



REDD+ as a Vehicle for Community-Based Forest Management? Critical Insights from Vietnam

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Abstract

Both the reducing emissions from deforestation and forest degradation program (REDD+) and community-based forest management (CBFM) aim to combat forest degradation and deforestation on various levels. Both approaches include multiple objectives such as carbon sequestration, livelihood improvement and forest tenure reform. New institutions, such as community-forest management boards or REDD+ implementation agencies, are being introduced to achieve sustainable development in the forestry sector. However, the way REDD+ affects local CBFM systems and community livelihoods remains understudied. This study analyzes the effects of REDD+ on CBFM systems in Vietnam. We selected four research communes (sub-district level units) and we conducted household surveys (n = 187), focus group discussions (n = 4), expert interviews (n = 8) and secondary data analysis (n = 23). Our findings show that in one commune REDD+ introduced CBFM and forestland allocation to communities in accordance with their customary boundaries. In another commune, REDD+ was implemented in a pre-existing CBFM and institutional landscape, and the program had little effect on households' livelihoods. The implementation of CBFM in all four communes led to further consolidation of influence of formal institutions and a higher level of formalization among involved communities. Based on the results of this study, we propose a novel typology on CBFM systems in a post-REDD+ era. This typology takes the level of formalization, marketization, globalization and forest dependence of respective households, which make up a community, into account. We present CBFM systems on a spectrum from customary to formal, and we highlight the need to adapt REDD+ and CBFM to individual households' livelihood trajectories.

Keywords Community-based forest management · Forests and livelihoods · Indigenous communities · Forest governance typology

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Introduction

Forest degradation and deforestation (D&D) pose enormous challenges to the world's forest ecosystems and biodiversity (Porter-Bolland et al. 2012; Hosonuma et al. 2012). On global, national and local levels, various initiatives have been proposed and developed to save the world's forest commons. The reducing emissions from deforestation and forest degradation program (REDD+) and community-based forest management (CBFM) initiatives are perhaps most representative of current forest governance trends on global and local scales respectively (Hayes and Persha 2010; Agrawal et al. 2011; Tomaselli and Hajjar 2011).

REDD+ is a multilateral program, initiated at the COP13 meeting in Bali in 2007, that recognizes the significance of forests in reversing and mitigating global climate change. REDD+ aims to reduce global carbon-dioxide emissions through carbon payments. Sustainable management of forests, carbon stock enhancement, and conservation are important components of REDD+ (UN-REDD 2013a). On a global scale, huge investments have been made on REDD+ readiness activities in practically every country in the Global South with a sizeable forest cover. Various multilateral (i.e. World Bank or UN agencies), national (e.g. Norway), non-governmental and private organizations have implemented or funded REDD+ activities and programs (Bayrak and Marafa 2017).

Since the mid-1990s, CBFM was established in response to centralized and top-down forms of forest management (Hajjar et al. 2012; Germain et al. 2018). CBFM or co-management can be typified as the sharing of power and responsibility between resource users (e.g. communities) and government agencies in the management of natural resources (Chapin et al. 2009). CBFM more specifically deals with how local institutions manage the forests for local benefits (Roe and Nelson 2009). There is growing evidence that communally-managed forests have a higher conservation effectiveness than top-down forms of conservation (Porter-Bolland et al. 2012; Maryudi et al. 2012; Alemagi et al. 2012). CBFM could furthermore contribute to livelihood improvement and empowerment of local communities (Schusser et al. 2016; De Jong et al. 2017). Currently, over half a billion people in the Global South are dependent on communally-managed forests (Agrawal 2007; Baynes et al. 2015).

Both aforementioned forest governance trends will continue to shape the global forest-landscape in the years to come (Agrawal et al. 2008, 2011; Hajjar et al. 2016). However, there is little known whether both approaches are mutually compatible or exclusive. REDD+ needs to devise appropriate local institutional architectures and effectively nest community engagement in forest conservation within broader national governance regimes (Hayes and Persha 2010; Hajjar 2015). Therefore, how does REDD+ affect local CBFM initiatives? Could it be a vehicle for community-based conservation activities (Agrawal and Angelsen 2009) or does REDD+ re-centralize or restructure current decentralization forest governance trends in the Global South? Governments could have strong incentives to recentralize their forest management systems in order to reap the REDD+ benefits on a national level and to keep transaction costs low (Phelps et al. 2010).

On the other hand, investing in CBFM systems that aim for sustainable livelihoods of forest-dependent people could not only lead to achieving REDD+ goals but also to more inclusive community engagement (Tomaselli and Hajjar 2011; Bernard and Minang 2019).

The objectives of this study are threefold. Firstly, we analyze how REDD+ affects and interacts with local CBFM systems. Secondly, we evaluate how REDD+ and CBFM shape and influence communities' livelihood trajectories, taking individual households and the local context into account. We study this in four research sites in Vietnam. Vietnam was chosen for this study as it is one of the pioneering countries of REDD+; it has been allocating forestland to communities for CBFM purposes since 2004; and it is a country with net reforestation and declining rural poverty rates as part of its national goals (McElwee 2016). Vietnam is therefore a good case study to develop a new typology of CBFM in a post-REDD+ era, which is the third objective of this study. This typology is not only relevant for identifying the success factors of CBFM and REDD+, but relevant stakeholders could employ our typology in developing more localized forms of CBFM in REDD+ pilot countries.

The Analytical Framework

In most studies CBFM is categorized in two forms: traditional and introduced. The former type has been long practiced by local and Indigenous communities without the interference or encouragement from outside actors. Traditional CBFM is based on traditional or customary management systems and institutions. Introduced CBFM, on the other hand, is promoted by outside and formal actors, such as governments and non-governmental organizations (NGOs) (Sunderlin and Huynh 2005). In this study we argue that among many Indigenous/local communities CBFM systems often comprise both customary (or traditional) and formal (or introduced) elements. Therefore, classifying CBFM systems in a strictly binary way would not do any justice to the complexity of current CBFM systems in Vietnam and beyond.

Figure 1 is the analytical framework of this study, and we use its components to analyze four CBFM schemes in Vietnam in a post-REDD+ era. Anderson et al. (2015) successfully demonstrate that CBFM often leads to communities improving forest management in previously degraded forests with low-valued forest products; that it could be used as a means to formalize the rights and access of local communities to forests (level of formalization); and that CBFM is often part of a process which reinforces the political economy of forest use, which almost always favors other (outside) actors. In other words, CBFM is primarily employed as a means to consolidate the influence of formal institutions on local communities instead of empowering them (Anderson et al. 2015). As an antithesis to CBFM, Hajjar et al. (2013) argue that CBFM is often implemented in a top-down manner which either promotes industrial-scale forestry practices at the community level or puts forward the interests of agents outside the community. Thus, the authors promote a better understanding of local perspectives on CBFM goals and practices (Hajjar et al. 2013). We take these assumptions and insights as the starting point of our analytical framework.

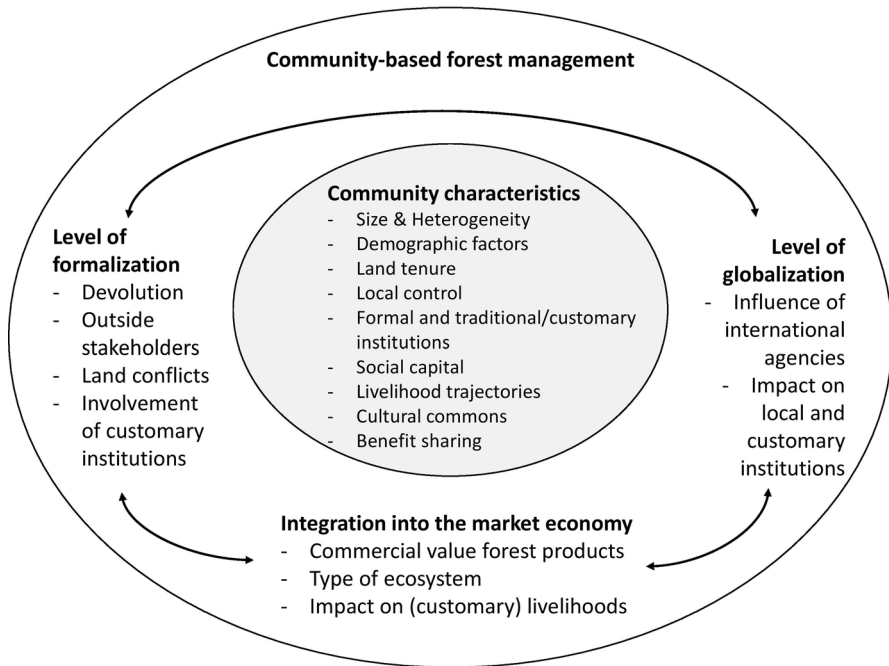


Fig. 1 Analytical framework of the study

The analytical framework consists of two parts: community characteristics (micro-level), and the CBFM context (meso-level). Agrawal and Gibson (2001) criticize the homogenous representation of the ‘community’ in development projects. They instead argue that communities consist of three critical factors, which are: (1) the multiple actors with multiple interests that make up communities; (2) the processes through which these actors interrelate; and (3) the institutional arrangements that structure their interactions. These dimensions are categorized as community characteristics in Fig. 1—including size and heterogeneity, demographics factors, livelihood trajectories (see also: De Haan 2016), and formal and traditional institutions (Hajjar et al. 2016; Delgado-Serrano 2017). Furthermore, we also focus on forestland tenure (Hajjar et al. 2011; Schusser et al. 2016; Gilmour 2016), cultural commons (Samakov and Berkes 2017; Berkes 2018); level of local control (Anderson et al. 2015); and benefit sharing mechanism in CBFM (Hajjar et al. 2013). It is key that CBFM projects in a post-REDD+ era take the multiple interests, power relations, and needs of community members into account (Alemagi et al. 2012).

Most studies on CBFM have spent little effort to examine the role of socioeconomic, market and biophysical factors in shaping land-cover change and livelihood outcomes (Hajjar et al. 2016). Hence, when we embed the CBFM system in the greater socio-ecological context, three interrelated dimensions are important in our analysis. The first dimension is the level of formalization as explained by Anderson et al. (2015). This includes devolution, influence of outside stakeholders and land conflicts (To et al. 2015). In this study we do not only analyze whether CBFM

contributes to deepening of formalization, but we also investigate whether REDD+ exacerbates this. The second dimension is the level of globalization in conservation (e.g. REDD+). Whereas in the past communities governed their commons because of local needs, nowadays this shifted to revaluing local forest ecosystems as global commons (Pearson 2016). The last dimension deals with integration in the market economy of the community and the commercial value of forest products (Anderson et al. 2015). This includes whether communities only govern leftover commons (i.e. highly degraded forests) and to what extent they are vulnerable to external market forces.

Methods and Data Analysis

By employing the analytical framework of this study (Fig. 1), we analyze CBFM and REDD+ processes in Vietnam in four CBFM sites. Table 1 shows the research objectives, and corresponding research questions (RQs) of this study. All four RQs were employed to develop a new typology of CBFM in a post-REDD+ area.

Selection of Study Sites

The study was conducted in the summers of 2013–2015 in four communes (sub-district units) in Vietnam's Central Highlands (Fig. 2). These communes are: Huong Hiep (Quang Tri province), Thuong Nhat (Thua Thien-Hue), Hieu (Kon Tum) and Bao Thuan (Lam Dong). The selection of the communes was non-random, but were selected purposively to have a variety of CBFM/REDD+ schemes represented (Hajjar et al. 2013). We identified the communes after preliminary research and in close consultation with local academic and NGO networks in Vietnam. The selection of communes furthermore depended on whether we could obtain the necessary research permits. As the communes were not randomly selected, we do not claim

Table 1 Research objectives and questions

Research objectives	Corresponding research questions (RQs)
(I) To analyze how REDD+ affects and interacts with local CBFM systems	RQ1: How is REDD+ implemented in the local CBFM context? RQ2: To what extent are the communities of the four CBFM sites engaged in REDD+ and/or CBFM, and what inter- and intra-community differences can be observed?
(II) To evaluate how REDD+ and CBFM shape and influence communities' livelihood trajectories, taking individual households and the local context into account	RQ3: What are the dynamics between household livelihood trajectories and CBFM/REDD+ RQ4: To what extent are there differences among livelihood groups in CBFM/REDD+ participation or engagement?
(III) To develop a new typology of CBFM in a post-REDD+ era on meso- and micro-level	All four RQs

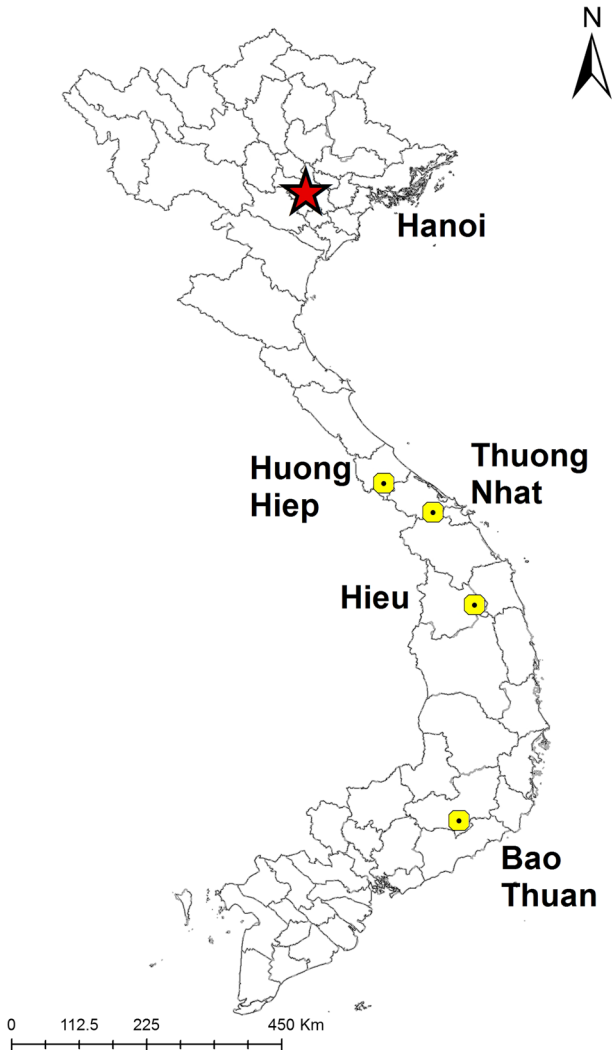


Fig. 2 Research communes in Vietnam

to represent the whole CBFM situation in Vietnam. However, we present a variety of case studies to deepen the understanding of interactions between CBFM and REDD+ on both community and household levels.

The general selection criteria for all communes included: (1) primarily Indigenous population; (2) community involvement in benefit sharing mechanism (BSM) in forest protection; and (3) community engagement in forest-based livelihoods. The communes have furthermore been selected for their degree of involvement in REDD+ and CBFM. Huong Hiep was a pre-CBFM and pre-REDD+ commune. Thuong Nhat was a CBFM and pre-REDD+ commune. Hieu was a nearly developed

CBFM and REDD+ commune. REDD+ in Hieu was implemented by Fauna and Flora International (FFI), an international conservation NGO. Lastly, Bao Thuan, and Kala Tonggu village specifically, was a REDD+ and CBFM site. REDD+ in Bao Thuan was implemented by the United-Nations REDD+ program (UN-REDD), Food and Agriculture Organization (FAO), and United Nations Development Program (UNDP). Households in both Hieu and Bao Thuan did not receive carbon payments yet, but they were involved in REDD+ readiness activities and a REDD+ infrastructure has been laid out in both communes.

Methods of Data Collection and Analysis

For this research, Hulme's (2007) Q-squared methods were utilized. This means that qualitative, quantitative and participatory methods were employed to limit the weaknesses of each methodology, and to maximize each of its strengths. We conducted household surveys ($n=187$) among the four communes. The sampling frame was based on the random selection of two to three villages in each commune. Only Bao Thuan commune was an exception as Kala Tonggu was the only village that participated in REDD+. Within the villages, every 5th household was selected using household registration lists provided by the village headmen. We interviewed between 10 and 60% of total households in each village. As villages and communes in Vietnam vary in population size, we were sometimes not able to interview 20% of the total households. This was because we aimed to interview 30–50 households in each commune due to time constraints. Yet in villages with smaller population sizes, we were able to interview more households after reaching the 20% mark, and we started with the second (and third, etc.) household on the lists as starting points. Self-identified heads of households were selected for our household survey, and they were asked to comment on the situation of their whole household. Interviews were often held in the presence of other household members. For this reason, we instructed the local student helpers to only note down the answers of the household head. As part of the survey, we also interviewed village headmen and patriarchs. All households were willing to participate in the survey. The household questionnaires used for this study can be found in Bayrak (2015). Data from the household surveys were analyzed with SPSS, and descriptive and one-way analysis of variance methods were used for the analysis of the results. We considered differences significant at p values of 0.05.

The qualitative methods of this study included in-depth expert and stakeholder interviews ($n=8$). Face-to-face semi-structured interviews were conducted in Hanoi and Hue with representatives of UN-REDD ($n=1$), FAO ($n=2$), UNDP ($n=1$), FFI ($n=2$), Tropenbos International (TBI) ($n=1$) and Forest Trends (FT) ($n=1$). Each interview lasted around 60 min. Topics that were discussed included: implementation of REDD+ and CBFM in Vietnam; governance challenges associated with REDD+ and CBFM; and (potential) benefits of REDD+/CBFM for local communities. The participatory methods of this research involved focus group discussions (FGDs) ($n=4$) with community-forest management boards (CFMBs). We asked these boards to discuss local governance structures and activities of REDD+/CBFM

in their respective villages. They were furthermore asked to discuss the state of the community and natural forests. The FGDs were held with village headmen, secretaries, and two to four heads of patrolling groups (see section: “[CBFM and REDD+ Implementation](#)”). Additionally, we also invited two women and two poor households to participate in order to have a variety of opinions represented.

Lastly, we analyzed grey literature, policy/project reports and data-sets on the UN-REDD program (n=6), FFI-REDD+ project (n=5), CBFM/BSM projects in the research communes (n=5) and the national context (n=7). These documents have been provided by respective government officials, FFI and UN-REDD representatives, and through an online search. The purpose of secondary data analysis was to review relevant legal norms and forestry codes and laws in Vietnam; review the implementation and activities of REDD+ and/or CBFM in the respective communes; and to obtain background data on the communes. The full list of secondary data can be found in the bibliography section.

RQ 1 was mainly answered through secondary data analysis, expert interviews, and FGDs. We employed quantitative data analysis to answer RQs 2, 3 and 4, but we supplemented these data with findings from aforementioned qualitative and participatory methods to achieve data triangulation and saturation.

National Context: Recentralization and Decentralizations Trends in Vietnam’s Forest Governance

Vietnam started allocating forestland to local households and groups of households in 1993, and to communities in 2004 for conservation and afforestation purposes—this being known as the Forestland Allocation (FLA) program. Households and communities were able to own so-called Red Books—land-use certificates for forestland—for 50 years. Additionally, households could own Green Books—forest protection and reforestation contracts. Vietnam’s forests are divided into three categories: special-use (e.g. national parks), protection and production forests. Forestland allocated to households and communities mostly concerned the latter category. Beneficiaries of the FLA program did not own forestland as all land belongs to the ‘People’ in the Socialist Republic, but households were allowed to use their forestland for commercial purposes (To et al. 2013; To and Tran 2014; Bayrak 2019). Communities could not engage in commercial activities as they were not classified as legal entities in Vietnam’s Civil Code (REDD Desk 2019). This potentially being an impediment to successful CBFM implementation. Ultimately, the State decides how beneficiaries manage and exploit their forestland. A Red Book can be revoked in case a household or community does not abide to top-down decided rules and regulations (Nguyen 2009).

The FLA program, in conjunction with other reforestation programs, reaped some positive results. Forest cover in Vietnam improved from 24.7 in 1992 to 47.6% in 2015 (FAO 2018). Around 28% of Vietnam’s total forestland was allocated to individuals in 2012 (MARD 2012 in: To et al. 2013). Forests allocated to communities were mainly leftover commons—31.4% of the allocated forestland to communities consisted of barren land and denuded hills (Nguyen 2009). Additionally, only 2% of

Vietnam's total forestland was allocated to communities in 2012 (MARD 2012 in: To et al. 2013). CBFM in Vietnam was primarily a means to formalize the rights and access of local communities to forests. These new rights included the right to conserve, reforest and protect community forests as well as to harvest and collect non-timber forest products (NTFPs) and firewood. In order to be eligible for a Red Book, communities were obliged to develop village forest protection and development plans, create CFMBs (i.e. new institutions), monitor their community forest, adhere to formal forest regulations, and report to higher level authorities (e.g. provincial, district and commune authorities) (Sunderlin 2006; Nguyen 2009). The State very much adopted a 'command and control' (primarily top-down) and industrial-scale forestry (focusing on afforestation rather than devolution) approach to CBFM in Vietnam (McElwee 2016).

Vietnam participates in UN-REDD, the World Bank's Forest Carbon Partnership Facility, and various other REDD+ projects (REDD Desk 2019). As of today, REDD+ is not yet operating on a national scale. However, REDD+ implementation in Vietnam led to the establishment of national REDD+ institutions, network (consisting of both government agencies and NGOs) and an action plan, as well as REDD+ readiness activities at the provincial level and pilot projects among forest-dependent communities (Stewart and Swan 2013; UN-REDD 2012, 2013a; expert interviews FAO, UNDP and UN-REDD). At the community level, UN-REDD primarily focused on Free Prior and Informed Consent (FPIC) activities and the implementation of social safeguards (RECOFT 2010; IGES 2013).

Results

Local Context and Description of Household Survey

Table 2 displays the characteristics of the research communes and the descriptive statistics of survey respondents. Huong Hiep mainly consisted of Indigenous Bru Van-Kieu people. The commune was relatively poor (defined as households earning less than 400,000 VND (17.3 USD) a month according to Vietnam's official poverty standard) and most households conducted subsistence swidden agriculture or they were seasonal land workers on other farms/plantations. The forests of Huong Hiep were mainly degraded but forest dependence in the commune remained moderately high (Huong Hiep CPC 2012). Huong Hiep had traditional institutions (patriarchs and elderly) who still decided social and forestry affairs in the village. Additionally, most households recognized ghost forests—cultural commons where exploitation is prohibited due to spiritual beliefs and cultural norms. Traditional institutions operated parallel to formal institutions to ensure that households did not illegally exploit forestland in the commune. They did this through fining, sanctioning, rulemaking and monitoring the natural forests (FGD Huong Hiep).

Thuong Nhat was in many ways similar to Huong Hiep. Around 47.1% of its households conducted swidden agriculture, but Thuong Nhat's villagers were increasingly integrating in the market economy through rubber and Acacia small-holding. The Co Tu people of Thuong Nhat still had traditional institutions as well

Table 2 Commune characteristics and descriptive statistics of survey respondents

	Huong Hiep (n = 34)	Thuong Nhat (n = 51)	Hieu (n = 52)	Bao Thuan (n = 50)
Total population size (households)	4442 (982)	2026 (470)	2738 (660)	6463 (1341)/820 (196) (Kala Tonggu)
Type of REDD+ project?	None	None	NGO-based (FFI-REDD+)	Multilateral (UN-REDD)
Community involvement in CBFM?	Developing	Yes	Yes	Yes
Natural forestland allocation?	Some households and communities in progress	Some households and communities	One community and other communities in progress	Households and one community (Kala Tonggu)
Main ethnicity in the commune	Bru Van-Kieu	Co Tu	M'Nam	K'ho
Livelihood strategies of survey respondents (% of the respondents)	Wet-rice cultivation (85.3%) Acacia smallholding (82.4%) Swidden agriculture (55.8%)	Wet-rice cultivation (74.5%) Acacia (60.8%) and Rubber Smallholding (74.5%) Industrial cassava (58.8%)	Wet-rice cultivation (98.1%) Swidden agriculture (73.1%) Logging for housing (65.4%)	Coffee smallholding (98.0%) Wet-rice cultivation (98.0%) NTFP collection (50.0%)
Poverty rate (%)	42.2%	24.0%	75.0%	12.5%
State of forest commons in the commune	Mainly degraded	Mainly degraded	Rich in biodiversity but under threat	Mainly degraded
Level of forest dependence of survey respondents	Average/high	Average	High	Low
Presence of formal institutions?	Yes	Yes	Yes	Yes
Presence of traditional institutions?	Yes	Yes	Yes	Yes, but they strictly have a ceremonial role
Do survey respondents recognize cultural forest commons? (%)	Ghost forests (100%)	Ghost forests (27.5%)	Ghost forests (88.2%)	No

as cultural forest commons, but fewer people recognized their importance (27.5% now as opposed to 54.9% 20 years ago). Formal institutions were also considered more important than patriarchy and elderly (FGD and household survey, Thuong Nhat).

Hieu was least integrated in the market economy—the poverty rate stood at 75% in 2012 (Dang and Trinh 2012). Most of its M'nam households conducted swidden agriculture for subsistence. The forest commons in Hieu were rich in biodiversity, and many households in Hieu conducted (illegal) logging activities (FFI 2013; Dang 2014). This was primarily for housing, but an increasing number of villagers sold timber and other valuable forest products to outsiders. However, households in Hieu still adhered to traditional institutions and cultural forest commons, e.g. all households claimed to protect their ghost forest. FFI implemented REDD+ and CBFM in the villages in 2011. This included REDD+ readiness and FPIC activities. As a result of this, an overwhelming majority of the households in Hieu voted to adopt REDD+ (92.9%) (Dang and Trinh 2012; Dang 2013).

Bao Thuan commune mainly consisted of coffee (Robusta) smallholders. The K'ho households of Bao Thuan did not really depend on the natural forests even though they owned forestland as a community and participated in CBFM. Traditional institutions in Bao Thuan only had a ceremonial function. Cultural forest commons did not exist in Bao Thuan anymore. UN-REDD was implemented in 2010 as a pilot project, and it focused on conducting REDD+ workshops, FPIC, and community carbon monitoring activities. A majority of households in Kala Tonggu voted to adopt REDD+, but around 38% of the households abstained from voting (RECOFT 2010; CPC Bao Thuan 2012; UN-REDD 2013b).

CBFM and REDD+ Implementation

In Vietnam, forestland is allocated by the District People's Committee (DPC). Households and communities can apply for forestland allocation through the Commune People's Committee (CPC), which in their turn forwards this application to the DPC. The DPC is working under the auspices of the Province People's Committee (PPC), who is responsible for developing a provincial forest management plan and vision. The DPC and CPC cooperate with forest protection departments, State Forest Enterprises (SFEs), Watershed Management Boards, National Parks, and other formal institutions. Each of these institutions is able to have forestland. Forestland owned by the CPC or DPC, however, is destined to be allocated to local households and communities. Whereas communes (usually consisting of several villages) are counted as the lowest administrative unit in Vietnam, villages do have formal institutions such as a village headman, secretary, vice-headman, and various formal associations. These governance structures and arrangements were found in all four research communes.

Each village in the research communes had a CFMB consisting of the village headman, an accountant and bookkeeper, and leaders of village patrolling groups (PGs). PGs, represented by groups of households, were obliged to patrol and monitor the community forest once or twice a month. During monthly meetings, chaired

by the village headman, secretary and sub-headman, the CFMB discussed the social and ecological affairs of the village. Households involved in CBFM usually received a yearly fee for monitoring the community forest. Our survey findings show that averagely each household earned 2,500,000 VND (Huong Hiep), 855,313 VND (Thuong Nhat), 609,189 VND (Hieu) or 935,111 VND (Bao Thuan) a year. With the exception of Huong Hiep, the other fees did not significantly contribute to the households' annual earnings. Finally, each commune had their own distinct CBFM structure—as displayed in Fig. 3.

Huong Hiep (Fig. 3a) did not yet participate in a fully developed formal CBFM scheme. The villages of Huong Hiep did have CFMBs but they only consisted of 4–5 households in charge of monitoring the natural forests belonging to the commune. Huong Hiep's CPC owned these forests at the time of the research, but the CPC was expected to allocate forestland to its communities or households in the near future. The forest rangers of the CPC together with the households, who were selected by the village headmen, patrolled these forests once or twice a month.

Thuong Nhat (Fig. 3b) had two types of CBFM implemented. The first was forestland allocation (covering between 100 and 200 ha) to the community in 2011.

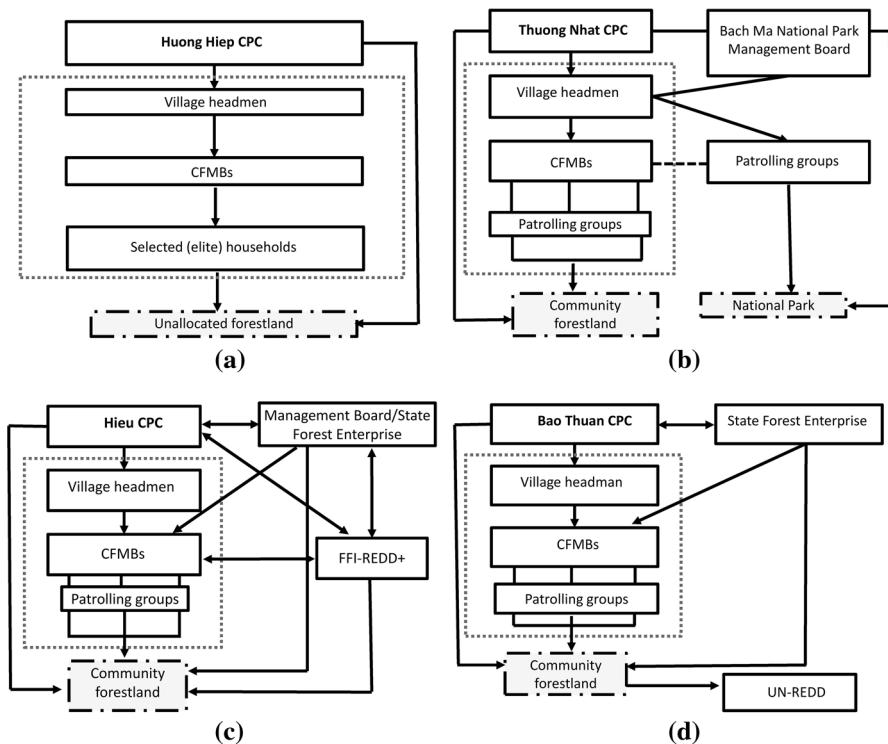


Fig. 3 CBFM structures in **a** Huong Hiep, **b** Thuong Nhat, **c** Hieu, **d** Kala Tonggu Bao Thuan [from: FGDs in respective communes; Dang and Trinh (2012) and UN-REDD (2013a); interviews with FFI and UN-REDD]

Each CFMB had PGs monitoring the community forests, and these groups shared information about the state of the forest with the CPC. The PGs were also involved in reforestation and afforestation activities. The second type dealt with patrolling a national park as a BSM program of Bach Ma National Park Management Board. A CFMB proclaimed that the Thuong Nhat's community forests were located in the buffer zone of the national park and highly degraded.

Vi Chrinh, a village in Hieu, started having CBFM (covering 808 ha) in 2008 as a result of a project implemented by Japan International Cooperation Agency. FFI-REDD+ adopted their approach in other villages of Hieu commune, and negotiated with Thach Nham Watershed Management Board (MB), Mang La SFE and local authorities to allocate around 18,000 ha of forestland to the communities in accordance with their customary boundaries (Fig. 3c). This process was still ongoing at the time of our research. The CFMBs of the villages already conducted monitoring activities in these forests. This was both because of FFI-REDD+ and Green Books from the MB and/or SFE. Assisted by FFI-REDD+, the CFMBs used a computer database and GPS to monitor the state of the community forests and report violations to the local authorities on a monthly basis. Each CFMB also had a bank account in the nearby town to deal with payments to the PGs. In Hieu's case, REDD+ contributed to the establishment of a CBFM infrastructure and more advanced methods of forest monitoring and BSM (FFI 2015; expert interviews FFI).

Kala Tonggu village in Bao Thuan commune (Fig. 3d) was quite different from most villages in Lam Dong province—a UN-REDD pilot province. Most villages in Lam Dong did not have forestland allocated to communities, but they instead participated in defined PFES schemes of SFEs in the province (through Green Books). In 2011, Kala Tonggu became the first village in Bao Thuan with allocated community forestland (500 ha). Additionally, the households of this village also owned Green Books from Bao Thuan SFE (DPC Di Linh 2011; FPD 2014; CPC Bao Thuan 2012; Forwet 2013; UN-REDD n.d.). Contrary to FFI-REDD+, UN-REDD in Lam Dong did not require it to be a component of the program to allocate forestland to communities. UN-REDD was mainly built upon existing CBFM structures in the village (expert interviews FAO, UNDP and UN-REDD).

Community Involvement and Livelihood Outcomes of REDD+ and/or CBFM

Communities are not homogenous and inequalities often exist. Around 64.1% and 68.0% of the women and men respectively stated that their households participated in forest monitoring. However, female-headed households (20.9%) reported to have received a significantly lower average income ($p < 0.05$) from forest monitoring than their male counterparts—this was 551,429 VND for the former and 882,021 VND for the latter.

Figure 4 highlights the relationship between age, participation rate in CBFM and average income from CBFM in the four communes. More than half of all age-classes participated in forest monitoring, with younger households participating more than older ones. Furthermore, households aged 23–28 earned significantly more from forest monitoring than other age-classes ($p < 0.05$)—averagely 1,144,800

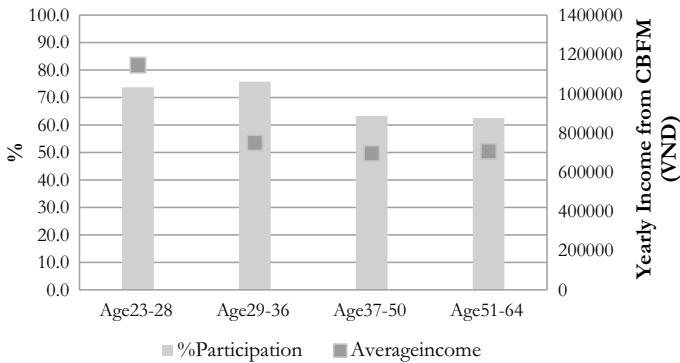


Fig. 4 Age, participation in CBFM (%) and yearly income from CBFM (VND)

VND a year for the former and around 700–750,000 VND for the latter. Younger households have physical advantages which can either be beneficial or detrimental to REDD+ and CBFM. Younger households have more endurance and strength to monitor the natural forest (hence their higher income for forest monitoring), and a smaller family to take care of. At the same time, younger households faced notably more difficulties in obtaining plantation forestland and Red Books than other age-classes (expert interviews TBI and FT). Our survey results show that households aged 23–28 had significantly lower monthly incomes than households aged 29–36 and 37–50—around 1.8 million VND for the former and 2.2–2.7 million VND for the latter ($p < 0.05$). For this reason, younger households were overrepresented in our survey in (illegal) logging activities. Loggers for commercial (3.7%) and subsistence purposes (18.7%) respectively belonged to 100% and 62.9% of the younger household classes (<36 years). Lastly, we could not find any evidence that younger households were more engaged in out-migration than other age groups as migration rates in all research communes were negligible according to government statistics.

The most important activities of households involved in CBFM were forest monitoring and tree planting. During our FGDs, households stated that they saw their community Red Book primarily as an investment. They were promised that they would be able to conduct selective logging in their community forest depending on the forest maturity. In terms of livelihood outcomes, REDD+ and CBFM had both positive and negative impacts. Households involved in CBFM claimed to have new rights and livelihoods benefits. These included: unrestricted access to their community forest; protection against land grabbing; and being able to exploit their community forests in accordance with government regulations and approval. Households also participated in various training activities.

The direct financial benefits of CBFM/REDD+, however, were rather small, mainly covering the monitoring costs. Furthermore, CBFM did not contribute to a revival of traditional forest management systems. Hence, traditional institutions had little say in CBFM and were primarily left out in the formal top-down process. CBFM contributed to a higher level of formalization in all four case studies. In Hieu, the SFE and MB still refused to allocate their forestland to the communities. This

led to land conflicts between the SFE/MB and local households, and even among local households (expert interview FFI). In Huong Hiep, local authorities and elite households had access to village development funds while the poorer households were excluded from these resources. Hence, only elite households participated in CBFM and a clear rationale why they were selected was lacking. It also remains a question whether REDD+ benefits could compensate for the opportunities forgone due to commercial forest-based livelihood activities or smallholder farming (expert interview TBI). Concerning the UN-REDD pilot site, one expert stated: “Most households in Lam Dong own coffee plantations, REDD+ hardly has an impact on their lives”. Moreover, some of the main challenges associated with REDD+ implementation from the semi-structured interviews included: lack of legal carbon rights for local households; lack of recognition of communities in the Civil Code; unclear rules regarding the national-to-local distribution of REDD+ benefits; financing of REDD+; and the multitude of governance and forestland tenure systems across Vietnam.

As a result of CBFM and/or REDD+, CFMBs expressed during the FGDs that they wanted to have more rights and privileges. They wanted to have more influence on formal sanctioning and grievance processes; acquire forest monitoring equipment; wear official uniforms to establish some form of authority; receive higher financial rewards from forest monitoring; and obtain in-kind benefits that foster the broader development of the village. Highlighting the latter, one villager in Huong Hiep stated: “I would still protect the forest if the benefits would be allocated to the community and not the households. The community should use it for schools [...] or to build a dam so my rice field has water”.

Livelihood Trajectories, CBFM, and REDD+

Household livelihood trajectories also reflect the multiple interests and processes within a community. It is important to note that all households in our study employed multiple livelihood strategies (Table 3; Fig. 5). Figure 5 displays the relationship between livelihood activities and participation in CBFM. Coffee farmers engaged most in forest monitoring—96.4% monitored the community forest for at least once a month. Government officials (64.5%) and swiddeners (63.0%) came second and third respectively. Ending up last, less than half of all *Acacia* smallholders

Table 3 Types of livelihood strategies, mean land size and annual income across all study sites

Type of livelihood strategy	Mean land size (ha)	Mean annual income for activity (VND)
Swidden agriculture	Unknown	Subsistence
Coffee smallholders	0.53	37,478,140/ha
<i>Acacia</i> smallholders	1.03	4,651,163/ha
Rubber smallholders	0.88	11,229,600/ha
Land labor	n/a	6,646,132

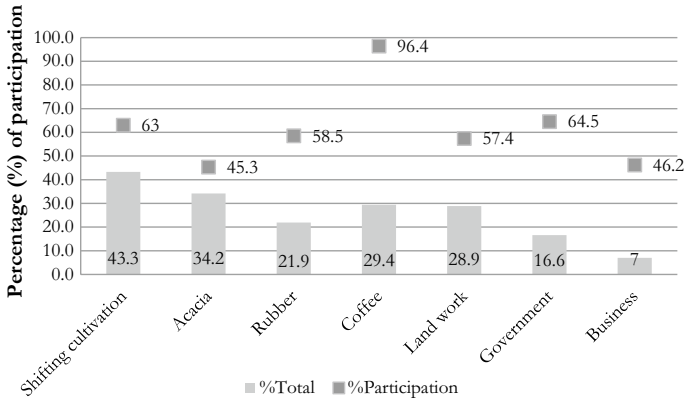


Fig. 5 Livelihoods and participation in CBFM (%) (Note: Households can engage in multiple livelihood activities)

(45.3%) participated in CBFM. We now focus on three important groups in our survey: swiddeners, smallholders and land workers.

Households, whose livelihood activities were only swidden agriculture, wet-rice cultivation and livestock rearing (13.9%), were significantly the poorest in the communes. They had an average income of only 596,153 VND a month as opposed to 2,552,913 VND for others ($p < 0.05$). Nonetheless, 88.5% of these households in our survey participated in forest monitoring. Many swiddeners were encouraged or required by the CPC/DPC to grow plantation forests (Acacia or rubber) on former swiddens in exchange for FLA, subsidies and food assistance. Even so, many swiddeners continued to face food insecurity (household surveys Huong Hiep and Hieu). One former swiddener in Thuong Nhat asserted: “If the government does not give me rice, I will grow hill rice again, since wet rice cultivation is not enough”. In terms of income inequality between swiddeners and non-swiddeners, there was only a significant difference in income in Thuong Nhat. The former had an average monthly income of 1,572,917 VND opposed to 2,522,000 VND for the latter ($p < 0.05$).

Many smallholders in our study associated various ecological benefits with CBFM and REDD+, such as: watershed protection, storm buffers, and landslide prevention. Natural and community forests were usually located on hill slopes, whereas the plantations were located on the lower slopes. Most smallholders embraced REDD+ or CBFM as they claimed that their natural forest dependence was rather low. However, each type of smallholder had its own vulnerabilities, which in the longer term could jeopardize the success of REDD+ or CBFM. The average waiting period for Acacia and rubber smallholders before harvest was 5–7 years. Within this time period, they were especially vulnerable to natural shocks and stresses, which often led them heavily indebted in case their plantations were damaged or destroyed (FGDs and household surveys). Even more than other smallholders, Robusta coffee farmers were vulnerable to fluctuating market prices (Fig. 6). A coffee-price crisis in late 1990s seriously affected coffee smallholders in Vietnam and only since 2006

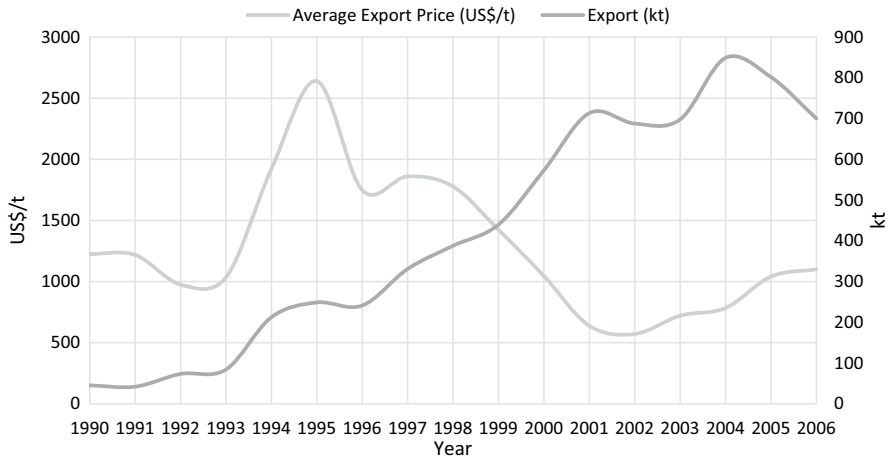


Fig. 6 Robusta coffee export and prices in Vietnam. Data from: Giungato et al. (2008) and Marsh (2007)

has coffee smallholding become profitable again (Marsh 2007). These vulnerabilities often forced households in times of stress to return to the natural forests for maintaining their livelihoods.

Reasons why farmers in Vietnam became land workers (either on other farms or plantations) could be divided into push and pull-factors. The pull-factors identified by the land workers in our survey included: proximity to roads; labor supply from SFEs, mining companies or large landholders; young age and physical fitness; and availability of time. Table 4 shows that land workers were significantly younger than other households. The push-factors were mainly related to natural capital and geography. Many land workers stated that they could not cultivate their allocated forestland due to a lack of infrastructure and financial capital. In Thuong Nhat, poorer households would often receive production forestland in remote areas, whereas forests of elite households were located near roads and settlements. Land workers owned significantly less land for wet-rice as well as coffee farming than other households (Table 4). Moreover, 89.8% of the land workers engaged in temporary or seasonal labor. In seasons with relatively less work, the land workers claimed that they would either return to swidden agriculture or forest-based livelihoods (both legal and illegal).

Discussion and Conclusion

Towards a New Typology on Meso-level

Both CBFM and REDD+ in Vietnam and our study sites formalized the rights of communities and households to forest use and access, with community forests mainly consisting of left-over commons (Anderson et al. 2015). Sometimes CBFM took the shape of an industrial forestry model (Hajjar et al. 2013), but the case of

Table 4 Socio-economic characteristics of land workers across all study sites

	Land-work?	N	Mean	SD	ANOVA <i>p</i> value
Age	Yes	54	34.06	10.10	0.05
	No	133	39.21	11.79	
	Total	187	37.72	11.54	
Monthly income (VND)	Yes	52	2,496,153	1,754,653.37	0.101
	No	130	2,020,769	1,755,410.07	
	Total	182	2,156,593	1,763,538.14	
Wet-rice field size (m ²)	Yes	50	1626.24	1859.81	0.019
	No	116	2569.16	2536.68	
	Total	166	2285.15	2387.53	
Swidden land size (m ²)	Yes	54	4502.81	6470.09	0.725
	No	133	4096.80	7384.82	
	Total	187	4214.03	7117.95	
Rubber size (ha)	Yes	15	0.88	0.48	0.968
	No	29	0.88	0.39	
	Total	44	0.88	0.42	
Acacia size (ha)	Yes	27	0.91	0.69	0.387
	No	37	1.12	1.08	
	Total	64	1.03	0.93	
Coffee size (ha)	Yes	15	0.35	0.19	0.022
	No	41	0.59	0.38	
	Total	56	0.53	0.35	

Bold represents the ANOVA *p* value ≤ 0.05

Hieu has shown that it could also be used to restore customary forest boundaries in the commune. Sunderlin and Huynh (2005) state that CBFM in Vietnam often takes a hybrid form, incorporating both customary and introduced elements. In this study we analyzed these hybrid forms in order to develop a new typology on CBFM in a post-REDD+ era. This typology represents the contextual factors for the success or failure of CBFM in conjunction with REDD+. We focus both on meso- and micro-levels. Our typology builds on meso-level factors including the traditional-introduced CBFM dichotomy model, but represents the level of formalization of CBFM as a spectrum—from customary to formal CBFM. This allows policymakers and scholars to understand how REDD+ engages with local institutions and governance structures (e.g. CBFM), which are sometimes not only formed by formal agencies or NGOs, but also by traditional institutions and cultural forest commons (Samakov and Berkes 2017).

Below we applied our typology (see also: Fig. 7) to the context of CBFM systems in Vietnam:

- *Customary CBFM*: Since most Indigenous communities have been affected by the State and mainstream society in one way or another, this type is not practiced

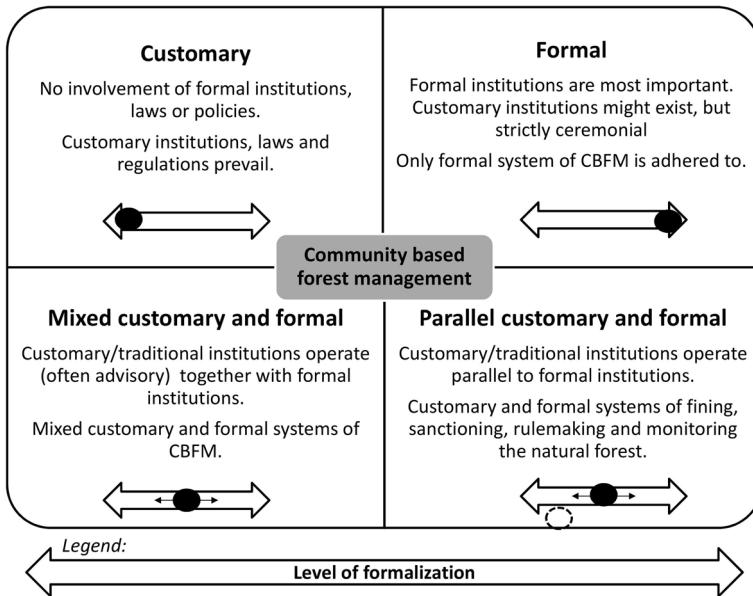


Fig. 7 CBFM typology at the meso-level

in Vietnam anymore (Sunderlin and Huynh 2005; McElwee 2016). The community forests were only introduced recently.

- *Parallel customary and formal CBFM:* Most households in Huong Hiep were not involved in formal CBFM. Even though each village had a designated plot of natural forests, forestland allocation to the community had yet to take place. Only a few elite households benefitted from current formal arrangements in the villages. At the same time, the traditional institutions of Huong Hiep perpetuated a customary system of fining, sanctioning, rulemaking and monitoring the natural forests. Two systems were therefore enforced parallel in the commune.
- *Mixed customary and formal CBFM:* This type of CBFM is different from the previous one, because most households in Hieu and Thuong Nhat were involved in both formal and customary CBFM systems to various degrees. Ghost forests still existed in Thuong Nhat, and these forests were actively protected by households in Hieu. Nonetheless, the role of traditional institutions in formal CBFM was strictly advisory in nature. At the same time, FFI designed CBFM in Hieu in accordance with M’nam communities’ customary forest boundaries. Thus, REDD+ in Hieu has led to decentralization in forest governance instead of recentralization (Phelps et al. 2010).
- *Formal CBFM:* This form was practiced in Kala Tonggu, Bao Thuan. The level of forest dependence of local households was relatively low and most households were coffee smallholders. They mainly participated in a formal CBFM system, and they lacked customary forest management systems and commons. Traditional institutions served a ceremonial role. UN-REDD did not introduce CBFM in the village, but was mainly incorporated in a pre-existing forest governance

landscape. This was also confirmed by a study of Casse et al. (2019). In terms of the level of Anderson et al. (2015) level of formalization, CBFM in Kala Tonggu had reached the highest level among the four research sites.

Embracing Diversity on the Micro-level

CBFM projects in a post-REDD+ era need to take the heterogeneity and power relations of community members into account (Agrawal and Gibson 2001; Alemagi et al. 2012). In our study we found evidence that women were paid less for CBFM than men. Nonetheless, since this study took the household as the main unit, this needs a more thorough investigation in future studies (see also: Agarwal 2001). Our findings furthermore confirm that both REDD+ and CBFM need to be adapted to the livelihood trajectories of the diverse households in a community (Hajjar et al. 2016; Delgado-Serrano 2017; Khatri et al. 2018). This is decided by demographic and socio-economic characteristics, level of integration in the market economy, forestland tenure (Schusser et al. 2016; Gilmour 2016), and forest dependence (Hajjar et al. 2016). Here, we highlight three groups: the swiddeners, smallholders and land workers.

Traditionally, swiddeners have been blamed by the Vietnamese government to be the main contributor to deforestation in the country (Fox et al. 2000). However, this is not reflected in how many swiddeners participated in CBFM in our study. Swiddeners could effectively engage in REDD+ because of two main reasons. Their households are subsistence-based (thus less opportunities forgone), and they will have new means of acquiring financial capital. On the other hand, realizing food security for swiddeners remains a significant challenge to successful REDD+ implementation. For this reason, social safeguards in REDD+ need to adequately address the food security situation of swiddeners (e.g. designating forests for shifting cultivation/food).

Acacia, rubber and Robusta coffee are considered 'smallholder friendly' crops in Vietnam (Sikor 2012). Looking at current benefits from CBFM, the financial benefits of REDD+ will most likely have a marginal effect on smallholders. Watershed functions of forests, forestland tenure, and storm buffer zones are amongst the co-benefits important to the livelihoods of smallholders. However, all three types of smallholders are affected by global price fluctuations and natural hazards. This could pose a significant threat to both CBFM and REDD+. Hence, both REDD+ and CBFM need to co-evolve with households' livelihood trajectories instead of perceiving households' livelihoods as static and predictable (Bayrak and Marafa 2017).

Land workers are capable of engaging in REDD+ and CBFM because of the seasonality of their nature of work. During the off seasons, REDD+ and CBFM could provide them new work opportunities besides swidden agriculture or activities that contribute to deforestation and forest degradation. However, it is important to incentivize land workers to participate in REDD+ by offering them direct financial benefits. Due to their high integration in the market economy, indirect benefits could be perceived as less attractive. Financial incentives should therefore compensate the

opportunities foregone for (illegal) forest exploitation. Regarding land workers, adequate BSM could play a crucial role in the success of CBFM and REDD+ (Hajjar et al. 2013).

Conclusion

The findings in our study suggest that in the case of UN-REDD in Bao Thuan, REDD+ was largely implemented in a pre-existing CBFM and institutional landscape. UN-REDD built upon an existing forest governance infrastructure, and did not bring any significant change to households' livelihoods. FFI-REDD+ in Hieu, on the other hand, actively contributed to the development of a CBFM system and infrastructure as well as forestland allocation to the communities in accordance with their customary boundaries. CBFM empowered local communities in Hieu to make claims to forestland in their commune. However, in both case studies, REDD+ did contribute to a higher level of formalization among local households. This was necessary as forestland tenure, BSM, FPIC, and implementation of social safeguards were all channeled through formal channels and from outside actors.

In all four case studies, the direct financial benefits of REDD+ and CBFM were small. Households saw their community forests primarily as an investment, even though their forests were highly degraded (i.e. leftover commons). In Huong Hiep, CBFM had not been yet fully developed, and the implementation of REDD+ through formal channels could lead to the reinforcement or even exacerbation of existing inequalities. As Hieu's case has shown, REDD+ could be more than just carbon payments, and also lead to the establishment of CBFM and community forestland tenure. However, CBFM in Hieu also triggered land conflicts between communities and SFEs and even among households within a community. The proposed CBFM system in Hieu did not reinforce the political economy of forest use yet, and hence outside actors were reluctant to give up their forestland.

REDD+ does not only need to be adapted to the local governance context, but also to the socio-demographic characteristics and livelihood trajectories of individual households. Our findings show that REDD+ schemes need to take key factors such as food security, temporality of livelihood strategies, (forest)land tenure, gender, age, forest dependence, and marketization of individual households more comprehensively into account. Until date REDD+ in Vietnam has not been 'tailor-made' to individual households. This has been further complicated by the 'command and control' approach of the Vietnamese State to CBFM which deters local communities to develop grassroots-based CBFM initiatives or revive 'customary' CBFM. Finally, it is hoped that the typologies on CBFM on meso- and micro levels in this study could support policymakers and development practitioners to sufficiently 'localize' or embed REDD+ in local forest governance landscapes and existing CBFM schemes in Vietnam and other (REDD+) countries.

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