
EFFECTIVENESS AND EFFICIENCY OF COMMUNITY-BASED FOREST MANAGEMENT IN HOANG LIEN NATIONAL PARK, LAO CAI PROVINCE

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SUMMARY

Community-based forest management (CBFM) is a strategy aiming to improve livelihoods of forest user, reduce poverty, conserve natural resources, and promote good governance and decentralization by increasing the role of local people in governing and managing forest resources. Since 2004, Vietnam has started to adopt CBFM as an important land-use policy and applied in several mountainous areas, mostly for areas which have National Park. This study aims at assessing the efficiency and effectiveness of CBFM implementation in Hoang Lien National Park, Lao Cai province. The results showed that the current CBFM implementation in Hoang Lien National park is receiving more attention from local community than before. However, the participation of community just reaches moderate level associated with low educational and income level or local awareness of forest resources, which are the factors that influence CBFM efficiency and effectiveness. Solutions are also recommended and focus on raising local awareness to enhance people's participation, increasing human resource capacity for management and supporting local incomes.

Keywords: Community-based forest management, Hoang Lien National Park, Lao Cai province.

I. INTRODUCTION

A new phase in the development of forest policies and programs came into use in the 1970s, which made significant progress to the present community-based forest management (CBFM) program and strategy, and since then become a popular intervention across Asia and Africa. CBFM is government-approved form of forestry practices involving direct forest users in common decision-making processes and implementation of forestry activities, and as such it requires decision-making autonomy to the direct forest users in setting objectives, local control in forest management and utilization, and ownership of the benefits of the forest (Bowler et al, 2012). It also can be considered as a state-community forest management strategy aiming to improve livelihoods of forest user, reduce poverty, conserve natural resources, and promote good governance and decentralization (Tapan K.N, et al., 2016). CBFM includes “initiatives, sciences, policies, institutions and processes that are intended to increase the role of local

people in governing and managing forest resources” (RECOFT, 2013), then encourage indigenous community in protecting forests as well as help them to get benefit from those forest resources.

CBFM emerged as a search for alternative and less contested approaches to forest management in parallel with a growing international interest in participatory development and linkages between land rights movements and the environmental movement (N.K. Menzies, 2003). According to Runge (1986), CBFM played an important role in nurturing scarce natural resources. Local communities have been managing forests for a long time, that is exploiting, sustaining and manipulating them for productive products (McDermort, 2009). They base their forest management in a traditional knowledge and own rules sufficient to sustain the biophysical condition of their forests resulting long-term ecological sustainability incompatible with locally set priorities (Hayes and Persha, 2010; Rutt et al, 2015).

Since 2004, after the 2003 Land law and the Forest Development and Protection law were amended, supplemented and enforced, CBFM was officially recognized as an important land-use policy, with due consideration to local-specific conservation and development requirements (UN-REDD, 2016). This model allows indigenous people to be forest owners associated with local authorities, or take part in forest contraction, replantation programs. After applied in several mountainous areas, it showed that CBFM model is suitable for indigenous people's knowledge, traditional customs and ensuring the livelihoods of local people, besides managing, conserving, and developing forest resources.

The study was conducted in Hoang Lien National Park, one of many national parks that have implemented CBFM policy to increase community role in forest protection and management, and have got some achievements. Two communes selected as study sites are San Sa Ho and Ta Van. The overall objective of the study is to improve the efficiency and effectiveness of community-based forest management in Hoang Lien National Park, Lao Cai province with the specific objectives are: (i) to assess the current situation of forest protection and management in Hoang Lien National Park; (ii) to assess the current situation of community-based forest management in Hoang Lien National Park; (iii) to determine factors that influence on efficiency and effectiveness of community-based forest management in Hoang Lien National Park and (iv) to propose solutions to improve efficiency and effectiveness of community-based forest management in Hoang Lien National Park.

II. RESEARCH METHODOLOGY

Secondary data about Hoang Lien National Park geographic condition, a current status of fauna and flora biodiversity, forest areas;

economic and social condition of surrounded communes; policy system were collected from Hoang Lien District forest protection (DFP) and People's committee of two selected communes.

The two communes were selected for primary data collection are San Sa Ho and Ta Van because of their representation in term of socio-economics and natural conditions for the region. These communes also play an important role in forest protection and management in Hoang Lien National Park. The primary data were selected from several sources: (i) Households survey in 2 communes San Sa Ho and Ta Van, each commune interviewed 50 households; (ii) Fifteen semi-structured interviews with local government officers from commune, district and provincial levels; (iii) Two focus group discussions (FGDs) with farmers each commune in order to discuss more about the issues of the constraints and challenges in implementing sustainable land use and recommendations to overcome these challenges.

III. RESULTS

3.1. Current situation of forest protection and management in Hoang Lien National Park

a. Assessing forest resources.

Forest vegetation in Hoang Lien National Park is divided into 4 main types: Dense tropical evergreen forests has 196.01 ha of total area (account for 0.68% of natural area); Subtropical evergreen forests total area about 12,329.29 ha (43% of natural area); Humid temperate rainforests is 15,394.86 ha, more than 54% of natural area and temperate forest has 692.7 ha (about 2.4% of natural area).

Flora: About 2,847 vascular plant species belonged to 1,064 orders and 226 families; 113 species are listed in Vietnam Red Book, 34 species are in Red Data Book. Especially, there are 6 species are listed as prioritized protection

according to Degree 160/2013/ND-CP including *Abies delavayi*, *Berberis julianae*, *Coptis quinquesecta*, *Coptis chinensis*, *Panax bipinnatifidum* and *Panax stipuleanatus*.

Fauna: There are 555 vertebrate species have been found including 96 mammal species,

346 bird species, 63 reptile species and 50 amphibians species. In which, 60 species are listed in Viet Nam Red book (1992), 33 species are in IUCN Red List, 5 endemic bird species and other 25 bird species which only live in Hoang Lien Son mountainous area.

Table 1. The types of forest land within Hoang Lien National Park area

Type of land	Area (ha)	Percentage (%)
Natural forest	24,857	87.2
Plantation forest	256.7	0.9
Non-forest land	3,028.6	7.5
Land for other purposes	1,251.6	4.4
Total	28,509	100

(Sources: Report of Hoang Lien DFP, 2016)

b. Current situation of forest protection and management in Hoang Lien NP

During 2007-2009 periods, Hoang Lien National Park has built 8 ranger stations in 4 communes San Sa Ho (2 stations), Ta Van (2 stations), Lao Chai (1 station), Ban Ho (1 station), Fansipan mountain road (2 stations), and 4 watchtowers. Boundaries between different forest types are defined and fully molded, core zone is divided into many subzones and managed by forest rangers.

Hoang Lien National Park management board has strengthened law enforcement, regularly patrols the forests, normally every

month, as well as intensifies forest inspection in order to prevent illegal trading of forest products such as timber or wild animals. According to the report of Hoang Lien DFP, the number of violation of Laws of forest protection and development tends to decrease from 2014 to 2016. Illegal transport of forest products reduces nearly by half compared to 2014 whereas the number of illegal deforestation increases up to 7 cases in 2016. In general, forestry laws violations decrease is the results of forest protection efficiency and effectiveness. Table 2 presents the detailed number of violations in recent 3 years.

Table 2. Number of law violation cases

	Years		
	2014	2015	2016
Illegal transport of forest products	36	17	20
Illegal deforestation	1	2	7
Illegal forest exploitation	2	1	0
Illegal trading	4	3	2
Violation of fire prevention regulations	3	0	2
Violation of general regulations on forest protection	6	13	2
Total	52	36	33

(Source: Report of Hoang Lien DFP, 2016)

Besides, Hoang Lien National Park also focuses on raising people's awareness by

education and training about forest protection laws organizing by Environmental Education

and Services Center. They usually hold meetings with various forms suitable for customs and habits of ethnic people such as: using ethnic language, banners or posters to propagate; organizes contests to learn about Law of forest protection and development for many years, etc. Moreover, Hoang Lien DFP also informs to students from primary to high school about forest protection through meetings, extra class activities or practical experiences, etc. Each year, they have about 40 – 70 meetings with thousands of people living in core zone and buffer zone attending. Overall, thanks to Hoang Lien DFP as well as local government’s efforts, people’s awareness has been improved and they start actively participating in forest protection, management and development scheme, and programs at the local level.

Moreover, Hoang Lien DFP also pays

attention to genetic resource conservation through rescue and reintroduces wild animals to their natural habitat, propagate many valuable and rare plant species, mostly endemic species and all those work is in charge by Center for Rescue and Conservative Organism (CRCO). After 15 years since establishment, CRCO has received 103 cases of rescue wild animals with 256 individuals belonged to 57 species; 07 cases of plant rescue belonging to 7 species with the total individuals up to 35.120 trees.

3.2. Assessing the efficiency and effectiveness of CBFM in Hoang Lien National Park

a. Community participation in forest protection and management

Table 3 presents the participation level of indigenous community based on assessment criteria of Hosley (1996), with 7 levels of local participation from low to high.

Table 3. Participation level of local communities in forest protection and management

Participation level	Local people take part in management activities	
	N	%
Engaged participation	5	5
Passive participation	6	6
Participation in information giving	44	44
Participation for material incentives	29	29
Functional participation	5	5
Interactive participation	7	7
Self-mobilization	4	4

(Source: Field survey by the authors, 2017)

The results shows the participation level of indigenous people in Hoang Lien National Park are at level 3 – participation in information giving with the highest number of respondents of 44 or 44%. It means that there are still many people who only participate in forest protection and management scheme by answering questionnaires given by project’s

staffs, not really involve in forest protection by actions. There were 29% of interviewees said that they were paid for participating in forest protection and tree plantation. The percentage of interactive participation and self-mobilization is 7% and 4% respectively; those numbers need to be increased for more efficient forest protection.

b. Assessment of efficiency and effectiveness of CBFM

Hoang Lien DFP has been showing a lot of efforts in implementing CBFM since 2012. According to Decision No.116/QD-TTg, the indigenous community living inside national park area and Hoang Lien DFP can collaborate within forest co-management to share responsibilities and benefits of forest management.

Every year, about 50 – 70 ha of replantation forest, mostly *Fructus docyniae indicae*, are planted to restore forest land lost by wildfire as well as provide agricultural products for poverty reduction and reduce pressure on forest resources. More than 2000 ha of forest are being zoned off and become mature forest after 2 – 3 years with the efforts of both indigenous community and Hoang Lien DFP, contribute to the increase of forest cover as

well as forest quality.

Moreover, a policy of payment for forest environmental services (PFES) has been applied and after 5 years, it makes significant changes in forest protection and management. Since 2012 up till now, more than 8,500 ha of forest land are protected by people in 19 hamlets through forest contracting each year, associated with strictly control and management from government and the national park management board, therefore indiscriminate logging is prevented. There are 2146 households with more than 50% of poor ones have been joining in forest protection contracting and receiving payment from PFES by contributing efforts to forest protection. The total payments for local community have stable increase each year from 2012 to 2016, it is shown in the table 4.

Table 4. Total payments for PFES from 2012 to 2016

Year Indicator	2012	2013	2014	2015	2016
Payment for 1 ha (VND)	137,000	191,000	256,000	327,000	267,000
Forest contracting areas (ha)	5,618.43	5,618.43	8,573.33	8,600.41	8,571.00
Total payment (1.000 VND)	692,752	965,808	1,975,295	2,531,100	2,059,611

(Source: Report of Hoang Lien DFP, 2016)

Through this policy, those poor households have got economic support to improve incomes, the highest number they get can be up to 1.3 million/year, account for 10% of total income. In addition, their awareness about forest protection has raised and more people are willing to join in forest protection programs carried out by NP Management, gradually decline pressure on the forest, forest quality and quantity have been grown. PFES also provide a fund for Hoang Lien NP to remain forest protection programs or improve forest

rangers' quality, etc.

Moreover, Hoang Lien National Park management board is carrying out several agricultural development support programs in order to improve local incomes, such as IDEAS project, Agrisud project which help improve local livelihood based on sustainable agricultural development, project of biodiversity-based product value chain that focuses on planting *Gynostemma pentaphyllum* (or Jiaogulan) with community participation, propagating orchids, support materials for poor

households to build breeding facilities. All of those programs have the same goal: creating jobs and improvement of sustainable income then reduce pressure on natural resources and help preserve local biodiversity.

After years of CBFM implementation, it is reported that has got positive effects on Hoang Lien National Park. In particular, the criteria to assess the efficiency of CBFM are shown in the table 5.

Table 5. Criteria to assess the efficiency of CBFM

Criteria	Increase		Decrease		No changes	
	N	%	N	%	N	%
Forest resources	76	76	0	0	24	24
Water resource	84	84	0	0	16	16
Soil erosion, landslide	0	0	89	89	11	11
Illegal logging	15	15	53	53	32	32
Local people's income	74	74	11	11	15	15
Conflict between local community and NP	0	0	97	97	3	3

(Source: Field survey by the authors, 2017)

76 people (account for 76%) supposed that forest resources tend to increase, as the result of effective management as well as zoning off for forest replanting and regeneration an 84 people (84%) said that water resource also goes up. They considered water as one of the biggest benefits they can get from participating in forest protection and management with state agencies. Illegal logging is declining significantly since most of the people have participated in agricultural development support projects; as a result, landslide and erosion also reduce. Local income is said to increase by most of the interviewed households (74%). The problem of conflicts between a local community and the national park is mostly voted decreased compared to before. Therefore, people's participation in forest protection had a remarkable effect on forest protection and management in Hoang Lien National Park.

3.3. Factors that influence efficiency and effectiveness of CBFM

One of the factors that impact on CBFM implementation is heterogeneity, which refers to the diversity in group components or interests of people over forest resources.

According to Uphoff (1992), institutional arrangements are more successful where the users are a socially cohesive group. In case of San Sa Ho commune, there is only one ethnic group so it might be easier in setting for a common goals as well as managing forest resources. On the other hand, Ta Van commune has 2 ethnic groups: H'mong and Giay, so the group components are more complex with different interests over forest resources. Through the interview with foresters in charge of Ta Van village, they said that most of forest violations are caused by H'mong people, not by Giay people. It makes the implementation of forest protection and management in general and CBFM, in particular more difficult, since people living within commune do not have the same livelihood strategy and interests over the forest resources.

The educational level also influences the efficiency and effectiveness of CBFM implementation. Mbwambo (2000) argued that education has a direct influence on people's participation in natural resources management and promotes sustainable utilization of the resources. Through the survey, the study found

that 38% of interviewed people just pass primary education, the percentage of people who took secondary and tertiary education are 24% and 20% respectively, and 18% of them are illiterate. Low educational level leads to many difficulties during conducting CBFM in local areas, such as low awareness of forest protection, ethnic people do not know Vietnamese so they cannot fully understand while attending education programs about forest protection; or do not know effective agricultural practices to produce higher crop yield for improving income to reduce the pressure on forest resources.

Level of income is also a factor that may affect the efficiency of CBFM implementation. Recently, the percentage of poor households has been decreasing due to agricultural development support programs and new income source from CBFM, however, people still have to deal with unfavorable weather conditions and crop diseases that make unstable crop yields, associated with small area of agricultural land which cannot fulfill people needs, then lead to income reduction. Eventually, although forestland in Hoang Lien National Park is special-use forests, indigenous have no choice but have to go into forest searching for NTFPs such as bamboo shoots

and mushrooms.

During CBFM implementation, economic incentives play a quite important role which affects directly to the participation of the community. Stanley (1991) emphasise that income generated from the forest serves are a crucial incentive to mobilize community protection of the environment or according to Baland and Platteau (1996), villagers are usually reluctant to participate in local CPR management efforts if they do not receive immediate and adequate compensation for the sacrifices entailed, whether these sacrifices take in the form of restraint in using the resource or of investment in resource-preserving infrastructure.

On the other hand, about the sources of information about forest protection programs that people can receive, most of the respondents said they were informed by forest rangers or staffs from local government, account for 91% and 85% respectively, not often got from TV or other social media. It shows that there is a good communication between government and local community in forest co-management process, usually, people can get the information directly from forest rangers.

Table 6. Sources of information about forest protection and management projects

Information sources	Usually		Often		Rare		No information	
	N	%	N	%	N	%	N	%
Local government	85	85	9	9	6	6	0	0
National Park Management Board	91	91	5	5	4	4	0	0
TV/social media	0	0	16	16	58	58	26	26
Others	0	0	21	21	70	70	9	9

(Source: Field survey by the authors, 2017)

3.4. Opportunities and challenges of CBFM implementation

a. Opportunities

In recent years, forestry policies has

affected positively to forest protection and management activities. It creates motivation for local community to participate in forest protection programs, provides economic

incentives and technical support for agricultural development, make stable incomes to reduce pressure on forest resources. Forest land allocation and contracting as well as PFES policies continue to develop and get benefits according to national regulations.

Since local livelihood depends on the forest, people living there have the basic knowledge that related to forest protection and development, such as forest topography, plant, and animal classification, forest land use. They also contribute a huge potential labor source for forest protection activities, therefore, guidance and technical training about forest resources protection and development for the local community is very important.

Local government is having more opportunity to receive funding support from local and international NGOs programs for sustainable agricultural development and resource conservation. Those programs are running with the aim of creating jobs and improving sustainable income, then reduce pressure on natural resources and help preserve local biodiversity.

b. Challenges

During the implementation of CBFM, foresters meet many difficulties, including low educational level, the difference in language and culture among ethnic people and foresters. They also lacking essential equipment and facilities; human resource, especially skillful staffs, is not enough for effective management.

With the programs for supporting local livelihood or conservation programs, there is a possibility of fund withdrawal or fund lacking while conducting projects, due to state's limited budget for running many programs at the same time.

3.5. Propose solutions to improve efficiency and effectiveness of CBFM in Hoang Lien National Park

CBFM implementation in Hoang Lien National park have reached some

achievements and gradually got more attention from the local community, but it still needs much more efforts from Hoang Lien National Park Management board and local government. To increase the efficiency and effectiveness of CBFM in the local area, some following solutions are proposed.

Firstly, focus on raising local awareness of forest protection and management. Basic knowledge of forest resources protection should be brought into primary and secondary education curriculum, including both lectures in class and outside activities to raise students' awareness, orient which ways they can do to help protect forest resources. More meetings or education and propaganda programs should be organized at local level to attract the attention of the whole community, with printed materials such as posters, leaflets, guidelines handed to every household in order to improve their awareness of forest protection and management; encouraging people to take part in forest fire prevention, forest replantation programs; sign annual contracts with District Forest Protection with the aim of maintaining forest resources.

Secondly, local government, as well as Hoang Lien DFP need to co-operate to continue supporting for local's income sources by carrying more agricultural development support programs attached to poverty reduction policy, with the aims of sustainable agricultural production and reducing pressure on forest resources, technical support is also important in order to use effectively land and natural resources such as agricultural, forestry and small processing techniques. Those programs must be suitable for the local economic condition in order to bring as many benefits as possible for the community. Moreover, the allocation and forestland contraction need to be continuously conducted with expanded forest area and higher payment

from PFES program to improve not only people income but their awareness. In order to do that, there is a need to enhance policies and institutions that would enable financing for extension services on CBFM implementation. Furthermore, local government should focus more on ecotourism development to promote the potential of tourism resources, contribute to income improvement, increase people awareness and reduce pressure on forest resources.

Thirdly, updating staff skill who are in charge of CBFM implementation to improve management quality and help them effectively communicate with the local community, since the continuity of good relations between forestry staff and local people is vital to have sustainable management. In order to do that, all staff members should be trained about how to communicate and co-operate with local people, through training courses and exchanging of knowledge and experiences. Besides, capacity building among villagers is also be concerned, the importance of it to the attitude change for stakeholders. Training for capacity building and competence development of the villagers creates immediate interest of the people to participate in forest management activities.

Finally, besides depending on state funds, other funding sources from local and international NGOs should be searched and called for investment, not only financial but also technical support, to enable the continuity of CBFM implementation as well as extension services or running income support programs.

IV. CONCLUSION

CBFM implementation in Hoang Lien National Park have reached some achievements and got more attention from the indigenous community; many agricultural development support programs are conducted to create jobs and improve sustainable income,

and then reduce pressure on natural resources. The forestland allocation and contraction is also enhanced, each year there is more than 8,500 ha of forest land are allocated and 2,000 ha of forest are replanted.

The survey results shows the participation level of local people, although people's awareness is raising, there is still a part of indigenous community who just participate in forest protection and management by answering questionnaires given by staff, not really involve in the scheme, and there are more than 30% of respondents are participating for material incentives, such as payment for forestland contracting or PFES program. However, not much interactive participation and self-mobilization are recorded through the survey.

The factors that influence the efficiency and effectiveness of CBFM implementation are educational level, level of incomes and the sources of the information about forest protection program. In particular, since educational level and level of income are still quite low so they may have negative effects on the awareness and behavior of people about forest protection. However, there is a good communication between community and government because most of information people get come from foresters and staffs.

The research has proposed some solution to improve efficiency and effectiveness of CBFM such as raising people's awareness by propaganda and education about Laws of forest protection and development; supporting for improving local's livelihood; paying more attention on ecotourism development; increasing the availability of human resource and update staff skills to improve management quality and calling for international investment.

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HIỆU LỰC VÀ HIỆU QUẢ CỦA HOẠT ĐỘNG LÂM NGHIỆP CỘNG ĐỒNG Ở VƯỜN QUỐC GIA HOÀNG LIÊN, TỈNH LÀO CAI

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TÓM TẮT

Lâm nghiệp cộng đồng là chiến lược hoạt động nhằm hướng tới cải thiện sinh kế cho người dân sống phụ thuộc vào rừng, giảm nghèo, bảo tồn tài nguyên, thúc đẩy quản trị tốt và phân quyền thông qua vai trò của người dân địa phương trong quản lý và sử dụng tài nguyên rừng. Nghiên cứu này nhằm đánh giá hiệu lực và hiệu quả của hoạt động lâm nghiệp cộng đồng ở Vườn quốc gia Hoàng Liên, tỉnh Lào Cai. Kết quả nghiên cứu cho thấy hoạt động lâm nghiệp cộng đồng hiện nay ở VQG Hoàng Liên đã nhận được sự quan tâm của người dân nơi đây. Tuy nhiên sự tham gia của cộng đồng chỉ ở mức độ trung bình do hạn chế về trình độ giáo dục, thu nhập và nhận thức về tài nguyên rừng, là những yếu tố ảnh hưởng đến hiệu lực và hiệu quả của hoạt động lâm nghiệp cộng đồng. Các giải pháp đề xuất tập trung vào nâng cao nhận thức của người dân nhằm thúc đẩy sự tham gia, nâng cao năng lực trong quản lý và hỗ trợ sinh kế cho người dân địa phương.

Từ khoá: Lâm nghiệp cộng đồng, tỉnh Lào Cai, Vườn quốc gia Hoàng Liên.

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