90 minutes

Material A0 paper, markers, results from the former exercises (table of goals, demand & availability analysis and problems & opportunities, histograms, etc.), copies of the format of the 5-year forest management plan (appendix 2)

Steps

1. Present the objectives of the exercise.
2. Divide the group into the user-groups (or sub-groups) and let each group think about the main activities that can be carried out in a forest management block. These main activities can be categorized into 3 groups of activities:
   - **Utilisation** as timber harvesting, or the removal of mature, timber-sized trees by feeling and extracting their stems
   - **Improvement** as removing a selected number of trees or competing vegetation (climber, shrubs) in densely stocked forests to create sufficient space for potential crop trees to grow into large diameter. Further add that afforestation or enrichment planting are also means to increase the forest coverage.
   - **Protection** as all activities to protect the forest from natural (fire, diseases, grazing) and man made hazards (illegal logging, land conversion).
   - **Others/NTFP** as other forestry related activities e.g. road construction, or the production and utilisation of Non Timber Forest Products
3. Ensure that the respective forest block summary form is available and provide each group with a copy of the management plan format.
4. Start filling in the header of the table. Ask participants to complete the column “management goal” referring back to the results of the block description exercise.
5. Continue by presenting again the completed histogram with the overlaid forest structure model. Invite one participant to explain again how to identify options for harvesting or areas for protection.
6. For each activity under utilisation and improvement try to get participants to break them down into diameter classes and add more details under “description”. This can best be done by continuous questioning e.g. how?, what?, when?, how much? 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)? etc.
7. For every activity, ask participants to describe:
   - How it will be done? (description)
   - How much of the activity? (quantity e.g. How much to be harvested in number of trees per diameter class.)
   - Who will do it? (responsibility)
8. Work through the objectives of utilisation and improvement by diameter class and discuss each of the activities in detail.
9. If required ask whether some finance is needed to implement a specific activity, how much would be required and where this money could come from. Note down the results in the table under “required budget & source”.

10. For protection, it will usually be enough to refer to the approved Forest Protection and Development Regulations, but ask further questions to see whether the group feels these regulations are sufficient to protect their forest management block and whether additional protection activities need to be carried out by the group members (villagers).
11. Explain that for "NTFP" no detailed figures on the total amount will be described as this is very difficult of estimate and to monitor. Instead, harvesting techniques are described to ensure the sustainability of the extraction of the specific NTFP. For reference the FPDRs should be available to refer to some forbidden products/harvesting techniques, e.g.:
    - ✓ Fruit collection is limited to collection of fallen fruits from the ground. Any cutting of trees or branches or entire trees is strictly forbidden.
    - ✓ Selective cutting of only mature rattan individuals, avoid damage to immature rattan individuals or seedlings.
    - ✓ No damage to the root system during harvesting.
    - ✓ Clumps with less than six individuals cannot be harvested.
    - ✓ Stems are cut above the base at 15 - 20cm height.
12. Ask a representative of each group to present their results and encourage the other participants to ask questions.
13. End the exercise and explain that this is the major part of the CBFM plan. All representatives of the group should discuss the plans with all members of their group and reach agreement on the plan (in case of forest land allocation to the entire village the CBFM plan should be discussed in a village meeting). After this, the village CBFM plan needs to be prepared comprising all the plans of all the user-groups in the village to be submitted to the commune and district authorities for reference. The individual forest management block plans have to be approved at district level before any implementation in the field can start.

2.8 Evaluation and closing

CBFM is relative new to Vietnam and entirely new to Quang Binh province. It would therefore be appreciated to get feedback from participants and stakeholders to improve the methodology for CBFM and also this manual. Furthermore an evaluation is useful to know if the implementation met the expectations of the participants and which follow-up steps are needed to apply CBFM in the field.

Objectives

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

Time needed 30 minutes

Material A0 paper, markers, expectations listed in the introduction

Steps

1. Tell participants that this is the last part of the CBFM planning process. Ask them to give their comments and tell them that these will be used to improve future CBFM plan development.
2. Refer to the list of expectations from the introduction session. Go through the list and ask participants if these were met.
3. Ask participants which follow up activities are needed and if further support is needed in elaborating the village and commune CBFM plans and its implementation.
4. Try to ask specific questions e.g.: From which session did you learn most? What did you learn that is new? Which parts of the implementation did you not understand?
5. Make notes of points raised.
6. Finally, thank participants for their participation and perhaps say a few words to describe what you think, has been most successful before closing the session.

Further reading

Community Forestry Training Package, 2004. Social Forestry Development Project Song Da, GTZ/GFA, Hanoi Vietnam

Community Forest Management Planning – Implementation guideline, 2006. Project on Rural development Dak Lak (RDDL), GTZ/GFA, Dak Lak, Vietnam.

Benefit sharing Mechanism – Implementation guideline, 2006. Project on Rural development Dak Lak (RDDL), GTZ/GFA, Dak Lak, Vietnam.

Silviculture and harvesting guideline – Technical guideline, 2006. Project on Rural development Dak Lak (RDDL), GTZ/GFA, Dak Lak, Vietnam.

Sustainable Forest Model, Concept and Development – Technical guideline, 2006. Björn Wode. Project on Rural development Dak Lak (RDDL), GTZ/GFA, Dak Lak, Vietnam.

Community Forest Management - Technical guidelines, 2006. Bao Huy. Extension and training support project for forestry and agriculture in the uplands (ETSP), Helvetas, Hanoi, Vietnam

Guidelines for simple silvicultural practices in community forests in Vietnam, 2006. Bao Huy, ETSP, Helvetas, Hanoi, Vietnam

Community Forest Management – Training of trainers, module 3, 2006. ETSP, Helvetas, Hanoi, Vietnam

Vietnamese-German Financial Cooperation Smallholder Forestry Project, Training Manual, Volume 1 and Volume 2, 2005. G. Kuchelmeister and Le Quoc Huy (eds). KFW/GFA/GWB. Margraf Publishers, Weikersheim, Germany.

Village Forestry Handbook, 2001. Forest Management and Conservation Program (FOMACOP), Ministry of Agriculture and Forestry, World Bank and the government of Finland, Lao PDR

Village Forestry Training Manual, 2001. FOMACOP, Ministry of Agriculture and Forestry, World Bank and the government of Finland, Lao PDR

Village Forest Management Planning Module 1-3, 2006. Björn Wode. Forest Rehabilitation and Forest Management in Quang Nam, Quang Ngai, Binh Dinh and Phu Yen (KfW 6)

Training manual combined forest inventory for forest land allocation and village forest management planning, 2007. Björn Wode. Forest Rehabilitation and Forest Management in Quang Nam, Quang Ngai, Binh Dinh and Phu Yen (KfW 6)

Commune Forest Management Planning – Training manual Part 1 & 2, 2004. Björn Wode. Forest Sector Program (ADB)

Appendix 1: Decisions for the establishment of Forest Management Boards

Decision for the formation of the Commune Forest Management Board

Peoples' Committee of
……..

Socialist Republic of Vietnam
Independence- Freedom-Happiness
----------o0o----------

No:……/QD-UB

Date:

Decision of the Peoples' Committee of ……

On the "Formation of the Commune Forest Management Board"

The Peoples' Committee of……. ….commune decides to:

Article 1: To establish the Commune Forest Management Board comprising of the following members:

1. Head: Mr. / Mrs……., Vice-chairman
2. Vice-head: Mr. / Mrs……., Local Forest Ranger
3. Member: Mr. / Mrs……., Communal Forestry staff
4. Member: Mr. / Mrs……., ……..

These members have been elected in a commune meeting, dated……

Article 2: The Commune Forest Management Board is established for a period of 5 year, from ……..…to……..…

Article 3: The tasks of the Commune Forest Management Board include:

- To monitor and evaluate the implementation of CBFM in the villages
- To assess, review and submit 5-year CBFM plans to the district authorities
- To assess, review and appraise the submitted harvest proposals for selective cutting
- To submit harvest proposals to district authorities for approval
- To ensure that CBFM activities are carried out according to Vietnamese law (including the payment of taxes in case of commercial timber extraction)
- ……..

Article 4: The CPC of……..….commune and the members mentioned above are responsible for the implementation of this decision.

CC:
- Members of Commune Forest Management Board
- CPC of ……..….commune
- Forest Protection Unit
- Office of Natural resources and Environment

On behalf of the CPC
Chairman

(signature & stamp)

Decision for the formation of the Village Forest Management Board

Peoples' Committee of
……..

No:……/QD-UB

Socialist Republic of Vietnam
Independence- Freedom-Happiness
----------o0o----------

Date:

Decision of the Peoples' Committee of ……

On the "Formation of the Village Forest Management Board"

The Peoples' Committee of……. ….Commune decides to:

Article 1*:* To establish the Village Forest Management Board in village……..……with the following board members as mentioned below:

1. Head: Mr. / Mrs……., Village leader
2. Vice-head: Mr. / Mrs……., Women Union representative
3. Member: Mr. / Mrs……., ……..
4. Member: Mr. / Mrs……., ……..

Members of the Village Forest Management Board have been elected by the people of village…….….. in a village meeting, dated……..……

Article 2*:* The Village Forest Management Board is established for a period of 5 year, from ……to…….

Article 3: The tasks of the Village Forest Management Board include:

- To monitor and evaluate the implementation of CBFM in their village in cooperation with the Commune Forest Management Board
- To submit 5-year CBFM plans to the Commune Forest Management Board
- To collect, aggregate and submit harvest proposals for selective cutting to the Commune Forest Management Board
- To keep a logbook of the implemented CBFM activities (including plantation establishment, number of trees and volume of timber cut for commercial purposes)
- To assist user-groups in the preparation of CBFM plans and harvesting proposals
- ……..

Article 4: The CPC of……commune and the people mentioned above are responsible for the implementation of this decision.

CC:
- Members of Village Forest Management Board
- CPC of ……commune
- Forest Protection Unit

On behalf of the CPC
Chairman

(signature & stamp)

Appendix 2: Village CBFM plan format

SOCIALIST REPUBLIC OF VIET NAM
Independence - Freedom - Happiness
----------*----------**

COMMUNITY BASED FOREST MANAGEMENT PLAN

Village…….

Commune……..

District……

Province…….

Planning period from……to……..

Day…….Month…….Year……

……DPC

……CPC

SOCIALIST REPUBLIC OF VIET NAM

Independence - Freedom - Happiness

No. : /**TT-UB**

Place…….. date……

SUBMISSION ON

«Approval for Community Based Forest Management Plan of …….village»

To : **-** ……**DPC**
- ……**District Economic Division**

This Community-based Forest Management Plan (CBFMP) is the outcome of a participatory planning exercise jointly completed by the village community under guidance of the respective local administration in line with existing legal regulations on forest management as stated by the government of Vietnam in the Law on Forest Protection and Development.

This CBFMP aims at the sustainable development and utilization of the forest resources managed within ……. village.

The CBFMP as presented here, is elaborated for a planning period of five years to provide the medium-term stability that is needed to guide consistent implementation of sustainable forest management activities as prescribed in the plan.

All silvicultural interventions including the annual harvesting regime are derived from a technical sound forest inventory conducted together with the community.

Long-term land use right certificates have been issued by the DPC for the entire forest area concerned in this plan and land use certificates have been handed over to the present forest manager in the year…….. Relevant mapping information about the forest resources of the village are available as updated village forest land allocation map at the CPC.

The CBFMP is described for each forest management block of the village forest area based on an independent forest inventory.

For land use statistics please refer to the Village and Commune FLA plan at the respective CPC.

In order to realize the CBFM plans in the field and thus enhancing effective forest management, forest development and forest protection, …… CPC, would like to suggest the DPC and the Economic Division of ……..District to review and to approve the attached CBFM plans (please see the attached files for details).

To
- As above
- For filing

On behalf of the CPC
Chairman

(signature & stamp)

Table 1: Forest management blocks currently managed by forest user groups

- **Forest user groups per village (only required if user group management is based on individual land use certificates)**
- **For forest user groups/village under one land use certificate see respective red book or village FLA plan for details**

#	Group (head of group)	Location			Area (ha)
		Unit	***Compartment***	***Block***	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
…					
Total number of user groups				**Total forest area [ha]**	

Table 2: 5-year Natural Forest Management Plan (per forest management block; including one or more user groups)

Area [ha]		**Unit**		**Compartment**		**Block**			
User group									
Forest type									
Management Goal									
Objective	**Quantity**			**Unit**	**Description**		**Responsibility**	**Required budget**	**Source**
Utilisation [diameter ≥ 20 cm] Red = ≥ 45 cm Saw = 35 - 44,9 cm Dots = 30 - 34,9 cm Blue = 25 - 29,9 cm Stripes = 20 - 24,9 cm	Red			tree					
	Saw			tree					
	Dots			tree					
	Blue			tree					
	Stripes			tree					
Improvement Black = 15 – 19,9 cm Yellow = 08 - 14,9 cm	Black			tree					
	Yellow			tree					
Enrichment planting				ha	*Species:*				
Protection *further details see FPDRs*									
Others / NTFP									

Table 3: 5-year Village Forest Plantation Management Plan (Village level)

	Activity	Total Area [ha]	Age	Unit	Compartment	Block	Required budget	Source
Harvest	*Acacia mangium*							
	Eucalyptus sp.							
	…							
	NTFP							
	Total harvest [ha]							

	Activity	Total Area [ha]	Unit	Compartment	Block	Required budget	Source
Afforestation	*Acacia mangium (1600/ha)*						
	Eucalyptus sp. (1600/ha)						
	…						
	NTFP						
	Total afforestation [ha]						

Appendix 3: Aggregated Commune Forest Management Plan

Table 4: 5-year Commune Forest Management Plan (Afforestation and Natural forest)

Commune Plantation Management Plan				
Commune		**Villages**		
Area [ha]				
Objective	**Total Area [ha]**	**Required budget**	**Source**	
Afforestation				
Acacia *(1600/ha)*				
Eucalyptus sp. *(1600/ha)*				
…				
Harvest				
Acacia				
Eucalyptus sp.				
…				

Commune Natural Forest Management Plan						
Commune			**Villages**			
Area [ha]						
Objective	**Quantity**			**Unit**	**Required budget**	**Source**
Utilisation [diameter ≥ 20 cm] Red = ≥ 45 cm Saw = 35 - 44,9 cm Dots = 30 - 34,9 cm Blue = 25 - 29,9 cm Stripes = 20 - 24,9 cm	Red			tree		
	Saw			tree		
	Dots			tree		
	Blue			tree		
	Stripes			tree		
Improvement Black = 15 – 19,9 cm Yellow = 08 - 14,9 cm	Black			tree		
	Yellow			tree		
Enrichment planting				ha		

Appendix 4: Application forms for selective timber cutting

Table 5: User group application form – Utilisation of timber from natural forest

Village		**Commune**			
User-group					
Unit		**Compartment**		**Block**	

Trees marked for harvesting in the respective forest management block					
Tree number as marked on stem	Diameter class and girth		Tree species	Volume at log yard	Notes
	Colour	(cm)			
Proposed time frame for timber harvest:					

Date:……

Harvest design approved at harvest site
by Forest Protection Unit,

Mr./Mrs:……

Date:……..

Harvested amount approved at log yard
by Forest Protection Unit,

Mr./Mrs:……

Table 6: Village level summary application – extraction of timber from natural forest

Commune				Village			Number of user-groups					
User-group	Number of trees to be extracted per DBH class [cm]							Location of harvest sites				Notes
	08-14,9	15-19,9	20-24,9	25-29,9	30-34,9	35-44,9	≥ 45	Block	Compartment	Plot	Area	
Total												
Proposed time frame for timber harvesting												

Date:……

Harvest design appraised by CPC,

Mr./Mrs:……

Appendix 5: Record book

Table 7: Village/Commune record book - timber extraction natural forest

Village		Commune		5-year planning period	From……to…….……..

	DBH classes [cm]							Location of harvest sites				
	08-14,9	15-19,9	20-24,9	25-29,9	30-34,9	35-44,9	≥ 45	Block	Compartment	Plot	Signature	Signature
	Allowable timber extraction 5-year							All permitted blocks			***Head of user group***	***Commune People Committee***
	Actual timber extraction							Actual harvested blocks				
Total												
Balance[1]												

[1] *(allowable extraction – actual extraction)*