

# **FOREST MANAGEMENT AND BENEFIT SHARING IN FOREST LAND ALLOCATION**

Case study in the Central Highlands

**Assoc.Prof. Dr. Bao Huy**

Tay Nguyen University

## **1. Introduction**

Central Highlands consists of provinces with the largest natural forest area of the country, and where ethnic minority people depend on forests for their livelihoods. It is a pioneer in carrying the policy on Forest Land Allocation (FLA) to households (HHs), village community, and thus promoting local people to involve in forest protection and management, and development of livelihood options for rural upland people. After a ten-year implementation period, several issues need to be taken into critical consideration so that FLA policies can better contribute to hunger eradication and poverty reduction and that sustainable forest protection and development can be achieved. One of the key issues is to set up a forest benefit-sharing mechanism, which should be clear, equitable and be supported by administrative procedures.

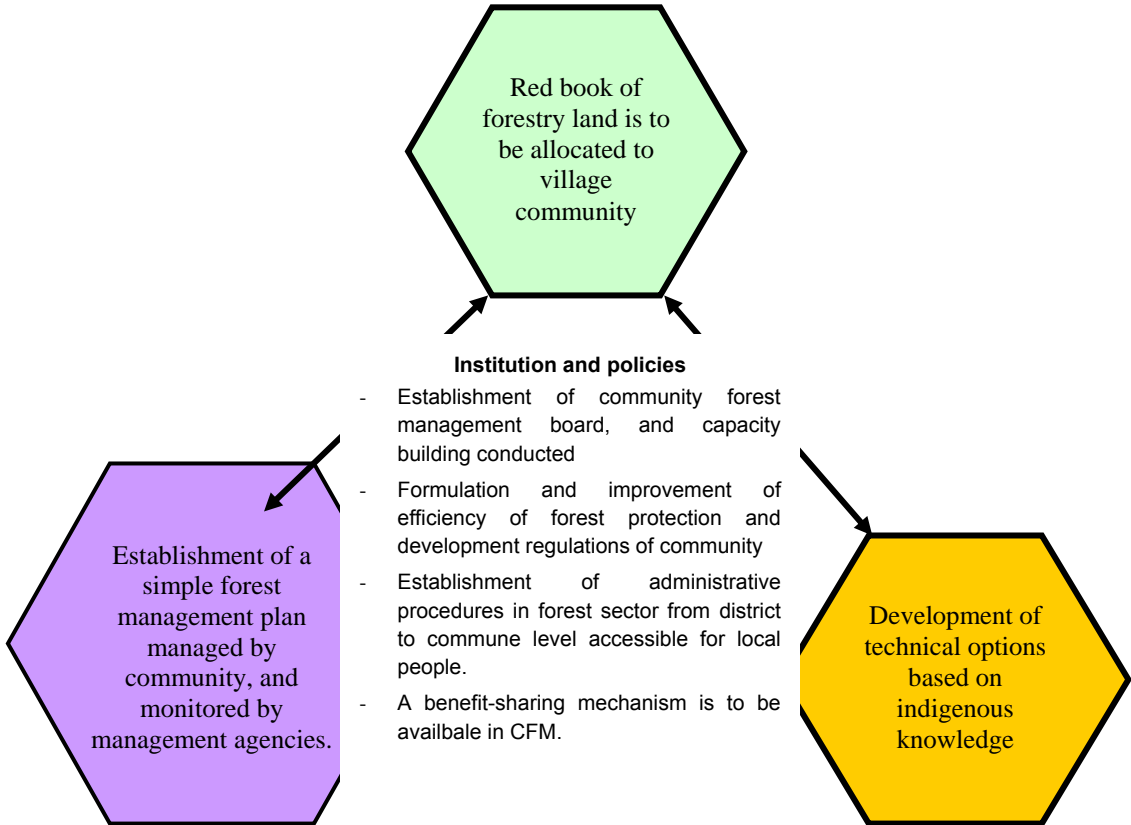
This paper will focus on the description and analysis of sustainable forest management post FLA and recommendations for formulation of a natural forest benefit-sharing mechanism for village communities. The paper is based on the research results and consultancy provided for relevant FLA and community forest management (CFM) projects implemented in four Central Highlands provinces, including i) Establishment of ethnic community-based forest/forest land management models (Jrai and Bahnar groups, Gia Lai province, the project was implemented by Gia Lai Provincial People's Committee-PPC, 2005); ii) ETSP, Helvetas/SDC, 2004 – 2007, implemented in Dak Nong province; iii) Dak Lak Rural Development Project– RDD. GFA/GTZ, 2004 – 2008, carried out in Dak Lak province); iv) Project on supporting local people in sustainable forest management in Central Highlands, JICA, 2006 – 2008, implemented in Kon Tum province.

## **2. Sustainable forest management after FLA**

Forest management and utilization of forest products are of typical characteristics, of which forest protection and management often deal with legal system and administrative procedures; and forest product utilization and trading require legal recognition. Therefore, if supporting policies post FLA are unavailable, local people will fail to manage and use allocated forests in a sustainable manner. It was one of the reasons why forest management was ineffective and income generation was limited although FLA was implemented many years ago. For more effective implementation of FLA policy, it is necessary to develop the forest management and utilization plan, which should be regularly monitored by communities and management agencies. It is also essential to formulate the law-based and traditional forest protection and management regulations. In addition, an equitable forest benefit-sharing mechanism should be developed; and the administrative procedures should always be simple and accessible to local people.

In general, in order for sustainable forest management in FLA, it is necessary to meet the following requirements i) Provision of land use right certificate (red book) to local

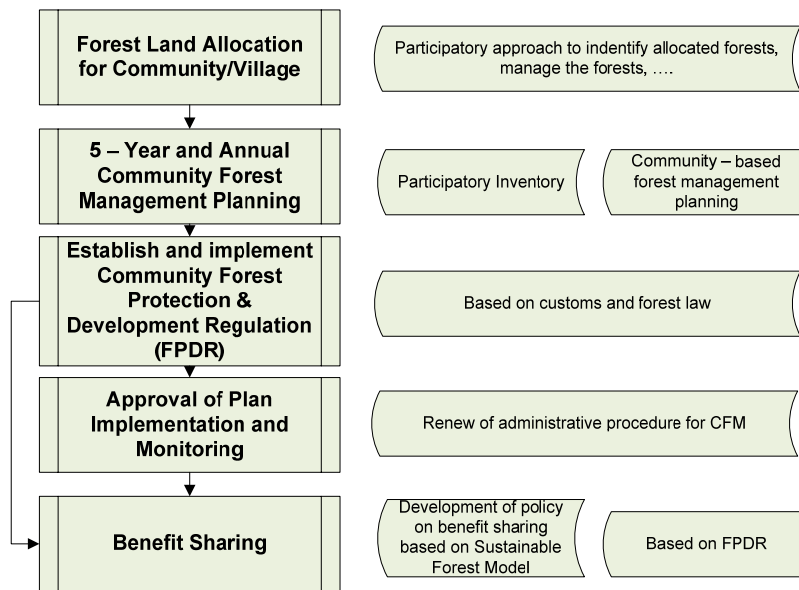
communities ii) Development of technical options based on indigenous and technical knowledge, which should be understandable and identified by local communities, iii) Preparation of simple forest management plan, managed and monitored by communities with the support from local management agencies iv) Development of relevant institution and policies to support the FLA process, including the establishment of a community-forest management board and capacity building conducted for this management board's members, establishment and improvement of impacts/efficiency created by the communityforest management rules; establishment of an administrative system in the forest sector from commune to district level which should be suitable, simple and accessible by local people; and development of a clear and equitable forest benefit-sharing mechanism contributing to improved forest livelihoods.



**Chart 1: Requirements on sustainable forest management in FLA process**

*Source: Bao Huy, 2005 – Community based forest management- Gia Lai province*

Sustainable forest management post FLA was studied and implemented on a trial basis by the four Central Highlands provinces of Kon Tum, Gia Lai, Dak Lak and Dak Nong, by ETSP, RDDL, JICA and Gia Lai PPC. The implementation steps are illustrated in chart 2.



**Chart 2: Community forest management procedures post FLA**

Source: Bao Huy, 2006, FAO

Post FLA, there's a need to support and promote communities to take steps to manage forests sustainably and generate income. They include:

- i) Development of annual and five-year plans:** Once forest is allocated, development of annual and five-year plans is a key step in sustainable forest management. This activity was trialed in the Central Highlands where communities were directly involved in assessment of natural resources, estimate of their demands on forest products, and 'supply - demand' capacity thanks to the support by technical staff. The proposed plan was often simple, adaptable and based on the community's existing resources, and actual status of forest allocated. The plan dealt with forest protection, enrichment planting, establishment and development of non-timber forest products (NTFP), forest exploitation and rehabilitation.
- ii) Formulation of forest protection and development regulations (FPDR):** Development of forest protection and development regulations were applied by forest protection units. They were also modified by stressing the important role of local people and communities, and integrated with traditional practices. This process involved the participation of the community, and step by step enabled the regulations to be more feasible and applicable in the real life of communities. The proposed regulations should refer to the issues concerned by communities in forest protection and management; it should be always in simple language, understandable and applicable by local communities. In addition, it should also identify a clear forest benefit-sharing mechanism, responsibilities of each household (HH), and community forest management board.
- iii) Plan approval, organization, implementation and M & E:** Community forest management is a new approach in forest management in general, and thus new in the administrative system under the forest sector in Viet Nam. As a result, it is very important to identify the responsibilities of each relevant party during the implementation process. The administrative system should be streamlined and indicate the mandates clearly so that CFM can be effectively supported. It should

make clear on whom and/or which organizations are to take the main role and to approve specific implementation steps in CFM and benefit sharing. Among several administrative procedures, the requirements on exploitation of timber for commercial purpose are the most important ones because they deal with the legal system. Based upon the results obtained from ETSP and RDDDL during the period of 2004 – 2007, the recommendations on management system and administrative procedures are given and presented in Table 1.

**iv) Benefit sharing of forest products:** In CFM, it is necessary to develop a benefit-sharing mechanism for timber, NTFPs and environmental services. For the intermediate and long-term purposes, the benefit-sharing mechanism for timber should be developed. Thanks to the support by ETSP, RDDDL and approval by Dak Nong and Dak Lak PPC, four villages engaged in trial models on exploitation of timber for commercial purpose, income generation for HHs and raising the funds for community forest protection and development. Identification of harvestable timber is very simple, local communities will base upon the number of trees belonging to colored diameter classification in each forest block to compare to the sustainable forest model (SFM) to figure out the number of trees which can be exploited sustainably in five years. Forest-benefit sharing is to be transparently done; and forest is managed based on the communities' regulations.

Hence, in reality there are forest management models post FLA, and systematic approaches have been used, ensuring the involvement of forest owners, local people, and for local people to enjoy forest benefits. Nevertheless, such models are only on a trial basis and have not yet been institutionalized. *There is a lack of appropriate policies/mechanisms and administrative procedures in forest management, approval of plan on timber exploitation in community forests for commercial purpose.* Thus, the lessons-learned and obtained results should be used as good reference for development of policies and institutions supporting sustainable forest management post FLA.

**Table 1: Recommendations on administrative procedures in CFM**

Order	Administrative procedures in CFM	In charge organizations	Facilitators and consultants	Approved by
1	FLA and issuance of Red Book	Community forest management board	Forest Protection Units Commune forest management board The District office of environment and natural environment	District People's Committee(DPC)
2	Development of annual and five-year plans on forest management	Community forest management board	District office of Economy & Planning Forest Protection Units Commune forest management board	DPC (five-year plan) CPC (annual plan)

Order	Administrative procedures in CFM	In charge organizations	Facilitators and consultants	Approved by
3	Development and implementation of forest protection and development regulations	Community forest management board	Forest Protection Units Commune forest management board District Legislation section	DPC
4	Carrying out the timber exploitation plan			
4.1	Providing training on silviculture techniques applied in selective logging	Community forest management board	Forest protection units	DARD approved Guidelines on silviculture techniques in CFM
4.2	Tree identification and marking, painting trees at the position of 1.3m high on the tree's trunk and base) Making a list of trees selected for each forest block: tree species, colour diameter classification and characteristics	Community forest management board	Forest protection units	
4.3	Issuance of timer exploitation certificate (based upon the number of trees in each diameter class) – should only be done with timber for commercial purpose.		Commune's forest management board Forest Protection Units District office of Economy & Planning	DPC
4.4	Exploitation (logging, post harvest clearing, transporting) Making a list of wood log: tree species, diameter, volume	Community forest management board	Forest protection units	
4.5	Hammer the log at the logyard - should be only done with timber for commercial purpose	Community forest management board		Forest protection units
4.6	Bidder and paying tax	Community forest management board CPC	District office of Economy & Planning	
5	Sharing forest benefits within communities based on FPDR.	Community forest management board	CPC Commune's forest management board	

Source: ETSP and RDDDL, Bao Huy, 2005 - 2007

### 3. Lessons-learnt, potential and foundation for development of benefit-sharing mechanism for natural forests: including timber, non-timber forest products (NTFP) and environmental services

Sharing natural forest benefits plays a vital role in promoting forest recipients to involve in forest protection. Natural forest benefits are abundant, whether forest benefits are of high

value or not greatly depends on the status of allocated forests, market, infrastructure, relevant policies and indigenous knowledge applied in forest products utilization.

Natural forest benefits enjoyed by local forest recipients include:

- i) Timber:** Timber play a crucial role in the life of communities living surrounding forests and are used for building houses pig/chicken pen, public works, irrigation system and making fences. The commercial value of timber is of importance for income generation. The volume of forest timber often depends on the status of allocated forests.
- ii) Non-timber forest products:** NTFPs vary in types, and their abundance depends on the status of allocated forests as well as the experiences and indigenous knowledge applied by local people. In reality, NTFPs, which often play an essential role in the spiritual and material life of ethnic minority people, provide food, medicine, raw materials to produce working tools, and are used for sale and husbandry production. Nevertheless, NTFPs are often scattered; and only a few species of NTFPs can produce their products in big volume such as rattan, bamboo shoots, ect.
- iii) Environmental services:** Environmental services are of high potential and under discussion and development, including payment for environmental services, for instance protecting water source for irrigation supply, hydro-power plants, absorption of CO<sub>2</sub>, a key factor creating green house effect, eco-tourism and biodiversity conservation.

Of the above mentioned benefits, NTFPs bring about daily benefits for communities, thus local people often use them in a traditional way whether or not forests are allocated. However, it is necessary to develop appropriate forest management options and improve the value of NTFPs in the time to come.

Benefits from environmental services are of great significance, especially now as the world pays more attention to climate change, thus the role of forests will be given greater emphasis. This requires the development of macro-level policies and negotiation on payment for environmental services among international and regional countries.

As such, the benefits received from exploitation of commercial timber are most direct and essential for natural forest recipients. The exploitable volume of commercial timber depends on the status of allocated forests, therefore various different kinds of forests should be taken into account when developing FLA policies for communities to manage forest effectively and create income. FLA policies should not only deal with allocation of bare land and poor forests as presently done. In addition, there should develop technical guidelines, appropriate administrative procedures, and a simple and equitable benefit-sharing mechanism adaptable for local people.

### **3.1. Lessons-learnt and potential for formulation of benefit-sharing mechanism for natural forest timber either for domestic use or trading**

Sustainable management of timber from natural forest played a crucial role in both ecological and economic aspects. The timber vegetation has a significant role to the ecological system and is a basic element of forests. Therefore, good management of timber vegetation has made significant contribution to sustainable forest management. Additionally, timber often has high economic value in the life of local people as well in trading activities previously, presently and in the future. As a result, stable timber supply is an important economic factor in sustainable forest management. It is therefore necessary to make technical solutions available to meet both ecological and economic requirements.

In CFM, the technical options should be simple, adaptable so that local people could apply them in natural resources assessment, planning and implementation combined with the support by local forest agencies.

The current benefit-sharing mechanism for natural forests deal with three main target groups, they are i) For the whole country, as indicated in Decision 78 and 40; ii) For the Central Highlands, as stipulated in Decision 304, and iii) For pilot projects on community-based forest management in ten provinces, identified in Decision 106 and 2324. However, in order to bring about benefits for forest recipients, the following constraints should be overcome:

- The benefit-sharing mechanism for commercial purpose did not mention communities as the target groups.
- Complicated criteria on forest exploitation and complex technical requirements made local people fail to understand and apply them, for instance forest status, yield, and exploitation cycle. Large volume of forest products together with prolonged exploitation rotation was not suitable with the management capacity, resources and regular demands of local communities.
- The administrative procedures in exploitation of timber for commercial purpose were not specifically identified. The existing procedures were too complicated, requiring the involvement of several agencies at all levels, thus local communities found it too difficult to apply.
- The exploitation design was often done by another organization rather than the communities themselves, thus local communities neither knew related things clearly nor managed the allocated forests effectively.
- For the case of the pilot project on communityforest management in ten provinces, there were only regulations on timber exploitation for own-- consumption.

The constraints of current policies on natural forest benefit-sharing are indicated in Table 2.

**Table 2: Existing policies on benefit-sharing of natural forest**

<b>Benefit sharing policies through FLA</b>	<b>Constraints in implementation of benefit sharing policies through FLA to communities</b>
Decision 178/2001/QD-TTg dated 12 January 2001 by the Prime Minister on benefits, responsibilities of HHs, individuals allocated and leased with forests and forest land.	<ul style="list-style-type: none"> <li>- Communities were not mentioned as the target groups of benefit-sharing policies.</li> <li>- Technical criteria on exploitation of forests, on forest status, and benefits were too complicated, making local communities fail to apply into practice.</li> </ul>
Inter-Circular by MARD and Ministry of Finance No 80/2003/TTLT/BNN-BTC dated 3 November 2003 on guidance for implementation of Decision 178/2001/QD-TTg	<ul style="list-style-type: none"> <li>- Unclear administrative procedures in timber exploitation</li> </ul>
Decision 40/2005/QD-BNN dated 7July 2005 by MARD on issuance of	<ul style="list-style-type: none"> <li>- Technical criteria on timber volume, exploitation rotation was complex and could not</li> </ul>

<b>Benefit sharing policies through FLA</b>	<b>Constraints in implementation of benefit sharing policies through FLA to communities</b>
regulations on exploitation of timber and other types of forest products.	<p>be adaptable</p> <ul style="list-style-type: none"> <li>- The design was often done by consultant agencies and forest inventory and planning units, thus communities did not know how to manage their forests effectively.</li> <li>- The timber exploitation procedures were too complicated, requiring the involvement of many organizations at all levels, thus local communities could not apply them (agencies in charge of approval included DARD, PPC and MARD)</li> </ul>
Decision 304/2005/QD-TTg dated 23 November 2005 by the Prime Minister on trialed forest land allocation and leasing to ethnic minority HHs and communities in the Central Highlands.	<ul style="list-style-type: none"> <li>- Local communities were allowed to exploit all forest products, but it was unclear on the volume to be exploited, and in what ways?</li> <li>- Food subsidy was only for a temporary period and should not be used as a long-term solution for sustainable forest management.</li> </ul>
Decision 106/2006/QD-BNN dated 27 November 2006 by MARD on issuance of community forest management guidelines.	<ul style="list-style-type: none"> <li>- Be applied only for pilot project on community-forest management in ten provinces and forty communes.</li> <li>- Decision 106 allowed local people to exploit timber for own-consumption and commercial purposes based upon either the increase in timber volume or number of trees in each diameter class. However, Decision 2324 only allowed exploitation of timber for own-consumption, and the exploitation must be based on the increase in timber volume.</li> </ul>
Decision 2324/BNN-LN dated 21 August 2007 by MARD on guidelines on criteria for exploitation of community forests.	<ul style="list-style-type: none"> <li>- If the increased volume of timber was used as the basis for timber exploitation, it would be very difficult for local people to apply.</li> <li>- If local people were only allowed to exploit timber for own-consumption, they would not be motivated to engage in forest management. In practice, local people exploited timber for their ownconsumption for instance making chicken/pig pens; traditional production works even though such actions were prohibited by law.</li> </ul>

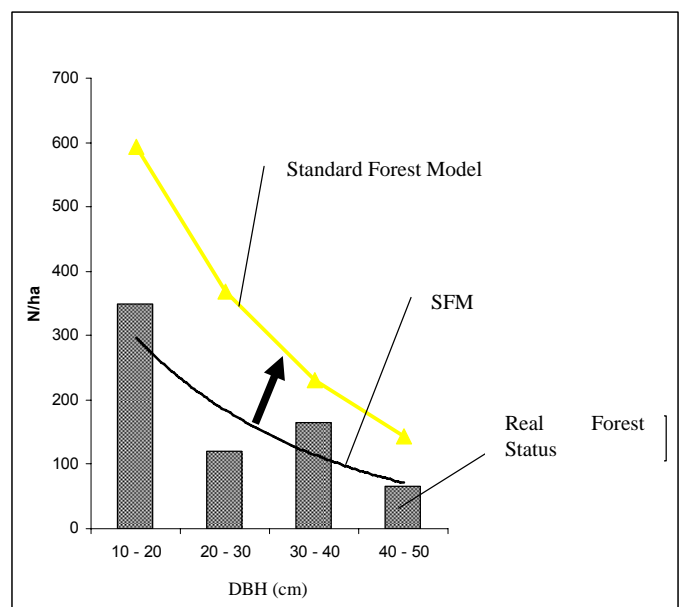
In addition, the exploitation of timber from community forests for commercial purpose was trialled in some places in Dak Nong and Dak Lak provinces. The selective exploitation was applied for poor, medium and rich forests; the issues addressed were appropriate techniques for communities, simple administrative procedures and decentralized forest management. The administrative procedures proposed for community forest management were mentioned above, and the following were used as the basis for development of benefit-sharing mechanism.

In order to create an equitable forest benefit-sharing, it should be based on the increase in timber volume of allocated forests. The forest recipients should be allowed to exploit the increased volume of forests. This also means that if forests receive good care, local people will benefit more. Nevertheless, identification of the increased volume of timber is very difficult especially in Viet Nam, there is no criteria on timber benefit sharing developed so far for specific types of forests, topographic and climatic conditions, and forest status. Therefore, it is necessary to formulate accessible and adaptable ways of identifying the increased volume of timber. In this case, the sustainable forest model can be a viable option. The sustainable forest model will help to simply identify the increased volume of timber for formulating the benefit sharing mechanism, at the same time creating the balance between forest supply capacity and local demands on forest products in a five-year period, and forming the basis for development of natural forest exploitation options aimed at maintaining sustainable natural forests and feasible estimate of timber and fire wood supply capacity for local consumption and trade purposes.

**Sustainable forest model (SFM) – a tool for prediction of forest benefits and sustainable timber exploitation from different forest status in CFM**

Under the viewpoint of silviculture, the model based on the number of trees in each diameter class ( $N/D$ ) was studied by several national and international researchers, and this model dealt with many different types of forests in Viet Nam. The research presented the math matrix and standard forest structure in service of sustainable forest management. The improved knowledge should be applied into practice, particularly in CMF because of their simplicity only by counting the number of trees per diameter class, then comparing to the established standard forest model. The outcomes of this process were recommendations for forest thinning, exploitation, and forest enrichment and rehabilitation options. More importantly, the standard forest model should be developed based on actual forest structure, and they can be referred to as ‘sustainable forest model’.

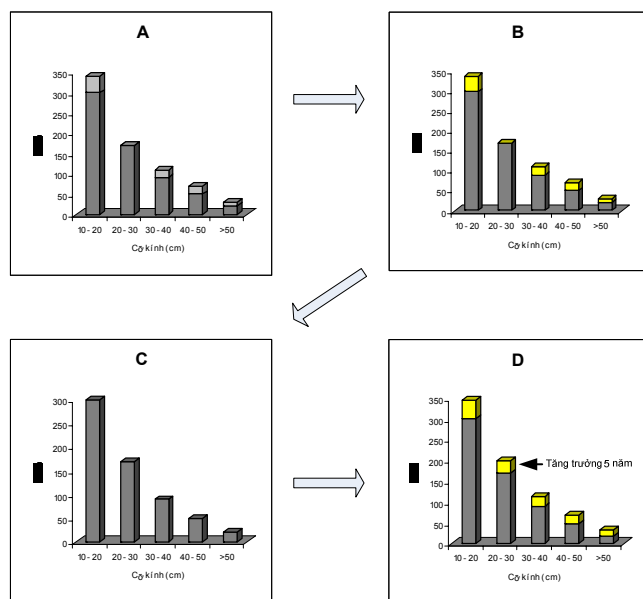
The sustainable forest model, its characteristics and uses:



**Chart 3: Comparison of the sustainable forest model with the standard forest model**

- *Being developed based upon the number of trees per diameter class in decreasing trend.* This type of forest model aimed at ensuring the sustainability of various classes of forest trees.
- *The similar but standard forest model:* If the standard forest model was used as the scientific basis for forest exploitation, no forest would be allowed for exploitation. Meanwhile, almost all of the forests were exploited, thus they needed to be re-structured to meet the requirements of stable forest status. Hence, the SFM was considered as the standard forest model. This allowed us to deeply understand the real status of forests, forming the basis for identification of timber volume to be logged for re-structure of forest status.
- *Identification of the increased volume of timber - community's benefits and making the timber exploitation plan:* What community could benefit from allocated forests was the increased timber volume in diameter classes in a five-year period. Thanks to that, the community would make the sustainable forest utilization and exploitation plan in a five-year period. As such, the identification of benefit-sharing mechanism was equitable, transparent and less costly. The local community merely compared the number of trees in their forest block with those of proposed forest model. In reality, in order to apply the SFM, local people only counted the number of trees per colored diameter class and compared the figures with those of the SFM. The surplus of the bar chart was the exploitable trees.

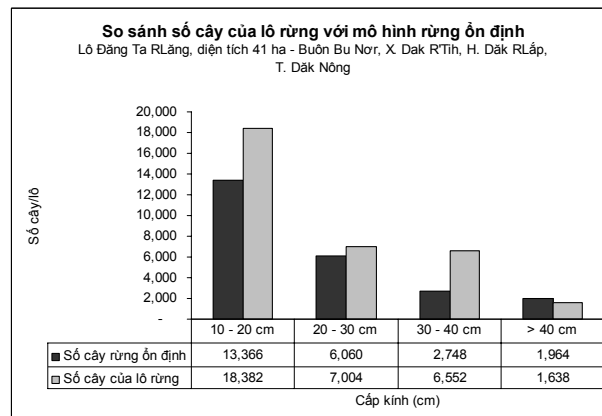
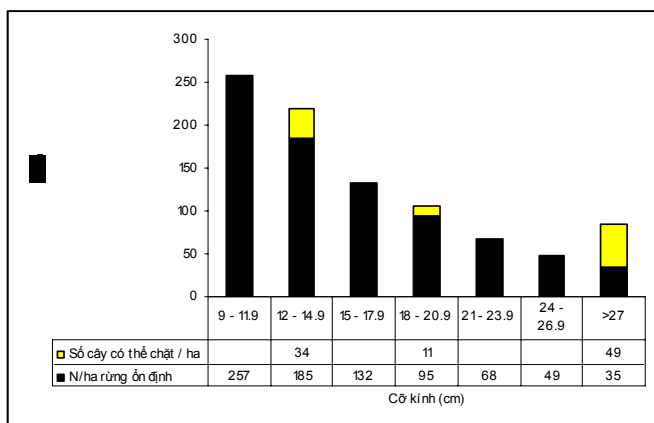
The local community merely compared the number of trees in their forest block with those of proposed forest model. In reality, in order to apply the SFM, local people only counted the number of trees per colored diameter class and compared the figures with those of the SFM. The surplus of the bar chart was the exploitable trees.



**Chart 4: Comparing the number of trees in forest block to those of the SFM on periodical five-year basis for identification of the increased trees of timber and forest benefits**

*Source: Bao Huy, Phillips Roth, RDDDL, 2006*

The number of trees in diameter classes of the SFM was trees to be protected and maintained. Based on results of the forest inventory on periodical five-year basis, and comparison made with the SFM, it was possible to identify the increased number of trees in five year time periods and prepare the timber exploitation plan on annual and five-year basis. Those technical options were viable to local people; and the benefit-sharing mechanism was equitable enough because the local income could be generated from selling the increased volume of timber while the forest resource was managed and developed to serve for environmental and social demands.



**Chart 5: Comparing the number of trees in diameter classes of forest blocks with those of the SFM**

- *Forest exploitation, utilization and maintenance to different forests status:* As indicated by current regulations, forest block were only allowed to be exploited if they met the criteria on volume. This was one of the constraints because it often took local people a long period to exploit forest products. Further, local people could not realize the exploitable forests. Meanwhile, if comparing the number of trees per diameter class of actual forests with those of the SFM, a certain number of trees in various different diameter classes of poor forest were also subject to exploitation. Hence, the diverse demands of local people could be met, at the same time, forests could be re-structured and made increasingly stable and more productive. Local communities could conduct selective exploitation from various types of forests at any time if the increased number of trees was identified, to serve for their local timber consumption and commercial use. This was the selective logging technique of small scale and short production rotation for communities to generate income right after they were allocated with forests while forests were maintained for development.
- *Improve the awareness on forest management for communities:* When comparing the SFM to the actual forest blocks, local communities would have more chances to improve their knowledge and understanding on their own forest blocks. The SFM did not only help local people to identify the number of exploitable trees but also propose appropriate options for effective forest management.
- *Forest management and monitoring:* The SFM could be a useful tool for forest agencies to monitor the status of allocated forests, to manage forests as required (meant that the number of trees per diameter class should always be, at least, equal to those of stable forest model). A good forest was a forest whose number of trees in diameter classes were not lower than those of the stable forest model. For the case of poor and degraded forests, the SFM would form the basis to propose silviculture techniques and technical options for communities aimed at productive and sustainable forests. At the same time, the national aims that forests were protected in service of environmental, protection, social and cultural purposes would be achieved.

Apart from identification of exploitable forest trees, tree species to be rehabilitated to ensure the stable forest composition and improved forest quality needed to be taken into consideration, thus local community should conduct forest inventory and make tree selection and marking to ensure that the rare tree species were protected well. Therefore, it was very necessary to develop simple silvi-culture guidelines on forest exploitation.

### Benefit sharing of own-consumption timber exploited from community forests

Based upon the number of trees exploited annually, community forest management board would organize people's meetings:

- Selection of HHs allowed to exploit timber annually to serve for the local use (building houses, poultry pens and fence, etc)
- HHs, allowed to exploit timber for their own consumption, was required to pay a certain amount of money to their village, and the fees were indicated in the village's forest protection and development regulations. This amount of money would be used to raise the village's funds for forest protection and development.
- Moreover, the additional number of trees exploited (in any) would be sold, after referring to the village's timber demand-supply, and the income obtained would be used to contribute to the village's funds for forest protection and development.

### Benefit sharing of commercial timber exploited from community forests

The numbers of trees exploited annually were sold, and the benefits were shared as follows:

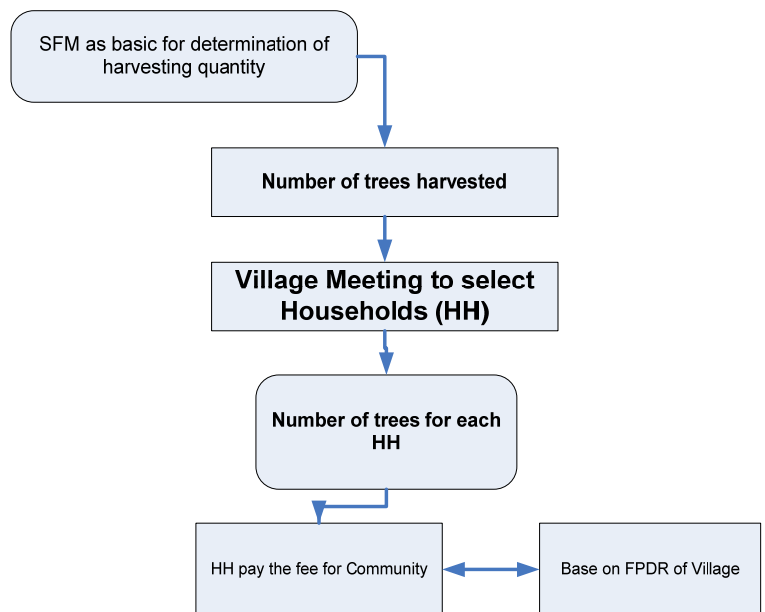


Chart 6: Forest benefits, and sharing of timber benefits for own-consumption

Source: Bao Huy, ETSP, RDDDL, 2005 –5007

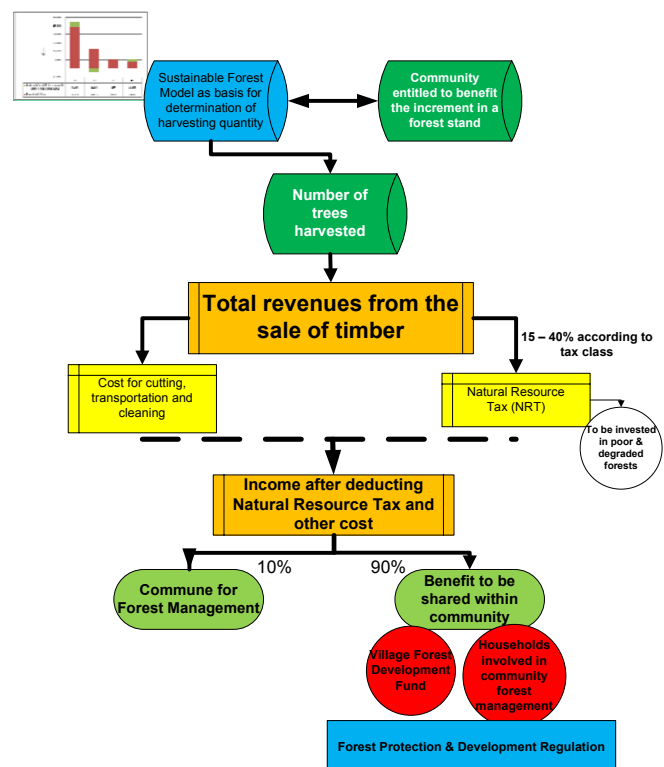


Chart 7: Forest benefits, and sharing of timber benefits for commercial purpose

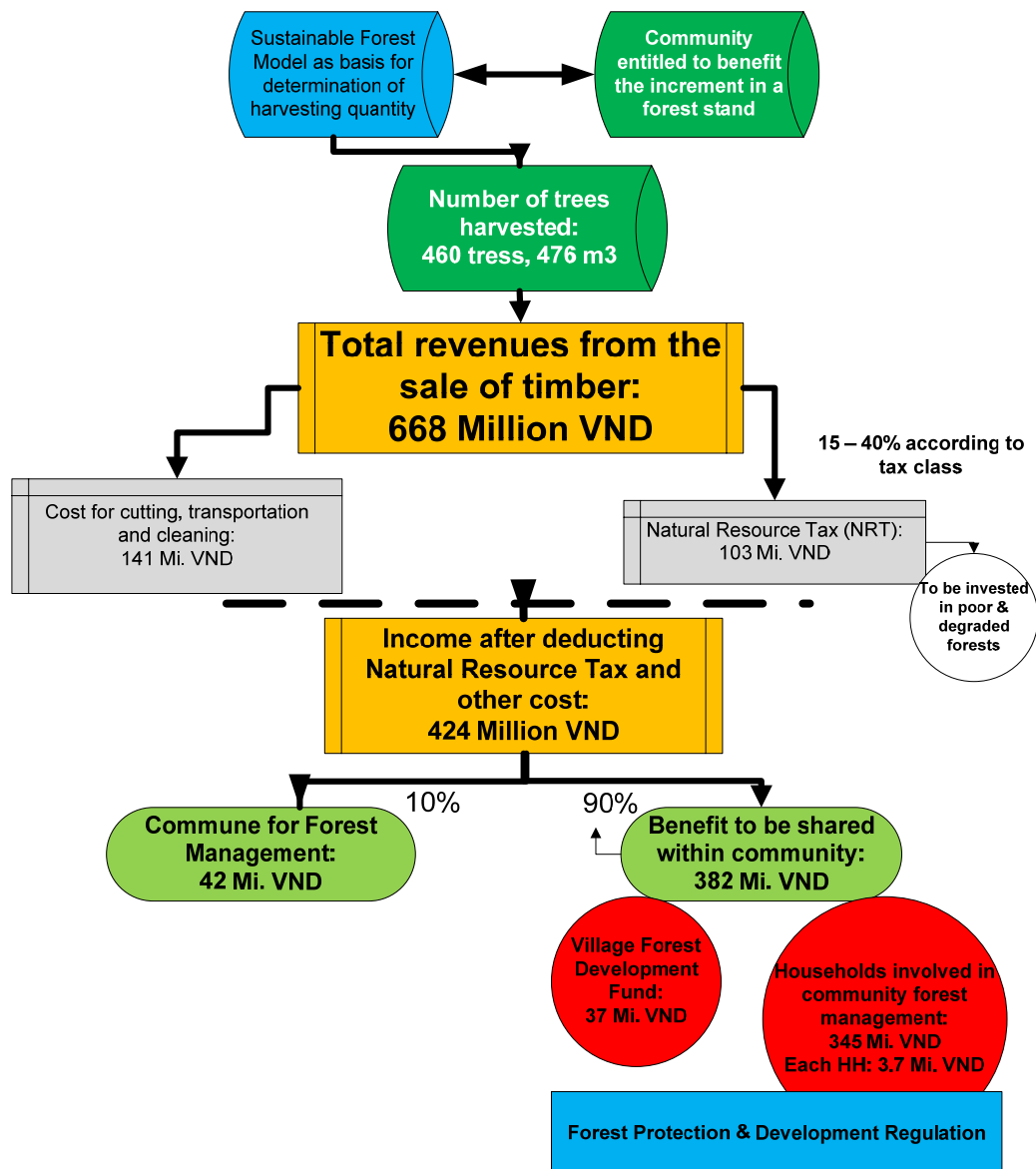
Source: Bao Huy, ETSP, RDDDL, 2005 –5007

- Tax payment of total income generated from selling timber (in practice, the tax rate would be based on different types of timber exploited and as regulated in current rules). This amount of money would partly be sent back to the local authority to develop poor forests and improve bare land.

The income post tax and excluding other kinds of costs would be distributed:

- 10% of the income would go to Commune's People's Committee for forest management purpose and payment of allowance for Commune's Forest Board.
- 90% of the remaining part would go to the community engaging in forest protection and management. This amount of money was for village's funds for forest protection and management and HHs involving in forest protection and management. The income distribution was based on the village's forest protection and management regulations agreed upon by local people and approved by authorized organizations.

The methodology on development of benefit sharing mechanism for timber exploited from community forests was trialed in four villages with ethnic minority groups,; Bu Nor, Me Ra, Bu Dung (Dak Nong province); and Ta Li (Dak Lak province)). Through the allocation of poor and medium evergreen and dry Dipterocarp forests, HHs, communities improved their income. In addition, an equitable benefit sharing mechanism was established among community, communes and the State. Also, the obtained results indicated that post harvesting forests were stable as required by sustainable forest model. Follows were examples on benefit sharing of commercial timber based upon the SFM developed in Bu Nor village, Quang Tam commune, Tuy Đức district, Dak Nong province.



**Chart 8: Sharing the benefits obtained from commercial timber in Bu Nor village, Quang Tam commune, Tuy Duc district, Dak Nong province.**

*Source: Bao Huy/ETSP, 2007*

Trial models on exploitation of commercial timber and benefit sharing in CFM in four villages of Dak Nong and Dak Lak provinces showed certain satisfactory results. Forests were in stable status post harvest, and income was generated for poor forest recipient households while the current benefit-sharing mechanism was not feasible.

Benefit-sharing mechanism of timber exploited from community forests had great potential and formed the basis for formulation of benefit-sharing of timber through FLA because it formed the scientific foundation for identifying the equitable forest benefits by simply figuring out the increased forest volume; and for local people and communities to adapt and calculate the timber volume to be exploited for commercial purpose and domestic use. This method proved to be useful in forest management and monitoring for both management agencies and communities.

### 3.2. Lessons-learnt on benefit-sharing of NTFPs

With the current benefit-sharing mechanism in FLA, local people are allowed to exploit all NTFPs, this meets the actual demands and ensures the income generation from NTFPs for their livelihoods, production activities and health care. Still, NTFPs have high potential, at present and in the future, for socio-economic development, environmental protection and biodiversity conservation, thus it is necessary to develop appropriate methodology/options to manage, and develop NTFPs in a sustainable manner based on indigenous knowledge and local tradition.

NTFPs vary in types and utilization purpose which greatly depend on the experiences of each ethnic community. NTFPs often have a scattered distribution and limited volume; therefore there has been no appropriate methodology which can be effectively applied by local communities to assess this resource and to make a management plan.

In addition, as agreed upon traditionally, NTFPs were shared among ethnic minority groups regardless of HHs in one village or nearby villages.

As a result, in order for sustainable development of NTFPs through FLA presently and for preparing the NTFPs protection and management plan, it should be based on the indigenous knowledge of local communities. Moreover, in order to avoid the exhaustion of NTFP resources, it is essential to incorporate the management and utilization of NTFPs into the forest management and protection plan development process by the community.

#### **NTFPs utilization and management regulations of Vi ChRing village**

- Community members and HHs are allowed to collect NTFPs for domestic use including bamboo, bamboo shoots, rattan, vegetable, medicinal plants and forest leaves for roofing, ect.
- Community members are allowed to exploit NTFPs for HH's income improvement and commercial purpose including honey and vegetable.
- Traditional practices are encouraged in bee keeping by creating a hole in the forest trees for bees to make their nests.
- Using the smoke to chase bees away to collect honey, rather than to fire them.
- Community members and HH groups are not allowed to exploit NTFPs in a large volume for sale. This activity should only be carried out by the whole community.
- Part of exploited NTFPs should be kept for development of such NTFPs and for long-term use.

*Extracted from forest protection and management regulations in Vi ChRing village, Hieu commune, Kong Plong, Kon Tum province(JICA)*

#### **NTFPs management and utilization regulations by HHs groups in Bu Nor village**

- NTFPs for domestic use, HHs shared their products if those NTFPs are located within forest area of the village.
- People living outside the village are prohibited to collect NTFPs belonging to HHs groups and village for business purpose.
- If people living outside the village want to exploit NTFPs for their family consumption, they should ask HHs groups for permission.
- Once NTFPs are collected for commercial purpose, the attained profit should be

equitably shared among HHs within the community.

*Extracted from forest protection and management regulations in Bu Nor village, Quang Tam commune, Tuy Duc district, Dak Nong province.*

### **3.3. Potential for the development of benefit-sharing mechanism for environmental services**

Benefits from environmental services have been mentioned a great deal and the development process is under way. Payment for environmental services of forests varies in forms, for instance fees for protection of water supply to serve for irrigation, hydro-electricity plant, and absorption of CO<sub>2</sub>, a main factor causing the green house effect, for eco-tourism, health care services and biodiversity conservation. This has great potential for local people to generate income based on the allocated forests in the future, especially the young and poor allocated forests, which cannot bring about benefits from NTFPs.

However, the valuation methodology and related policies enabling payment of the above mentioned services are still unavailable and of great challenge requiring research, discussion and negotiation to reach the final agreement. It is hoped that when natural forests become more and more important to the issue of climate and environment change, the mechanism for payment of and compensation for forest protection contracted recipients will be identified and developed.

Of above mentioned environmental services, trading of CO<sub>2</sub> quota has been carried out in the world. Besides, relevant projects under the framework of Clean Development Mechanism-CDM have been implemented in many places, and the payment mechanism has been developed based upon the absorption of CO<sub>2</sub> by forests.

For the case of natural forests, due to the increasing degradation and devastation an immense amount of CO<sub>2</sub> was released, which was previously kept by forests. Therefore, programme on Reducing emissions from deforestation and ecosystem degradation (REDD) has been proposed to be launched. Through this programme, it is hoped that poor natural forests are to be better protected; emission of CO<sub>2</sub> is to be reduced; and forests can absorb much CO<sub>2</sub>, a main factor causing green house effect. For this to be feasible, it is needed to develop the monitoring methodology and mechanism for payment of CO<sub>2</sub> absorption service of natural forests. This process requires the involvement, negotiation and agreement among countries, regions and needs to be stipulated in national policies.

Presently, in Viet Nam forest protection contracted recipients (protection and special use forests) are paid about 100,000VND/ha/year. In nature, this amount of money is for environmental protection. Nevertheless, local people allocated with production forests were not paid any money, meanwhile the allocated forest were often in poor condition. Local people could not enjoy any benefits from those forests, even though they had to spend their labour for forest protection. Consequently, those forests risked exploitation, and changes in purpose of use, and a great volume of CO<sub>2</sub> would be released. Hence, development of a payment mechanism for CO<sub>2</sub> absorption of poor and post harvest forests is of vital need because this will help to attract the attention of forest recipients into forest protection and development for long-term use purpose. For this process to be implemented, there needs i) research the capacity of CO<sub>2</sub> absorption by different types of

forests, various forest status; the obtained results will form the basis for formulation of M & E mechanism; ii) develop policies on payment for such services.

The following is the case study on CO<sub>2</sub> absorption capacity of evergreen broad-leaf forests in Dak nong province and estimation of forest environmental value. The research results will form the basis for payment of forest protection services by local forest recipients.

**Case study on CO<sub>2</sub> absorption capacity by evergreen broad leaved forests in Dak Nong province, and the foundation for payment of environmental services.**

The amount of CO<sub>2</sub> absorbed by various status forests was estimated based upon the basal area of forest plot (BA: m<sup>2</sup>/ha) according to function: **CO<sub>2</sub> (ton/ha) = - 53.242 + 11.508 BA (m<sup>2</sup>/ha).**

Based upon the above function, with the BA of forest stand in two identified time period, the absorbed amount of CO<sub>2</sub> could be estimated, thereby the value of CO<sub>2</sub> accumulated by each forest stand and forest status could be figured out.

Through the quick identification of BA by Bitterlich tape measure, the changes in amount of CO<sub>2</sub> absorbed could be determined/estimated at two different times, forming the basis for forest environment payment.

**Table 3: Profit forecast based on the amount of CO<sub>2</sub> absorbed by different status of natural forests**

Forest status	BA (m <sup>2</sup> /ha) at time A	BA (m <sup>2</sup> /ha) at time A+1	Amount of CO <sub>2</sub> absorbed annually (ton/ha)	Price (USD/ton of CO <sub>2</sub> )	Value of CO <sub>2</sub> amount absorbed annually/ha (USD)	Value of CO <sub>2</sub> amount absorbed annually/ha(VND)
Young - IIAB	10.0	10.4	4.0	11	44.3	708,893
Poor - IIIA <sub>1</sub>	15.0	15.3	3.5	11	38.0	607,622
Medium - IIIA <sub>2</sub>	25.0	25.3	2.9	11	31.6	506,352

*Bao Huy, Pham Tuan Anh, 2007. SEANAFE*

The forecast results indicated that if forests were well protected, the amount of CO<sub>2</sub> accumulated annually may range from 2.9 – 4.0 ton/ha/year according to specific forest status. Young forest may have higher capacity of CO<sub>2</sub> absorption due to their fast volume growth, equating to VND 500,000 – 700,000 VND/ha/year. This was a significant amount of money for forest owners, especially ethnic communities in the uplands areas currently managing community forests.

**4. Recommendations**

In reality, there has been insufficient information and guidance on policies, organization and techniques in community forest management and benefit-sharing. The challenges are in what ways the upland poor people can benefit from forests, forest can contribute to improved local livelihoods and forests are managed sustainably.

Forests not only provide forest products but also environmental services, socio-economic values, thus it needs to take critical consideration in forest utilization. It often takes time to exploit and trade forest products while local people are not familiar with silvi-culture techniques. Timber trading often requires the legal identification and certification. It is the reason why after a long period of FLA implementation, local people cannot benefit much from forests and forests have not yet become a vital factor in the livelihoods of uplands poor people.

For sustainable forest management, an equitable benefit-sharing mechanism through FLA should be available. The author would like to make the following recommendations:

*i) Sustainable forest management post FLA:*

- *Support community in planning process and implementation of five-year and annual forest protection and development plans, and carrying out forest protection and development regulations.* Forest trade often requires careful organization and planning which seems very new to local people. It is needed to apply a community based planning approach which have already been trialed and developed by several projects nation wide (SFDP, ETSP, RDDDL, pilot programme on community based forest management).
- *Development of forestry administrative procedures and policies for community forest management:* The current rules in forest trade and utilization are very complicated, requiring the approval of many authorized agencies. This made communities fail to apply the proposed rules, and thus forest utilization was not effectively done. It is suggested that forest should be decentralized in management from district to commune levels. In addition, administrative procedures in plan approval, exploitation permission as well as community based forest management should be streamlined.
- *Forestry extension promotion:* This activity has not been carried out post FLA, especially the forestry extension conducted for the poor, thus negatively impacted on forest development.
- *Community level forest product processing:* A plan should be prepared on processing exploited forest products for improved rural livelihoods aimed at increased value of commodities and creating jobs based upon the stable market chain.
- *Training provided to forestry staff, and forestry extension officers on participatory planning approach* in community forest management and assistance provided during the implementation. Development of guidelines and manuals, i) Making plan on commune forest protection and development ii) Participatory FLA iii) Making five-year and annual plan on community forest management iv) Guidelines on formulation of forest protection and development regulations v) Guidelines on silvi-culture techniques for community forest management. These guidelines and manuals, which have been developed and used by community development projects so far, should be inherited and revised for application.

*ii) Benefit-sharing mechanism in natural forest allocation*

- *Development of benefit-sharing mechanism for community forest management:* The current benefit-sharing policy, which is based on Decision 178 and Decision 304 issued mainly for the Central Highlands, has many constraints and is not

feasible. The benefit-sharing mechanism for timber should be developed in a simple and understandable manner to encourage local involvement in natural forest protection and management. It is suggested to make policies on timber benefit sharing in community forest management based upon the increased trees of timber compared to the number of trees in the sustainable forest model.

- *Benefits from NTFPs*: The fact that forest recipients are allowed to exploit all NTFPs is logical, still in order for sustainable forest management it is necessary to encourage community to develop specific terms in forest protection and management regulations.
- *Benefits from forest environment services*: This is a great potential for income generation and to involve forest recipients into protection and development of allocated forests. Therefore, it is very essential to pay attention to development of relevant policy. Payment for CO<sub>2</sub> absorption by young and poor forests with limited products should be studied for making more appropriate policies.

## References

1. Bao Huy (2005): Ethnic community based forest/forest land management model development in Jrai và Bahnar, Gia Lai province, Department of Science and Technology, PPC Gia Lai province.
2. Bao Huy, ETSP (2005): Technical guideline on community forest management, Simple silviculture techniques, ETSP/Helvetas, MARD.
3. Bao Huy (2006): Options for development of benefit-sharing mechanism in community forest management, Agriculture and Rural Development Magazines, MARD, Volume 15/2006, page 48 – 55.
4. Bao Huy (2006): Community Forest Management (CFM) in Vietnam: Sustainable Forest Management and Benefit Sharing. A cut for the Poor, FAO. Proceedings of International Conference on Managing Forests for Poverty Reduction, page 47 – 60.
5. Bao Huy (2007): Application of sustainable forest model in community forest management for sustainable exploitation and utilization of timber, fire wood from different forest status. Agriculture and Rural Development Magazines, MARD, Volume 8/2007, page 37 – 42.
6. Bao Huy (2007): Implementation steps and trial results from community forest management and benefit-sharing mechanism – Suggestions on institutionalization in Dak Nong province. ETSP/Helvetas, MARD.
7. Bao Huy, Pham Tuan Anh (2007): Forecast the capacity of CO<sub>2</sub> absorption by different natural forests in Dak Nong. SEANAFE.
8. JICA Kon Tum (2007, 2008): FLA scenarios for communities, five-year plan, forest protection and management regulations, forest management plan year 2008. DARD, Kon Tum province.
9. RDDL (2006): Workshop proceedings on benefit-sharing in community forest management in Dak Lak, DARD.
10. RDDL (2006): Sustainable forest model – Conception and Development, DARD, Dak Lak province.