

# PRODUCTIVE LANDSCAPES (PROLAND)

An assessment of critical enabling conditions for  
community-based forestry enterprises



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The Productive Landscapes project (ProLand) develops evidence-based guidance for the United States Agency for International Development on how resilient economic growth can be channeled to achieve biodiversity conservation, reduce greenhouse gas emissions, and increase carbon sequestration through promotion of Sustainable Landscapes. USAID Sustainable Landscapes programming aims to have a significant impact on global emissions from land use in developing countries by helping partner countries identify major sources of land-based emissions and develop and implement strategic approaches to reduce emissions at scale while also increasing economic growth and improving livelihoods across the major sectors tied to land use.

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# TABLE OF CONTENTS

<b>TABLE OF CONTENTS</b> .....	<b>I</b>
<b>ACRONYMS AND ABBREVIATIONS</b> .....	<b>II</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>III</b>
<b>1.0 INTRODUCTION</b> .....	<b>5</b>
1.1 IMPORTANCE OF COMMUNITY-MANAGED FORESTS .....	6
<b>2.0 COMMUNITY-BASED FORESTRY ENTERPRISES AND SUSTAINABLE DEVELOPMENT: A LITERATURE ASSESSMENT</b> .....	<b>8</b>
2.1 DEFINING SUCCESS.....	8
2.1.1 Learning from failure?.....	10
2.2. COMMUNITY FORESTRY AND FOREST CONDITION .....	11
2.3 CONDITIONS FOR SUCCESS: RESOURCE RIGHTS AND GOVERNANCE.....	11
2.3.1 Tenure and forest use rights .....	11
2.3.2 Decentralized CBFЕ institutions .....	14
2.3.3 Distribution of benefits within the community.....	15
2.3.4 Gender and CBFЕs .....	16
2.4 CONDITIONS FOR SUCCESS: RUNNING AN ENTERPRISE.....	17
2.4.1 CBFЕ structure and operations .....	17
2.4.2 Regulatory challenges.....	20
2.4.3 Value chain partnerships.....	21
<b>3.0 DESK REVIEW OF CASE STUDIES</b> .....	<b>24</b>
3.1 WHAT BENEFITS ACCRUE TO COMMUNITY MEMBERS FROM SUCCESSFUL CBFЕs? .....	24
3.2 CHARACTERISTICS OF SUCCESS IN THE CBFЕ CASE STUDIES .....	26
3.3 SOCIAL ENTERPRISE MODEL .....	27
<b>4.0 CONCLUSIONS TOWARDS DEVELOPING A CBFЕ SOURCEBOOK</b> .....	<b>29</b>
4.1 KEY CONCLUSIONS BASED UPON ENABLING CONDITIONS .....	30
4.1.1 Secure rights .....	30
4.1.2 Governance and management.....	31
4.1.3 Social enterprise model .....	32
4.1.4 Value chain partnerships.....	32
4.2 DEVELOPMENT OF A USAID CBFЕ SOURCEBOOK.....	33
4.2.1 Tools for supporting CBFЕ programs .....	33
<b>ANNEX 1: WORKS CITED</b> .....	<b>35</b>
<b>ANNEX 2: KEY INFORMANT INTERVIEWS</b> .....	<b>44</b>
<b>ANNEX 3: DATA GAPS IN COMMUNITY-BASED FOREST MANAGEMENT</b> .....	<b>51</b>

# ACRONYMS AND ABBREVIATIONS

CBFE	Community-Based Forestry Enterprise
FAO	Food and Agriculture Organization of the United Nations
FSC	Forest Stewardship Council
KII	Key Informant Interview
NGO	Non-Governmental Organization
NTFP	Non-Timber Forest Products
ProLand	Productive Landscapes Activity
RECOFTC	The Center for People and Forests (formerly Regional Community Forestry Training Center for Asia and the Pacific)
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RRI	Rights and Resources Initiative
USAID	United States Agency for International Development

# EXECUTIVE SUMMARY

This Productive Landscapes (ProLand) report presents findings from an extensive literature review on community-based forestry enterprises (CBFEs), supplemented by 18 key informant interviews, and a new analysis of 22 published case studies. This analysis will inform development of a Sourcebook to support USAID field staff (and other organizations) wishing to develop CBFE programs. The Sourcebook will focus on enabling conditions for commercially viable and resilient CBFEs that provide material benefits to communities while mitigating climate change and safeguarding biodiversity assets.

This assessment focuses on timber CBFEs though many findings and conclusions are applicable to other forest resource goods and services. Where extraction is sustainably practiced, timber is typically the highest value product, and therefore a potentially durable driver of community development.

The authors conclude that the following enabling conditions are required for successful CBFEs and that these should be high priority areas for USAID investments.

1. **Secure rights** to develop, exclude others, and sell a forest product or service and enable long-term CBFE investment. While these rights are the most basic policy requirement, other policies contribute to a robust enabling environment.
2. **Governance, organization, and management** that provide effective leadership and technical knowledge to the CBFE; accountability to the community; and ensure the CBFE's financial integrity.
3. **A viable social enterprise model** that produces financial benefits sufficient to reinvest in forest and business management and growth, and provides economic benefits (though not necessarily cash) to the community as a whole.
4. **Partnerships with value chain actors** to access external funding and technical support; help aggregate timber from several communities (or individual producers); market timber to buyers; and build/maintain infrastructure. These partners include national and local government, donors, civil society organizations, and private-sector entities.

The environmental goals of sustainable forest management and improved forest condition are also realized when these conditions are in place according to most analyses. Evidence about the impact of CBFEs on socioeconomic conditions is less robust, though the review identified many cases of successful CBFEs that generate community benefits. The most frequently mentioned social and economic benefits are increased employment; improved price or market access for forest products; improved technical and organizational skills in the workforce; improved infrastructure; government and donor incentives provided to communities associated with CBFEs; and improved community-wide service benefits such as health and education facilities.

While generation of local benefits seems necessary for the success of CBFEs, the available literature and information collected from key informants do not allow us to draw firm conclusions about whether equity in their distribution is an essential success factor for CBFEs. In many cases, studies did not assess equity, and some evidence shows that disadvantaged groups (especially women and the poorest) may sometimes be worse off, at least in the short term. This outcome typically results from reduced access to forest resources, as well as a degree of elite capture of CBFE benefits.

Conclusions for CBFE development that elaborate on the enabling conditions, include:

- Design CBFE investments that recognize existing tenure and other land use policies, but investments to strengthen favorable policy and its effective implementation improve the prospects for CBFE sustainability.
- Invest in governance structures and CBFE staff capacity so that accountability mechanisms are in place.
- Invest in social safeguards and alternative income opportunities for poorer community members to improve equitable benefit distribution from CBFEs.
- Assess the business case for (and whether to) support tiered CBFE organizations comprising community-based production units, intermediary aggregating institutions for goods and services, and national advocacy bodies to represent CBFE interests.
- Design interventions that recognize the long-term continuing investments needed for sustainability and the societal benefits that accrue from these investments.
- Recognize that not all CBFEs will succeed and set expectations and targets accordingly.
- Invest in building mutual understanding in, and facilitating relationships between, CBFEs and private-sector businesses in the forestry product value chains.

The next phase of this work will develop a CBFE Sourcebook that ProLand will verify with selected USAID Missions. Following that verification and USAID review, ProLand will finalize the Sourcebook and make it widely available.

# I.0 INTRODUCTION

This document identifies a set of enabling conditions needed for development of viable community-based forestry enterprises (CBFEs) based on literature review, an analysis of selected case studies, and interviews with knowledgeable informants. Key informant interviews (KIIs) from USAID staff, authors of community forest reviews, and project implementers provided clarification and a more nuanced understanding of the published literature. Although the analysis focuses on timber as a high value product, many findings and conclusions are applicable to CBFEs that emphasize other products and services.

Initially, this research intended to focus on benefits and benefit distribution in community forestry. However, during the literature review we quickly realized that broader perspectives are necessary to understand how to better implement CBFE projects, resulting in the “enabling conditions approach” presented here.

Development actors have promoted community forestry over several decades as a type of sustainable land use, but uptake is slow in many countries. With this long history, one might expect a large literature on reasons for slow progress or failure to meet expectations. While abundant research exists, published information on CBFE success (and failure) is incomplete and comparability of data across sources and parameters measured is not uniform. Hajjar et al. (2016) reviewed types of information and “completeness” across almost 700 cases. That analysis shows some factors are more frequently recorded than others. For example, tenure and clarity (but not observance) of community-determined rules are well documented, but population density and change are not; market factors, costs, and physical factors (soil, elevation, climate) are poorly recorded compared to biological/forest resource factors; among outcomes, forest condition is well documented, but food security is not. Benefit distribution and income parameters are recorded with moderate frequency. For more detail see the summary chart from Hajjar et al. (2016) in Annex 3.

Despite these data limitations, we conclude that there is sufficient information available to identify a robust set of enabling conditions. Based upon these conclusions, ProLand is developing a CBFE Sourcebook for the United States Agency for International Development (USAID). A second phase will consist of drafting and “ground-truthing” the draft Sourcebook with USAID Missions as a means of improving the final version. This Sourcebook will guide program design and implementation that recognizes legitimate rights to land and/or trees, and supports establishment of CBFEs that generate income and other benefits that enhance livelihoods of community members.

This assessment and the Sourcebook emphasize timber as a primary product of CBFEs, recognizing that timber is typically the most valuable forest resource and that a sustainable harvest is necessary for continuing benefits. Nevertheless, enabling conditions, and knowledge and skills necessary for timber enterprises are often useful in developing other types of forest-dependent enterprises, such as non-timber forest products (NTFPs), ecotourism, or payment for environmental services.

Whether managed by communities, national organizations or other entities, forests provide non-substitutable ecosystem services, including: protection 75 percent of the freshwater resources used by humans (Food and Agriculture Organization of the United Nations [FAO], 2018); a key ecosystem for carbon dioxide storage (Nabuurs et al., 2007); and habitat for most of the world’s terrestrial biodiversity (FAO, 2010). Forests are particularly important for economic growth in developing countries, where natural capital comprises a high percentage of the wealth available to drive development (World Bank, 2011).

Despite their value, forest degradation or conversion to other land uses continues at a high rate, particularly in the tropics (Curtis, Slay, Harris, Tyukavina, & Hansen, 2018). Globally, the primary driver of forestland loss is conversion for agriculture associated with a growing population that has more disposable income (Ferretti-Gallon & Busch, 2014). In the tropics, around 70 percent of such conversion is for agriculture (FAO, 2016; Carter et al., 2017). Ironically, a potential long-term outcome of deforestation is the serious disruption of agriculture due to climate change, which is exacerbated by forest loss (Lawrence & Vandecar, 2015). Other negative predicted changes include loss of much of the world's biodiversity (Betts et al., 2017; Pimm & Raven, 2000), as well as other aspects of environmental degradation (Settele et al., 2014). It seems clear that current trends of deforestation impair prospects for sustainable development in many developing countries and are at least partly due to under-valuation of forest and poor land and resource governance (Ribot, Agrawal, & Larson, 2006).

This continuing loss of forests, despite most countries committing to slow or reverse the trend, indicates that state institutions, which control 60 percent of forest lands in middle- and lower-income countries,<sup>1</sup> are either too weak to halt the deforestation or are implicated themselves in forest destruction through policy decisions or lack of policy implementation, or because of corruption in government and private sectors (Koyuncu & Yilmaz, 2008, 2013). In contrast, as discussed below, indigenous and local communities often maintain and improve forest condition, while at the same time improving livelihoods and bringing other development results.

## 1.1 IMPORTANCE OF COMMUNITY-MANAGED FORESTS

In this report, we use “community forestry” broadly to indicate any formally recognized use of forest resources by indigenous or other local communities in a defined area. We define “CBFE” more specifically to indicate a community-endorsed enterprise that commercially uses forest resources to generate income that sustains the enterprise, while providing some agreed benefits to the community as a whole. While this distinction is usually clear in the literature, there are lessons from community forestry for CBFEs, and vice versa, that enhance understanding CBFE development and success. We use both terms where appropriate in this report.

Local communities manage at least 17 percent (293,000 million tonnes; 75 percent in tropical and subtropical countries) of total carbon stored in forestlands according to a recent estimate covering 64 countries (52 in the tropics and subtropics) (RRI 2018b). More than half of this land is not under legally recognized community tenure regimes and is, therefore, more susceptible to land use changes.

Since Ostrom's (1990) seminal work on commons management, community forestry has received support from donors, researchers,<sup>2</sup> and many governments (Gilmour, 2016). The focus on community forestry *prima facie* is sensible. First, many forest-dependent communities derive direct benefits from forests (estimates of forest-dependent individuals range from hundreds of millions to billions; Calibre Consultants & Statistical Services Centre, 2000). Understanding how they derive those benefits, and how they can strengthen or enhance them, is an essential element for rural development that maintains or restores forested landscapes. Second, devolved or locally based forest regimes already formally or informally manage a great deal of global forest. Connecting people living in or near forests to livelihood opportunities that recognize and add value to forest resources can incentivize sustainable management.

This report reviews and analyzes the burgeoning literature on community forestry, with emphasis on recent meta-analyses across the developing regions (Section 2). Section 3 examines case studies in the literature, selected to reflect criteria pertinent to longer-term viability of CBFEs. Section 4 draws conclusions from the preceding sections, identifying key enabling conditions for CBFEs that are

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<sup>1</sup> <https://rightsandresources.org/en/work-impact/tenure-data-tool/#.WzEMHadKi02>

<sup>2</sup> A Google Scholar search for “community forest enterprises” yields about 674,000 results. (Searched September 11, 2018).

important for design and implementation of community forestry projects. The evidence presented is based on 120 citations from reputable bilateral and multilateral development agencies and peer-reviewed journals, as well as from the KIIIs (see Annex 1: Works Cited; more than 100 additional works were consulted that were less up-to-date or did not add value because of age or good coverage by cited references). We weave information from KIIIs, summarized in Annex 2, into each section where appropriate.

## 2.0 COMMUNITY-BASED FORESTRY ENTERPRISES AND SUSTAINABLE DEVELOPMENT: A LITERATURE ASSESSMENT

In this section, we present synthesized findings on community forestry from experienced practitioners and reviewers (for example, Baynes, Herbohn, Smith, Fisher, & Bray, 2015; Gilmour, 2016; Hagen, 2014; Pagdee, Kim, & Daugherty, 2006). Recent global reviews use subjective or user-reported definitions of success as an approach to overcome data inconsistencies and gaps and put forward key approaches and best practices for success in community forestry and devolution of management. These reviews conclude that there are good examples of success in community forestry, yet best practices that foster community forestry are often not absorbed and implemented by government agents, donors, and other CBFE project proponents (e.g., Gilmour, 2016). The section begins by analyzing what recent authors conclude are key factors necessary for CBFEs to function effectively. Discussion of conditions needed for that success follows through review of evidence related to forest condition, rights and governance, enterprise development, regulatory constraints and management challenges.

### 2.1 DEFINING SUCCESS

CBFEs are social enterprises, “organizations created to address and alleviate a social problem by generating a revenue stream,” (MacMillan & Thompson, 2013) but with an additional goal of sustainable forest management. Contextualizing and harmonizing these three disparate goals—societal, economic (“business”), and environmental—is the central challenge for CBFEs. Given the complexity of goals, defining success is difficult because proponents use different measures of success. Consequently, donors, governments, and their implementing partners charged with designing sound projects need to disentangle cause and effect and to understand the steps and preconditions required to reach their CBFE objectives.<sup>3</sup>

Comparing four recent global reviews of success factors reveals some differences as well as areas of agreement (Table 2.1), though these reviews emphasize social, economic, and institutional factors rather than environmental aspects (but see Section 2.2.1). These reviews had different objectives and approaches, so different conclusions are not a criticism; however, they do illustrate that a comprehensive approach to measuring CBFE success might involve up to twelve factors, though three of the reviews have half this number. Gilmour (2016) suggests six conditions must be met (i.e., necessary and by implication sufficient), whereas Baynes et al. (2015) differentiate between factors that they believe are necessary (secure tenure and material benefits) and those that are desirable, but not always necessary. Baker and Boshoven (2017) looked at a broader category of conservation enterprises, not just those related to forest resources, as part of USAID’s Conservation Enterprise Learning Group activities. They list six categories of enabling conditions. Most recently Badini et al. (2018) identified twelve critical success factors<sup>4</sup>, which include several capacity and capital factors (Table 2.1).

**Table 2.1. Four derivations of factors leading to success in community forestry based on extensive literature review**

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<sup>3</sup> See Gilmour, 2016, page 18, for a presentation of the variety of objectives or criteria for success reported in recent national and global reviews.

<sup>4</sup> The authors use the following working definition of critical success factors: those characteristics, conditions, or variables that when properly sustained, maintained, or managed can have a significant impact on the success of a firm competing in a particular industry.

<b>Gilmour 2016</b>	<b>Baynes et al. 2015</b>	<b>Baker and Boshoven 2017</b>	<b>Badini et al. 2018</b>
<b>Six conditions must be met for success</b>	<b>Five success factors</b>	<b>Six categories of enabling conditions</b>	<b>Twelve emergent critical success factors</b>
Secure tenure	*Secure tenure	[implicit]	Tenure and ownership
Strong community governance	**Intra-community governance	Strong internal governance exists	
Supportive government bureaucracy (mandate and culture)	**Government support for community forestry (policy, financial and technical support, protection from disruption)	Supportive external policies and partnerships are in place	Forest law enforcement
Enabling regulatory framework			Management and land-use planning rights
			Regulatory frameworks
Viable technology (forestry skills, knowledge, equipment)		Participants have necessary skills and capacity	Forest management capacity
Market knowledge (trends, prices, value chains)		Business aspects are in place	Business management capacity
		Production and supply chains are in place	Markets
			Macroeconomic setting
			Financial capital
			Natural capital
			Organizational capacity
			*Clustering
	**Socioeconomic and gender-based equity (increased cohesion, reduced conflict)		
	*Material benefits (rights, products, services)	Participants' livelihood needs are met	
<i>Clarifying notes for each column</i>			
[Benefits implicit, but not listed in six conditions]	*Necessary **Desirable, important, but not a necessary condition in some cases		*An aspect of tiers in this report

Note: This table horizontally aligns equivalent factors from the different authors to the extent possible.

The Conservation Enterprise Learning Group also reported on longitudinal success by revisiting six conservation enterprise projects in four countries and three continents that received USAID assistance in the late 1990s or early 2000s (Boshoven, 2018). Four projects involved forest products only, and two involved ecotourism (one of which also had forest products). The main findings relevant to CBFs include:

- Projects need a set of enabling conditions in place;
- Community enterprise and partners' roles evolve over time, with project stakeholders expanding value chain linkages that promote enterprise sustainability;
- Typically, few community members receive cash benefits, but most benefit from community services provided or stimulated by the enterprise; different stakeholders are motivated by different benefits, including social cohesion; and,

- Adaptive management regarding assumptions and interventions is critical to enable learning and flexibility in implementation.

### 2.1.1 LEARNING FROM FAILURE?

Given the dearth of long-term monitoring of CBFEs beyond the decade-plus needed for full establishment (see below), detailed literature is sparse on failure, though more forthcoming on challenges experienced during development. Hajjar et al. (2011) list nine such challenges in achieving self-sufficient enterprises based on three Amazonian timber CBFEs: insecure tenure; insufficient organizational capacity; technical forestry knowledge; inability to meet legal requirements; clandestine loggers; inadequate market access; lack of investment in infrastructure; poor business skills; and inadequate economic returns. The authors also emphasize the need to distinguish between the establishment and operational phases of CBFEs and note that in many cases the proponent does not adequately prepare communities to successfully make the transition from the establishment to the operational phase.

Most CBFEs arise from donor or government programs through project interventions. Klls could not name timber CBFEs that had arisen entirely at the behest of the community itself, though some small NTFP enterprises arise from individual or small-group initiatives. Objectives of CBEF projects include a range of specific desired outcomes spanning environment, social, and economic priorities. Achieving all those outcomes may not be realistic. For example, community forestry is unlikely to alleviate poverty community-wide, or achieve gender equality during the life of a three- to five-year project, so in that respect is a failure if such objectives were included. Similarly, measurable improvement in forest condition or CBEF internal self-reliance is unlikely in that period.

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***CBFEs take more than a decade to establish, but consistent, external long-term monitoring rarely continues long enough to confirm whether environmental, social, and economic outcomes are achieved.***

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Reviews cited above find that community forest management (along with concomitant rights and viable institutions, needed for a forestry enterprise) takes a decade or more to approach well-functioning self-reliance.<sup>5</sup> Although external monitoring up to and beyond that period is rare, limited progress reflects the lack of certain enabling conditions, or failure to recognize and meet challenges (often related to those enabling conditions) that arise in specific circumstances.

Specific causes of failure or limited success cited in the literature<sup>6</sup> and by Klls include: inadequate value of forest resources (related to size, type, and remoteness); poor project design (especially lack of good exit strategies); lack of value chain integration and private-sector engagement; lack of CBEF business skills and leadership; failure to understand community needs, interests, and capacity; insufficient time; overemphasis (or hidden agenda) on conservation by government foresters or project partners; high transaction costs in meeting government (or proponent) requirements; displacement of forest degradation to neighboring areas; conflicts within and between CBEF tiers;<sup>7</sup> lack of access to finance and government services; unequal

<sup>5</sup> Self-reliance as used herein includes continuing support from government extension services (as in developed countries); if the latter are weak, NGOs or private-sector institutions may fill this gap (with or without donor support). Even in Mexico, large, decades-old, profitable CBFEs continue to rely on government investments such as finance and extension services.

<sup>6</sup> See, for example, De Jong et al., 2012; Dev, 2003; Pokorny and Johnson, 2008; Burivalova, Hua, Koh, Garcia, & Putz, 2016; Blomley, 2013; de Blas et al., 2011; ITTO, 2006; Thoms, 2006; Macqueen and Bolin, 2018; Sharmin and Cramb, 2006; Villavicencio, 2009; and Honey-Rosés, 2009.

<sup>7</sup> We discuss tiering of CBEF institutions in Section 4.3.

power relationships between actors; corruption; rapacious logging companies; and policy shifts that have negative impacts on one or more aspects of CBEF initiation and operation. This list indicates the wide range of factors that reduce CBEF performance, which proponents need to bear in mind, and emphasizes the need for an adaptive management and a resilient approach to implementation.

## 2.2. COMMUNITY FORESTRY AND FOREST CONDITION

Maintenance or improvement in forest condition in the context of Sustainable Landscapes has numerous benefits, including reduced emissions from deforestation and forest degradation (as in REDD+ and voluntary forest carbon initiatives) through carbon storage and sequestration. Maintaining forests also enhances other ecosystem services and processes, including biodiversity conservation and hydrological cycles. Significant evidence indicates that securing community forest tenure and rights, combined with government support for those rights, leads to improved forest condition (Pacheco, Barry, Cronkleton, & Larson, 2012; Seymour, La Vina, & Hite, 2014; Stevens, Winterbottom, Reytar, & Springer, 2014).

From a REDD+ perspective, a recent data-driven analysis concluded that community forestry reduced deforestation and improved livelihoods for some community members, but found less compelling evidence of reduced forest degradation and community-wide poverty reduction (Pelletier, Gélinas, & Skutsch, 2016). Another recent systematic review concluded more specifically that robust quantitative data link forest condition to tenure and to institutional arrangements (Hajjar et al., 2016; Ostrom et al., 2016). KIIs almost universally indicate that CBEFs are typically better than government authorities at monitoring and maintaining forest condition, provided they have clear-cut property rights including exclusion. A study in the Peruvian Amazon supports this conclusion with empirical data, finding that titling 11 million hectares of land to 1,200 indigenous communities, along with forest resource rights, reduced clearing by more than 75 percent and forest disturbance by roughly two-thirds in the two years spanning the year title is awarded and the year afterward (Blackman, Corral, Lima, & Asner, 2017).

While the consensus of rights-based community management of forests improving forest condition is broad, some authors point to methodological inconsistencies, data weaknesses, and other analytical issues that qualify this conclusion (e.g., Yin, Zulu, & Qi, 2014; Bowler et al., 2012).

## 2.3 CONDITIONS FOR SUCCESS: RESOURCE RIGHTS AND GOVERNANCE

### 2.3.1 TENURE AND FOREST-USE RIGHTS

Central to CBEF development is securing tenure over land and/or trees to an extent that enables communities to manage forest resources. In addition, good community governance of those resource rights in ways that increase capital and capacity (natural, social, human, financial, and technical) is critical. As universally agreed from the literature, KIIs (Annex 2), and case studies (Section 3), without secure tenure rights for forest resources, CBEFs are not sustainable. Fortunately, community rights to forest lands are increasing albeit slowly in some countries (Table 2.2), and setbacks are possible. According to a KII, the Tanzanian government recently considered re-nationalizing community forests, while in Kenya a ruling by the African Court on Human and Peoples' Rights restoring forest land to the indigenous Ogiek remains unimplemented by the government.<sup>8</sup>

The extent of tenure varies from country to country and is usually characterized as a “bundle” of rights related to degree of access; use (subsistence, commercial); ability to exclude or transfer to others;

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***All information sources agree that CBEFs are not sustainable without adequate and secure tenure rights to forest resources.***

<sup>8</sup> <https://www.iwgia.org/en/kenya/3281-implementation-of-african-court-ruling>

and ownership (including compensation in the case of eminent domain). The range of community forestry practice spans limited access and use rights to complete community ownership of land and forest resources (and potentially, subsurface resources in the event of mineral deposits).

For comparative purposes, the Rights and Resources Initiative (RRI) simplifies forestlands-related ownership and management rights to four categories: Government Administered; Designated (but not owned) for Indigenous and Local Communities; Owned by Indigenous and Local Communities; and Owned by Individuals and Firms. Based on this classification, RRI maintains global data with results from 2002 to 2013 in Table 2.2. Several conclusions from these data are relevant:

- Most forests in low- and middle-income countries are government administered. Latin America has the greatest proportion of community forests (mostly community-owned) and Africa the least (where community ownership was unclear and only 4 percent was designated for communities).
- There is a trend to increase in designation or ownership of forests for communities in all regions, though the pace of change is slow.
- Ownership by individuals and firms is currently small and should not, therefore, impede designating community forests, unless large tracts of government forestland are under concession to firms.

According to an analysis from the World Resources Institute, formalizing customary indigenous rights and local community rights to land often carries high transaction costs, with many procedures and, therefore, financial burdens, and the rights established are often restricted (Notess et al., 2018). The study covers 15 countries (five each in Latin America, Africa, and Asia) and concludes that companies typically have advantages related to tenure procedures and rights compared with communities. Across these countries the median number of steps to establish community tenure ranges from 12 to 17, involves five or six government agencies, and takes several years to several decades to complete. In contrast, companies can often establish land use rights more quickly and more simply in the same countries. Rights to establish CBFs on such land may be included in or additional to these land-specific processes—though there will be additional procedures for technical forest management plans before resource extraction.

Designation or ownership of land does not necessarily allow unrestricted use of resources, as sectoral agencies (such as those responsible for environment, forests or wildlife) may impose restrictions and

**Table 2.2. Statutory forest tenure types (percentage) from 2002 to 2013 in 44 highly forested lower- and middle-income countries**

	2002	2013
<b>Lower-middle income countries combined</b>		
Government administered	72	61
Designated for indigenous/local communities	3	6
Owned by indigenous/local communities	17	24
Owned by individuals and firms	8	9
<b>Africa</b>		
Government administered	96	94
Designated for indigenous/local communities	4	6
Owned by indigenous/local communities	Not determined	
Owned by individuals and firms	<1	<1
<b>Asia</b>		
Government administered	68	63
Designated for indigenous/local communities	3	4
Owned by indigenous/local communities	22	26
Owned by individuals and firms	7	7
<b>Latin America</b>		
Government administered	66	47
Designated for indigenous/local communities	2	7
Owned by indigenous/local communities	16	29
Owned by individuals and firms	16	17

Source: Data from Rights and Resources Initiative Tenure Data Tool. <https://rightsandresources.org/en/work-impact/tenure-data-tool/#.WzEMHadKi02> (accessed July 1, 2018).

requirements through policy and regulation, or temporary or longer-term complete bans on timber harvesting or hunting. Where full ownership of land or forest resources is not granted, rights may also be time-restricted (such as 25 years in Guatemala or five-year periods up to a maximum of 25 years in Cameroon)—for example, in cases where community concessions are the basis for forest rights. Although such concessions are typically for several decades, they may limit willingness of the community to invest in long-term forestry management and enterprise development.

Another tenure issue relevant to CBFEs is that of forest carbon, should the community wish to derive income from storage and sequestration. As of early 2017, only Brazil, Guatemala, and Peru explicitly define carbon rights in law and, for compliance markets, only Chile, Costa Rica, and Mexico have designed both benefit-sharing mechanisms and feedback and grievance mechanisms, which are essential elements for REDD+ engagement (RRI, 2018a).

Different extents of community rights lead to different opportunities for community engagement in forest-based enterprises. Table 2.3 is a matrix of configurations of community rights to forest resources, and the potential use rights and enterprise options associated with them. Long-term investment in CBFEs requires secure rights to productive resources.

**Table 2.3. Different tenure regimes enable different forms of community-engagement in forest-based enterprises**

Community-based forestry spectrum	Participatory conservation	Joint forest management	Community forestry (limited devolution)	Community forestry (full devolution)	Private or group ownership
<b>Rights spectrum (increasing rights)</b> →	<b>Access</b>	<b>Use</b>	<b>Management</b>	<b>Exclusion</b>	<b>Alienation</b>
<b>Economic activities (increasing benefits)</b> ↓					
Wage labor					
Medicinal plant collection					
Firewood collection					
Honey production					
Ecotourism					
Trophy hunting					
Direct payment for ecosystem services					
Timber sales					
Loans and finance against land					
Conversion to non-forest					

Note: Compilation of findings, based on Anderson et al., 2015; Gilmour, 2016; Schlager and Ostrom, 1992

When communities do not have confidence in the government’s willingness and capacity to support them in the prevention of exploitation by external parties, or when they believe the government may appropriate their forest, through a commercial concession, for example, they are less likely to develop capital-intensive social enterprises. While community members may harvest NTFPs under less secure conditions (joint forest management, rights of use), they do not usually develop timber harvesting operations. Enduring, enforced rights of exclusion are the foundation for successful CBFEs. The most tension between local users and external authorities arises when communities have access, use, or management rights, but not rights of exclusion. Since the greatest economic benefits come from high-value resources that require significant protection and a long-term investment in management,

community members are logically reluctant to engage in related CBFEs without the assurance that their investment is protected from encroachment or appropriation.

### 2.3.2 DECENTRALIZED CBFE INSTITUTIONS

The State's recognition of a user group's right to organize and make its own rules concerning the management of a resource is critical to success (Baynes et al., 2015; Ostrom, 1990). However, numerous examples, particularly from South Asia, show that many communities cannot exercise *de jure* rights, or can only do so with great cost (Alden Wily, 2010; RECOFTC, 2013). While ideally, governments should support community forest management, sometimes the best one can hope for is that they do not challenge it. In general, more complex forms of CBFE benefits generation require more supportive government recognition and policy (Baynes et al., 2015). Establishing a CBFE without such explicit support carries the risk of the enterprise development becoming different from evolving policy.

According to Ostrom (1990) decentralized management can cost less and gives more agency to those who depend most directly on forests. Delivering on that promise, however, depends on aligning the goals of the government or donor with those of the community managers through the optimal mix of rights, responsibilities, and opportunities. Simply put, taking care of a forest must be worthwhile to the local manager, or the forest will not be well-tended; the manager must benefit from that management effort (Baynes et al., 2015). When those benefits lapse, are poorly designed, or are not sufficient to offset the costs, community-based management usually falls into open-access situations (e.g., Cronkleton, Saigal, and Pulhin, 2012; Mearns, 2004; Saigal, Dahal, and Vira, 2009).

The extent and nature of decentralization is critical for secure and reliable management. Preferably all national policies for land and natural resources management is coordinated at local levels such as village or district, though in many countries national forestry agents operate in centralized systems and work in parallel with local government at community level. Ideally, as Klls confirm, a CBFE's community-wide governance is based in existing community institutions rather than in project-led creation of a new forestry-specific governance body. Even where forest policy requires a forestry-specific governance body, village councils, community assemblies, or other existing bodies can often incorporate the mandated forestry body. Local knowledge and collaboration between local government and communities tends to better conserve forest as well as better represent community interests (for example, Wright, Andersson, Gibson, & Evans, 2016).

An analysis of CBFEs in Mexico and Brazil by Hajjar et al. (2012) provides more detail on the optimum level of decentralization in forestry and concludes that a balance is necessary and

. . . will likely include a good amount of decentralization of authority, but without reaching the extreme of complete decentralization. Deciding on the right place along that spectrum is context-specific and involves a delicate balancing of local and central authorities, to ensure that both local and non-local values and demands are met.

Internal organization of decentralized CBFEs in Mexico have three main types of governance arrangements according to Hodgdon, Chapela, and Bray (2013). These categories are broadly applicable to CBFEs in other developing countries:

- A common property management institution under the community is in charge of the enterprise (for example, a village council under local government norms, or a community forestry body, often falling under central authority of a forest service);
- A forest council/manager arrangement, where the community appoints a council or manager to oversee forestry and enterprise activities; and

- A “work group” model, where communities create sub-communal enterprises and divide harvesting rights among groups (such as NTFPs harvesting, firewood or timber, or small geographic units).

### 2.3.3 DISTRIBUTION OF BENEFITS WITHIN THE COMMUNITY

Whatever the governance arrangement, socioeconomic inequality is a potential factor affecting success of community forestry because it affects participation and costs, and the ability to access benefits for community members. Mitigation of socioeconomic inequality is often a goal of government or donor engagement in community forestry. If inequality is self-reinforcing (i.e., elite capture; the rich and powerful get more economic benefits, the poor get less), then inequality poses a significant challenge for a CBF (Baynes et al., 2015). One KII described community forestry as a “blunt instrument” for helping the disadvantaged (the poorest, and women) in communities. While a donor may wish to “sharpen” the instrument in this respect, the donor needs to recognize the additional costs (safeguards and time) needed to overcome internal community barriers to equity of benefits and build behavior change interventions into project design and implementation.

These findings are reinforced by Varughese and Ostrom (2001). They studied a variety of community forestry user groups in the Nepalese Terai and concluded that while inequality influenced the tendency of communities to engage in management, communities overcame the costs of constructing the necessary institutions when the benefits of doing so outweighed the costs. Key factors for institutional sustainability were strong leadership, and the ability of members to create rules that contribute, if not to the perception of equality, at least to that of equity (fairness). Ostrom (1990) concludes that several institutional factors contribute to the perception that community-based forest management is fair (if not equal):

1. Clarity and practicality: the boundaries and rules governing the forest resource are clear.
2. Inclusive and fair: individuals affected by the rules can participate in modifying the rules.
3. Monitors are either the users themselves, or are accountable to the users.
4. There are graduated sanctions for violation of the rules, assessed by the forest users themselves.
5. There are low-cost, traditional and ideally internal mechanisms for conflict resolution.

Conflicts associated with inequality are moderated when these institutional conditions are met (Andersson and Agrawal, 2011). However, little analytical research exists on how widespread these conditions are in CBFs around the world – a gap that the Wildlife Conservation Society is currently researching (Painter and Wilkie, personal communication, July 2018). In addition to looking at the Ostrom conditions above, they are also looking at social-institutional theory regarding collective action and diffusion of innovation in community forestry.

A compendium of case studies on equality in community forestry found that community forestry tends to generate benefits, but those benefits tend to accrue at the level of the community rather than favoring the poorest households. Unfortunately, exclusion rights were regressive in some cases. Where the community forestry management group restricted access and harvesting, the poorest households lost access to forest resources that provided a higher proportion of their livelihoods than the less poor (Schreckenburg and Luttrell, 2009, supported by several KIIs).

Reinforcing this conclusion, a systematic review produced by Samii, Paler, Chavis, Parashar, and Lisiecki (2014) concluded that although community forestry resulted in improved forest condition, it produced mixed results for poverty reduction. In three studies in East Africa, they reported that decentralization of forest management improved forest incomes for wealthy households but may have harmed poorer households. A study in Nepal found that CBFs more often detect crimes than state foresters, but that

many such crimes are small-scale, unauthorized collection of products for subsistence use by poorer households. Although these small infringements typically are lightly enforced and not necessarily economically harmful to the poor in the short term, they may perpetuate existing wealth and caste-based social inequities.

These and other studies charge that community forestry traps its members in a subsistence model that prevents poverty alleviation (Maryudi & Krott, 2012), or that communities are asked, tricked, or coerced to do more than is fair, adding an economic burden to the rural poor (Anderson et al., 2015; Cronkleton, Saigal, & Pulhin, 2012; Ribot et al., 2006). As a counterpoint to these authors, a large number of case studies (including those cited in Section 3, as well as most KIIIs) report instances of medium- to long-term successful generation of economic benefits from community forestry enterprises.

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***Equity of benefit distribution is desirable, but not essential for CBFE success. Poorer sections of communities are sometimes disadvantaged by reduced access to forest resources***

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In aggregate, the evidence indicates that equality or even equity of benefits does not strongly influence the potential of the social enterprise model for success from a “business” perspective. From their review of the literature (primarily from South Asia), Baynes et al. (2015) concluded that the primary potential detrimental effect of socioeconomic inequality was increased conflict and reduced cohesion. This factor in turn increased the opportunity and transaction costs for negotiation,

monitoring, and motivating participation of community members. The authors found that equality is thus desirable but not essential for the success of CBFEs.

The next subsection elaborates on a particular case of benefit distribution concerning disadvantages experienced by women in CBFEs.

#### **2.3.4 GENDER AND CBFES**

One aspect of governance and social and economic benefits not specifically addressed above is power relationships and the differing forest management roles and responsibilities of men and women. While there is extensive literature on these topics, it tends to be more case specific and not a key aspect of the recent global reviews of success factors in CBF development and operation summarized in Table 2.1. However, promoting gender inclusion and equality is a central issue for donors such as USAID, and for many national governments. A gender-specific review (Suna et al., 2012) related to community forestry in developing countries concluded that:

- Management of forests is closely linked to the rights and access of forest-dependent women and their families.
- Reforms in forest tenure in Africa, Asia, and Latin America neglect the property rights of women and their rights of access to forest resources. Women have little say in forest governance.
- The male-female balance in forest-management groups influences forest governance. The dynamics of mixed-gender groups are not well understood.
- The interface between environment and health offers a strategic opportunity to build on the strengths of forest-dependent women, mobilize support across sectors and political scales, and professional knowledge for forest governance that takes women’s interests and needs into account.
- Gender is just one factor in inequity and women are more likely to make progress by taking part in decision-making processes than working outside them.

RRI (2012) looked at community-based tenure regimes globally and found that although there was wide variation in gender norms and women’s forest security among low- and middle-income countries, “national laws and regulations on the rights of indigenous and rural women to inheritance, community membership, community-level governance, and community-level dispute resolution are consistently unjust, falling far below the requirements of international law and related standards.” Although most countries’ constitutions prohibit gender discrimination in principle, of 80 community-based tenure regimes examined, “adequate gender-sensitive provisions exist for only 3 percent ... in regard to

***According to Klls, women are highly disadvantaged in CBFEs but achieving gender inclusivity or equality in a 3-to-5-year project cycle is unlikely.***

women’s voting rights, 5 percent in regard to leadership, 10 percent in regard to inheritance, 18 percent in regard to dispute resolution, and 29 percent in regard to membership.”

Formal forestry education and institutions were male-dominated worldwide until late in the twentieth century, including in developed countries, and remain so in most developing countries. At the community level, in most developing countries women are intimately

involved in managing, and dependent on, forest resources for household goods and in small enterprises, especially those using NTFPs. However, where timber is concerned, and especially in communities that monetize high-value timber, men tend to dominate.

Is CBF development a viable tool for promoting gender inclusion and equality in management and benefits for women in government and donor-supported programs? Clearly, behavior and social norms need to change in most cases for this to happen, and enterprises need to factor such assumptions, along with interventions and costs, into programmatic decisions from the outset rather than presuming that gender inclusivity will automatically occur because it is desirable. All Klls acknowledged that women are highly disadvantaged in CBFEs, and many viewed improving this situation as a hard ask if the focus is on the already complex and challenging aspects of establishing viable CBFEs, even if male dominated, in the normal project cycle of three to five years.

## **2.4 CONDITIONS FOR SUCCESS: RUNNING AN ENTERPRISE**

Social enterprises based on forest products face inherent constraints. Forest products are often low-value, dispersed, and remote from major markets. Communities often lack the necessary governance, financial, technical, management, and enterprise skills to manage them. This Section reviews how such CBFs operate from a “forestry business” perspective. It looks at CBF internal structure and operational aspects and discusses external regulatory constraints and the partnerships needed for a functional value chain from the CBF perspective.

### **2.4.1 CBF STRUCTURE AND OPERATIONS**

In most cases, though not always, the CBF is a subunit of the community as a whole operating under a whole-community governance system. The CBF may simply comprise a subcommittee of the governance structure (perhaps to interface with government forestry institutions, donor projects, and timber buyers) or a more autonomous “production unit,” with community staff also taking more professional or semiprofessional forestry roles.

Timber production and sales has a gradation of possible configurations, depending on the size and capacity of the CBF:

- Selling timber on the stump for third-party harvest;

- Participation in some aspects of harvesting and marketing, but third parties handling the balance;
- Primary transformation, infrastructure, and commercialization capacity for timber products; or
- Primary and secondary industry (finished products) and commercialization capacity.

Even in Mexico, which has perhaps the most highly developed CBFSE subsector, only one percent of CBFSEs have the primary and secondary capacity and most active CBFSEs are at the “on the stump” stage (Hodgdon et al., 2013).

Nevertheless, successful enterprise models are evident. For example, a recent analysis of an Amazonian timber CBFSE provides encouraging results with quadrupling of labor payments to community members and generation of other economic benefits through investment in value addition and development of small women-led NTFP subsidiary enterprises (Humphreys et al., in press). This study emphasizes an adaptive (learning-by-doing) approach and a large donor subsidy needed to establish the CBFSE and make it viable in the early years of operation. Transparent governance was a critical factor in financial viability of the CBFSE, while also maintaining public support for the cooperative’s leadership and mission. For example, a financial report is delivered each year at the general assembly, and members may examine financial records at any time. Similarly, an analysis of CBFSEs in Mexico demonstrates financial net profitability where enabling conditions (tenure, forest policy, governance and management capacity, market conditions) are favorable (Cubbage et al., 2015). This study also demonstrates the potential of timber as a high generator of income compared to other sources; on average, 90 percent of income came from timber and only seven percent and three percent, respectively, from non-timber forest products (NTFPs) and implementing payment for environmental services schemes.

Given the potential to generate substantial revenue, community governance mechanisms must make CBFSE management accountable to all community members through providing transparent and complete financial records to reflect local social or environmental priorities rather than market priorities alone. On the other hand, CBFSEs are typically formed in communities with little experience in managing enterprises. Expropriation of this income by traditional elites is often a common, almost expected, occurrence (e.g., Persha and Andersson, 2014).

Communities with a large productive forest (often tens of thousands of hectares) and with (or with access to partners who have) a degree of forestry and enterprise skills, and access to markets, may operate a stand-alone CBFSE (see Section 3.3). When not meeting these conditions, as is often the case, successful CBFSEs often operate best when tiered. The first tier comprises neighboring community-level producers; the second tier is product and service aggregators and marketers; and the third is national or provincial CBFSE advocacy organization (Figure 2.1). KII noted that tiered enterprises are most important where community forests are relatively small or have low-value timber, but that in some cases large CBFSEs, with large tracts of high value forest, can thrive without aggregation.

A hierarchical or nested organizational structure allows CBFSEs to have internal specialization along a value chain while maintaining specified roles for each enterprise in the chain (Macqueen et al., 2015). In forest-based enterprises, the first tier focuses on production. This is typically where the bulk of the labor and the productive assets are found and where the CBFSE originates (even if inspired by non-local development actors). These enterprises are based upon households, villages, administrative units, or local associations. In Mexico, for example, community members may have assets (timber and land) and provide services (trained labor in forestry, or even specialized services in inventory) according to Bray et al., (2003) and elaborated by Bray as a KII. Some produce roundwood or sawn timber, while others may contract timber companies for harvesting. This tier is the most decentralized and is the starting point for any community-based social enterprise. Often the product from this tier has little value added.

**Figure 2.1. Tiered CBF E organizational structure (adapted from Macqueen, Bolin, & Greijmans, 2015)**



To add value and scale, however, CBFEs, especially if harvesting a small amount of resource, often benefit from a second-tier entity that offers aggregation, marketing, and other value addition, and from financial and technical services to the products and labor provided by the producer organizations. This tier typically comprises cooperatives, associations, unions, or other formal institutions of various types (Macqueen, 2007). At the same time, because they can increase benefits from CBFEs, second-tier organizations can redistribute those benefits. The equity of this distribution depends on second-tier CBF E corporate governance where there is a large opportunity to influence both the magnitude of benefits (through value addition) and the equity of their distribution (through good governance).

Communities cannot usually effect a change in legislation to secure their tenure and forest resource rights because of active or passive resistance from the government or other elites (Cronkleton et al., 2012; Ribot et al., 2006). Nor, acting alone, can they easily advocate to reduce the high technical and bureaucratic transaction costs such as the complex requirements for forest management plans and other processes, and paperwork required to secure tenure, without active financial or technical support (Nittler & Tschinkel, 2005; Section 2.4.2). A third tier is beneficial, therefore, where CBFEs require an improved supportive policy and regulatory environment for success. Since laws and policies change over time, for the maintenance of the enabling environment CBFEs may need to maintain national or regional advocates. These third-tier advocates can be industry associations, regional or national civil society organizations, academic institutions, or lobbyists (e.g., The Federation of Community Forestry Users, Nepal; Sustainable Development Institute, Liberia).

Many CBFEs opt to meet responsible environmental, social, and economic standards through certification, such as that offered by the Forest Stewardship Council (FSC; <https://us.fsc.org/en-us/certification>), or other internationally recognized safeguards and standards. Such standards, which bring additional operational requirements for CBFEs, include those of the International Finance Corporation, the Extractive Industries Transparency Initiative, or Voluntary Partnership Agreements with the European Union. Some regulatory regimes, international trade requirements, or funding sources mandate meeting such standards. However, such standards tend to be more bureaucratic and technocratic than the management capacity of many CBFEs and significantly raise transaction costs as

discussed below. CBFE project proponents therefore should carefully weigh the cost-benefit balance of using these systems in the context of the CBFE's own objectives, opportunities, expected financial returns, and maturity in decisions involving the application of these standards.

## 2.4.2 REGULATORY CHALLENGES

Complex technocratic and bureaucratic land tenure and forestry regulations often make CBFE profitability difficult without continuing public investment from government, donors, or private-sector partners. However, the public environmental benefits generated (carbon storage and sequestration, biodiversity conservation, etc.), combined with benefits from the market for forest products, offer opportunities for effective public-community-private sector synergies. Generation of societal benefits cannot come without some cost, so it is not unfair or uneconomic for that societal benefit to be paid for

***Long-term public investment or subsidy in CBFEs is justified by long-term environmental and socioeconomic benefits of sustainable forest management at local, national and global scales***

by via public investment<sup>9</sup> in CBFEs. The successes in CBFE identified in the case studies (Section 3) required long-term assistance from government and donors; most had access to a high-value product, and low opportunity costs. An analysis of tenure costs versus REDD+ income in the Maya Biosphere Reserve of Guatemala indicates that such arrangement can be cost-effective, while maintaining public benefits in terms of carbon sequestration (Gray, 2015).

In Tanzania, for example, bureaucratic and technocratic transaction costs are around US\$13,500 to complete all the stages of having a village land use plan (and any CBFE therein) approved at local and national levels (Williams, 2017). This study concluded that the process is economically questionable because, despite high demand, few benefits accrue due to the forest size and quality of the charcoal and timber. Ambiguities between the Land Act and the Village Land Act often lead to the national forest agency refusing to grant felling permits.

In Tanzania and Nepal, transaction costs for community forest management tend to be relatively larger for poorer sections of the community (Adhikari, 2004; Meshack, Adhikari, Doggart, & Lovett, 2006). In Guatemala, FSC certification is required for timber extraction in the Maya Biosphere Reserve. However, returns relative to the additional transaction costs for obtaining certification have not met income

***Technical and bureaucratic transaction costs are high for CBFEs. Donors and advocacy organizations can play a significant role in promoting simpler and faster alternatives.***

expectations, compared to other areas in Guatemala where FSC certification is not required (Carrera, et al., 2006). What is clear from the literature and KIIs is that transaction costs and time associated with government bureaucracy (for example, obtaining land rights or transporting forest products) and technical requirements (such as complex forest management plans or certification procedures) are often unnecessarily high. Technical requirements for timber management plans and permits often overlap with those for timber certification and those for marketing forest

carbon through compliance or voluntary markets. These requirements typically have separate and exacting monitoring regimes, each with its own schedule and transaction costs. Donors and advocacy

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<sup>9</sup> Evidence from this assessment recognizes that "public investment" is an important aspect of CBFE development and is a preferable term to "subsidy" even when cash, infrastructure or materials are provided.

organizations can play a significant role in promoting simpler and faster alternatives more attuned to the needs and capacities of legitimate community organizations.

CBFEs also often compete with illicit “businesses” that avoid the taxes, regulatory costs, and expenses of environmentally sustainable practices. This issue highlights the tradeoffs between multiple management objectives for forests (Angelsen et al., 2014; Belcher, Ruíz-Pérez, & Achdiawan, 2005), which play out in regulatory barriers designed to ensure the maintenance of environmental benefits in managed forests. These regulations are designed to ensure maintenance of the larger-scale environmental benefits of healthy forests. At the same time, policymakers and regulatory agencies want the benefits generated by successful enterprises for economic growth. If the resource is not rich enough or the market will not support it, regulations can make licit CBFEs uncompetitive without public support. This situation potentially pushes would-be CBFEs into the illegal or informal sector, or into conversion of land to agriculture (Greijmans & Gritten, 2016).

### 2.4.3 VALUE CHAIN PARTNERSHIPS

This assessment recognizes that CBFE value chain relationships are key to success and can include a wide-range of partners, from in-country governments, donors and their implementing partners, to private companies, lenders and investors as well as buyers of CBFE products (from on-stump timber to finished products, or environmental services such as carbon storage and sequestration). CBFEs rely on these partnerships for technical, institutional, and financial assistance to meet harvesting, transport, processing, and commercialization needs.

For long-term success, CBFEs must also reinvest in learning, growth, and expansion to align with evolving external issues and opportunities. This process is challenging, and usually incremental. If a CBFE has a network of civil society or commercial value chain partners (often mediated at second-tier level), it can more easily find the right partnerships to help it understand how to grow. Even with this network, CBFEs often have difficulty accessing finance, without which they may not be able to pay for these services.

As elaborated in the preceding section, an initial and continuing investment seems essential in developing CBFEs that approach self-reliance according to KIs because they need to offset opportunity costs and the high transaction costs for starting a forestry enterprise, as well as investment costs in machinery and infrastructure for harvesting timber. Most financial institutions are reluctant to lend to community institutions in general because of the lack of collateral (community-titled land is often not recognized as such) and perceived low institutional capacity and reliability. Macqueen, et al. (2018) conclude that host country governments and donors need to invest in filling this “missing middle” (financial institutions willing to support community enterprises); support second-tier aggregators as organizations more able to access capital; and encourage development of local enterprise incubators that build capacity in environmental, technical, and business issues.

The Petén of Guatemala provides an example of how to facilitate relationships between CBFEs and financial institutions. Some private-sector partners provide financial support; for example, through advance payments from timber industry buyers, use of local moneylenders, and small loans obtained through the Association of Forest Communities of Petén. Nevertheless, in this case commercial banks, generally not viewed as providing such services to small enterprises in rural areas, are the most significant financial service providers for the community forest enterprises (Junkin, 2007). The Rainforest Alliance supports CBFEs in this region to successfully apply for, execute, and repay credits by making foundational capacity improvements in legal compliance, transparency, accounting systems, and overall financial administration. With this support, CBFEs have obtained commercial credit of several hundred thousand dollars (Hodgdon & Loewenthal, 2015). Rainforest Alliance’s role demonstrates that more

sophisticated intermediary organizations between commercial value chain actors and CBFEs are often important.

Even with this access to commercial loans in the Petén, reinvestment in the CBFEE remains a key challenge (Hodgdon & Loewenthal, 2015). Many communities redistributed or used revenues on hand to pay for current community expenses rather than saving them for use as working capital in the following year. To address this issue, the authors describe a finance mechanism based on a management plan and a purchase agreement. While the loans allowed the communities to access finance and continue to run the enterprise, these authors identified improvement in management and administrative capacity as a major contributing factor to cash-flow issues the communities face. Training and technical assistance in those capacities, then, would potentially solve many of the issues associated with poor cash flow and lack of reinvestment.

Donors can provide support for loans on concessional terms (for example, the Forest Investment Fund<sup>10</sup> of the Climate Investment Funds, administered by the multilateral development banks) or loan guarantees such as those previously provided through USAID's Development Credit Authority. In Cameroon, the World Agroforestry Center's DRYAD program provides funds (primarily from the United Kingdom) not as commercial investments like a bank or private asset manager requiring direct financial returns, but nevertheless seeking a "return" on its commitment as public capital measured by indicators showing fulfillment of important social, commercial, and environmental objectives, rather than cash returns.<sup>11</sup> "Green Bonds" are a potential means of financing sustainable forestry, often in the context of climate change mitigation. However, a thorough review by the World Bank suggests that Green or Forest Bonds are not an immediate prospect for financing forest enterprises, including those at community level (World Bank, 2017).

Partnerships between communities and commercial private-sector companies are another means for a CBFEE to grow and expand, potentially linking CBFEEs to increased volumes of products or to new markets or product upgrades. Table 2.3 shows the types of such relationships (access and credit agreements, community-company contracts, joint ventures) that can benefit such partnerships related to enterprise scale and type. Note that in some cases second-tier CBFEEs (see Figure 2. 1) may also fulfill the roles listed in the first column (companies).

In some circumstances, partnerships between communities and companies enable access to finance or increase the benefits that CBFEEs can generate. Fostering networks between communities and established commercial businesses is one way to support CBFEE success—possibly a critical one in achieving self-reliance. These intermediary or aggregating organizations also require support and monitoring, as the potential for taking unfair advantage of communities is high given the differences in capacity and objectives. Several KIIs noted that donors should incorporate strengthening mutually beneficial linkages between responsible private-sector actors and CBFEEs as part of an exit strategy that emphasizes self-reliance. One KII cautioned that such linkages are stronger if the private firms have a core business interest in the linkage rather than those

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***CBFE linkages with private-sector companies are stronger if the relationship is part of the company's core business rather than a corporate social responsibility program.***

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<sup>10</sup> <https://climatefundsupdate.org/forest-investment-program/>

<sup>11</sup> <http://www.worldagroforestry.org/project/dryad-financing-sustainable-community-forest-enterprises-cameroon>

dependent only on corporate social responsibility programs. As with many outside support mechanisms, circumstances may change, leading to changes in corporate priorities and withdrawal of support, thereby weakening the CBE.

**Table 2.3. Typology of some company-community forestry partnerships**

Companies	Communities			
	Individual landowners/tree growers	Individual tree users	Group of landowners/tree growers	Group of tree users
Large forest product buyer, processor and/or planter	<ul style="list-style-type: none"> <li>• Out-growers</li> <li>• Joint ventures</li> <li>• Land rental for tree growing</li> </ul>	<ul style="list-style-type: none"> <li>• Product supply contracts</li> </ul>	<ul style="list-style-type: none"> <li>• Out-growers</li> <li>• Joint ventures</li> <li>• Out-processors</li> </ul>	<ul style="list-style-type: none"> <li>• Product supply contracts</li> <li>• Out-processors</li> </ul>
Large forestry concession or plantation owner	<ul style="list-style-type: none"> <li>• Access and compensation agreements</li> </ul>	<ul style="list-style-type: none"> <li>• Contracts for timber or non-wood forest product use or supply</li> </ul>	<ul style="list-style-type: none"> <li>• Local development agreements</li> <li>• Timber utilization contracts</li> </ul>	<ul style="list-style-type: none"> <li>• Intercropping or grazing schemes</li> <li>• Taungya</li> </ul>
Large landowning and/or forest service-related company	<ul style="list-style-type: none"> <li>• Joint ventures</li> <li>• Ecotourism enterprises</li> <li>• Payments for environmental services<sup>a</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Shared use agreements</li> <li>• Contracts for tree growing</li> <li>• Bioprospecting deals<sup>a</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Joint ventures</li> <li>• Ecotourism enterprises</li> <li>• Payments for environmental services<sup>a</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Shared use agreements</li> <li>• Contracts for tree growing</li> <li>• Bioprospecting deals<sup>a</sup></li> </ul>
Small locally based processor or community enterprise	<ul style="list-style-type: none"> <li>• Credit or product supply agreements</li> <li>• Shared equity</li> </ul>	<ul style="list-style-type: none"> <li>• Product supply agreements</li> </ul>	<ul style="list-style-type: none"> <li>• Credit or product supply agreements</li> <li>• Shared equity</li> </ul>	<ul style="list-style-type: none"> <li>• Product supply agreements</li> </ul>

<sup>a</sup> Type of partnership with considerable but as yet unfulfilled potential. Source: After Mayers (1998); Mayers (2000); Mayers and Vermeulen (2002); and Race (1999).

## 3.0 DESK REVIEW OF CASE STUDIES

Through the literature review we identified 22 case studies (Table 3.1), from 42 reviewed, of profitable CBFEs from 11 sources in 12 countries with an enterprise model based on timber (18 cases) or ecotourism (4). The case study analysis focused on tangible benefits from CBFEs: what are they; how do they contribute to CBFE success; and what are the characteristics of the social enterprise that lead to successful benefit generation?

Based on these sources listed in Table 3.1, the case study CBFEs were successful in generating revenues greater than their expenses. In all 22 cases, CBFEs sustained this success over several years to decades (for the other 20 cases reviewed these criteria were not met or could not be verified). We did not screen cases for their net impact on forest condition, though in some cases, such as that in the Petén, that was quantified (Nittler & Tschinkel, 2005); instead, we rely on the broad consensus in the literature that community forest management improves forest condition on average (see discussion in Section 2). The social enterprise models identified were predominately community lands allocated to indigenous communities or local people, either outright or via a concession, or else based on a cooperative model that aggregated individual ownerships. In some cases, like that of a cooperative formed to manage a community-held concession, the models were mixed.

**Table 3.1. Selected cases, CBFEs that generate benefits for communities**

Source	Bolivia	Brazil	Cameroon	Gambia	Guatemala	Honduras	Indonesia	Mexico	Nepal	Vietnam	Ghana	Peru	Total (Source)
Bhattarai, 2011									1				1
Ezzine de Blas et al., 2009			1										1
Cronkleton et al., 2012					1								1
Humphries et al., 2012		2											2
Macqueen et al., 2015	1	1		1	1		2			1			7
Molnar et al., 2007				1		1		1					3
Nittler & Tschinkel, 2005					1								1
Stoian et al., 2009				1				3					4
Sheppard et al., 2010											1		1
Che et al., 2015												1	1
Total (per country)	1	3	1	3	3	1	2	4	1	1	1	1	22

To better understand the potential benefits that community forestry generates, as with Section 2 this analysis focuses on timber as, in most cases, the most valuable product from community forest management with the potential for investment. For comparative purposes, we also reviewed two cases of ecotourism social enterprises based on non-consumptive use of wildlife.

### 3.1 WHAT BENEFITS ACCRUE TO COMMUNITY MEMBERS FROM SUCCESSFUL CBFES?

As stressed in KILs (but not always clear in the literature), active engagement in CBFEs is normally by a subset of the community members—those who engage day-to-day operations of the social enterprise. In successful CBFEs, income generated is first used to maintain the enterprise itself (all labor, materials; and forest management, administrative, marketing, and other transaction costs) as well as investment in costs to maintain and potentially expand the business. Once those costs are met, revenues benefit the whole community, typically through social development projects (education, health, infrastructure,

community credit schemes), while direct cash transfers to individuals are less common. Effective CBFEE governance mechanisms, by or on behalf of the community, are therefore critical to avoid or minimize elite capture and promote transparency and social cohesion.

Box 3.1 lists the types of benefits identified in the case studies. These benefits varied widely by case, and case studies did not consistently present the relative value of each. In some cases, the enterprise model seemed primarily to generate employment; in others, members of cooperatives were more interested in producing, aggregating and selling a product. For example, CBFEEs in the Petén, Guatemala, offered wages higher than those available for other legal employment in the region; a tree-grower’s cooperative in Indonesia offered higher prices for timber than members could obtain on the open market.

Benefits listed in Box 3.1 include improvements in social cohesion, ability to organize, and technical skills (enhanced social and human capital, Pretty and Ward, 2001). These “soft” skills are difficult to quantify, but they are widely reported as a major reason for the success of CBFEEs and a major incentive for their creation. In some cases, the CBFEE had the opportunity to grow and modify its enterprise structure, demonstrably improving its internal management and governance arrangements. Table 3.2 shows the proportion of case studies in which researchers reported different benefits.

**Box 3.1. Local benefits from successful CBFEEs.**

- Employment: local people have jobs or had some paid employment
- Improved price for forest products or access to market: people could sell a product and make more money
- Improved infrastructure: roads, schools, health facilities, electricity, clean water
- Improved technical skills: forest product processing, marketing, management
- Improved organizational skills: accounting, management, participatory methods
- Government and donor incentives: tenure, technical assistance, infrastructure
- Broader benefits distribution (beyond the enterprise members): improved enabling environment; access to infrastructure; redistribution of profits as in-kind contributions; assistance for community members with large unexpected costs

**Table 3.2. Benefits for local individuals reported in cases of successful CBFEEs<sup>12</sup>**

Benefits	Percentage reported positively in cases (N=22)
Technical skills	95%
Government/donor incentives	91%
Employment	86%
Organizational skills	82%
Benefits to surrounding residents	82%
Improved product price or market access	68%
Infrastructure	59%
Improved access to finance	18%

Notably, many benefits were not the direct result of profits but the result of the ability of the CBFEE to leverage outside funds from government or donors. For individuals directly engaged in the enterprise, in almost every case there was significant national and/or international donor investment that subsidized costs of technical assistance for training; to overcome certification and regulatory barriers; or for

<sup>12</sup> In some cases, benefits may have existed but were not reported; in only five out of the 120 possible combinations of cases and potential benefits reviewed was there explicit negative reporting (i.e., the author reports that the benefit was not generated or was not a result of the CBFEE).

building infrastructure and providing equipment. KIIs confirm the need for these types of subsidy, at least in the early stages of CBFE formation and operation, while some suggested that subsidies may need to continue indefinitely. Studies reported that in several cases, access to these exogenous resources was a major incentive to those engaged in the CBFE. In many instances, establishing the CBFE was a means of establishing land or tree tenure, a highly valued benefit that allowed members' rights to access, use, and exclude others from the resource.

In sum, although there is no consistent pattern to the value of the benefits generated, and many types of benefits do not lend themselves to quantification, benefits were sufficient to incentivize the long-term existence of these CBFEs.

### 3.2 CHARACTERISTICS OF SUCCESS IN THE CBFE CASE STUDIES

In this section, we describe some key characteristics of the successful case studies.

- **Rights.** All successful cases had at least the right of management (10 percent); the balance (90 percent) had the tenure right of exclusion (as in Schlager & Ostrom, 1992). This reaffirms the finding

***Among the case studies, there were no successful CBFEs without secure tenure.***

that significant tenurial rights are critical for successful CBFEs (Section 2). Although there are certainly cases in which communities have secure tenure but have no successful enterprise, we found no case of a successful CBFE without secure tenure.

- **Opportunity cost.** While the data do not allow calculation of opportunity costs for community members, we expect that the opportunity cost of participating in a CBFE is important to success (Maskey, Gebremedhin, & Dalton, 2006; Rai, Neupane, & Dhakal, 2016). As proxies for this factor, we looked at distance of the CBFE from a major city (where alternative opportunities are often more profitable) as well as qualitative mention of the reason for the formation of the CBFE. In most cases, when reported, CBFEs were an intermediate distance (more than one day's travel, less than one week's travel) from the nearest market. Case study authors also reported the reason for the CBFE's formation was to generate local employment or to sell products because of a desire to stay in the area. In one case in Indonesia, members of a cooperative close to a city had land they wished to hold but did not have sufficient labor to farm the land. From these indications we infer that the opportunity costs of CBFEs is relatively low: community members may not, or may prefer not to, engage in other opportunities, such as converting land to agriculture or other use, and either do not have other employment locally or already have other employment and simply want to sell a product from their land. Although we could not quantify the importance of opportunity costs, we suggest this is a fruitful area for field research. KIIs stressed that opportunity costs are rarely quantified; one noted that there might be opportunity costs in not engaging in community forestry if it leads to weaker claims on forest resources.

- **Size of community forest.** The analysis clearly showed that a large area with good-quality forest is required for a successful CBFE with a business model based on timber (Table 3.3). Both types of timber-based businesses (production and management services) had averages of greater than 10,000 hectares (and some may exceed 100,000 hectares according to KIIs). Given the economics of sustainable timber extraction, which requires allowing an area to grow for years or decades between harvests, this finding is not surprising. For an enterprise based on tertiary value addition of wood products (in this case, cabinet-makers in Brazil with their own woodlots), and for ecotourism, smaller areas were viable.

**Table 3.3. Average management area for a CBF E, by product type**

Product	Average size (ha)
Timber management services	26,000
Timber production	12,960
Artisanal wood products production	200
Tourism	113

- **Organization and ownership.** Case study CBF E s were organized either as cooperatives or as “corporations.”<sup>13</sup> In general, cooperative formation was an approach to aggregate products from multiple, smaller ownerships to make the economics of the enterprise more attractive. Cooperatives included planted forests on individual, privately owned lands in Indonesia, for example. Corporations were more common when an indigenous community, or other type of recognized local community, had collective title or a concession for a large piece of forestland. Finally, there were two cases of community committees jointly managing wood product production, in Gambia (Molnar et al., 2007) and Nepal (Bhattarai, 2011).<sup>14</sup>

Within these broad classes of organization determined by land area and tenure, management structures varied widely. Particularly in the cases described by Macqueen et al. (2015), the authors took care to describe the organizations in some detail. In many cases, there was an established organizational management component, as well as an established mechanism for social and fiscal oversight. CBF E s had developed a hierarchy as needed for the operations of the enterprise (for example, management, marketing, and services, and in some cases a board of directors) but also had traditional leadership or other groups that ensured that the benefits generated by the CBF E were channeled to meet the broader social or environmental mandate of the enterprise and its community. In most cases, CBF E s developed an external or internal financial audit or oversight body accountable to the community governance rather than to the management team.

### 3.3 SOCIAL ENTERPRISE MODEL

To understand economic and financial aspects of successful CBF E s, we recorded and coded the characteristics of the enterprise models in the case studies. Notable findings include:

- **Viable product or service.** Every community (or group of communities) had an enterprise model based on a viable product or service. While this factor seems obvious, the literature shows it is often a complex matter to determine at the outset whether the social enterprise product or service is viable (e.g., Humphries et al., 2012). In many successes, the authors covered at some length the gradual process of developing the enterprise model, the challenges to that model, and the ways the enterprise could adapt and evolve to keep going. Authors also noted that no enterprise can remain static, needing the capacity to adapt and evolve as the market, the environment, and the priorities of members change.

Significantly, all these successful enterprises had relatively high-value forest products (whether timber or ecotourism) and most had substantial quantities of that product. As noted in Table 3.3, the CBF E s based on timber typically had large areas of land under their control and had high-value species, which they chose to harvest. Successes in ecotourism had charismatic megafauna available

<sup>13</sup> Corporation in this sense refers to a CBF E established to generate income. Status varies depending on local legislation whereby CBF E s may be registered as businesses, cooperatives, or community-based organizations.

<sup>14</sup> In one case in Vietnam (Macqueen, 2015) the enterprise was state-owned but provided broad-based local employment and a market for community products. In the rest of the cases, the ownership of the cooperative or corporation was with the community.

for clients to view. While these types of products do not ensure success, they illustrate the need to have something known to be of value on which to base the CBFEE enterprise.

- **Vertical integration and diversification.** Molnar et al. (2007) assert that vertical integration and diversification are characteristic of more mature and profitable enterprises. We reviewed cases for evidence of increased integration as a factor for success, since it is associated with the generation of more income. In general, however, the successful cases reviewed were not highly integrated, though some larger or older businesses did have greater vertical integration.
- **Reinvestment.** Of the 22 cases, seven reported that the CBFEE had a transparent mechanism for the use or reinvestment of profits in the enterprise. For only one CBFEE was the use of profits opaque; for the rest, the authors offered no explanation for how the CBFEE informed members on the use of profits. However, for 17 cases the authors reported that CBFEEs reinvested profits in expansion or diversification to keep the enterprise viable.
- **Partnerships for support and finance.** In all but five of the 22 cases reviewed, the CBFEE had an ongoing partnership or other arrangement as part of their value chain that provided some form of technical assistance or financial inputs. These ranged from nongovernmental organizations (NGOs), or governments for incipient or smaller CBFEEs, to far more mature enterprise arrangements with other businesses that provide finance through forward purchase agreements or other commercial arrangements (see Mayers, 2000, for a succinct summary of some possibilities).

In the successful cases, we found frequent mention of corporate governance mechanisms to ensure oversight and accountability, which affects perceptions of fairness, as well as mentions of near-universal mechanisms for redistribution of benefits from the CBFEE to employees, suppliers, and community members (Table 3.2). In addition, it was clear that when communities had support from NGOs or other donors, these entities made their support contingent on some types of mechanisms for fairness or redistribution—so we did see evidence of both institutions for fairness and transparency and redistribution of broad-based benefits in successful enterprises. While in some cases the enterprise equally distributed profits to all community members, in others the members elected to use them for specific tasks. We highlight, however, that reinvestment in the enterprise was a more frequent (and necessary) use of profit than equal distribution to a community's members.

## 4.0 CONCLUSIONS TOWARDS DEVELOPING A CBFEE SOURCEBOOK

Based upon our analysis of the literature (Section 2), case studies (Section 3), and KIIIs (Annex 2), we conclude that there are four broad fundamental enabling conditions required for successful CBFEEs.

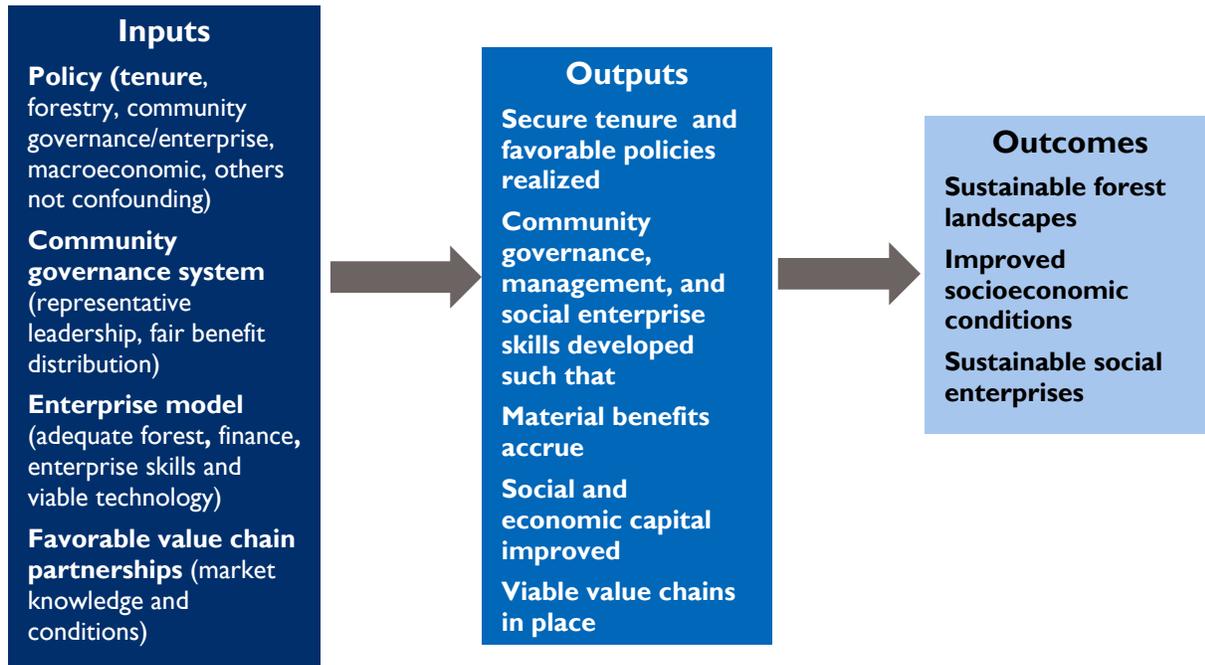
1. Secure rights to develop, exclude others, and sell a forest product or service and enable long-term CBFEE investment. While these rights are the most basic policy requirement, other policies contribute to a robust enabling environment.
2. Governance, organization, and management that provide effective leadership and technical knowledge to the CBFEE; accountability to the community; and ensure the CBFEE's financial integrity.
3. A viable social enterprise model that produces financial benefits sufficient to reinvest in forest and business management and growth, and provides economic benefits (though not necessarily cash) to the community as a whole.
4. Partnerships with value chain actors to access external funding and technical support; help aggregate timber from several communities (or individual producers); market timber to buyers; and build/maintain infrastructure. These partners include national and local government, donors, civil society organizations, and private-sector entities.

As discussed in Section 2.2, the environmental goal of sustainable forest management and improved forest condition (leading to improved climate mitigation and biodiversity conservation outcomes) typically follows from successful CBFEE development, if the enabling conditions are in place.

In ProLand's view, based on evidence presented in this assessment, these four enabling conditions are necessary and normally sufficient (bearing in mind their internal and synergistic complexity) for successful CBFEEs. Furthermore, these four conditions tend to align with donor programmatic areas and funding related to governance, forestry, and sustainable community development. However, the four conditions significantly overlap and interact, and CBFEE programs should seek to avoid silo effects in emphasizing one factor over another. While there are caveats on information quality, completeness and comparability mentioned in various sections (and analyzed by Hajjar et al 2016; see Annex 3), ProLand feels that this enabling conditions framework for CBFEE programming is robust. To strengthen this conclusion, ProLand will conduct several field validations, which in turn will further strengthen development of the pending CBFEE Sourcebook (see below).

The broad array of success factors, and linkage to the three goals or outputs (environmental, economic, and social) introduced in Section 2, can be rationalized in programmatic language as a logical framework with inputs, outputs, and outcomes (Figure 4.1). The input column emphasizes the four enabling conditions above and encompasses the more diverse elements from other authors listed in Table 2.1. While this type of programmatic conceptualization is likely important to external CBFEE proponents, one should not assume that CBFEE members would recognize this logical framework approach when advocating CBFEE development to community members.

**Figure 4.1. Simple logical framework for CBFE**



#### **4.1 KEY CONCLUSIONS BASED UPON ENABLING CONDITIONS**

We provide the following conclusions and “key takeaways” for USAID, host-country governments and other international donors wishing to support CBFE programs. The planned CBFE Sourcebook will provide a how-to approach to design and implementation of such programs by unpacking the details leading to realization of each enabling condition.

##### **4.1.1 SECURE RIGHTS**

Secure community (or aggregated individual) tenure is critical for sustainable CBFEs. For timber enterprises, land and tree ownership is ideal, but at a minimum, long-term exclusion rights are essential to prevent conflicting land uses that hinder sustainable forestry. Other sectoral land and resource use policies need at minimum to recognize and reasonably regulate timber harvesting in ways that do not hinder (or prevent), and ideally encourage, CBFE development. How government implements those policies is equally important, as technical and bureaucratic barriers and corruption may reduce effectiveness of benign or supportive policy. Nevertheless, project proponents will often find tenure and other policies less than ideal and may need to work with government in parallel on reform, while piloting CBFEs to demonstrate the value of such reform.

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**Key takeaway: CBFE proponents should design investments that recognize existing tenure and other land use policies, but investments to strengthen favorable policy and its effective implementation improve the prospects for CBFE sustainability.**

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#### 4.1.2 GOVERNANCE AND MANAGEMENT

Generally, it is preferable to have a CBFЕ unit within the community responsible for day-to-day management of the CBFЕ and routine relationships with value chain partners. This unit represents the community through robust governance mechanisms that recognize interests of the community as a whole. In most cases, existing officially recognized governance entities (such village councils or general assemblies (or their subsidiary committees) are better than forestry-specific governance bodies, though with all governance systems elite capture is often difficult to avoid. CBFЕ accountability is key, so that communications with the whole community remain transparent regarding strategic decisions, financial management, and benefit distribution.

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**Key takeaway: Proponents should invest in governance structures and CBFЕ staff capacity so that accountability mechanisms are in place.**

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Successful CBFЕ programs have often not benefited poorer community members, or women in an equitable fashion. The CBFЕ may limit access to natural resources that these sections of society rely upon for basic needs or enhanced livelihoods. Similarly, timber CBFЕs typically do not integrate poorer people, and especially women, into their operations, because forestry is seen as a male “profession,” and men tend to predominate when products have high cash values. Over the life of a three-to-five-year project, combining the substantial support needed for establishing a viable CBFЕ with equal, or even equitable, opportunity for all community members to benefit requires significant investment outside that in the timber enterprise itself. Over longer periods, experience in running an enterprise may lead to diversification of products through value addition into wood products or additional products such as NTFPs and ecotourism. These evolving opportunities may present viable opportunities to include women and poorer community members.

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**Key takeaway: CBFЕ success from an enterprise perspective does not rely on equitable benefit distribution. If such distribution is desired (or required), investment in social safeguards and alternative income opportunities for poorer community members is necessary.**

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Tiered CBFЕ organizations are often important, especially a second tier that aggregates several smaller communities (each with its first-tier CBFЕ) for economies of scale in marketing and accessing services. A third tier represents interests of all CBFЕs at national or other geopolitical levels.

KIIs reinforced these conclusions regarding tiers, with some provisos. For example, if CBFЕs are large and have good human and timber resources and market opportunities, they function well as individual social enterprises without the need for other tiers. Also, depending upon their own agenda or funding sources, some national advocacy NGOs that claim community support do not always represent CBFЕ interests, according to a KII who has worked with such organizations. Clearly a membership organization where all constituent CBFЕs have a voice is preferable to ensure accountability, though only viable if membership costs add value. Whether a tiered arrangement is sustainable without external support depends on the costs and benefits provided.

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**Key takeaway: CBFЕ proponents should assess the business case for (and whether to) support tiered organizations extending from community-based production to national advocacy.**

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### 4.1.3 SOCIAL ENTERPRISE MODEL

CBFEs are social enterprises rather than private sector businesses in the traditional sense, because the CBFE (as a community subunit in most cases) is using a whole-community common resource (even where allocated to individual households). The broader community, therefore, expects and must obtain material benefits. Furthermore, assuming the practice of sustainable forestry, the CBFE is providing ecosystem services, such as carbon storage and sequestration, biodiversity conservation, and watershed protection, to the broader national and global society. Given this service provision, as well as CBFEs' role in rural social and economic development, any external subsidy (or societal investment) is likely repaid by these diverse benefits at all levels. Such investments offset opportunity costs and the high transaction costs for starting a forestry enterprise, as well as costs in machinery and infrastructure for harvesting timber. Recognizing that most financial institutions are reluctant to lend to community institutions because of the lack of collateral and perceived low institutional capacity, donors and other project proponents should design interventions that allow for future investment (sometimes as direct subsidies) beyond the normal project cycle.

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**Key takeaway: CBFE proponents should design interventions that recognize the long-term continuing investments needed for sustainability and the societal benefits that accrue from these investments.**

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Many businesses fail, though data on failure rates in developing countries is poor, and seemingly nonexistent for community-based social enterprises. In Western countries, the failure rate of all enterprises per year in 2015 ranged from 2 percent in Ireland to 15 percent in Portugal.<sup>15</sup> Community-based enterprises in developing countries depend much more on natural, human, and social capital, rather than financial capital and are therefore likely to be more resilient and survive, or adapt, to challenges if the basic enabling conditions and success factors described above are in place. Most CBFEs also receive external support from donors or government that can help tide them over difficult periods or provide resources to adapt and improve performance. Nevertheless, each community enterprise has its own characteristics and assets with respect to these three capitals. Some will perform better than others, and some will fail. Analysis of the business case is specific to each CBFE, but even when favorable, other factors around community cohesion and capacity of a social enterprise may override a favorable financial or economic analysis. Donors should expect some low performers and failures rather than set targets that assume universal performance and success.

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**Key takeaway: Donors and governments should recognize that not all CBFEs will succeed and set their expectations and targets accordingly.**

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### 4.1.4 VALUE CHAIN PARTNERSHIPS

A successful CBFE will interact with many external entities in value chain encompassing investments, the CBFE products, and the buyers of those products. "Investors" is a broad category including governments, donors and supporting organizations such as NGOs, as well as private businesses (including those publicly traded). The last category includes the most likely buyers of CBFE products (from standing timber to finished products, depending on the CBFE's degree of vertical integration), though governments may also buy CBFE products.

Developing mutually beneficial relationships between CBFEs and private-sector companies is essential in most situations. Given their different governance structures, motivations, and benefit needs, matching

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<sup>15</sup> <https://stats.oecd.org/index.aspx?queryid=70734>; [https://www.climateinvestmentfunds.org/sites/cif\\_enc/files/meeting-documents/ifc\\_fip\\_pcm\\_june15.pdf](https://www.climateinvestmentfunds.org/sites/cif_enc/files/meeting-documents/ifc_fip_pcm_june15.pdf)

CBFEs to responsible private-sector value chain partners is challenging. CBFE programs and projects can directly support intermediary institutions that help to establish those partnerships by building knowledge and capacity, in both CBFEs and the business community, that improves and optimizes mutual understanding and benefits.

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**Key takeaway: CBFE proponents should invest in building mutual understanding in, and facilitating relationships between, CBFEs and private-sector businesses in the forestry product value chains.**

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## 4.2 DEVELOPMENT OF A USAID CBFE SOURCEBOOK

As explained in Section 1, this assessment will inform development of a Sourcebook for USAID Missions designing and implementing CBFE programs. The Sourcebook will add value to existing tools and guidance because it is based on up-to-date review and analysis of the recent literature (much of it since 2010, and extending through 2018), case studies, and KII. The Sourcebook:

1. Organizes the programming options and available tools based upon the status of the enabling conditions listed at the beginning of Section 4.
2. Emphasizes CBFEs as social enterprises and the value chain partners needed for support and sustainability, rather than community forestry in general, which often has conservation as the primary objective.
3. Places CBFEs in the context of current USAID global programming requirements, such as self-reliance, theory of change, and collaborating learning and adapting.

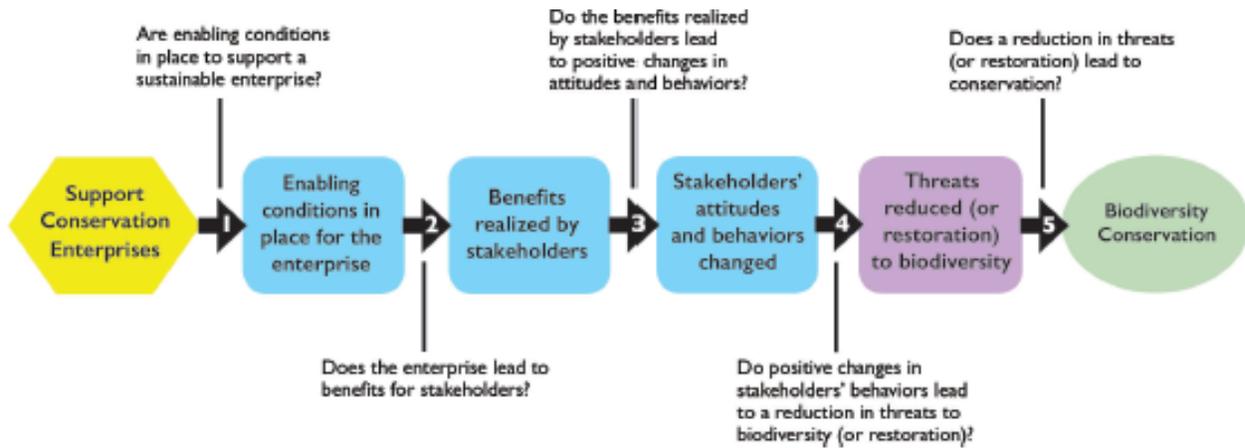
ProLand will use the information herein to develop the draft Sourcebook for USAID Missions designing and implementing CBFE programs. The team will then visit three countries to see how the Sourcebook aligns with current programming and to assess its usefulness to USAID Missions and implementing partners. USAID staff in several Bureaus and field Missions will review the resulting drafts and provide comments for improvement. This iterative process, with successive country visits, will help to revise and refine the Sourcebook prior to finalization. Criteria for country verification visits are:

- The USAID mission responded positively to the prospect of participation during KIIs
- Have Sustainable Landscapes programming
- Have economically viable opportunities for sustainable timber harvesting by CBFEs
- Have significant amount of forest with resident or neighboring communities
- Include at least one country at early stages of CBFE development, and one with several decades of community forestry experience

### 4.2.1 TOOLS FOR SUPPORTING CBFE PROGRAMS

Numerous existing tools can help in the design and implementation of community forestry programs and projects. Below, we reproduce a generic USAID-supported theory of change developed by the Conservation Enterprise Learning Group (see, for example, the previously cited Baker & Boshoven, 2017). Our CBFE assessment zooms in on and unpacks one key aspect of this results chain (enabling conditions) and emphasizes timber CBFEs rather than the broader “conservation enterprise” category. Conservation enterprises as depicted offer a suite of opportunities with less stringent tenure requirements than those for timber CBFEs (see Table 2.2).

**Figure 4.4. Results chain depicting the generalized theory of change and learning questions under the conservation enterprises learning agenda.**



This theory of change is specific to USAID biodiversity funding and will need additional elements and focus to capture social and economic outcomes expected from CBFE programs. ProLand plans to develop results chains and situational models through another workstream including one for CBFEs, applicable to USAID’s Sustainable Landscape programs.

Numerous agencies and authors have useful resources applicable to CBFEs. Several result from USAID’s own work and that of its implementing partners. The Sourcebook will describe many of these resources, guides, and tools classified as follows.

1. **Foundational and Integrative.** These resources are broad-based, and tend to cut across the enabling conditions for CBFEs described in Section 4.5, or do not fit well within one of those conditions.
2. **Divided by Four Enabling Condition Categories.** These resources tend to fit more clearly into one of the four categories of enabling conditions (tenure, CBFE institutional, social enterprise model, and value chain partners).

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# ANNEX 2: KEY INFORMANT INTERVIEWS

This annex presents:

1. The guiding questions used in KIs – we sent them to interviewees ahead of the discussion. The interviews broadly followed the main questions (1–9), and we used the subsidiary notes under each question to guide interviews. We encouraged additional observations and follow-up questions to broaden topics as needed. Notes taken are summarized in a matrix for each question and respondent. Results were summarized further (see below) for each question to maintain anonymity and to avoid repetition. Interviews were conducted by Tetra Tech staff Ian Deshmukh (15 in English), Mark Donahue (two in Spanish), and Jennifer Graham (one in French).
2. An overall summary matrix of comments from KIs.
3. A list of key informants.

We conducted the interviews between July 3 and August 3, 2018.

## Guiding Questions

### Key Informant Interviews

USAID is analyzing information on community forestry with a view to developing a Sourcebook on improved development and implementation of field programs and projects focused on community-based forest enterprises (CBFEs). Despite this “business” focus, an important aspect to USAID is maintaining, or improving forest condition (biodiversity, carbon sequestration, resilience, other ecosystem services) as well as distribution of benefits that improve community livelihoods.

An extensive literature review included numerous individual and review articles from peer-reviewed and gray literature. Inevitably, such a review leads to further clarification questions regarding perspectives and evidence, and comparisons within specific case studies, and among the aggregations and analyses of information in review papers.

USAID requested its global Productive Landscapes activity (ProLand, implemented by Tetra Tech ARD) to conduct this work, and to follow-up on its literature review with Key Informant Interviews. Recipients of this email are kindly requested to indicate whether they are willing to be such a Key Informant for a follow-up interview by Skype (or other telecommunication means). We hope to conduct these interviews between July 18 and July 27 at a mutually agreeable time.

Although interviews will have an open-ended aspect to allow for unforeseen perspectives, they will hope to include the following issues for discussion. We realize that many of these questions do not have simple answers, and many overlap, which is why we prefer a flexible interview to an on-line survey. We seek experiential knowledge, reflections and wisdom, rather than a numerical analysis of a complex survey instrument.

1. **What is necessary (essential?) in supportive policy for CBFEs?**
  - Secure tenure and control of forest land or resources
  - Supportive forestry policy – decentralization, other
  - Market for forest products/services; timber, other products/services
  - Other
2. **What constitutes success?**
  - Tangible financial benefits accrue

Distribution of benefits to individuals – all community, members/employees, other  
Benefits used for community projects  
Self-reliance of CBFE (weaned from support)  
Reinvestment in the enterprise  
Sustainable forest management (forest goods and services maintained/improved)  
Other  
Do you know of “spontaneous” successful CBFEs that have established and operate well without external assistance?

3. **What makes a viable CBFE institution?**

Formal legal recognition and, therefore, regulation (as business, as CBO, as cooperative, other)  
Democratic governance mechanisms for all community  
A degree of separation between governance of the enterprise and governance of the whole community, but accountable to formal community bodies  
Business model characteristics  
Reflects and maintains or generates community cohesion/social capital  
Does a CBFE need to be nested within a set of higher level institutions for success (for example for value addition, aggregation, marketing, etc., national grouping – see also Q 5) or can a CBFE operate without such relationships?  
Other

4. **What role do opportunity costs and transaction costs play in CBFE establishment and operations?**

Do members weigh opportunity and transaction costs of engagement (how?)?  
Do projects assess opportunity and transaction costs, and weigh against viability?  
Is there opportunity cost in not having a CBFE (in terms of control of resources or other factors)?  
Do you know of cases where opportunity or transaction costs led to failure?  
Other

5. **What other types of institution are necessary for CBFE success and sustainability?**

Intermediary -supply/value chain private sector for aggregation, inputs, market access, value addition  
Financial institutions - local or national serving local needs  
Local government  
National membership/advocacy organizations  
Donor support/subsidy  
Other  
What is a reasonable time horizon for judging sustainability in a CBFE?

6. **Do CBFEs maintain or improve forest condition** relative to control and management as public lands by national/regional authorities and/or concessions to non-community-based companies?  
Why and how?

Can CBFEs effectively undertake sustainable extraction of products, especially timber?  
Can they monitor forest condition?  
Are national/regional forest authorities providing realistic guidance and regulation?

7. **Do CBFEs lead to broader social benefits** within and beyond the CBFE itself?

Social capital and cohesion  
Improved community governance institutions/mechanisms  
Other community-based enterprises  
Poverty alleviation  
Gender inclusivity  
Youth employment

Resilience to perturbation

Other

8. **What have you learned from failure?**

Causes

Responses

9. **If you were assisting a donor program or project that involves establishing and supporting CBFEs**, what key elements would you include in design and implementation? Is it possible to establish these key elements (necessary and/or sufficient), or are they all case specific at national and/or community level?

**Summary Matrix of KII Comments per the Nine Questions Above**

**Bold = most key informants mentioned this factor**, normal typeface = less than half respondents but more than two informants; *italics one to two informants*. Note that number of informants does not necessarily reflect importance, as some important insights may relate to specific countries, perspectives, or experiences. A few responses are noted under more than one question where especially relevant.

KII question (in full above)	Summary of responses
1. Essential policy	<ul style="list-style-type: none"><li>• <b>Secure tenure</b> (ownership, <i>control of trees if not land</i>) for long period</li><li>• <b>Market/business policy favoring CBFEs</b> (favorable, stable product prices, simple procedures)</li><li>• <b>Supportive forest policy with incentives, subsidies</b> (<i>government budget, donor – roads, machinery</i>) for establishment phase at least</li><li>• <b>Implementation mechanisms for policies – simple, clear rules and regulations</b> favoring CBF development. <i>May need flexibility for different regions with, for example, rain forests and dry woodlands. Development of capacity in government institutions to implement policies and reduce corruption</i></li><li>• <b>Harmonize policies across sectors</b> (reduce silo thinking) to reduce CBF impediments (including land, forestry, <i>natural resources, agriculture, commerce, banking, trade</i>) – <i>supportive of alliances between CBF and private sector</i></li><li>• <i>Maintain policy advocacy supporting CBFs</i></li></ul>
2. What is success	<ul style="list-style-type: none"><li>• <b>Three legs of benefits stool – environment, economy, social</b></li><li>• Conserve and make a living; sustainable forest management; reduced illegal extraction</li><li>• Benefits match entire communities self-declared needs (<i>in most cases</i>), including employment, water supply, roads, clinics, education; <i>harvested products meet community expectations</i></li><li>• <b>Self-reliance long term</b> (10–20+ years); not well researched or demonstrated – may need continued “subsidy” (may be government services such as roads, extension). <i>May occur in some cases after massive donor support (Namibia conservancies, Guatemala Maya Biosphere Reserve)</i></li><li>• <i>Trajectory for sustainability from outset – for example, with middle tier organization for aggregation of inputs and outputs</i></li><li>• <b>CBFs do not arise spontaneously</b> (in the modern development sense – always result from donor/NGO/government programs). <i>Informal CBFs or individual entrepreneurs for local needs are usually present. May self-initiate, but need support to meet government requirements</i></li><li>• Business model blending community and economic elements, viable product(s) and value addition; benefits folded back into enterprise; <i>income diversification; long-term solvency</i></li><li>• Good CBF governance and technical, financial, business capacity</li></ul>

KII question (in full above)	Summary of responses
	<ul style="list-style-type: none"> <li>• Value chains free of exploitation with private sector involved with resource governance</li> <li>• Success in the eye of the beholder (i.e., community members)</li> <li>• Clear idea of steps and time for establishment – mobilizing, tenure arrangements, forest management, extraction, aggregation, etc.</li> </ul>
3. Viable institutions	<ul style="list-style-type: none"> <li>• <b>CBFE subset of whole community for management, but accountable to whole community</b></li> <li>• <b>Governance mechanisms avoid elite capture</b> (or limit its reach) and generate social cohesion</li> <li>• <b>Based on existing governance structures</b> (creating new ones is huge and uncertain investment)</li> <li>• <b>Tiered arrangement often useful</b>, but not essential if CBFE is large, or income insufficient to support tiers or community sees no value</li> <li>• <b>Ability to evolve and adapt</b> to circumstances, new opportunities, diversification (for example, to support women’s enterprises)</li> <li>• Establishment of bylaws, legal recognition, hire outside director with requisite skills.</li> <li>• <b>Understanding of and skills for business model</b> in all aspects, including sustainable forest management, markets, negotiation, conflict management; solvency before community benefits</li> </ul>
4. Opportunity & transaction costs	<ul style="list-style-type: none"> <li>• <b>Little systematic work or evidence, especially on opportunity costs</b></li> <li>• <b>Community and project proponents probably do not account for opportunity costs sufficiently, especially in early stages</b> or underestimate. Community may be willing to experiment with CBFE as a way of weighing opportunity cost.</li> <li>• For small (often women-operated) NTFP and craft products monetization of labor unlikely (and would probably make operation unprofitable)</li> <li>• May be opportunity cost in not establishing community forestry if it reduces potential tenure rights</li> <li>• Opportunity costs may spread beyond CBFE to neighboring communities (displaced activities not allowed in CBFE territory)</li> <li>• Expertise in these cost elements rarely incorporated by donor or implementer</li> <li>• <b>Transaction costs with government too high and cumulative (establishing area and tenure, setting up institution, management plans, transport from remote areas</b> [including illicit payments to officials], certification) – many of these costs are repetitive to remain operational. These costs need subsidy initially at least from donor, government, or private sector (buyer or contractor could pay for management plans, certification, for example, if it improves access to CBFE products, but accountability mechanisms essential). Certification only makes sense for larger CBFEs with high-value product in most cases</li> <li>• <b>Many transaction costs could be significantly reduced if bureaucratic and technocratic requirements were simplified.</b> For small CBFEs communities need not meet same requirements as commercial loggers. Need to allow some income generation from the outset to pay for transaction costs (for example, limited felling to pay for management plan)</li> <li>• Emigration of youth to urban areas is an opportunity cost</li> <li>• May need to include value addition at community level to overcome transaction costs</li> <li>• Opportunity costs may change with circumstances, needing ability to adapt</li> </ul>
5. Other supporting institutions	<ul style="list-style-type: none"> <li>• <b>Aggregator for inputs, services, communications, marketing important for smaller operations</b> (one guess was less than 10,000 hectares, or US\$100,000 revenues). Larger CBFEs successful without. Difficulties when rivalries between neighboring communities (e.g., clans in Papua New Guinea). May reflect existing informal networks rather than specially set up</li> <li>• <b>“Central” advocacy can be critical</b> for policy/rights, protection from</li> </ul>

KII question (in full above)	Summary of responses
	<p>unprincipled government or private entities. May be CBFE membership organizations or national NGOs with CBFE mandate. Often funded by donors (financial sustainability issues whether donor or CBFE supported). <i>May develop divergent agenda from CBFEs, so an accountability mechanism is needed. Sometimes better at provincial level to better reflect local interests</i></p> <ul style="list-style-type: none"> <li>• Local government important in some countries (for allocation/regulatory functions, legitimacy, not in others)</li> <li>• <b>Banks/credit organization important, but typically unwilling to lend to CBFEs.</b> Collateral (communal land often does not qualify), small size of loans and (perceived?) risk issues. Loan guarantees (donor) useful.</li> <li>• <b>Private sector</b> (or public private partnerships) should be integrated from outset rather than added later as value chain entities for goods, services, buyers, links to external markets, etc. Ethical standards important and increasing, but needs careful selection and negotiating capacity in CBFE – <i>integral element of value chain better than corporate social responsibility outside core business. Need caution where companies focused on particular product that may remove/degrade forest (e.g., oil palm)</i></li> <li>• <i>Justice institutions – if local conflict management systems fail</i></li> <li>• Capacity building for all engaged and relevant institutions important</li> </ul>
6. Forest condition	<ul style="list-style-type: none"> <li>• <b>Broad consensus that communities maintain/improve condition better than public of private sector under most observed circumstances.</b> <i>But some cases where degradation has accelerated with CBFE.</i> Sustainable extraction often better managed, recovery, patrolling, and fire protection generally improved. Legal power of exclusion critical. <i>May need large CBFE areas or cluster of adjacent CBFEs to have impact.</i> Problems arise when ambiguity over boundaries, allowed activities, role of forest officers, corruption, etc. <i>May not see improvement if condition is good or pressure is low (i.e., may be misleading success measure). Can be useful buffer zone conservation around protected areas</i></li> <li>• <b>CBFE can monitor effectively provided appropriate techniques used and capacity built</b> (<i>but what happens to data – who aggregates, ensures comparable data and analysis?</i>). Need good, cost-effective indicators and build on traditional knowledge/monitoring – though government foresters often looking for too technocratic options. Scope for development of mobile phone/internet systems – monitoring apps, Global Forest Watch, etc. (<i>especially appealing to youth</i>). <i>Monitoring needs inclusion in CBFE strategy and in management plan</i></li> <li>• Demographic factors may influence – if immigration to/near CBFE area; or emigration of young leaving insufficient labor</li> </ul>
7. Broader social benefits	<ul style="list-style-type: none"> <li>• Conserved forest itself is social benefit for goods and services</li> <li>• <b>Secure tenure</b></li> <li>• May build on or <b>create new social capital/cohesion and improved community governance systems</b>, <i>unless disruptive of existing socioeconomic systems; improved communications with other stakeholders</i></li> <li>• <b>Overall poverty reduction unlikely or little evidence, though improved income for CBFE operatives (elite capture problems, or elite creation),</b> Over long term (&gt; project cycle) overall prosperity of community may improve as a result of other social benefits and spin-off enterprises (value addition, NTFPs, crafts, small-scale credit), <i>but only for larger CBFEs (&gt; 5000 hectares, not for those in hundreds of hectares).</i> Can have negative impact on poorest if CBFE excludes access use of vital resources that poor depend on (<i>poorest tend to be invisible</i>)</li> <li>• <b>CBFE focus community-wide agreed on non-monetary benefit distribution (education, health, infrastructure, etc.) rather than distributing revenues or profits.</b> <i>Neighboring communities may also benefit from services provided</i></li> </ul>

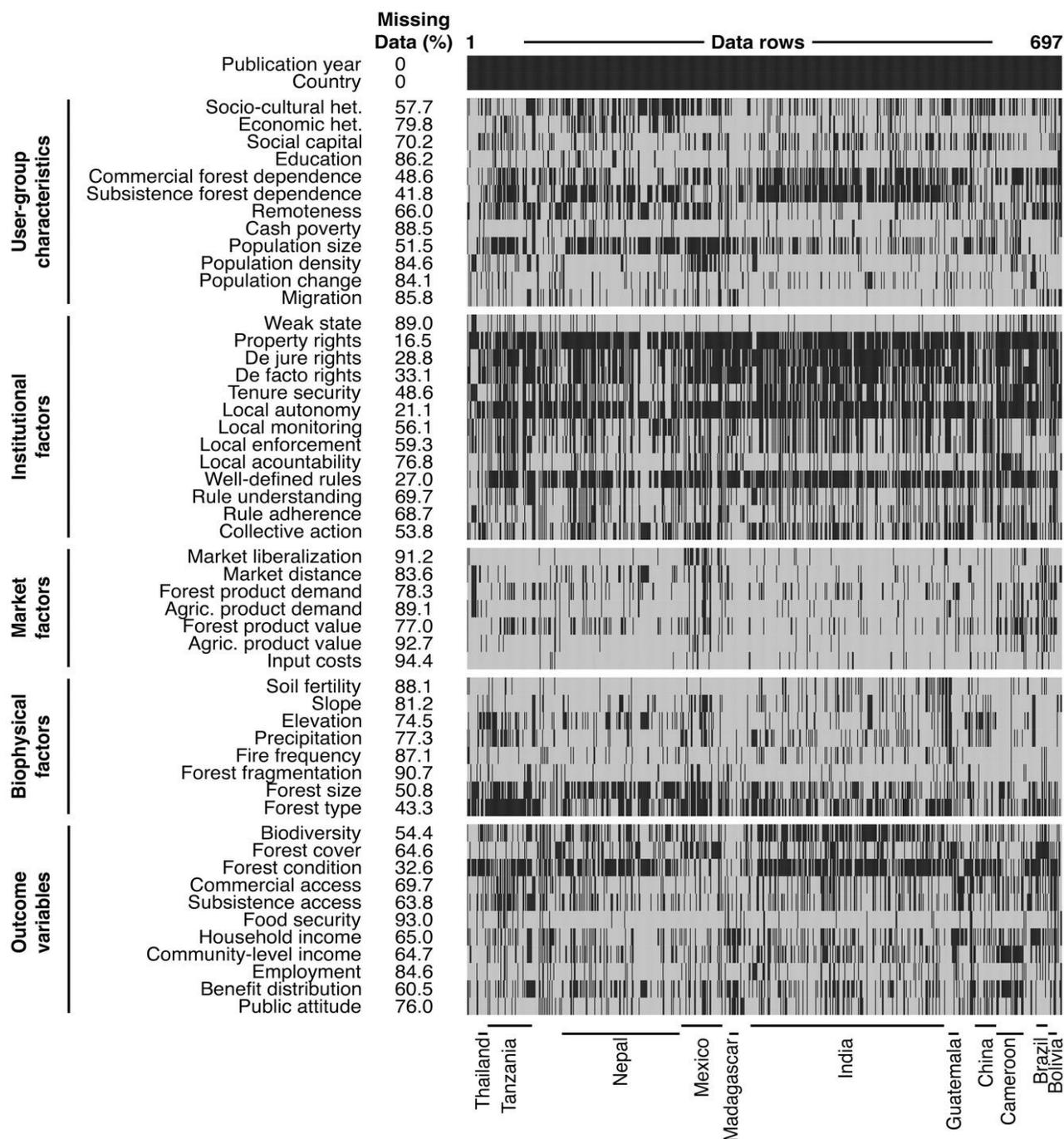
KII question (in full above)	Summary of responses
	<ul style="list-style-type: none"> <li>• <b>Gender integration poorly integrated</b> or studied (opportunities/ impediments). <i>Women tend to be sidelined especially when revenues increase. CBFE “blunt instrument” for gender – at minimum. avoid harm. If a funder objective needs to be in design rather than token or retrofitted – additional women-centered enterprises can be effective and governance mechanisms where women’s voices must be heard, etc.</i></li> <li>• Youth employment sometimes improved, but in some places urban migration stimulated by education (<i>will thriving CBFE bring them back?</i>)</li> <li>• <b>Community resilience often improved</b> in varied ways (maintaining forest resources – climate and product/services, economic diversification reducing risks), strong communities better able to resist outside pressures (government, incomers, loggers, poachers), government upheavals</li> </ul>
8. Failure	<ul style="list-style-type: none"> <li>• <b>Time-scale of proponent engagement.</b> Projects try to move too fast – need to start small (unless CBFEs well established), test, improve, expand (CLA) even if pressure to spend faster. <b>Takes decade(s)</b> for CBFE to establish and regularize operations.</li> <li>• Overambitious expectation by community, proponent – need realistic scope recognizing limitations</li> <li>• Unclear land/tree tenure</li> <li>• Swings in government policy, regulations (taxes, fees, tenure, extraction/export bans, etc.)</li> <li>• CBFEs too small (area or revenue potential), remote, or community not business oriented or receiving sufficient capacity building</li> <li>• Elite capture, other governance issues</li> <li>• Relevance of indicators to CBFE interests</li> <li>• Transaction costs overwhelm (government, donor unwilling to reduce them), <i>CBFE does not budget for recurring transactions</i></li> <li>• Insufficient emphasis on critical value chain elements (private sector engagement) outside community</li> <li>• Failure to practice CLA or find solutions <i>in situ</i></li> <li>• Divergence of proponent and community needs, interests and agenda (e.g., <i>if conservation or forest carbon hidden or overt agenda of proponent</i>)</li> </ul>
9. Donor advice (many categories above could constitute donor advice)	<ul style="list-style-type: none"> <li>• <b>Time factor; needs long-term donor commitment with understanding of exit options from outset</b> – even rattan takes 10–15 years, longer for timber</li> <li>• <b>Support critical CBFE start-up needs – capacity, infrastructure, equipment, transaction costs</b> (<i>five capitals: finance, human, social, natural, manufactured</i>). Capacity building for all engaged and relevant institutions important. Emphasize, business, market and negotiation knowledge, and skills and value addition</li> <li>• Overambitious expectation by community, proponent – need realistic scope recognizing limitations</li> <li>• Insufficient emphasis on critical value chain elements (private sector engagement) outside community – need all stakeholders and good communications from outset</li> <li>• CLA – both for internal lessons and improvement, and for changed/unforeseen circumstances</li> <li>• Divergence of proponent and community needs, interests and agenda (e.g., <i>if conservation or forest carbon hidden or overt agenda of proponent</i>)</li> <li>• <i>Emphasize social transition towards business management of common resource rather than technical capacity</i></li> <li>• <i>Need to incentivize youth for demographic sustainability (reduce emigration)</i></li> <li>• <i>If funding streams limit needed activities, ensure other partners available to fill gaps</i></li> </ul>

## Key Informants

1. John Nittler, Tetra Tech
2. David Bray, Florida International University
3. Richard Donovan, Rainforest Alliance/Smartwood
4. Diane Russell, former USAID/Forestry and Biodiversity Office
5. Lisa Korte, USAID/Liberia
6. Dan Whyner USAID/Madagascar
7. Bob Fisher, University of Sydney and University of Sunshine Coast (Tropical Forests & People Research Group)
8. Tom Blomley, Acacia Consultants
9. Peter Veit, World Resources Institute
10. Victor Hugo Gutiérrez, primary/secondary processing expert; Bolivian
11. David Llanos, Peru forester
12. Victor Merino, USAID/Peru
13. Martin Greijmans RECOFTC – Enhancing Livelihoods and Markets Program
14. Don McCubbin, USAID/Mexico
15. Gabrielle Munduku, Responsable Gestion Durable des Forets, GIZ, DRC
16. Menglim Kim, USAID/Cambodia
17. Antoine Eyebe, USAID/Democratic Republic of Congo
18. James Halperin, USAID/Indonesia.

# ANNEX 3: DATA GAPS IN COMMUNITY-BASED FOREST MANAGEMENT

Data map indicating variables extracted from 697 cases of community forestry (black, recorded data; gray, missing data). Variables are thematically grouped (user group characteristics, institutional factors, market factors, biophysical factors, and outcome variables), and data rows are grouped by countries with 10 cases or more. (Hajjar et al., 2016) Creative commons Attribution 4.0 international License. A summary of which variables are well documented and which are not is in Section 2.



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