Sustainable Management of Natural Resources in Central Vietnam

SMNR-CV

MANUAL

FACILITATION OF FOREST USER GROUPS AND FIELDS MODELS OF SUSTAINABLE FOREST MANAGEMENT

By: Vu Van Manh

June 2009

gtz

GFA Consulting Group

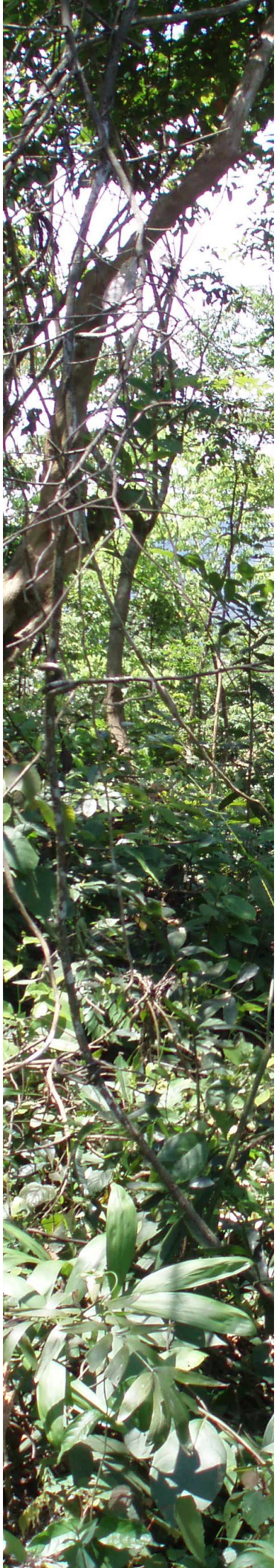


Table of Contents

Acknowledgements

I wish to express my gratitude to Dr. Hans-Juergen Wiemer, Chief Technical Advisor, as well as the Project Director, Mr. Cao Xuan Chinh for their support and helpful comments. Special thanks to Mr. Nguyen Van Hop, Mr. Nguyen Cuong, Mrs Nguyen Thi Thu Hong, forestry experts, and Mr. Nguyen Minh Duc, interpreter of SMNR-CV, who accompanied the mission at all times and made valuable contributions to this practical manual. In this regard, the consultant also wishes to thank respective members of the technical support-team, as well as all local people from Thanh Thach, Hoa Phuc, Hoa Hop and Dong Hoa communes.

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)
DPC	District Peoples' Committee
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	Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation)
Hh	Households
KfW	Kreditanstalt für Wiederaufbau (German Financial Cooperation)
NTFP	Non Timber Forest Product
NREO	Natural Resources and Environment Office (district level)
PLUP	Participatory Land Use Planning
SFM	Sustainable Forest Model
SMNR-CV	Sustainable Management of Natural Resources in Central Vietnam
VFMB	Village Forest Management Board

PREFACE

This manual is developed by the project "Sustainable Management of Natural Resources in Central Vietnam (SMNR-CV)", which is supported by GTZ and implemented by GFA Consulting Group. The practical guidance as described in the manual has been tested in the field in four communes, Dong Hoa, Thanh Thach communes in Tuyen Hoa district and Hoa Hop, Hoa Phuc communes in Minh Hoa district. Lessons learnt from field implementation as well as lessons learnt from other projects in Vietnam are also integrated in this manual.

The manual is written for forestry extension staff at the provincial and district levels and agriculture and forestry staff at the commune level who can support villagers in establishing sustainable forest management models which are managed by farmer groups. It is hoped that this manual will lead to the development of sustainable forest management models that will contribute to maintaining the natural resource base and generate incomes for local communities. For easier of targeted users, the author have to simplified the complicated technical issues and but tried to keep necessary information to facilitate farmer groups to develop the sustainable forest management models. The manual includes three parts as follows:

A. STRATEGY OF COMMUNITY FOREST BASED MANAGEMENT

B. GUIDELINE ON ESTBLISHMEN NAD IMPLEMENTATION OF THE MODELS

C ANALYSIS OF RESULTS THE FOUR ESTABLISHED MODELS AND POSSIBILITY
OF UPSCALING THE MODELS

Introduction

The general implementation strategy is to consolidate the outputs of IFSP, the former project in the fields of i) community-based village and commune development planning (VDP), ii) the application of appropriate farming systems and alternative income opportunities , and iii) community-based forest management (CBFM).

In the two project districts, there are over 50,000 ha of forest land which have been allocated to local communities with financial and technical support by the Integrated Food Security Project and the SMNR – CV. Up to 90% of this forest and forest land have been allocated to private households. The follow-up activities on Forest Protection and Development Regulations (FPDR) and Community-Based Forestry Management Planning (CBFM) only started in 2002.

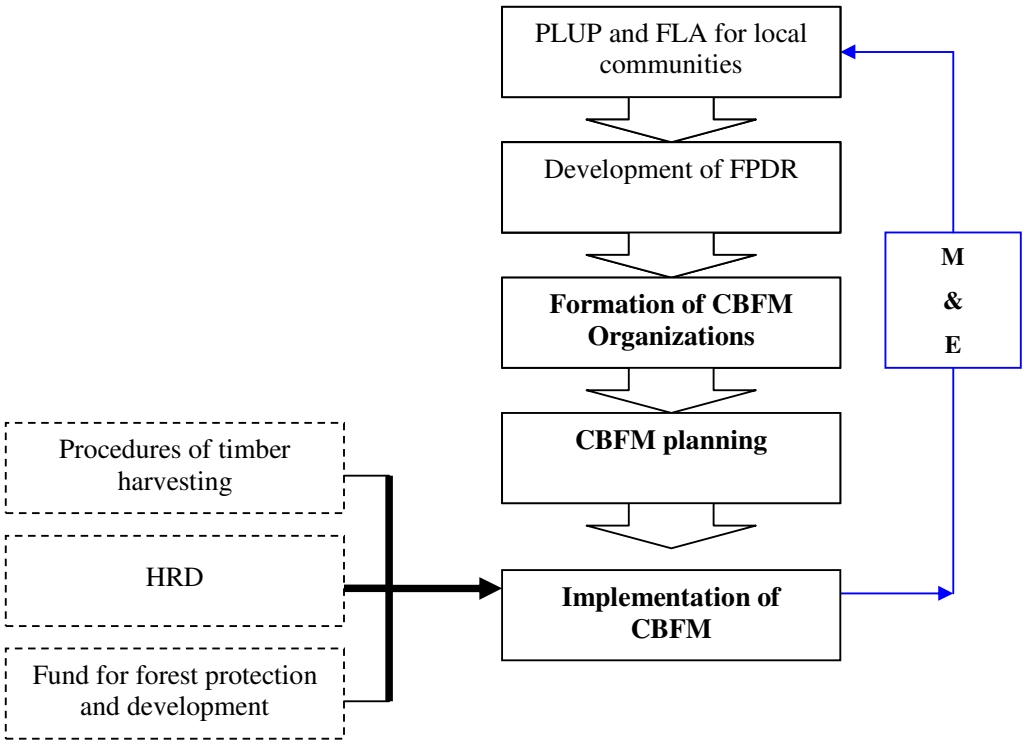
By the year 2006, the SMNR - CV had supported the establishment of 4 sustainable forest management models which are managed by household groups in the communes of Thanh Thach, Dong Hoa, Hoa Hop and Hoa Phuc. The purpose of the establishment of these models is to create empirical evidence that household groups can manage forests sustainably and efficiently with two objectives: (a) improve the quality of forest (b) generate additional incomes for local people.

PART A COMMUNITY – BASED FOREST MANAGEMENT STRATEGY OF SMNR - CV

I. OVEVIEW OF COMMUNITY – BASED FOREST MANAGEMENT

Community-based forest management, as applied by SMNR – CV, includes the following activities: (1) participatory land use planning and forest land allocation to individual households, forest user groups and communities; (2) development of forest protection and development regulations; (3) formation of community based forest management organizations; (4) planning of community based forest management; (5) implementation of community based forest management plans; (6) procedures of timber harvesting for house construction and for selling; (7) human resource development; (8) fund for forest protection and development; and (9) Monitoring and Evaluation; . They are described as below figure:

Figure 1 Overview of CBFM



So far, activities 1 to 5 have been conducted and/or tested in the field by SMNR – CV. For PLUP-FLA, FPDR and (soon) CBFM officially issued provincial guidelines have institutionalized the tested innovations and introduced them into the common practice of forestry staff.

II. FORMATION OF COMMUNITY–BASED FORESTRY ORGANIZATIONS

Land and forest land plots have been allocated to local people as to private households, household groups and/or communities. After implementation of LUP-FLA, the follow up is activities on development of forest protection regulations and CBFMP which have been conducted. For effective and sustainable forest management, there is a need to establish community-based forest management organizations. These organizations might be formed in formal or informal ways. It means that such organizations might be formally recognized by local authorities. If not so official, they are at informally recognized by local community members. In any case, the group formation should be suitable for each local context. The most common form of community organizations which communities have established so far, are "village forest management boards". Below the level of this board, there are usually a number of sub-groups of forest users.

To form a community forest management organization that will steer its members to manage their allocated forest land efficiently the following step-wise approach is recommended:

STEP 1. COMMUNE MEETING ON PLANNING

PURPOSE

- To agree with CPC, DPC, local organizations, and the communities to set up community organizations

THE WAY TO DO

Responsibility

- Communal agriculture-forestry staff, with support from project staff, and communal forest ranger

Preparation

- A set of stationary, spin boards, colors markers, color cards, and A0 papers
- Invite all relevant persons from CPC, commune mass organizations, district NRE office; give them this manual before the meeting and ask them to read it and to note down their comments and questions
- Also invite the district authorities in order to familiarize them with the methods
- A checklist with everything you need for the meeting helps you to prepare it well

Suggested agenda

The day of the meeting could be structured as follows

- Introduction on purpose of the meeting, representatives, agenda, etc
- Present the minimum objectives of the meeting
- Give an overview of CBFM
- Give purposes of this stage
- Discuss about who should responsible for what
- Discuss about money, timeframe
- Discuss on the next step

OUTCOME

- A plan which shows human resources, budget and timeframe for implementation

STEP 2 VILLAGE MEETING ON FORMATIONF OF COMMINITY - BASED FOREST MANAGEMENT ORGANIZATIONS

PURPOSE

- To agree on which forms of community forest management organizations should be set up for each village
- To develop regulations for community forest management organizations

THE WAY TO DO

Suggested agenda

- To analyze the forest management situation of the community in order to suggest the best organizational structure; the final structure should decided by communities, not by outsiders
- To develop the stipulations of community forest management organizations for forest user groups and community forest management board
- To define the boundary of each groups on the maps and on the fields
- To approve the formation of community forest management organizations

There are some options from which the local people can select the best suitable for each block: managed by whole village, by groups, and/or by individuals. In order to help communities to take the right decisions, facilitators should facilitate them to analyze the advantages and disadvantages for each option.

Example 1: Analysis of advantages and disadvantages for each option in Village 1, Thanh Thach commune, Tuyen Hoa district

	Individual Household	**Household Group**	**Village**
advantages	• High responsibility for investment • Clearing of benefits	• Take a economical full advantages by scale • Empower the negotiation of the sale of forest products • Easier in the demarcation of boundaries • Create more chances to learn each other	• Easier in the demarcation of boundaries • Take a full advantages by scale
disadvantages	• High cost in management • Difficulty in demarcation of boundary	• Difficulty to get a consensus to share the costs and benefits	• Difficulty to get a consensus to share the costs and benefits • Low responsibility of investment of villagers

After carefully analysis, each community will select a suitable type of management for each block. So that in one community there might be are one, two or different three types of forest management: either by the whole village, by forest user groups or by individual households, as follows:

1. Areas with low intensity of forest use (natural forests); far away from resident areas, villagers normally select to manage by the whole village.
2. Areas which are relatively far away from resident areas, do not have clear boundaries and are difficult to manage by individual households, villagers normally select to manage by groups.
3. Areas which are close to resident areas and consist of scattered small plots are normally selected for management by individual households. However, this type of forest management is rarely chosen because it is not very efficient and requires a lot of inputs from forest users.

In most cases, local communities decide to select the forest management type of forest user groups, mainly because the boundaries of the plots allocated to individual households are not clear and in order to take advantage of the potential of economics of scale. Each group is normally organized as follows:

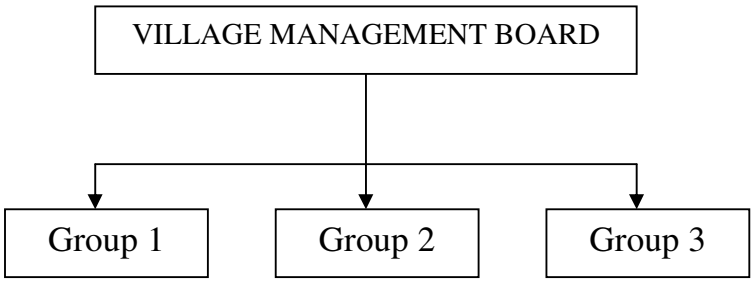
Dimensions: from 3 to 20 ha with 3 to 15 households included. If the combined forest area of a group is too small it cannot take full advantage of scale. But if the total area it is too large, and the number of group members too high, it will exceed the management capacity of the group, which in turn will lead to disadvantages that are difficult to control. In larger groups, it is more difficult to reach consensus and they are often not flexible enough to adapt to the changing and dynamic framework situation in Vietnam.

The structure of a forest user group would normally consist of a head group cum sectary with groups below 7 members; and a head group and sectary with groups over 8 members.

OUTCOMES

Community forest management organizations were set up which are recognized by local community.

Example 2: Figure of community forest management organizations of Village 1, Thanh Thach commune, Tuyen Hoa district



III. BRIEFLY DISCRIBING THE PROCESS OF CBFM PLANNING

Following up on the above mentioned steps, SMNR – CV has supported local communities to develop CBFM plan in Hoa Hop, Hoa Phuc, Dong Hoa and Thanh Thach Communes in 2006.

PURPOSE

For each forest plot, elaboration of management goals which are to satisfy the sustainable forest management targets and to meet the demand of forest product usage of the local community.

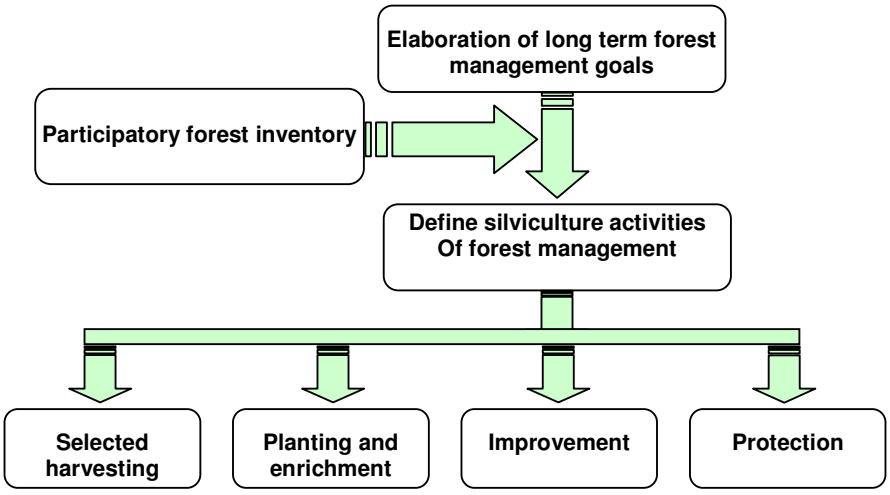
THE WAY TO DO

There are 7 steps which should be conducted as follows: (1) preparation ; (2) block zoning and formation of forest user groups (if have not yet done); (3) define boundary of blocks on the maps and in the field; (4) participatory forest inventory; (5) develop the 5 year forest management plan (6) get approval of the commune for the 5 year plan; and (7) implement the plan.

OUTCOMES

The commune 5 year forest management plans are approved by the DPC.

Figure 2 Overview of elaboration of forest management goals



Bjorn Wode, 2009

IV. EXPLANATION OF NECESSARY RESOANS TO ESTABLISH THE FOREST MANAGEMENT MODEL OF HOUSEHOLD GROUPS

Some reasons for establishment of forest management models which are managed by household groups as follows:

- To take the full advantages of scale: reduce the cost of procurement such as seedlings, fertilizes; increase the environmental effect of forest protection; reduce the labor cost for establishment by cooperation of management such as fence making, patrolling; empower the negotiation when selling forest products, so that increase the possibility of selling with higher prices, etc
- This type of forest management was chosen by almost all communities in Tuyen Hoa and Minh Hoa districts.
- Forest management plan of household groups which is lowest plan in CBFM. Its successful implementation will lead to successful implementation of CBFM on higher levels (village and commune).
- Overcome the forest allocation program weakness to individual household in the past (no clear boundary demarcations in the field).

PART B. GUIDELINE ON DESIGNATION AND IMPLEMENTATION OF CBFM MODELS BY HOUSEHOLD GROUPS

The previous sections have described the preconditions for CBFM which included: PLUP-FLA, FPDR, formation of community forest management organizations; and CBFM planning. They are the preconditions for CBFM that lead to sustainable forest management. Now we come to the main sections of this manual; the section guide on how to facilitate household groups to establish a sustainable forest management model.

After CBFM plans have been approved, the communities are in need of support on silviculture techniques, basic business techniques, etc. Without support from outsiders, the forest user groups could also implement their CBFM plans with activities such as planting, thinning and harvesting; but the process might be slower and not as effective. The best way to convince rural people of the advantages is to show real evidence in the field, since famers learn easier from others which have similar conditions to them. The CBFM models set up by the SMNR-CV project have been established for this reason.

Based on the mentioned requirements, SMNR–CV has supported the establishment of 4 CBFM models which are managed by household groups. The evaluation of these field models (see Part C) reveals that these models are very successful in terms of environmental and economic aspects.

Table 1, below, documents the major steps in the establishment and operation of the models. It is based on the relevant project documents and on the survey among the members of the forest user groups.

Table 1 Overview of establishment and operation of CBFM models

Step	Content of step	Tools	Participants/responsible for
1.	Planning meeting at communes	CBFM overview; Overview of establishment and operation of models; and Planning sheet	Project staff; NREO staff, District Economic office staff; CPCs, commune agro – forestry staff, village headman; and commune mass organizations.
2.	Planning meeting at villages	CBFM overview; Overview of establishment and operation of models; Planning sheet; FLA maps.	Project staff; commune agro – forestry staff, commune forest ranger, villagers
3.	Participatory design of models	Maps; CBFM of groups (if available); and PRA	Project staff; commune agro – forestry staff, commune forest ranger, groups members
4.	Support to implement the model design	Diary	Project staff; commune agro – forestry staff, commune forest ranger, groups members
5.	M&E	indicators Report	Project staff; commune agro – forestry staff, commune forest ranger, groups members

The above steps are further described as follows:

I. COMMUNE MEETINGS ON A PLAN OF MODEL ESTABLISHMENT

PURPOSE

- To reach the common consent on a plan of establishing and scaling up the models with relevant parties, in order to get support from them
- To advice the commune agro-forestry, and commune forest rangers
- To plan for what to do next, how and when to do it

THE WAY TO DO

Preparation (timeframe: ½ day)

- Invite the relevant persons from the district, commune and village levels; especially pay attention to persons who have knowledge and experience on agriculture and forestry
- Give them this manual a few days before meeting and ask them read and write down their questions
- Also invite the district and commune authorities in order to make them familiar with the methodology
- Make a checklist with everything you need for the meeting helps you to prepare it well

Suggested agenda

- Briefly introduce the overview of CBFM; highlight that CBFM means communities engage in forest management in some types that are individual households, household groups and/or a whole village (a village is seen as a community).
- Introduce the ideas to establish the forest management by forest user or household groups.
- Discuss on the advantage and disadvantages of each type of forest management
- Discuss which villages are suitable for establishing the models of the household-group forest management.
- Discuss on the needs for financial and technical support, and which organizations might possibly provide this support (government program, donor project).
- Make timetable of how much time is need to carry out for each village and for the whole commune.
- To close the meeting makes sure that everybody feels confident about the models.
- Plan the next step.

OUTCOMES

- Suitable villages are selected
- Village meetings are planned

II. VILLAGE MEETINGS ON SECLECTION OF HOUSEHOLD GROUPS TO ESTABLISH MODELS

PURPOSE

- To agree with villagers on which groups could establish the models
- To plan the next step

Example 3 Criteria for selection of groups to establish the models in Thuan Hoan village, Dong Hoa commune, Quang Binh province.

- Interested in establishing the models
- Willing to share experience with other villagers
- Have manpower and finance capacity to establish the models
- Each member willing to cooperate with others
- Close to truck roads

THE WAY TO DO

Preparation (time frame: ½ day)

- Contact with leaders of selected village to agree on agenda of meeting and fix a day for meeting
- Invite representatives of groups from 2 to 4 for each, it is absolutely necessary present of head and sectary
- Prepare the contents of meeting
- Stationary: markers, A0 papers, color cards
- Materials: Handout, CBFM overview sheet, model establishment overview sheet, market of forest product information, CBFM plan (if it has been done already), this manual

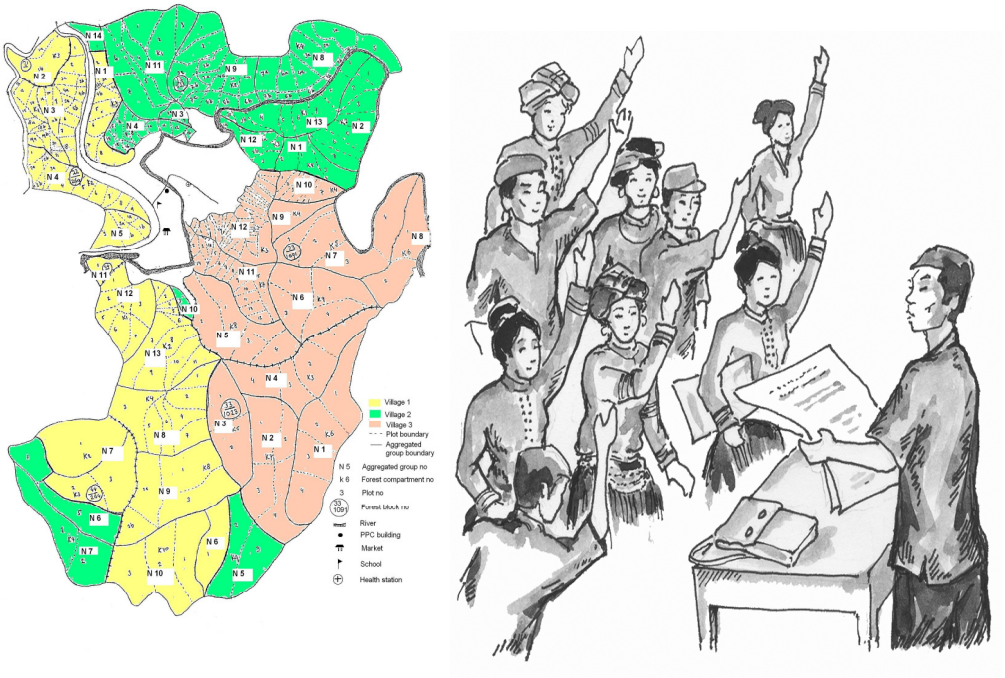
Suggested agenda

- Introduce about the overview of CBFM
- Explain about steps to develop the CFM models
- Discuss on the type of group forest management
- Present the result of evaluation and lesson learnt from the successful models
- Discuss on criteria for groups selection

OUTCOMES

- Suitable groups are selected which are fit with selection criteria
- Basic information of selected groups (area, number of household, location of forest block of selected groups, preliminary suggested activities will be conducted).

Figure 3 Illustration of a village meeting on group's selection



III. GUIDELINE ON FACILITATION TO DESIGN THE GROUP FOREST MANAGEMENT MODELS

This is the most important step in the whole establishment process because it affects how successful (or not) the models will be. By the very nature of forestry the development of the models will take a rather long time, at least for five years. So, any decision on the design of the model will have a rather will long lasting effect.

By conventional methods, this task is regulated to be done by technical organizations, such as Sub-FIPI. In this manual, the way is described on how to make the design by forest user group itself in a participatory way. In this way, some bottlenecks of conventional methods can be overcome, because the villagers have a deeper understanding of the specific local conditions. Furthermore, if the villagers decide themselves on their model design, they have a stronger commitment to accomplish the goals of the CBFM plan and the goals of the model.

MAIN PURPOSES

- To decide what activities will do
- To decide how to do
- To decide which silviculture techniques will be applied
- And to decide which option of enterprise are selected in order to maximize their benefit.

Timeframe: 2 - 3 days

THE WAY TO DO

Preparation

- Discuss on the agenda with the head group and make sure all group members will present
- Invite representatives from commune and district levels, especially who have experience and knowledge of agriculture and forestry
- Stationary: markers, A0 papers, color cards
- Materials: Handout, CBFM overview sheet, model establishment overview sheet, market of forest product information, CBFM plan (if it has been done already), this manual, forest allocation maps

Suggested agenda

a) Discuss on the goals of model with regards to economic, social and environmental aspects; initial question: What we want from the model?

Example 4: The goals formulated for the model of Group 1, Thuan Hoan village, Dong Hoa commune, Tuyen Hoa district are: (1) generate the incomes for group members and (2) improve the quality and increase the forest cover of group forest block.

b) Develop indicators of models

Key questions:

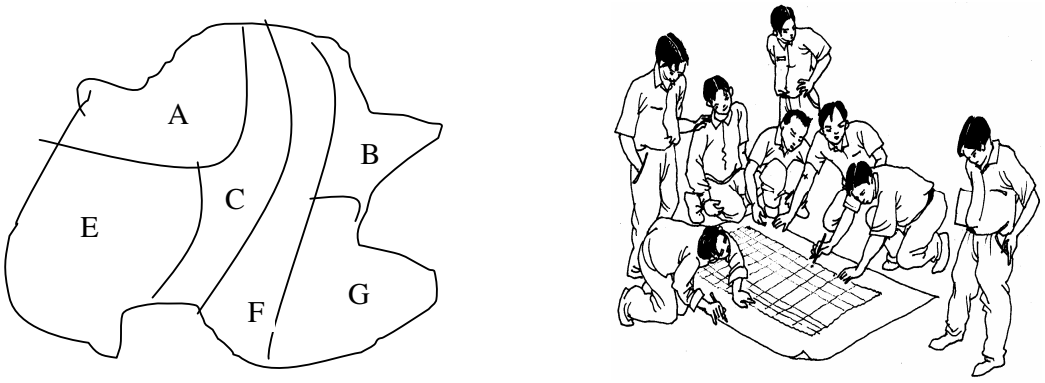
- Economic: How much income will the model generate?
- Social: How many jobs will it create?
- Environment: how much percent of forest cover will increase?

c) Define the activities of models

To do this, the group should be provided with secondary data from previous steps and related documents, such as forest land allocation maps, data of participatory forest inventory; CBFM plan. A sketch map of group forest bock should be drawn for to facilitate the discussion. Follow-up activities are then:

- To list all activities what planned in the CBFM planning
- To classify the forest land status in catalogues: bare land (Ia, Ib, Ic); Forest land of natural regeneration after agriculture practices (IIa, IIb); poor forest (IIIa1); medium forest (IIIa2); rich and intact forest (IIIA3, IVA, IVB)
- To define the area (ha) based on forest land allocation documents
- To decide what silviculture techniques should be applied for each plot

Figure 4 Illustration of group discussion



After some discussion, exercise and calculations, the group should fill in a sample of a group forest management plan as the example below.

Example 4 Group forest management plan of Group 1, Da Nang village, Hoa Hop commune, Minh Hoa district

No	Forest status	Major activities	Purpose	Area (ha)
1.	Bare land	Planting	Create commercial timber.	3
2.	Very poor forest	Additional planting	Create commercial timber.	2
3.	Poor forest	Nurturing by thinning and cutting none purpose trees; climber, vv	Improve the quality of forest for commercial timber harvesting.	10
4.	Medium forest	Protection	Improve the quality of forest for commercial timber harvesting.	10

d) Decide silviculture techniques for each activity in order to describe in detail how to do it

After the groups have decided on activities for the models, the subsequent step is to refine each activity into more detailed sub-activities. This way, it will become clearer on how to the activities. In example 4, above, the group planned 4 major activities: planting; additional planting; nurturing; and protection but it is not jet described what species, when to do, how many days were needed. In addition to these inputs, a basic cost – benefit analysis is needed by the group members to know the potential outputs and benefits. So that in this design step the facilitators have to raise a number of open questions for the group discussion on each of the major activities, such as:

- What will we do?
- How could we do?
- Why we do that?
- When we should do?
- Who should do it?
- Who will benefit in the end?

In the following section, the possible detailed design for each activity is described step by step.

I. PLANTING

Step 1. Decide species to plant

PURPOSE

- Select appropriate species for planting

THE SUGGESTED WAY TO DO

There is a number of ways to select appropriate species in a participatory way, but the most common methods are:

a) Brain storming method

Facilitators raise the question on what species you think we should plant in the model?

Figure 5 Illustration of brain storming exercise

- Every idea should be written down on color cards and pinned on A0 paper/walls
- Cluster or group the ideas to the catalogues; if are some ideas is the same; only take one as a representative

Result

- A list of species accepted by all group members for tentative planting

If in the first meeting of this kind, agreement cannot yet be reached among the group members, facilitators should continue with some more exercises, such as:

b) Ranking matrix is to select the most appropriate species

Example 5: To select the most appropriate species in Group 1, Thuan Hoan village, Dong Hoa commune, Tuyen Hoa district. In the first round, group members had named several species for planting, such as: Acacia Hybrid, Chukrasia tabularis, Acacia mangium, Rattan, and bamboo for shoots.

First develop criteria what the group members are mostly concerned with and decide the maximum of points for each criterion; then ask the group to mark the points for each of each species.

Criteria	**Max of point**	Acacia Hybrid	Chukrasia tabularis	Acacia mangium	Rattan	bamboo for shoots
Has been planted and grows well	10	10	10	7	8	8
Could be planted on infertile soil	10	10	10	10	4	2
Short rotation	7	5	7	7	5	4
To fertilize the soil	7	5	5	7	4	4
To persist insects and diseases	4	3	2	2	2	7
Easy to buy seeds/seedlings	7	5	6	7	4	0
Good timber	5	3	3	2	5	5
High price	10	8	5	3	10	10
Easy to sell	10	8	5	3	10	10
Total	*70*	*57*	*53*	*48*	*52*	*50*
Ranking		A	B	E	C	D

Result: the three most appropriate species selected by the group were Acacia Hybrid, Chukrasia tabularis and Rattan

Example 6 Selection of the most appropriate species by wise-pair ranking method

	Acacia Hybrid	Chukrasia tabularis	Acacia mangium	Rattan	bamboo for shoot	**Total**	**Ranking**
Acacia Hybrid		Acacia Hybrid	Acacia Hybrid	Acacia Hybrid	Acacia Hybrid	4	A
Chukrasia tabularis			Chukrasia tabularis	Rattan	Chukrasia tabularis	2	C
Acacia mangium				Rattan	bamboo for shoot	0	E
Rattan					Rattan	3	B
bamboo for shoot						1	D

The result is the same: the three most appropriate species selected by the group were Acacia Hybrid, Chukrasia tabularis and Rattan.

Step 2. To decide methods of planting

There are basically two methods of planting, namely mono planting and mixture planting. There are several types of mixture planting, such as mixture by tree species; mixture by rows; group mixture; mixture obtained by under planting; and temporary mixture.

Before the group decides on what method will be applied, some explanation advantages and disadvantages of each method is needed

Example 7 Analysis of advantages and disadvantages of each method by Group 1, Da Nang village, Hoa Hop commune.

Method	**Advantages**	**Disadvantages**
Mono plantation	Simple technique Low cost (normally)	No increase of plantation revenues Risks related to market demand and price fluctuations Risks for outbreaks of pests Environmental risks related to declining soil fertility and soil erosion Decreased wildlife diversity
Mix plantation	Increased plantation revenues Reduce risks related to market demand and price fluctuations Reduce risks of pests and plant deceases Reduced environmental risks related to improved soil fertility and prevention of soil erosion Increased wildlife diversity	complicated technique high cost (normally)

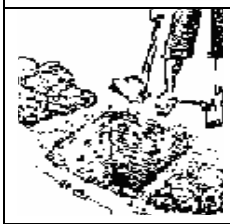
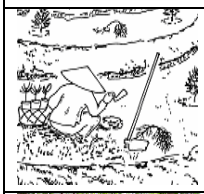
Step 2. To decide silviculture techniques of sub- activities

After the group decides on the appropriate species and methods of planting, the facilitator focuses the discussion on the formulation of sub-activities and outlines the possible options. In planting activities, there are sub- activities as follows: seedling preparation; site preparation, planting, maintenance, thinning, harvesting, disease and insect protection, etc.

Discussion on

- Rotation of models
- Sub–activities of planting

Example 8 Silviculture techniques for sub- activities of Group 1, Da Nang village, Hoa Hop commune.

Sub – activities	Techniques options	Note
	Buy from accredited nurseries	
	No burning Holes layout on contour line as “quincunx or alternate”; holes dimension for acacia: 30cm x 30cm x 30cm and 40cm x 40cmx 40cm for Chukrasia tabularis. Dig hole from 20 to 30 days before planting	Maintain soil fertility
	Planting in rainy season *from September to January.* Mixture planting between acacia and Chukrasia tabularis Density: 1100 seedling/ha	
	Maintenance: 2 times for the first two years	
	Thinning in year 6 Harvesting in year 12	

Step 3. To make timetable for each activities

The plan of each activity should be visualized in order to make sure everyone have the same ideas.

Example 9 Timetable of plantation of Group 1, Da Nang village, Hoa Hop commune.

year	0	1	2	3	4	5	6	7	8	9	10	11	12
• Site preparation													
• Planting													
• Maintenance													
• Thinning, harvesting													

Step 4 Cost estimation

For the estimation, all items of investment for the activity have to be listed. The price of each items should based on the current price on the market. Major items include, for example:

- Labor included in initial planting, maintenance, etc: hired and own family
- Materials: seedlings, fertilizes

Cost calculation for sub- activities (for more detail see appendix 1, appendix 2 and appendix 3). After that, calculation of estimation for each year in the rotation per unit (ha)

Example 10 Cost estimation through rotation per ha of Group 1, Thuan Hoan village, Dong Hoa commune, Tuyen Hoa district.

Unit: 1,000 VND

year	0	1	2	3	4	5	6	7	8	9	10	11	12
Total: 16,725	8,250	3,735	1,140	360	360	360	360	360	360	360	360	360	360

After that, multiply with area of the model plantation, it shows the cost through a year of rotation.

Step 5 Estimation of income

Firstly, estimate the yield per unit through year of rotation, including:

- Saw log
- pulpwood
- firewood
- NTFPs (if interplanted in the plantation)
- Others

Example 11 Yield estimation per unit in Thuan Hoan village, Dong Hoa commune, Tuyen Hoa district.

Unit: m^3

products	**total**	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
pulpwood	25							25						
Acacia saw log	50													50
Chukrasia tabularis saw log	2.5													2.5

After that, multiply with area of the model plantation, it shows the income through a year of rotation (for more detail please see appendix 4).

II. ADDITIONAL PLANTING

This activity is simpler than planting. Questions for discussion should include:

- What species should plant?
- How many trees plant per ha?
- What techniques will apply?
- Cost estimation per ha
- Income estimation per ha
- Estimate the cost and benefit from the model

The steps and methods of design is the same as for plantation (for more detail please see **appendix 2**).

III. NURTURING AND PROTECTION

This activity is even simpler in design than additional planting. Questions for discussion should include:

- What should we do: thinning, climbers cutting, etc?
- How many labor days are needed per ha?
- How many labor days are needed for the model?
- Estimate for incomes / benefits

e) Simplified Cost-benefit analysis of model

Members of a forest user group naturally would like to know how much they have to expend and how much they could get out from the model in financial terms. This economic aspect is very important to them and is the most basic argument in convincing them to establish the model. Thus, facilitators should assist them is a simplified cost-benefit analysis.

- From the of cost of each activity, facilitators can help group members to calculate the expenditure on all activities through a year by multiplying the costs per area unit of the model and then sum them
- The same is applied for all factors of incomes
- For every year, the income minus its expenditure is the resulting net cash flow.

Example 12 Net cash flow of the model of Group 1, Thuan Hoan village, Dong Hoa commune, Tuyen Hoa district

Unit: million VND (rounded)

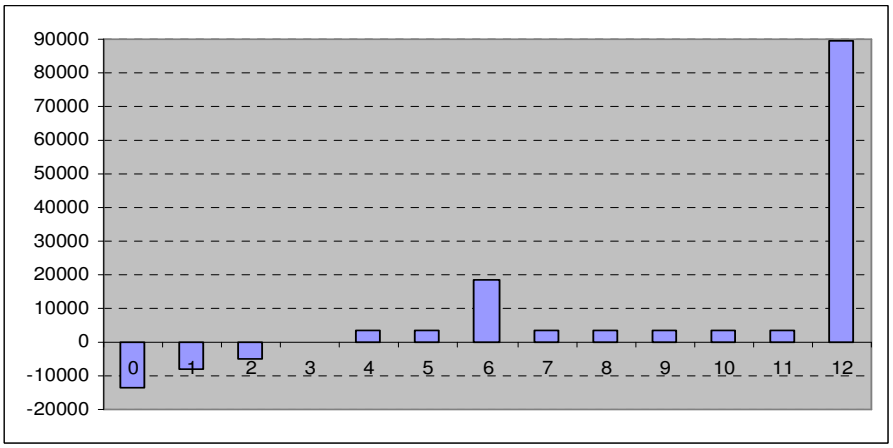
Net cash flow in year	0	1	2	3	4 - 5	6	7 -11	12
Cash flow of the model	-13.6	-8.2	-5,1	0	3.3	18.3	3.3	89.3
Cash flow/household	-4.5	-2.7	-1.7	0	1.1	6.1	1.1	29.8

Drawing a diagram of the cash flow

Purpose: to make it become easier to understand for all group members

Figure 6 **Net cash flow of Group 1, Thuan Hoan village,**
Dong Hoa commune, Tuyen Hoa district

1000 VND



Note for facilitators

- Be patient; listen and respect decision of villagers, because they will do, not us.

f) Field checking/transect –walk

- Make the list to checking on the field.
- Check and discuss on the soil, forest status, climate, etc

g) Facilitate consensus among all group members

- Draw the designation sketch maps:

Example 12 Design sketch maps of Group 1, Thuan Hoan village
Dong Hoa commune, Tuyen Hoa district

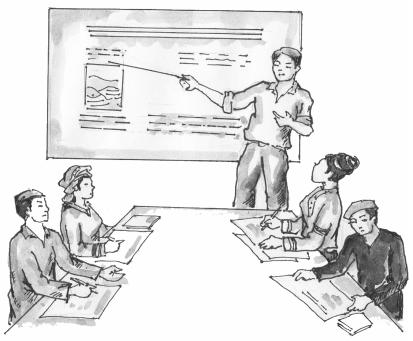
	Inter-village road		
75	(3.000 m^2) planting	(3.000m^2) planting	(3.000 m^2)planting
150	(6.000 m^2) Additional planting	(6.000 m^2) Additional planting	(6.000 m^2) Additional planting
25	(1.000 m^2) Nurturing	(1.000 m^2) Nurturing	(1.000 m^2) Nurturing
75	(3.000 m^2) Protection	(3.000 m^2) Protection	(3.000 m^2) Protection
	Mr. On	**Mr. Bin**	**Mr. Rong**
	40	40	40

h) Present the result of group designation model

PURPOSE:

Ensure that all members of the group have the same understanding about techniques, budgets and management.

Figure 7 Present of results of group design model



Example 13 Present and explain the meanings of cash flow of Group 1
Thuan Hoan village, Dong Hoa commune, Tuyen Hoa district

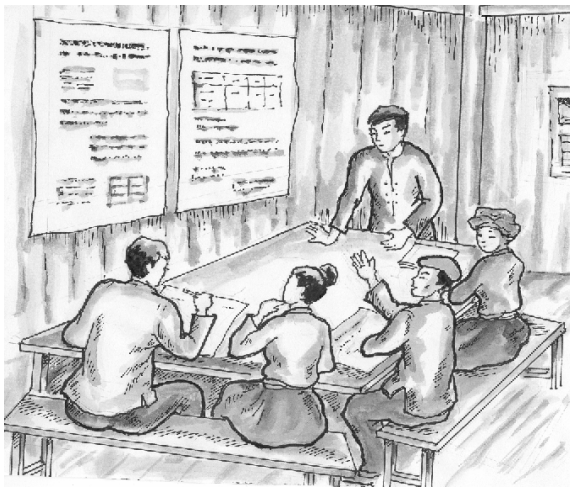
- Year 0 (year starting), 3 household have to invest 13,644,000 VND, average household is 4,548,000 VND
- The first year, 3 household have to invest 8,226,000, average household is 2,742,000 VND.
- The second year, 3 households have to invest 5,112,000 VND, average household is 1,704,000 VN.
- From the year third forward, they do not have invest anymore because income more than expenditure.
- In the year six, every household gets a benefit of 6,100,000 VND by thinning of Acacia.
- In the year 12, the model gets a benefit of 89,324,000 VND, every household gets a benefit share of 29,700,000 VND.

Note: the above example cash flow does include the cost of labor which is normally invested by the households themselves. The cost of labor is calculated at the current rate for unskilled labor in rural areas and represents by far the largest part of the initial investments in the first few years. If these costs are taken out, the net cash flow becomes much less negative in the first years and more positive in subsequent years.

i) Revision of the design

It is necessary to give a few days for all members to think about what they have designed as their model. A meeting on the revision of the design should take place a few days afterward. Since this meeting is decisive for the final design, facilitators should have good facilitation skills and a strong background in silviculture.

Figure 8 Illustration of the meeting on revision of the models



OUTCOMES

Main outcomes of this step are

- A sheet of general model designation
- A sheet of technical description for each activity
- A sheet of cost-benefit analysis for the model
- Sketch–maps of the model
- Worksheets for each activity

IV. **IMPLEMENTATION**

PURPOSE

- Have the selected group conduct the model according to the worksheets
- Get the group members to follow and discuss the model in progress
- Let villagers from other villages or from other communes visit the site of the model and comment on it
- Document the model carefully to be able to evaluate it
- Draw lessons from the model

THE WAY TO DO

- Make a schedule to visit the model
- Visit the model site according to the schedule
- Assist the group to solve any technical or organizational problem they might have
- Record and document the whole process from the beginning to the end

OUTCOMES

- Designed activities will conducted
- Products of the model

V. MORNITORING AND EVALUATION

Suggested types of Monitoring:

- Progress Monitoring or Implementation Monitoring: by monthly progress reports and bi-annual reports on the model
- Compliance Monitoring to ensure that the group follows the prescribed models
- Impact monitoring measures to document which of the model's objectives are achieved. This task is rather difficult in the first years, because many impacts are only measurable after the end of model.

Indicators for impact monitoring could be, for example:

- Changed / improved income of group members
- Changed / improved forest cover and forest quality
- Yield of model per ha.
- Occurrence of pests, diseases, forest fires

Figure 9 Illustration of site preparation monitoring on the field

Figure 10 Illustration of growth monitoring on the field

PART C RESUTS OF EVALUATION OF 4 MODES WHICH WERE SUPPORTED BY SMNR – CV AND POSSIBILITY FOR UPSCALING

I. RESULTS OF EVALUATION

IMPACTS AND SUSTAINABILITY OF MODELS

Outcome: All 4 models have produced the expected outcomes as in the design.

Effectiveness: All 4 models have so far achieved the objectives of generating additional incomes for the groups. All 4 models have increased the forest cover by at least 5 percent, and even up to 28 percent in Group 1, Thuan Hoan village, Dong Hoa commune.

Efficiency: The financial analysis was done by the consultant, SNMR –CV project staff and the representatives of all four models. Included as costs were the costs of labor (see above) and all direct supports (e.g. seedlings) from the project. Excluded from the calculation were all indirect supports from the project, such as trainings, study tours, etc.

The financial analysis indicates that the "Internal Rate of Return" (IRR) on the investments ranges from 11% (Group 3, Hoa Phuc commune) to 19% (Group 1, Thuan Hoan village, Dong Hoa commune). These returns are quite high compared with other forestry management models in Vietnam.

Note

- IRR of 19%, means that every 100 VND invested into the models will create 19 VND net a benefit per year over a period of 12 years.
- 2 out of 4 models have their break-even point in year 5, meaning that the costs for investments and other expenses have become equal to revenues.
- More details of the financial calculations are presented in (appendix 5)

Impacts: There are several positive impacts from the models observable, such as:

- The awareness about bio–diversity and protection of the environment of the members of the forest user groups, communities at large and of the local authorities* staff have increased. The main reason is that all 4 models did not destroy the natural forests (as it usually happened in former times), but on the contrary, generate a significant income from preservation and sustainable management of natural forests.
- The knowledge of the local people (group members and neighbors) and about silviculture techniques has remarkably improved (planting, protection, improvement of forest, etc.).
- The demand of the forestry models for tree seedlings has created up-stream effects with a number of small private tree nurseries, thus creating additional income outside the models.
- In general, the income situation and the livelihood of the group members have significantly improved.
- The abilities of the group members in terms of organizational skills and financial management have improved.

Sustainability: None of the 4 models has any negative effect on economic, social or environmental aspects of the communities.

Economic: The models produce an additional income for the current forest users, while strictly following principles of sustainable forest management. Thus they do not affect negatively to income potentials of the next generations.

Social: The members of the forestry groups are committed to not hiring child labor (under 16 years old). Benefits are shared equally and do not negatively affect to business of other villagers.

Environment: No chemical fertilizers are used by the forestry groups. The models contribute to improving the soil fertility, the reduction of erosion and an increase of the forest cover.

II. POSSIBILITY FOR UPSCALING MODELS

A big potential is seen for up-scaling the forestry models for a number of reasons:

1. The average cost per household (including investments and their own labor) is just below 10 million VND. With credit programs subsidized by the Government (currently with 0.325 percent interest for farmers), the maximum loan volume is 30 million VND. Thus, using their red book title as collateral, almost all villagers and even the poorest could establish their own forestry models.
2. Even small households with limited available labor can establish models, because the number of labor days per household ranges from 40 to 100 labor days, the cost of which (for hiring) are included in the feasibility calculations.
3. The models can be replicated to large parts of the forest land which has been allocated to households and communities, provided they have similar natural conditions to those of the (soil, forest status, etc).
4. The additional incomes generated by the models are significant, notably for poorer villagers (up to 20% additional income with some households).
5. Observing the success of the established forestry models, more and more villagers become interested in forestry, thus increasing the chance for widespread replication in others villages and communes.
6. The silviculture and other techniques applied in the forestry models are not too complicated, so that villagers can transfer this knowledge easily by themselves to their neighbors, including ethnic minorities.
7. The staff from forestry-related government organizations has been included in the design and implementation of the models and is available for supporting their widespread replication.
8. In general, the demand for forest products (timber and non-timber) is seen as increasing, thus providing more and more incentives for the widespread replication of the models.

III. RECOMMENDATIONS FOR UPSCALING THE MODELS

For up-scaling the models more effectively, more training course and study tours to the models should be organized in close cooperation with government organizations. Measures could include:

- Farmer-to farmer visits in larger numbers from forest users in other communes to the 4 project models
- Design of new models in other locations by villagers and local forestry staff
- Courses in silviculture techniques
- Provision of more market information on forest product, in particular timber prices of different species
- Courses on simple methods of cost-benefit calculations for local staff and villagers

IV. LESSON LEARNT

General lessons learnt from the successful establishment of community-based forestry models would include:

- The design the models should take full advantage of the available indigenous knowledge and capacities (financial and human resources, technical and management skills) of villagers.
- There has to be a maximum participation and ownership of villagers and support by local authority staff in the design and implementation of the models.
- Forest users have to be convinced at the beginning of the design process of the advantages working together in groups (tangible financial benefits in the short term, preservation of the environment by sustainable forestry).
- In order to demonstrate the positive effects of the community-base forest models, there is a need to develop feasible indicators for the models for Monitoring and Evaluation.