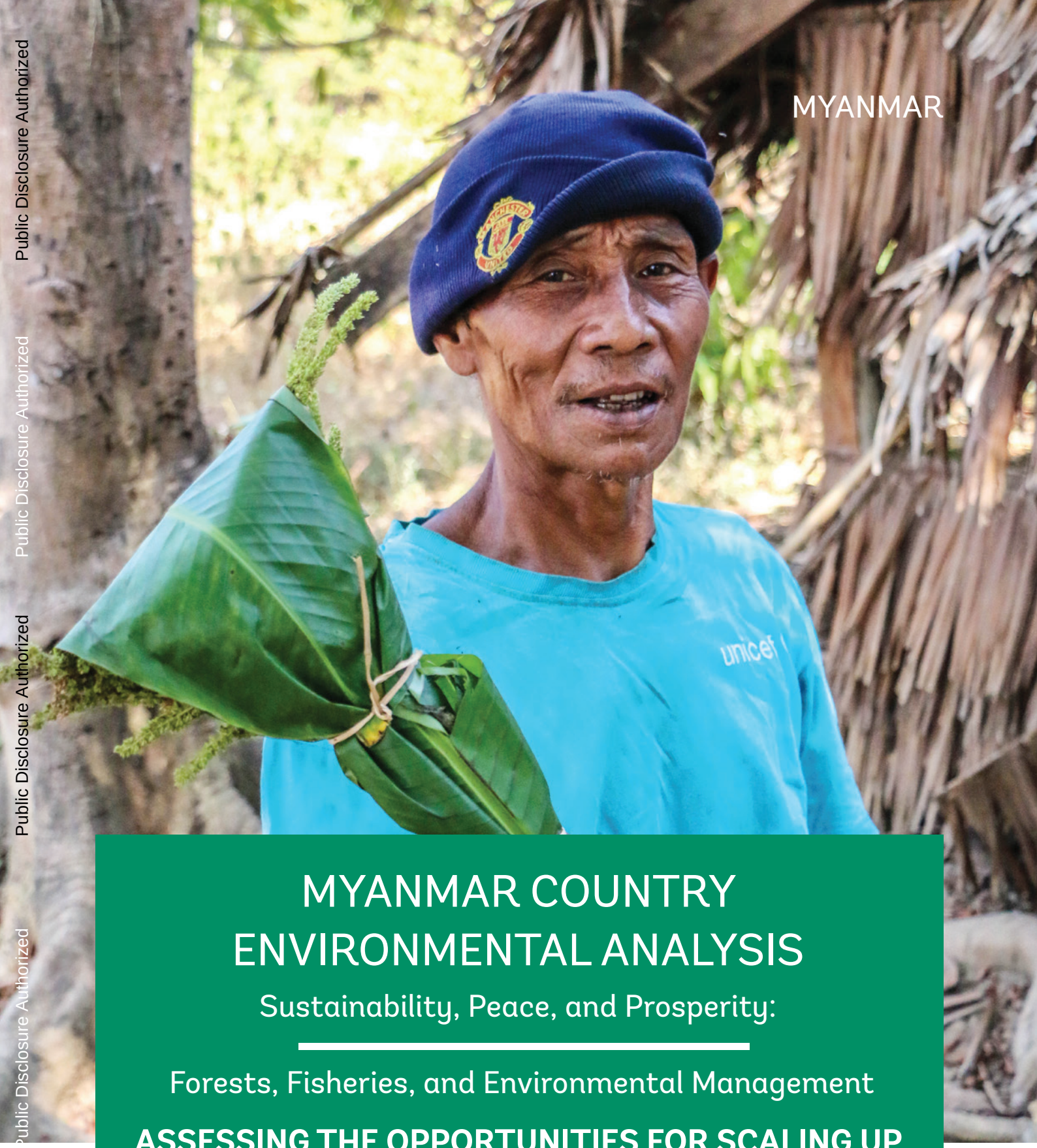

MYANMAR COUNTRY ENVIRONMENTAL ANALYSIS

Sustainability, Peace, and Prosperity:

Forests, Fisheries, and Environmental Management

ASSESSING THE OPPORTUNITIES FOR SCALING UP COMMUNITY FORESTRY AND COMMUNITY FORESTRY ENTERPRISES IN MYANMAR

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Support by

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CONTENTS

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ABBREVIATIONS AND ACRONYMS

AFoCO	Asian Forest Cooperation Organization
ALMSD	Agricultural Land Management and Statistics Department
BCR	Benefit-Cost Ratio
CDE	Center for Development and Environment (Switzerland)
CF	Community Forest(ry)
CFDF	Community Forestry Development Fund
CFDTC	Central Forestry Development Training Center
CFE	Community Forest Enterprise
CFI	Community Forestry Instruction
CFMC	Community Forestry Management Committee
CFMP	Community Forest Management Plan
CFNWG	Community Forestry National Working Group
CFU	Community Forest Unit
CFUG	Community Forestry User Group
CFWG	Community Forestry Working Group
CSO	Civil Society Organization
DZGD	Dry Zone Greening Department
ECCDI	Ecosystem Conservation and Community Development Initiative
ECODEV	Economically Progressive and Ecological Development
EFY	Elephant Foot Yam
EITI	Extractive Industries Transparency Initiative
FAO	Food and Agriculture Organization of the United Nations
FD	Forest Department
FLEGT	Forest Law Enforcement, Governance and Trade
FREDA	Forest Resource Environment Development and Conservation Association
FRI	Forest Research Institute
GIZ	German Agency for International Cooperation (Deutsche Gesellschaft fur Internationale Zusammenarbeit)
GoM	Government of Myanmar
IRR	Internal Rate of Return
ha	hectare
KNU	Karen National Union
LCWG	Land Core Working Group
LUMSWG	Land Use Multi-Sectoral Working Group
MA&D	Market Analysis and Development
MCCSAP	Myanmar Climate Change Strategy & Action Plan (2017–2030)
MOECAF	Ministry of Environmental Conservation and Forestry
MONREC	Ministry of Natural Resources and Environmental Conservation (formerly MOECAF)
MRRP	Myanmar Reforestation and Rehabilitation Program (2017-2027)
MRBEA	Myanmar Rattan and Bamboo Entrepreneurs Association
MSDP	Myanmar Sustainable Development Plan (2018-2030)
NES	National Export Strategy
NFMP	National Forest Master Plan (2001/02–2031/32)
NGO	Nongovernmental Organization
NSA	Non-state Actor
NTFP	Non-timber Forest Product
PFE	Permanent Forest Estate
PFES	Payment for Forest Ecosystem Services
RCA	Rakhine Coastal Region Conservation Association
RECOFTC	Regional Community Forestry Training Center for Asia and the Pacific (also known as The Center for People and Forests)
REDD+	Reducing Emissions from Deforestation and Forest Degradation, and the role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks
RETC	Regional Education and Training Center
SLA	Sustainable Livelihoods Approach
SME	Small and Medium Enterprise
ToR	Terms of Reference
TVM	Time Value of Money
UoF	University of Forestry
VCA	Value Chain Analysis

EXECUTIVE SUMMARY

Rural communities in Myanmar have numerous economic, environmental, and social opportunities but also face challenges as they seek a clear and solid pathway to development. The Government of Myanmar (GoM), as well as several development and donor organizations, have recognized the potential of community forestry (CF) to address many of these challenges. This recognition has taken the form of targets for CF development (for example, 2.27 million acres [919,000 hectares (ha)] of community forests by fiscal year 2030/31), legal frameworks (for example, Community Forestry Instructions [CFIs], 1995 and 2016), and programs by state and non-state actors (NSAs).

The first steps in the development of a CF program in the country started in December 1995 with the issuance of the CFI. The early years of CF, which can be defined as an emergent phase, were limited by legislative and institutional challenges. However, recent years have seen the program develop with focus moving from protection, with limited livelihood opportunities for communities with tenure to their forests, to livelihood and enterprise development, recognizing that forests will only be protected if local communities are allowed and able to tangibly benefit from their forests (for example, revised CFI, 2016 and CF Strategy Action Plan, 2018–2020).

This work examines the state of CF and community forest enterprises (CFE) in Myanmar, assessing their impacts, exploring the challenges to and opportunities for their upscaling, and from these putting forward a series of recommendations to ensure that the program sustainably delivers for forest communities as well as Myanmar as a whole.

The main findings are the following:

- Strong legal foundations provide significant opportunities to increase the impact of CF and CFE.
- Significant interest and goodwill for CF and CFE among relevant stakeholders further underlines these opportunities.
- From an economic perspective, CF and CFE have the potential for significant returns at community to national levels; there are already notable examples of this potential leading to results.
- CF development is often hampered by various issues at the landscape/community levels, including the following:
    - Limited physical assets (for example, sealed roads, access to electricity grid) restrict market opportunities for livelihood and CFE development. However, various state and non-state driven programs are currently addressing these.
    - Issues related to human assets—specifically capacity of local Forest Department (FD), civil society staff, and local community representatives—are often not at the level to support successful CF implementation. This includes awareness of rights and regulations and access to information (for example, regarding markets), as well as livelihood development opportunities through growth and marketing of non-timber forest products (NTFPs).
    - Communities are often given tenure to degraded forests that will provide limited short-term benefits from timber. Too often, the lack of short-term benefits is reducing the commitment of community forest user groups (CFUGs) to their forests.
    - Challenge of access to finance limits communities' investment in their forests and value-added options for the products and services.

- There are still gaps in formal networks that can limit learning between CFUGs; this is especially significant considering the emphasis on learning by doing among CFUGs and CFEs, as well as government, civil society, and private sector staff.

A great deal of CF in 2019 is about its potential. There is a strong legal foundation, a growing area of forests under community management, a substantial amount of goodwill, and a growing pool of skilled and knowledgeable champions ready to pass on their learning and prospective for significant economic, environmental, and social returns based on these foundations. However, further investment is required to get over the threshold from potential to tangible and sustainable impacts. Table ES1 presents a summary of the main findings and recommendations responding to these findings for CF, including CFE, to deliver for local communities and Myanmar as a whole.

Table ES1

Summary of main findings and recommendations

Finding: As of March 2019 there were 614,579 acres (248,711 ha) of CFs certified by the FD in Myanmar, covering 4,707 CFUGs (119,355 households). While progress is behind the 2030/31 target of 2.27 million acres (919,000 ha), notable headway is being made. However, little is known about the effectiveness of these CFUGs: Are they active after establishment? Are they able to operate in an equitable manner, adhering to their rules and guidelines, as well as to implement their Community Forest Management Plan (CFMP)?

A basic assessment of all CFUGs needs to be conducted followed by a more in-depth assessment of a sample of 100 CFUGs to understand the progress of CF on the ground and to identify the challenges and opportunities for moving forward, ensuring that the target area for CF is met in a sustainable manner.

Activity 1: Assessing the state of the art of CF in Myanmar	**Action:**	**Priority:**	**Time frame:**	**Responsibility:**
Objective(s): General objective is to assess the vitality of CF in Myanmar and, using participatory methods, to develop a plan to ensure effective implementation of a national CF program 1. Have basic understanding of the state of the 4,707 CFUGs in Myanmar 2. Have a more in-depth understanding of a sample of 100 CFUGs 3. Assess the impact of the CF Strategy (2018–2020) 4. Support development of a subsequent CF Strategy	1. Survey using mobile phone application to assess vitality of all CFUGs (ongoing), complementing ongoing World Bank-funded CF and CFE assessment, and would also feed into the CF database (see recommendation 3). 2. Based on the findings, conduct a more in-depth assessment of a sample of 100 CFUGs and CFEs identified in the original survey. 3. Share findings with Community Forestry Unit (CFU) and Community Forestry National Working Group (CFNWG) at appropriate milestones to support assessment of CF Strategy (2018–2020), and support design of next CF Strategy and action plan to address challenges and opportunities identified.	High Identified as a key activity in the CF Strategic Action Plan (2018–2020)	Short term (2019–2020)	• Government offices: CFU (overall lead), FD, and Forest Research Institute (FRI) • Multi-stakeholder mechanisms: CFNWG) • Civil society organizations (CSOs) (for example, RECOFTC[1] [technical support])

Finding: The legislative foundations for CF have improved greatly in recent years. However, there are numerous challenges resulting from the inconsistencies between the policies and laws, creating confusion and conflicts in their implementation. For example, for the Forest Policy (1995) which sets a target of 10% for protected area, one challenge is that those responsible (the Wildlife Conservation Division in the FD) are often failing to work with the CFU to ensure that the areas designated as protected area and CF do not overlap.

Another example includes the Vacant, Fallow and Virgin (VFV) Land Management Law (2018) under the Agriculture Land Management and Statistics Department (ALMSD) in Ministry of Agriculture, Livestock and Irrigation (MOALI) and the FD regarding establishment of Protected Public Forests being led by the FD, and agricultural land. These challenges originate from policy targets. This is a particular issue in Kachin State.

1 Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC – The Center for People and Forests).

Activity 2: Strengthening coherence across relevant laws and policies Objective: Strengthen coherence across the legislation covering land use to support efforts to develop CF in a systematic manner	**Action:** 1. Establish roundtable with representatives from all relevant land use ministries and civil society to draft terms of reference (ToR) for land use multi-sectoral working group (LUMSWG) for supporting policy coherence work. 2. Establish LUMSWG, with link to Forest Law Enforcement, Governance and Trade (FLEGT) Voluntary Partnership Agreement (VPA), REDD+[2], and Extractive Industries Transparency Initiative (EITI), and mandate to support policy coherence. 3. Implement capacity-development activities for multi-sectoral working group members to support their efforts.	**Priority:** Medium	**Time frame:** Short to long term (2019–2026)	**Responsibility:** • Relevant government ministries and departments • CSOs (for example, Land Core Working Group (LCWG)) • Food and Agriculture Organization of the United Nations (FAO)
Finding: The potential impact of CF is significant, but there are critical capacity constraints especially among community members and government staff, as well as CSOs and private sector actors. The formation of a network of CFUGs at district, regional, and national levels can help address these gaps, including through shared learning facilitated by the network. Additional benefits include the potential role of the CFUG network to provide a more coherent voice that can provide input to policy processes and to help address issues of implementation through providing inputs to the CGU and CFWG at district, regional, and national levels. The networks have the potential to be highly cost-effective, not only reflecting the fact that the foundations are in place (including some existing informal CF networks in, for example, Rakhine) but also considering their potential impacts. It is planned that the networks would be financially self-sustaining after the initial start-up period.				
Activity 3: Networking for stronger CF and CFEs Objective(s): Creation of CF networks* at district, regional/state, and national levels to 1. Facilitate learning between CFUGs; and 2. Provide a more coherent voice representing the interests of CFUGs to various bodies and mechanisms (for example, CFWG, CFU) *A CF network is a membership body comprising CFUGs	**Action:** 1. Assess existing formal and informal CF networks in the country. This should be facilitated by the CFNWG, with research conducted by FRI, with support from RECOFTC. 2. Develop ToR for networks at different scales, including agreement on representation in national-, regional/state-, and district-level Community Forestry Working Groups (CFWGs) and CFU, with input from national CFWG and support from RECOFTC. The process can involve a study tour to Nepal (and/or Thailand) for key members of national CFWG and CFU, as well as key CF leaders to understand the modalities of other CF networks. 3. Create pilot CF network in districts with stronger foundations (that is, existing networks between CFUGs, area where CFUGs are strong). Initial funding would need to come from external sources, with a plan that they would be financially self-sustainable within 3–5 years. 4. Support awareness raising in other relevant districts, as well as at regional and national levels with potential for scaling-up. 5. Create regional CF networks, again in states/regions with strong foundations. 6. Create national CF networks.	**Priority:** High Identified as a key activity in the CFI (2016) for development of CF and CFE.	**Time frame:** Short to long term Piloting (2019–2021), regional and nationwide (2020–2026)	**Responsibility:** • Government offices: CFU (overall lead), FD, and FRI • Multi-stakeholder mechanisms: CFNWG • CSOs (for example, RECOFTC [technical support])

2 Reducing Emissions from Deforestation and Forest Degradation, and the role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks.

Finding: The FD, with support of various CSOs, has implemented a capacity-development program supporting development of CF. While progress has been made, there are numerous gaps in capacity of key stakeholders at the subnational level (community, township and district levels) to support CF, especially reflecting the improved legal environment for CF and CFE development. A systematic capacity-development program, that would continue to build on the existing foundations, is required to address technical and process-oriented gaps. The foundations include a growing pool of facilitators at the local to national levels who have the technical and facilitation skills to support the implementation of a nationwide capacity-development program to address the gaps identified.				
Activity 4: Developing capacities to ensure communities can tangibly benefit from tenure to their forests Objective: Key stakeholders from government, civil society, and CFUGs have capacities to ensure that communities can tangibly benefit from tenure to their forests	**Action:** 1. Establish nationwide open access CF database, hosted by the CFU. The database would cover the fundamental components for understanding the CF program, its progress and challenges. This should be a key priority and build on the initial foundations developed by the CFU and RECOFTC. 2. Implement capacity-development program for FRI staff and researchers from the University of Forestry (UoF). The program should include developing the participants' technical knowledge and research skills. 3. Implement capacity-development program for • FD staff and other relevant government agencies. Starting with the identification of the required competencies in the development of CF and CFE, followed by systematic capacity development gap analysis for those who are mandated to be involved in both development of CF and CFE. • Cadre of CF landscape facilitators (from CSOs and the FD) who would be responsible for developing capacities of groups of CFUGs within a landscape to support their efforts to operate their CFUG, effectively, including implementation of the CFMP. 4. Develop a communication program for CF and CFE development.	**Priority:** High Capacity-development program, including CF database, identified as a key priority in the CF Strategic Plan (2018–2020)	**Time frame:** Short to long term (2019–2026)	**Responsibility:** • FD (for example, Central Forestry Development Training Center [CFDTC], CFU, FRI, Myanmar Forest School) • CFNWG • CSOs (for example, RECOFTC, Economically Progressive and Ecological Development [ECODEV]) • Asian Forest Cooperation Organization (AfoCO) - Regional Education and Training Center (RETC)

Finding: The legal foundations for livelihood development from CF, including CFE establishment, are getting stronger (including the target for establishment of 50 CFEs a year in the CF Strategy Action Plan, 2017–2020). However, CFUGs and its members (including potential entrepreneurs) have limited access to finance, especially loans to invest in their CF and value addition. For example, only 25% of rural dwelling adults have a bank account, with key challenges being accessibility of financial institutions and required documentation to open an account. As a result many turn to informal lending sources, often facing crippling interest rates.

A key opportunity provided by the current legal framework is allowing CFUGs to open institutional bank accounts and establish Community Forestry Development Funds (CFDFs) to fund the implementation of the CFMP. This vehicle for CF financing has not been fully capitalized on to date due to lack of awareness by the FD, CSOs, and communities about this provision in the law, as well as lack of Community Forestry Management Committee (CFMC) capacities in establishing and managing CFDFs.

Activity 5: Strengthening access to finance through community-led financial mechanisms Objective: Through the upscaling of CFDF mechanisms in individual CFUGs, members would have access to funds to invest in their CF management and product development.	**Action:** 1. Conduct assessment of different mechanisms that CFUGs and their members use to access funds (including micro-finance institutions) 2. Develop a guidebook (covering the different modalities) 3. Demonstrate existing CFDF modalities in seven regions in the country. 4. Develop a program for scaling up across all relevant CFUGs in the country	**Priority:** High Access to finance is a key component of the CF Strategy (2018–2020), the CFI (2016), and the SME[3] Development Law (2015)	**Time frame:** Short to medium (2019–2024)	**Responsibility:** • FD (for example, CFU) • CFNWG • Ministry of Planning and Finance • Department of Cooperative • CSOs including RECOFTC, ECODEV

Finding: Efforts to develop livelihoods and successfully establish CFE are hindered by various issues, including access to information, resources (including technology), and market. The establishment of cooperatives between CFUGs and their members including entrepreneurs can greatly facilitate the access to the resources to increase efficiency in livelihood activities, while also strengthening the negotiating position of the members as they sell their CF products and services.

Activity 6: Minimizing the risks and maximizing the opportunities through cooperatives Objective: Creating strength in numbers of CFUG/CFEs into regional and national cooperatives (that is, bamboo and rattan cooperatives) encouraging investments, mutual learning, service provision, and bargaining power with the private sector and government.	**Action:** 1. Scope the exercise of existing cooperatives (or similar setups) covering various CF products in the country. This should be led by the CFNWG, with research conducted by FRI (Year 1). 2. Survey the range of services provided by cooperative like organizations: finance, technical, organizational, and so on as well as their effectiveness. Understanding the gaps provides inputs to develop a capacity-development program. 3. Explore to what extent a cooperative-development program can be set up based on successful experiences in China (for example, bamboo in Zhejiang province). This may involve a study tour to China to learn from the experiences. 4. Establish a working group to facilitate review of the Cooperative Society Law (1992).	**Priority:** Medium Identified as a key priority in the CF Strategy (2018–2020) and the CFI (2016) for development of CFEs.	**Time frame:** Medium (2019–2024)	**Responsibility:** • FD (e.g. CFU) • SME Development Department, Ministry of Industry • CFNWG • Ministry of Planning and Finance • CSOs including RECOFTC, ECODEV

3 Small and medium enterprise.

Finding: The revised CFI (2016) and the CF Strategic Action Plan (2018–2020) highlight the importance of private sector engagement in CF, specifically forming partnerships with CFE. There is limited experience where CFUGs and the private sector are building mutually beneficial partnership models.				
Activity 7: CFEs engagement with the private sector Objective: Strengthen mutually beneficial links between CFUGs, CFE, and the private sector to support livelihood development from CF	**Action:** 1. Assess modalities in which CFUGs and CFEs interact with the private sector, ensuring the interaction is profitable for all. 2. Implement capacity-development program • For 'Market analysis and development' (MA&D) for CFUGs (potential entrepreneurs), based on the findings of assessment; and • For private sector actors that may potentially work with CFUG and CFEs. 3. Create CF product platform to facilitate connection between CFUGs, CFEs, and private sector actors.	**Priority:** High Identified as a component of the CF Strategy (2018–2020) and the CFI (2016)	**Time frame:** Medium (2019–2024)	**Responsibility:** • FD (for example, CFU) • Ministry of Planning and Finance • SME Development Department, Ministry of Industry • CSOs including Sone Sei program, Ecosystem Conservation and Community Development Initiative (ECCDI), RECOFTC • Relevant cooperatives including Myanmar Rattan and Bamboo Entrepreneurs Association (MRBEA) • Relevant private sector actors

1 BACKGROUND

1. BACKGROUND

Myanmar's forests are tremendously important for the well-being of its over 34 million rural people, especially the poor, as well as to the country's ecological integrity and economic development. Community forestry (CF) is increasingly recognized by the government, as well as civil society and development organizations, as a vehicle for protecting and sustainably managing the existing forests and achieving forest area targets and for addressing rural poverty. This is reflected in the ambitious target area for CF in the country including the National Forest Master Plan (2001/02–2030/31) (NFMP), which commits to having 2.27 million acres (919,000 ha) of CFs.

The understanding of the importance of CF has also evolved since its introduction in the country in 1995, with the Community Forestry Instructions (CFI). This evolution is of particular significance regarding livelihood development opportunities for communities with tenure to their forests. This evolution has been supported by the strengthening of the legislative foundations, coupled by increasingly systematic efforts to embed CF across land use management and governance. This has gone on against a backdrop of growth in area of forestland being classified as CFs.

With these developments, it is an opportune time to assess the progress, including impacts, of CF (and community forestry executive [CFE]) and to identify the challenges to and opportunities for its upscaling. This also recognizes the potential provided by the revised CFI (2016) for livelihood development opportunities for community forestry user groups (CFUGs)[4], including through community-based CFE development.

The assessment also addresses immediate opportunities provided by the World Bank's commitment to Myanmar, through the Myanmar Sustainable Development Plan (2018–2030) (MSDP) and the World Bank's Country Partnership Framework, which recognize the critical role of forests and natural resources in general for Myanmar's inclusive economic development. The Government of Myanmar (GoM) and the World Bank are discussing the use of concessional financing for public investments for improving forest management in general, and CF in particular.

1.1 Objectives

The objectives of this assignment are to

1. Develop, in collaboration with key stakeholders (including representatives from government, civil society, and the private sector), a set of recommendations and menu of concrete options and actions (including, tentatively, their cost, timing, and implementation responsibility) to scale up CF in Myanmar in the context of relevant opportunities found within the current legal and policy frameworks.

2. Assess the potential for scaling up CF and CFE, while considering the financial, ecological, and social viability of different enterprise opportunities.

4 CFUGs are community members who contribute to the management and directly benefit from the CF. The CFUG is formed at the establishment of the CF, though its membership can change based on the rules and regulations of the CFUG.

2 METHODOLOGY

2. METHODOLOGY

2.1 Theory of community forestry and community forest enterprise

Countries throughout the Global South are increasingly recognizing the value of CF to address environmental (for example, deforestation and forest degradation) and social (for example, poverty and weak governance) issues that are limiting efforts to achieve sustainable development. This recognition is often manifested in a CF program.

Box 1. Defining community forestry and community forest enterprise

Community forestry "refers to all aspects, initiatives, sciences, policies, institutions and processes that are intended to increase the role of local people in governing and managing forest resources. The broad definition serves to include all kinds of organizational forms under which people participate in forest management, from village-based groups to individual management. It also covers all types of activities undertaken in connection with forest or forestland, from the management of natural forests to plantations." (RECOFTC 2013).

CFE is an entity undertaking commercial exchanges or activities based on forest landscape products (that is, timber products, NTFPs, environmental services, agricultural products), overseen by a credible representative body that can claim legitimacy within a self-defining 'community' that generates and redistributes profits within that community. CFEs are different from private enterprises because their business activity is undertaken as a means of achieving community benefit, not private gain (RECOFTC and RRI 2018).

The rationale for these countries committing to CF comes from the recognition that local communities know the forests the best, depend on the forest the most, have proven to be the most effective managers, and have rights, both customary and statutory, to their forests. Furthermore, it also reflects that State efforts to manage and protect forests to effectively address environmental and social challenges were failing to have the desired impacts.

The starting point for CF is that once communities get clear rights to use, manage, and tangibly benefit from their forests, then they are encouraged to invest in these resources. One challenge in many CF programs is that the programs fail to recognize the broad consideration that *a forest that pays is a forest that stays* (healthy). Often CF programs fail to recognize this and focus on limited income opportunities. The emphasis on CFE development at the heart of CF is based on the recognition that CF members need to be able to systematically and tangibly benefit from their tenure, and CFE is the key vehicle for this. Figure 1 presents a theory of change for the theoretical development of CF and CFE, and Box 1 provides definitions of CF and CFE.

Figure 1

Steps in CF and CFE development [a]

1. CF Emergent stage	2. CF and CFE Developing Stage	3. Mature CF and CFE
1. CF policy and laws being developed, addressing forest tenure & rights (including use & management) 2. Institutions (incl. CSOs) with clear interest and mandate to support established CF (incl. CF Unit within relevant govt. dept. & multi-stakeholder CF Work Group) 3. (Potential) natural resources and their potential returns in both products and services for encouraging communities to seek tenure and invest 4. Basic understanding of markets of forest products and services among communities, CSOs and govt. offices and staff 5. Basic technology available supporting CF establishment (e.g. demarcation) and management plan development and implementation	1. CF embedded in national law, with clear tenure and rights, including basis for commercialization of CF (e.g. commercial rights). 2. CF promotion (e.g. CF network) and extension program in place. clear and equitable benefit sharing mechanisms in place 3. CFMPs being implemented prioritizing potential forest products & services recognizing market opportunities (incl. interest from private sector) 4. Increasing finance opportunities (access to credit, interest from investors (e.g. private sector)) based on CFMP and CF business plan. 5. Increased investment in and access to technology, as well as research and information and knowledge management and skills for CF establishment and livelihood development	1. Integration of CF program (including legislation) across other land use sectors (e.g. mining & agriculture) Chain of custody system for forest products to facilitate market access (e.g. certification) 2. Effective CF Federation and cooperatives in place at national and sub-national levels 3. Diverse products and services based on implementation of CFMP 4. integration in supply chain. 5. Skilled full time labor force (with clear worker rights)
Examples of impacts/outcomes: Social and economic. More inclusive decision making at national (through CFWG) and community level (CFUG management committee rules on participation) Subsistence needs of community members being met. Reduced poverty. Environmental. Clear tenure and rights encourage protection of forest resources (e.g. patrolling) leading to improved forest quality (i.e. its functions).	Examples of impacts/outcomes: Economic. Increased diversification in livelihoods, CFE establishment Environmental. Improved quality of forest resources through implementation of CFMP Social. Improved social cohesion. Increased trust and mutual understanding between and within stakeholder groups (e.g. between govt offices and local communities). Increased employment opportunities Others. Increased adpative capacity and resilience to external shocks (e.g. to climate change)	Examples of impacts/outcomes: Economic. Partnerships (e.g. through cooperattives and with private sector) results in increased sustainable investment in communities and CF (incl. in infrastructure) Social. Inclusive decision making processes and equitable benefit sharing become the norm. Little, if any, escalation in conflicts as conflict management mechanisms are effective. Overall. Sustainable management of CF

Source: Greijmans and Gritten 2015.
Note: a. Condition 1. Laws and policies, 2. Institutions, 3. Natural resources, 4. Market and finance, 5. Technology and product development.

2.2 Analytical framework

2.2.1 Sustainable livelihoods approach

The focus of the work necessitates an analytical framework that will enable assessment of the fundamental components for achieving a CF and CFE model that is worth upscaling. The issues that must be considered include governance (for example, inclusive decision making), resources (for example, human and natural resources), livelihood development opportunities (for example, market opportunities), and legislative environment (for example, clear legal mandate for CF and CFE development).

To cover these issues, the work uses the sustainable livelihoods approach (SLA) (DFID 2000) as the foundation for the assessment (Annex 1). The SLA framework is a tool that can help explore the fundamentals of CF and CFE, as it systematically describes and analyzes the main factors and issues that affect people's livelihoods, and their interaction with the CF, as well as the way in which livelihoods are constructed and how they change

over time. The approach also facilitates identification of key focus areas for strengthening and scaling up CF and CFE.

The framework examines the assets (also known as capital) communities have in place for CF and CFE development, helping determine focus areas for supporting CF communities to benefit more effectively from their CFs in terms of, for example, management and user rights and income generation (including through enterprise development). The emphasis on management and user rights is fundamental to understand the relationship that the community will have with their forest.

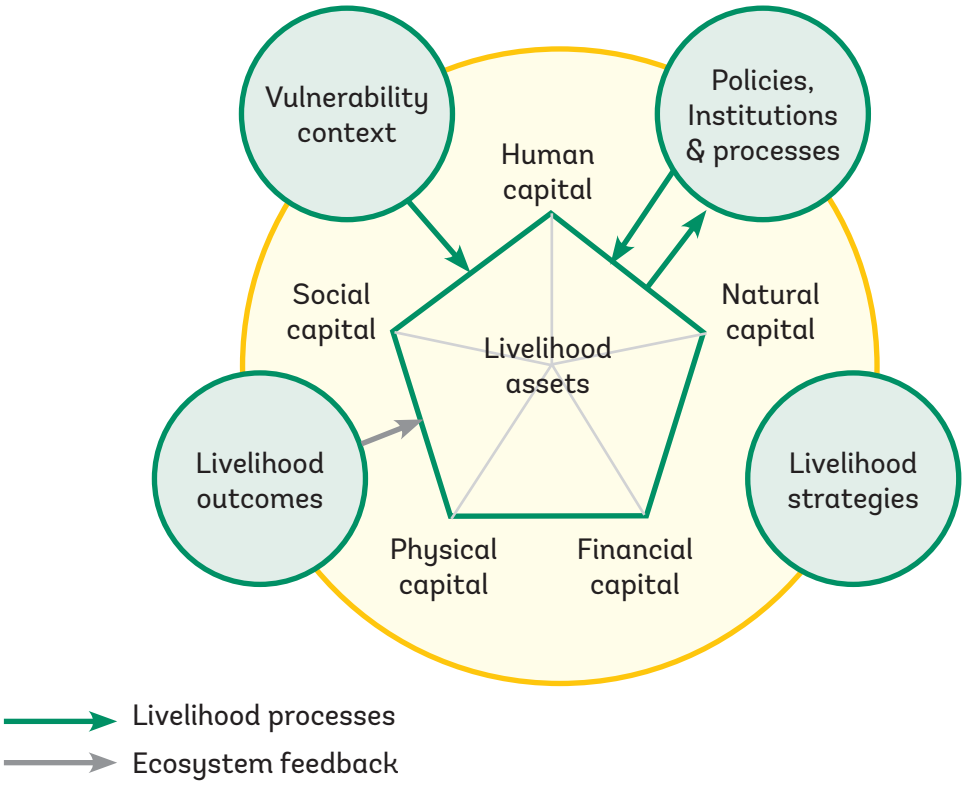
Besides considering livelihood assets, external factors such as policies, institutions, stakeholder attitudes, and processes affecting livelihood strategies need to be understood. These include the variety of 'CF models' administered under different land classifications and departments, and the scale of these different CF modalities across the country.

Similar consideration is needed for other major external factors, such as climate change and market trends, potentially affecting community and household decision making regarding how different assets are managed and utilized. For communities to effectively plan their livelihood assets and develop their livelihoods from CF, an effective enabling environment is required.

The SLA highlights the complexity of livelihood development, involving a range of sectors (micro, meso, and macro) and different institutions, and helps create an understanding so that adaptive measures can be planned (Figure 2).

Figure 2

Overview of the SLA framework



Source: DFID 2000.

The SLA also provides the basis to examine:

1. Conflict sensitivity and equity issues (social inclusion and gender equity) with regard to potential CFE development and existing CFEs;
2. Potential CF forest products, with opportunity of scalability (for example, size, sector development, poverty alleviation, employment, transparency, equity, and climate change); and
3. The local, national, and international demand for (potential) CFE development—goods and services, with particular emphasis on value added and current market channels. This is developed as an addendum to the SLA.

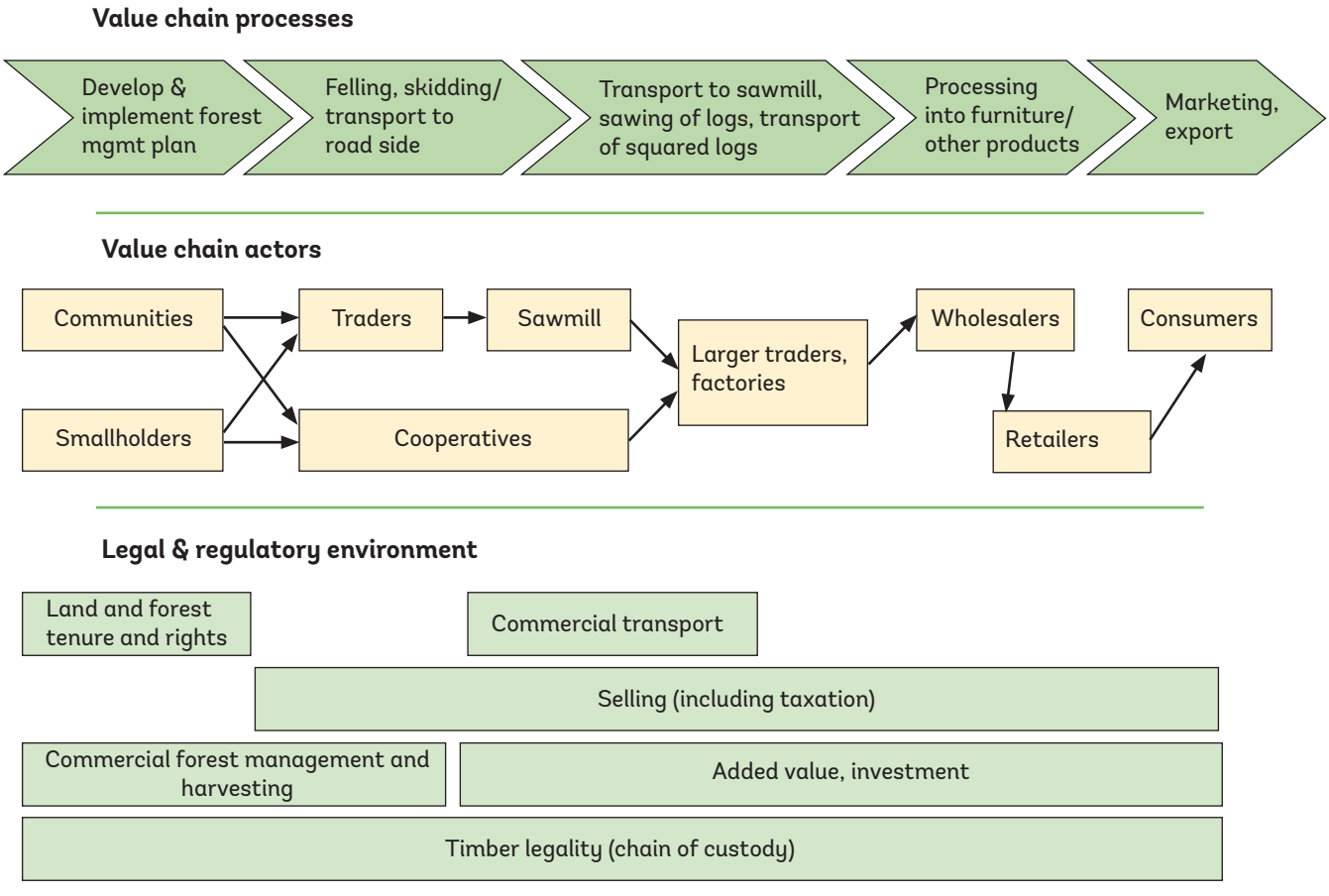
2.2.2 Value chain analysis

The work also utilizes a value chain analysis (VCA) to consider livelihood, especially CFE, development opportunities, and challenges to overcome. A key component of understanding potential CFE development starts with identifying potential products and markets and then examining the value chain from the field to the market.

A value chain describes the full range of activities required to bring a product from the CF producer to the consumer, emphasizing how value is realized and how well relations are established between the chain actors. A VCA examines who are the actors in the forest product/service chain, what activities they carry out, what their profitability levels and opportunities are, and what constraints they face in terms of regulations and investment in human capital and infrastructure (Figure 3). To some extent, the VCA brings together the data and information generated by community-level research (that is, SLA) and market analyses. It is a flexible tool useful in identifying key constraints and opportunities within a forest product value chain.

Figure 3

Overview of the timber value chain process, actors, and legislative environment



The VCA facilitates a better understanding of the dynamics of income distribution and policy environment. In this context, the VCA focuses on analyzing the impacts of key identified forest product value chains from the viewpoint of the people engaged in CF, and helps identify leverage points to make the chain work better for the CF communities and where possible more successfully benefit from markets. The research and the resulting information is critical in empowering actors in the chain, and informing regulators, policy makers, and development agencies to develop interventions that will have sustainable and equitable implications.

2.2.3 Assessing capacities

Understanding the capacities of key stakeholders to implement CF is a fundamental. In terms of assessing the capacities, one must consider that CF and CFE cannot succeed without substantial inputs from competent actors in the development and implementation, as well as monitoring and evaluation processes. The starting point of an assessment of capacities is to understand the capacities required and then examine existing capacity of key actors against their mandates and required capacities, so that the overall CF and CFE capacity-development program will be developed and implemented effectively.

Capacity development can be defined as the systematic and structured process through which individuals, organizations, and societies have opportunities to obtain, strengthen, and maintain the capabilities to determine and achieve their own development objectives over time. Capacity is about growth—growth of the individual in terms of knowledge, skills, and experience, as well as attitude and growth of the group that surrounds this individual as these skills and knowledge are passed on. From individuals and group capacity development, growth of larger institutional structures can be achieved. Capacity development is about supporting growth—within individuals, groups, and across societies as a whole to achieve desired outputs and outcomes (CADRI 2018).

To be effective, a CF/CFE program must employ holistic, integrated, and iterative approaches for capacity development that build on what already exists. Table 1 presents the basic competencies for key actors to support CF and CFE development.

Table 1

Basic competencies for key actors to support the success of CF and CFE

Key competency	Government staff	CSOs/NGOs	Private sector organization	Community member
CF policy and planning	***	***	*	***
Sustainable CF management	***	***	**	***
Forest resources assessment	***	***	**	***
Participatory action research	***	***	*	***
Socioeconomic and cultural assessment	***	***	**	**
Conflict management	***	***	**	**
Awareness, public relations, and advocacy	**	**	**	*
Individual capacity development and training	***	***	**	*
Program development and project management	***	***	***	*
Market analysis and development (MA&D)	***	***	***	**
Business development	***	***	***	**

*** = high requirement, ** = moderate requirement, * = low requirement.

2.2.4 Financial benefit-cost analysis

A benefit-cost analysis (BCA) was conducted for two CFs and one CFE (Shwe Yoma) in Gwa township, South Rakhine. This analysis calculated the present value, net present value (NPV), internal rate of return (IRR), and the benefit-cost ratio (BCR) for two CFs (Kyaung Kone and Kyauk Gyi) and the CFE (see Annex 2 for more information).

2.3 Assessment process

The assignment utilized various steps to ensure the assessment is comprehensive, including ensuring that the ways forward for scaling up CF and CFE are presented in a systematic and practical manner. This included a literature review, national- and township-level multi-stakeholder workshops, interviews with stakeholders at national and township levels, and fieldwork assessing the impacts of CF in six CFUGs in South Rakhine (Gwa and Thandwe townships) (Table 2).

The fieldwork assessing the impacts of tenure on six CFUG and their forest was conducted in February and March 2019. The baseline data were collected in January and February 2017. The CFUGs were established under the DAFNE[5] project implemented by Istituto Oikos and Rakhine Coastal Region Conservation Association (RCA). The data collected looked at impacts of CF on well-being, as well as social (for example, roles of women) and environmental (that is, forest health) changes. Data collection involved focus group discussions, social and resource mapping, well-being ranking (see Annex 3 for the criteria), and review of community and Forest Department (FD) records. In total, 74 community members from the 6 CFUGs took part in the data collection.

Additionally, a VCA was conducted focusing on two products (that is, rattan and bamboo) that are actively engaged in terms of managing its resources and trading, from CF in Gwa and Thandwe townships, Rakhine State. The VCA involved interviewing CFUG members and community forestry management committee (CFMC) representatives, traders, and factory and CFE owners.

Finally, national/subnational CF/CFE data, socioeconomic information, strategic plans for rural development, and national-level statistics were collected to estimate potential contribution of CF/CFE development to the national economy.

CBA was conducted by examining two CFUGs and one CFE in South Rakhine. The method for financial CBA is presented in Annex 2.

Table 2

Overview of fieldwork sites

	Name of CF	Township	Year of CF establish-ment	Total CF area [acres (ha)]	Size of CFUG (number of HH) 2017	Size of CFUG (number of HH) 2019	Forest type
1	Ba Win	Gwa	2016–17	122 (49.4)	35	25	Reserved forest
2	Oh Htein	Gwa	2016–17	130 (52.6)	34	21	Reserved forest
3	Kyar Nyo	Thandwe	2016–17	161 (65.2)	41	45	Reserved forest
4	Myo Kwin	Thandwe	2016–17	128 (51.8)	33	27	Reserved forest
5	Soe Bone	Thandwe	2016–17	127 (51.4)	19	29	Public land
6	Tone Taw	Thandwe	2016–17	112 (49.4)	40	42	Reserved forest

Note: HH = household.

5 Donne, Ambiente e Foreste comunitarie per la sicurezza alimentare in Rakhine (Women, Environment and Community Forests for food security in Rakhine).

3 FINDINGS AND IMPLICATIONS

3. FINDINGS AND IMPLICATIONS

3.1 Overview of community forestry in Myanmar

3.1.1 Evolution of CF

To systematically address the nationwide issue of deforestation and forest degradation (during the period 1990–2015 the forest area in the country shrank by nearly 26 percent [FAO 2015]), as well as rural poverty (in 2017 an estimated 39 percent of rural population was categorized as living in poverty [World Bank 2017]), the GoM is developing a CF program.

Box 2. Areas where CFs can be established (according to the revised CFI 2016)

According to the revised CFI, CF can be established in the following lands:

- Reserved forest, protected public forest, buffer zone in protected area, and land at the disposal of the government
- Lands under the management of government agencies; and land owned by private individuals and companies and NGOs.

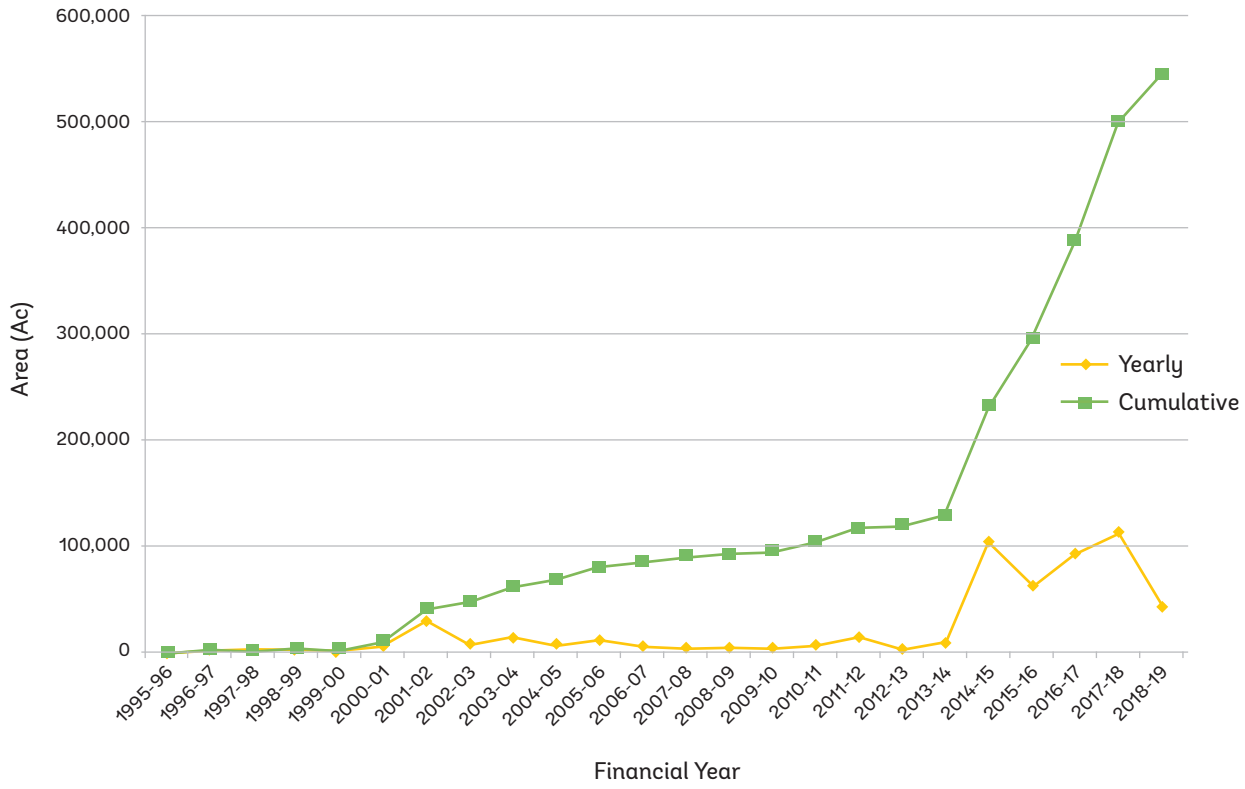
The revised CFI also states that the following areas shall be allowed for CF operations:

- Degraded forest areas where natural regeneration is difficult
- Areas with potential to address the needs of forest products and to create income opportunities
- Village fuelwood plantations established by the FD with the permission of the Director General
- Areas where it is necessary to conserve the soil and water resources and suitable to conduct CF implementation
- Natural forest areas that should be managed by local people for a particular reason
- Areas where local people traditionally and customarily managed forest resources

The CF program in Myanmar was started in 1995 with the introduction of the CFI, followed, in 2001, by the setting of a national target area for CF (2.27 million acres, 919,000 ha) in the NFMP. However, it was not until recent years that the CF program has taken off, including area of land under CF (Figure 4). As of March 2019, there were 614,579 acres (248,711 ha) of CFs certified by the FD, covering 4,707 CFUGs (119,355 households). Annex 4 provides the data for each state/region.

Figure 4

CF area (acres) in Myanmar (1995–2018)[6]



The growth of CF has partly been the result of the strengthening of its legal and institutional foundations. These foundations include the emphasis on livelihood and CFE development (for example, revision of the CFI in 2016, CF Strategy 2018–2020, and Forest Law 2018), recognition of CF in building resilience of rural communities to climate change, (Myanmar Climate Change Strategy and Action Plan, 2016–2030 [MCCSAP]), and integration in multi-sectoral land use management and governance initiatives (for example, Land Use Policy, 2016, Myanmar Reforestation and Rehabilitation Program, 2017–2027 [MRRP]).

The revision to the CFI (2016) is particularly notable as it explicitly demonstrated the evolved thinking on CF and what it should deliver—moving from subsistence needs to livelihood and enterprise development (Box 3).

6 The reporting is done according to financial year which runs from April 1 to March 31. Data provided by the CFU (October 2018).

Box 3. Evolution of CF in Myanmar—example of objectives of CF in the original CFI (1995) and its revised (2016) version, and the CF Strategy (2018–2020)

The CFI (1995) defined CF as forestry operations in which the local community is involved in

- Establishment of woodlots where there is insufficient fuelwood and other products for community use; and
- Planting of trees and exploiting of forest products to obtain food supplies, consumer products, and incomes at the farmer level.

The revised CFI (2016), however, defines CF as "all kinds of forestry operations for sustainable forest management in which local people are involved. The term covers afforestation and reforestation activities from small scale to commercial scale to create job opportunities and income; to produce fodder; to stabilize the ecosystem and to enhance environmental conditions."[7] The significance is the broad change in focus, in social and economic terms, moving from subsistence needs to livelihood and enterprise development.

The revised CFI and the CF Strategy as well as the Forestry Law (2018) have provided important opportunities to significantly increase the impact of CF in Myanmar by allowing for its commercialization. For example, the CF Strategy Action Plan sets a target to form and support 50 small-scale CF product-based enterprises a year.[8]

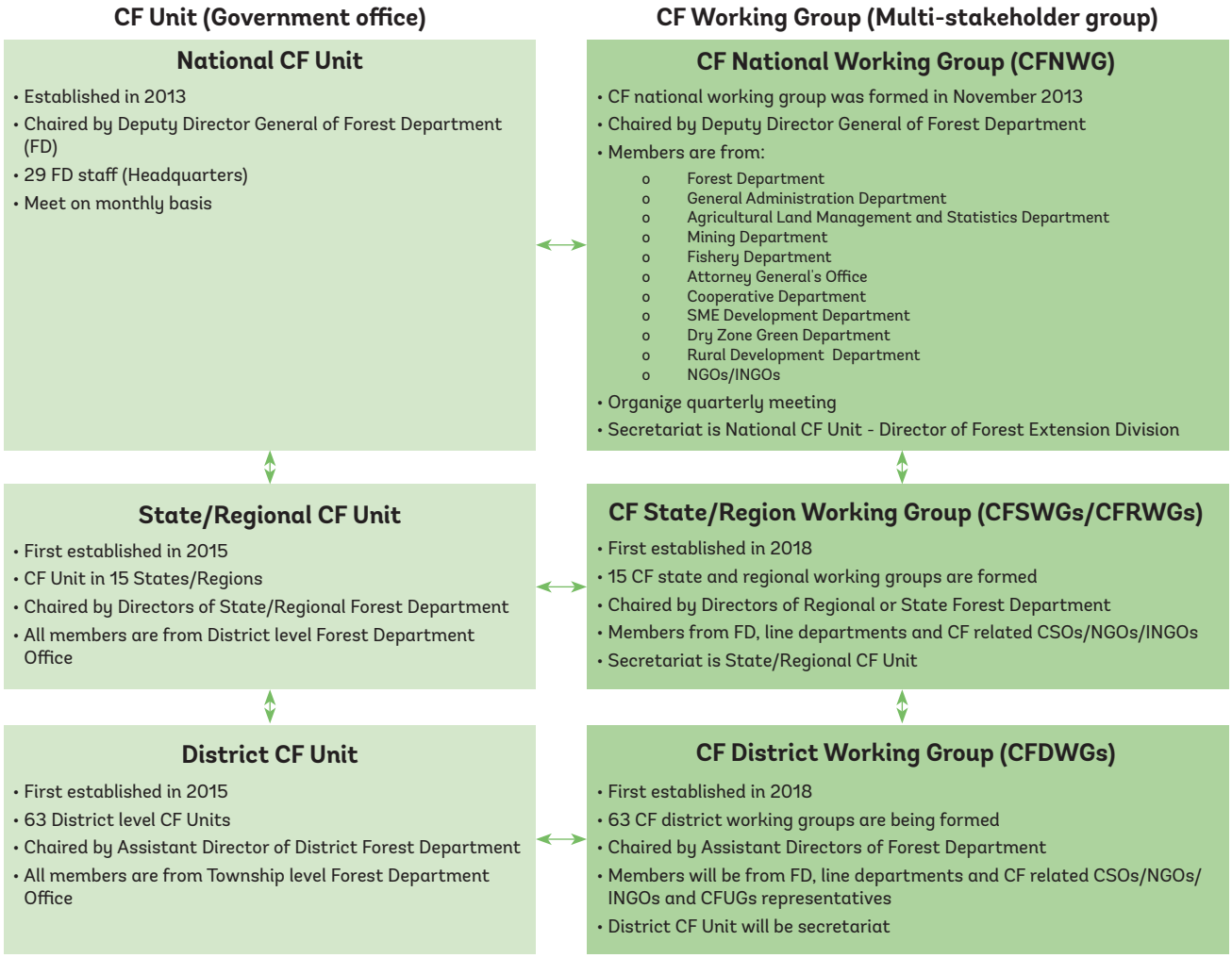
In theory, communities now have the opportunity to make substantive returns on their investments, including from the sale of timber (for example, teak and iron wood) and NTFPs and from value addition, and thus play an active role in the value chain.

The establishment of the (governmental) Community Forestry Unit (CFU)/section and the multi-stakeholder Community Forestry Working Group (CFWG) at national, regional, and township levels has greatly facilitated identifying and addressing the challenges and opportunities facing CF development in a more systematic manner (see Figure 5 for the organogram of two key institutions supporting CF). The national-level CFWG, established in 2013, has various functions including improving coordination and collaboration among its members, supporting capacity-development initiatives, and seeking financial support for scaling up CF. The working relationship between the Community Forestry National Working Group (CFNWG) and the CFU is demonstrated by the efforts to improve the legal foundations of CF in the country.

7 This definition is from the unofficial English translation of the CFI (2016).
8 This is set out in the unofficial English translation of the CF Strategy (2018–2020).

Figure 5

Governmental institutions supporting CF CFU and CFWG



When considering the development of CF in Myanmar against the steps presented in Figure 1, it is seen that in recent years CF has made notable progress moving from step 1 (emergent) to step 2 (developing). Examples include the following:

- Condition 1 (Law) has seen significant developments as demonstrated by the revision of CFI (2016), Forest Law (2018), CF Strategy (2018–2022), which provide strong legal foundations for CF and CFE development.
- Progress on Condition 2 (institutions) includes development of the CFU and CFWG at national and subnational (regional and district) levels.
- Developments on Condition 3 (natural resources) include improvements in forest quality as more CFUGs are developing and implementing their CFMPs.
- Condition 4 (market and finance) has progressed with the increasing market opportunities through piloting of CF and private sector partnerships; however, examples are still the exception rather than the norm.
- Progress on Condition 5 (technology and product development) includes such initiatives as the development of the One Map which will help address overlapping tenure issues (Ministry of Natural Resources and Environmental Conservation [MONREC] and Center for Development and Environment [CDE] 2015–2023). Additionally, the first national forest inventory is planned. However, in terms of product development there are still many issues to be addressed.

3.1.2 CF Modalities in Myanmar

Rural communities in Myanmar have been managing and benefiting from their forest resources for generations under customary tenure arrangements (MRLG 2016). The development of State-designed CF has resulted in some contradictions with customary practices, leading to different modalities of statutory CF on the ground. Broadly speaking these modalities fall into three categories (Table 3), with various implications around, for example, decision making and benefit sharing. These issues are being recognized by the State, for example, in the CF Strategic Action Plan that supports the recognition of existing informal CFs, such as Indigenous Community Conservation Areas, though there is no detail on how this will be achieved.

Table 3

Overview of the CF modalities in Myanmar

Ownership	Management	Overview
Collective	Collective	• All CFUG members have ownership right of the whole CF, and CFs are not divided into individual plots • Whenever they need to do CF activities, all CFUG members have to contribute their labor and cost • For benefit sharing, each CFUG member has rights based on how much each household contributes (labor and money). • Decisions by CFMC are made in consultation with all CFUG members • Such kind of modality is mostly found in Shan State, Chin State, and some areas of Tanintharyi Region
Individual	Collective	• Before establishing CF, local communities customarily own the land (reserve forests or protected public forest) and all community members accept the ownership; however, this is not legally recognized. In this case, when applying for CF certificate, the FD and CFMC have to recognize individual ownership, but management is under the CFMC • When conducting CF activities (for example, planting and weeding), individual CFUG members do it by themselves, but have to inform CFMC • Some CFMCs divided the whole CF among individual CFUG members to reduce the management burden • Individual CFUG members contribute some funds to be used for CFMC for attending township CF meeting organized by the FD • This CF modality is mostly found in the area of Dry Zone, Ayeyarwaddy Delta, and Bago region where shifting cultivation occurs/occurred
Collective and individual	Collective	• Some CFs have multiple purposes such as water conservation, protection for religious purposes, and communal use for church or monastery and school, and individual needs • In this case, the CFMC divided the CF into two main parts; communal and individual areas • When conducting CF activities in the communal area, each CFUG member has to participate, with benefits for communal purposes (for example, construction of school, church, or monastery) • Such kind of CF modality is found in areas where there is customary individual ownership, mostly in Ayeyarwaddy, Shan, Kachin and Tanintharyi • Compared to the first two CF modalities, this one is rare.

3.2 Legal and institutional overview of CF

3.2.1 Legal and policy framework supporting CF

Significant changes have been made to the legal and policy frameworks supporting CF in Myanmar in recent years. These changes have resulted in a progressive enabling environment for the establishment of CF, CFUGs, and CFEs in the country. It can be argued that the legal environment in Myanmar is more advanced than the legal frameworks found in other countries in Southeast Asia. With this being said, there are still gaps that need to be addressed moving forward.

In addition, efforts being made in other areas such as in the development of a Timber Legality Assurance System or timber product certification schemes should be closely monitored to ensure they do not have a constraining effect on the development of CF and CFEs.

As of January 2019, there are three legal instruments that make direct reference to and support the development of CF in Myanmar. These are the Forest Law (2018), the Conservation of Biodiversity and Protected Areas Law (2018), and the CFI (2016). See Annex 5.1 for more details. The Forest Law is notable on many levels, including the fact that it provided legal authority to the FD to support the development of CF in the country. The Forest Law explicitly recognizes the CFI, giving further weight to the commercialization of CF. The revised CFI provides a detailed framework for establishment and functioning of CF, CFUGs, and CFEs. The revision to the CFI created a more functional balance between CF for environmental services and livelihood development (Box 2).

There are a number of other laws relating to land use administration, business development, investment and finance that indirectly relate to CF that have the potential to hinder or support its development. Annex 5.2 presents some key legal instruments in this area. Notable laws and policies include the Vacant, Fallow and Virgin Lands Management Law (2018), which is primarily aimed at encouraging investment in commercial agricultural projects. While the law provides incentives for local communities to engage in CF, it is also criticized by some NGOs as potentially facilitating land grabs. Regarding the development of CFEs, the Microfinance Business Law (2011) and the SME[9] Development Law (2015) provide strong foundations but numerous issues including access to finance still need further work.

A policy framework is emerging that directly supports and guides the development of CF in the country. While more work needs to be done in some areas, what currently exists is promising and shows a firm commitment by the GoM to CF and CFEs (see Annex 5.3).

There are a number of other policies relating to covering various sectors that also indirectly relate to CF that have the potential to restrict or support its development. Annex 5.4 presents some of the key legal instruments for consideration in this regard.

In addition to the formal legal frameworks established by the GoM, land and natural resources governance also operates in relation to the several ethnic armed groups in areas of contested control. While in Myanmar, ethnic national governance is nominally mandated by the Constitution, dozens of ethnic armed groups operate separate systems of administration at the subnational level in the seven ethnic states, in other regions, and in self-administered areas in Myanmar. Many of these administrations have formal structures of land and natural resource governance which vary in practice, including the following:

- Formulation and public presentation of land policies for their ethnic national areas
- Land registration and administration efforts
- Support for community documentation efforts
- Research and demarcation of boundaries (also sometimes coordinates)
- Training and public education on land and natural resources documentation

9 Small and medium enterprise.

In these non-state actor (NSA)-administered areas, questions arise of with whom to register interests in land and natural resources. In these areas, households and communities often need registration certificates from both GoM authorities and NSAs. For example, the Karen National Union (KNU) has developed their own forest and land policies. This complicated reality on the ground can have a negative impact on the establishment of CF in these areas.

3.2.2 Institutional context of CF and CFE

The CF program envisages collaboration between various government ministries, departments and offices, local communities, and NGOs. Recently, the private sector has also been seen to be an important partner for the development of CF and CFE.

The process for establishing a CF (that is, getting its tenure certificate) relies on the township FD office, and usually a local NGO, as well as the local community itself. An assessment of the costs for establishment of 104 CFs during 2015–2018 found that it took an average of 255 days to complete the process, involving 65 working days from FD and NGO staff, with a rough cost of just over 5.75 million Kyats (roughly US$3,740). All these costs, of course, depend on various factors including the size and location of the proposed CF (Annex 6). The costs do not include staff time for FD or NGO staff. The six main steps involved in the process to get the certificate are as follows:

1. Conducting of village consultation meeting and awareness raising
2. Formation of CFUGs and CFMC
3. Identification of proposed CF area
4. Submission of application letter to township FD
5. Development of CFMP
6. Submission of CFMP to the FD and issuing of CF certificate

3.2.2.1 Governmental actors

The FD, according to the CF Strategic Action Plan (2018–2020) and the Forest Law (2018), is the main government office responsible for developing CF, including through the implementation of an action plan allocating authority and responsibilities to forest offices at different levels throughout the country. According to the action plan the CFU, housed within the FD, is tasked with preparing annual action plans and setting targets for implementation by state and regional FDs. The role of the CFNWG is to guide and assist the CFU. The CFU should regularly report the CF performance progress to the FD Director General and the CFNWG. Additional key government actors include the Dry Zone Greening Department (DZGD) whose main responsibility is to address land degradation, as well as greening, soil and water conservation, and promotion of livelihood options and fuelwood substitution in the Central Dry Zone.

3.2.2.2 Local communities

Local community members are formally involved in CF through membership of their CFUG. The CFUG is managed by the CFMC. In recent years, efforts have been made to strengthen the collaboration between CFUGs through the creation of CFUG networks. Such a network would not only facilitate learning between CFUGs but would also strengthen effective communication with government offices.

3.2.2.3 Nongovernmental organizations

Several NGOs are working to support the development of CF in the country. These include national NGOs such as Ecosystem Conservation and Community Development Initiative (ECCDI), Forest Resource Environment Development and Conservation Association (FREDA), and Economically Progressive and Ecological Development (ECODEV). Additionally, international NGOs such as RECOFTC and Istituto Oikos have also been working on supporting CF in the country for a number of several years. There are also a large number of regional, national, and international NGOs that indirectly work on supporting CF, for example, International Alert's work on conflict-sensitive forest governance has significant implications for CF development.

3.2.2.4 Donors supporting CF

Several international donors directly support CF programs in Myanmar, some—such as the Italian Agency for Development Cooperation—have been supporting CF projects for nearly 10 years. The importance of donor support is illustrated by the fact that most of the CFs that have attained statutory tenure to their forests have done so with significant support from NGOs, which are mainly funded by international donors.

3.3 Impacts of CF and CFE

This section briefly examines the impacts of CF and CFE resulting from the national CF program. These are presented in broad categories of social, livelihoods, and environment impacts. There is a great deal of overlap in these impacts, with one, such as improved forest quality, affecting income opportunities (Box 4 provides an example of the interlinkage).

Box 4. Award winning CF livelihood development model from Wundwin township, Mandalay region

Yoe Sone CF in Wundwin township (Mandalay region, Dry Zone) has been lauded as a CF that is delivering on economic, environmental, and social levels.

The CF was established in 2005, covering 550 acres (223 ha) with a CFUG of 84 households from 3 villages. Before getting tenure to their forest, the villages' forest was heavily degraded, with many people being landless and the main source of income being daily labor. A great deal of time was invested by households on fuelwood, fodder, and water collection. The situation was further hampered by impacts of climate change, with the number of rainy days declining dramatically.

Each household in the three villages pays a registration fee of 10,000 Kyats (roughly US$6.50) to join the CFUG. Each household also pays 2,000 Kyats (roughly US$1.30) a year to the cooperative saving and development fund. These funds are invested in the CF and in supporting social projects in the villages. Income from the sale of products from the CF is divided among CFUG members and is used for investment in the CF. The CFMC has clear rules and penalties to ensure protection of the resources.

The CFUG members were able to build more resilient livelihood options through agroforestry on their community forestland by growing fruit trees (mango, plums), thanaka (Limonia acidissima), and resin trees (Sterculia versicolor), together with agricultural crops (sesame, bean, cotton, and groundnut). After seven years, production from the resin trees was providing significant income (annual income of US$20,000– US$40,000) owing to good market opportunities, including exports to China and Thailand.

The CF won an Energy Globe National Award in 2017 for the quality of its livelihood development, in conjunction with effective management of its forests. The CFUG emphasis on participatory processes was also noted.

Source: UBC 2018.

3.3.1 Social impacts

CF is often advocated as an important vehicle for strengthening forest governance, through, for example, supporting efforts to have inclusive decision making, increased transparency and accountability, and helping address conflicts (FAO 2016; RECOFTC 2013). Research has found that this is the case in Myanmar with stakeholders at national, subnational, and local levels emphasizing CF's value in addressing the issues required for improved forest governance (Gritten et al. 2019; Maraseni et al. 2019).

While there has been limited research into the impacts of CF, those that have been conducted have found numerous positive outcomes as well as challenges (Box 5). On the issue of social impacts, research in Myaing township, Pakokku district, Magway region (Dry Zone) found that CF has led to increased knowledge and capacities of CF members and township-level government staff on issues revolving around land rights, with particular beneficiaries including the landless and women (Lin et al. 2019). A result of this process is increased levels of communication between different stakeholder groups at the landscape level, leading to improved mutual understanding of the opportunities in the development of CF.

Box 5. Examples of CFUG efforts to social welfare

In 2017, Soe Bon village in Thandwe township (Rakhine State), with support from Oikos, received its CF certificate for a forest area of 127 acres (51.4 ha) managed by 29 CF members.

They simultaneously set up a savings group to support enterprise and development activities in the village. The savings group *Dalia Pankalay* has 10 members of which 7 are women and manages a fund of 200,000 kyats. It is financed by memberships fees (3,000 Kyats per person), as well as monthly fees (500 Kyats per person) and returned loans compounded by an interest rate of 5 percent.

All 100 households in Soe Bon village work to produce about 20,000 'Kayin wa' bamboo mats per year. *Dalia Pankalay* sources 5,000 mats to sell in Thandwe markets, the remaining 15,000 are bought by local traders. The group also invests in rice to trade inside the village for those not able to grow enough.

For the next four years, they intend to support transport costs for schoolchildren to go school in Ngaphan village. The Chairwoman of *Dalia Pankalay* mentioned that "the savings fund from our activities, including the bamboo mat trade, is supporting local children to go to school."

Further research in 35 CFUGs, in seven regions[10] —that were established as part of a project to scale up CF in Myanmar—analyzed perceived impacts of CF on participation, livelihoods, and forest conditions. The assessment of perceptions of participation showed 89 percent of the respondents reporting improved participation of women and other marginalized groups in decision making and resource sharing as a result of inclusive community decision making through the establishment of the CFUG, and its decision-making body, the CFMC. Respondents noted that women and people from minority groups, including those from poor households, were presented with opportunities to take a leadership role in decision-making processes through their participation in CF-related meetings and activities (RECOFTC 2018).

10 Ayeyarwaddy, Bago, Chin, Magway, Rakhine, Shan, and Tanintharyi.

Box 6. Example of unclear tenure and rights undermining CF establishment

Kung Lone village (Nyaung Shwe township, Shan State) established their CF of 65 acres (26.3 ha) in the year 2000. All 95 households in the village are CFUG members. The CF area is located one and a half miles (roughly 2,400 m) from their village, closer to another village. The established CF was encroached by the neighboring villagers, leading to clearing of the land for agriculture and cutting of trees for firewood.

The CFUG did not want to get into conflict with the neighboring villagers; however, they could not prevent the outsiders from illicit cuttings and illegal land settlement. In 2005, there was a sizeable conflict with the neighbors due to encroachment in the CF area. The CFUG sought the intervention of the township FD but without success and with little recourse to address the problem through legal channels, resulting in the management committee and CFUG members losing interest in their CF.

Source: RECOFTC 2018.

There is still a danger of elite capture in decision making. This was found in the three CFUGs analyzed by Tint et al. (2011) and was also highlighted as a potential issue in other CFs in Myaing township (Magway) and Pyapon township (Ayeyarwaddy) (Feurer, Gritten and Than. 2018, Lin et al. 2019). The environment that enables elite capture arises from poor understanding and implementation of the statutory regulations, and also from customary practices that see the concentration of power at the expense of traditionally marginalized groups. As CF has developed, the township FD office and NGOs are better able to address the issues of potential elite capture, as they invest more time and resources in the first steps of CF establishment (especially step 1 - village consultation meeting and awareness raising, step 2 - formation of CFUGs and CFMC).

The assessment conducted in the six CFUGs in Rakhine found that despite their relatively young age (they were established in 2016–2017), there was a feeling of increased social cohesion as members worked together on common goals. Some of the CFUGs placed more emphasis on inclusion of marginalized groups in their governance and management than others, in some cases this was because 13 of the poorest members of one community saw little benefit from joining the CFUG or left the CFUG as they anticipated limited income, at least in the short term. They felt they needed to invest their time in activities (for example, labor) that would provide more income opportunities. In another case, there was no formal system to ensure the inclusion of marginalized group in decision making; however, the well-being status was considered in how income was distributed among CFUG members.

3.3.2 Impacts on livelihoods and well-being

3.3.2.1 Livelihood development including from CFE

A key understanding of CF is that it must support the livelihood development of its users. If not, they have little incentive to invest time and money in their forest (Gritten et al. 2015). Previously this has been highlighted as being a challenge in Myanmar, as reflected in the 1995 version of the CFI focusing on CF meeting subsistence needs. However, recent legislative developments (that is, CFI revision) should help address this.

Another challenge in this area is the degraded quality of the forest resources being handed over to communities. This is often further compounded by the capacity gaps to support implementation of CF in the field and is also proving to be a limiting factor (Feurer, Gritten, and Than 2018). However, as CF has matured so have the examples of it providing tangible livelihood benefits for CFUG members (for example, Feurer, Gritten, and Than 2018; Khaing 2018)—moving from emergent to developing stage (Figure 1).

The assessment of Feurer, Gritten and Than (2018) in Pyapon (Ayeyarwaddy) found that 91 percent of households depend on CF products to varying degrees. The community members' livelihood strategies related to natural resources (that is, farmland, home garden, and CF) are largely determined by two key assets—financial assets and road access. Non-CFUG members benefit mostly through subsistence products. The poorest households were found to get the highest income shares (36 percent) from CF. Both Feurer, Gritten, and Than (2018) and Lin et al. (2019) also emphasized the role of employment generation through CF, though they also recognized the seasonality of the work and the lack of job security.

One of the conclusions of the assessment by Feurer and colleagues was that with an inclusive process to membership, CF has the potential to reduce poverty. Both Feurer, Gritten, and Than (2018) and Lin et al. (2019) also acknowledged the importance of the improvement in the quality of the CFs, coupled with increased capacities and enterprise development opportunities. They also acknowledged that national investment in physical assets (for example, infrastructure) will likely strengthen the foundations for various areas of livelihood development, especially employment generation.

Assessment of CF projects led by development organizations has highlighted positive perception of impact of CF on livelihoods. One example is the assessment conducted by RECOFTC in 2018 where 41 percent of the respondents from 35 CFUGs (in 7 regions) stated that CF supports livelihood development, especially from NTFPs (RECOFTC 2018). This figure would be expected to grow with the increased capacities of CFUG members, improvement in forest quality (most of the CFs were degraded forests), implementation of CFMP, and increased use of Community Forestry Development Funds (CFDFs)[11] that were available in all the CFUGs analyzed to provide loans for livelihood development. The respondents felt that there would be more livelihood development opportunities as the quality of the forest improves, for example, with poles, posts, and other timber products becoming available for harvesting for commercial purposes. This potential would also increase with the improving legislative and institutional support for CFE development.

The assessment of the six CFs in South Rakhine highlighted a few issues, particularly the importance of having clear income sources from the CF (for example, from NTFPs) in the early years after establishment if the forest is degraded. There is strong expectation among members of the CFUGs for their forests to provide increasing livelihood benefits. All the communities have invested time and money in their forests, including planting and tending of seedling, patrols, firebreaks, and participation in meetings and trainings, all with the expectation of multiple benefits being derived from their forest. There was recognition of the need for continued support from NGOs to address the issues of understanding market opportunities and requirements, and the access to information, including on improved forest management practices.

The well-being ranking of CFUG members in the six CFs found progress during the period January–February 2017 to February–March 2019 (Table 4). While the assessment, which is based on criteria presented in Annex 3, showed general progress, there were notable issues in some of the communities. For example, one community experienced a significant shock when most of the households in the village were forced to relocate following the collapse of a river bank. This affected the well-being of the community members and also affected their relationship with their CF as the new location for the village was much further from their CF (also reflected in the fact that the number of CFUG members fell significantly).

The improvement in well-being of many households cannot be solely attributed to CF; other reasons include the support of development organizations (including establishment of a fund for income-generating activities). Many participants in the fieldwork recognized the importance of CF in improving their well-being (for example, NTFPs, especially from bamboo and elephant foot yam [EFY]), but emphasized expectations of increased returns in the future.

11 The CFDF is created through CFUG members paying into the fund when joining the CFUG, annual fees, and from share of profits from the sale of products from the CF.

Table 4

Overview of changes in well-being ranking of CFUG members from six communities in South Rakhine (total 189 CFUG members)

Well-being group	2017 (% of CFUG members)	2019 (% of CFUG members)
Rich	15	28
Average	30	26
Poor	47	37
Very poor	8	9

Previous research has also noted the significance of CF in supporting livelihood diversification with several implications including increasing the adaptive capacity of local community members to shocks, for example, as a result of climate change (Feurer, Gritten, and Than 2018; Khaing 2018; Lin et al. 2019). The research again emphasized the potential for livelihood diversification with the coming together of the improved quality of the natural resource assets, the improved social and human assets (for example, processes and capacities regarding inclusive decision making, effective benefit sharing, and grievance redress mechanisms), and physical resources (including through national programs on electrification).

The stronger legal and institutional foundations for enterprise development will provide a much needed boost to efforts to ensure that CFEs can play a key role in livelihood development, including through employment generation. The previous focus on CF subsistence needs with little emphasis on enterprises is reflected in the relatively few stories of success of CFE in the country (Box 7 is one example).

Box 7. NTFPs for livelihood development - example from Chin State

In southern Chin State, trade in EFY has increased dramatically over the past decade as Chinese (buyers of 85 percent of all EFY chips from Chin State) and Japanese food manufacturers have increasingly sourced Myanmar EFY for processed food manufacturing. The result is an increase in price of EFY and more Chin farmers taking up cultivation of the tuber. Today EFY is a major cash crop in this region of extreme poverty, and uptake has approached 100 percent of households in villages where it is produced. While farmers once foraged the tuber and sold it fresh, today most growers process, dry, and chip EFY themselves to capture more value in the value chain.

While EFY growers are enthusiastic about the production as a source of income, primary opportunities lie in increasing value in the value chain through product improvements, rather than capturing more of the value already existing within the value chain. Chin EFY growers may have a competitive advantage if they invest in slicers and drying materials (fishnets or plastic solar houses) to improve EFY chip quality and will also boost information sharing in the value chain, familiarize growers with buyer expectations, and demonstrate best practices for processing. In the long term, interventions may need to consider constructing local storage warehouses, processing facilities, or seed banks; developing links with the Japanese supply chain; and proving a domestic market for EFY-based processed foods.

Source: Keesecker, Gibson, and Sung 2017.

3.3.2.2 Food security

CFs can be an important tool for food security. However, the importance of wild foods (defined as foods hunted or gathered from forests or vacant land) is often ignored.

In two townships in Chin State, for example, 60 percent of all households collect wild foods in all seasons—ranging from fruits, vegetables, or honey from forest sources—while households catching or hunting animals for food was between 20.1 percent and 27.7 percent. These sources of food are typically supplementary sources in household diets, with own production of foods in fields and home gardens, as well as market purchases, having greater importance. Wild foods can enable households to eat foods that are not easily procured through markets or own production, and oftentimes, wild foods can have particular customary or cultural significance within diets (Pritchard et al. 2017) and can be a safety net during times of hardship (Lin et al. 2019).

3.3.3 Environmental impacts

There is a strong correlation between forest tenure security and forest conditions (for example, FAO 2016; Seymour, Vina, and Hite 2014), that is, if communities have strong tenure rights to their forest then they are incentivized to invest time and money in their forests, including ensuring it is protected (see Box 8 for an example).

Research from four CFs in Pyapon township (Ayeyarwaddy) found that there was significant decrease in reported illegal logging after villagers got tenure to their forests (Feurer, Gritten, and Than 2018). These findings are also replicated in 35 other CF sites in 7 regions, where perceptions of forest quality were captured in 2015–2016 before tenure was handed over, and in 2018 after tenure was granted. Perceptions of forest quality improved significantly (in 2018 83 percent respondents gave a positive response regarding perception of forest health compared to 60 percent in 2016) with common reasons being security provided by tenure, increased forest patrolling, clearly demarcated forest boundaries, and clear rules and regulations regarding forest management, including extraction (RECOFTC 2018).

Box 8. Concerted efforts to address illegal activities in a CF

In Bo Ba Kone village (Pyapon Township, Ayeyarwaddy), the CFMC has made efforts to address illegal logging in its forests and ensure participation among the CFUG members. Concerted efforts were made to ensure that the CF rules were well prepared, with emphasis on active participation of community members, and clearly documented. The records are kept by the CFMC members. Committee meetings are held on a monthly basis, with heavy penalties, including risk of expulsion from the CFMC, on poor attendance in meetings. This has resulted in a strong CFMC, leading to an active CFUG.

The strength of the CFMC is also reflected in addressing illegal logging in the area. This includes the rule that an informer can share half of the illegally cut timber if seized. Furthermore, the community post a forest sentry on a daily basis, the sentry costs 15,000 Kyats (US$9.75) per month. The penalties for encroachment include the penalty for a buffalo (trespassing or damage) of 5,000 Kyats (US$3.2) for Bo Ba Kone villagers and 10,000 Kyats (US$6.4) for people from other villages. A fine for an illegal boat for fishing or taking dani (Nypa fruticans) is 12,000 Kyats (US$7.8).

Source: RECOFTC 2018.

The fieldwork in the six CFs in South Rakhine emphasized the importance of the systems and structures created through the CF establishment leading to increased protection. The starting point is the CFMP and its implementation which includes creation of fire breaks and forest patrols to minimize illegal logging and poaching. The results in one CF were seen in the control of a fire as a result of a fire break, while two villages reported noticeable increase in wildlife sightings (including sun bears) owing to the patrolling and increased communication of penalties for those caught poaching. CFUG members across the six communities highlighted that stronger institutions (for example, CFMC) and improved social cohesion and tenure have provided tools to invest in their forest.

3.4 Opportunities and challenges facing development of CF and CFE

3.4.1 Legal and policy framework

While the legal and policy frameworks relating to CF are still being developed (for example, Forest Rules and Conservation of Biology and Protected Areas Rules), after recent efforts, the structural foundation of the current frameworks appears strong (Gritten et al. 2019).

Work still needs to be done in this area including the fact that the existing CFI needs to be updated to be fully harmonized with the amended Forest Law. Additionally, the Forest Policy is clearly in need of being updated at some point. Concerned stakeholders will also have to make sure that the development of rules and guidelines relating to the Timber Legality Assurance System and timber product certification schemes does not place undue burdens on CFUGs and CFEs. Finally, the CF Strategic Action Plan (2018–2020) needs further effort to make it actionable (see Box 9).

Box 9. Opportunities provided by the CF Strategic Action Plan

The Strategic Action Plan opens several doors to developing CF and CFE. The action plan includes specific targets for the period such as establishing 295,000 acres (119,433 ha) of CF during the three-year period and proposing a broad list of activities to strengthen CF. However, to make the action plan more actionable, various issues, broadly revolving around the lack of detail, need to be addressed. For example, the action plan sets a target for the creation of 50 CFEs a year, but how this will be monitored is not clear. There is no detail about the budget requirements and the capacity needs to address the action plan.

One issue that has come up during recent research in CF in Myanmar is that of Form 7 (Lin et al. 2019). The Form 7 certificates were created with the 2012 Farmland Law, functioning as a farmland land use certificate for people with the right to farm on a particular plot of land. There are notable differences between Form 7 and CF, including Form 7 supporting access to finance (Annex 5), providing opportunities for synergies.

3.4.2 Assets at community level for developing CF

3.4.2.1 Financial assets

Access to loans is a challenge in Myanmar as a whole, but is especially problematic in rural areas. This limited access to finance has several implications, including opportunities for value addition (Lin et al. 2019). For example, the research of Lin et al. (2019) in two CFUGs in Pakokku township found that households (and CFUG as a whole) produce only few value-added goods as they have little access to machinery. High up-front costs of buying machinery often require households to have access to loans, with the necessary collateral as well as the ability to pay back the loans with interest. This is often beyond the capacity of community members, who were also greatly concerned about impacts of climate change—particularly rainfall patterns—on their income (through labor and also from their land), which is a further deterrent to take loans.

This access is illustrated by the work of Tint et al. (2014) who found that farmers faced big hurdles in accessing credit through loans with reasonable interest. For example, Tint and colleagues estimated that rice farmers need about 120,000–180,000 Kyats per acre (48,600 [US$32.0]–72,900 [US$47.9] Kyats per ha) for a production cycle, but the government system offers just 20,000 Kyats per acre (8,100 Kyats per ha). Farmers thus have to rely on private money lenders, who often charge exploitative rates.

Savings are particularly important in the case of shocks to livelihoods, such as crop failure. Lin et al. (2019) found that only 19 percent of CFUGs members, from two CFUGs, reported having savings. Without savings, households resort to selling their livestock, trees, and other assets as a coping mechanism, and in turn run the risk of relying on high-interest loans to meet subsistence needs during socioeconomic uncertainty.

Innovative methods are being piloted in some CFUGs, including the creation of a CFDF, where CFUG members can access funds with a low rate of interest to invest in livelihood development. These funds can be used as a kind of savings and a source of low interest loans (see for example, Box 6). These CFDFs were seen by many CFUGs in the pilot sites as being valuable on many levels, and making tangible differences in livelihood development as well as developing skills vital for CFE development, such as financial management (RECOFTC 2018). The modalities of payment into the CFDF vary but many follow the model of membership fee and annual fee for CFUG members, as well as income from the low interest rate on loans provided to the CFUG members. Additionally, the pilot CFDFs also had startup funds from the NGO managing the project. Finally, some CFDFs also get funds from collection of fines relating to transgressions in the CF, including fines for illegal logging.

Oikos, in their support for livelihood development in South Rakhine, including through CF, has introduced a fund for income-generating activities. This follows the same lines as the CFDF model with the exception that the loans from the fund can be for investment into other livelihood development activities, including agriculture.

Further opportunities are found in the increased penetration of mobile smartphone technology in rural Myanmar (88.5 percent in 2017 [Htun and Bock 2017]). This provides increasing opportunities to connect rural communities to the financial system. Examples of efforts to explore these opportunities include the Livelihoods and Food Security Fund (LIFT) that has an initiative under the 'Rural women's digital finance program' to empower rural women through access to digital technology and digital and financial knowledge and skills. The program provides digital retail financial service for deposits and loans customized to the needs of poor rural women in the country. This kind of initiative complements the launching of the WAVE money digital payment system in the country in 2014 (LIFT 2018).

3.4.2.2 Human assets

Rural areas in Myanmar are experiencing increasing flows of migration, particularly younger people moving to the cities and other countries to work in the service, agriculture, and construction industries. It is estimated that over 2 million Myanmar citizens work abroad (ILO 2014). There are various implications from this, including labor

shortages and land abandonment but also increased access to funds as many migrants send a large share of their income back to their family members (Ospina, Peterson, and Crépin 2018).

Myanmar tends to score poorly on education compared to other countries in the region. Access to education is important for CF and CFE development, such as the importance of literacy and numeracy for establishment and functioning of a CFE. This is particularly a challenge for women and marginalized groups who have less access to education (Feurer, Gritten, and Than 2018; Lin et al. 2019). In many rural areas this is a challenge, for example Feurer and colleagues' work in Ayeyarwaddy Delta found that the average school leaving age of community members was between 10 and 11 years, and the nationwide average rate of primary school completion is only 54 percent (UNICEF 2014), though significant investment is being made in this area.

There are numerous State- and NSA-led initiatives that are supporting development of human assets in rural areas in Myanmar. These include the significant investment in physical assets such as mobile phone technology, expansion of sealed roads, and connecting rural communities to the electricity grid. The focus on these areas by, for example, the financial institutions—such as the World Bank, development organizations such as German Agency for International Cooperation (*Deutsche Gesellschaft fur Internationale Zusammenarbeit*, GIZ) and Pact, the private sector, including ASEA Brown Boveri (ABB), and government organizations—is having several impacts on the development of human assets including health care and education.

3.4.2.3 Natural assets

The literature examining CF in Myanmar often highlights the challenges linked to the communities often only getting tenure to degraded forests. This often disincentivizes participation of the poor, as they are unable to invest time (and money) as they get little in return in the short term. More affluent community members are more able to invest and join the CFUG, as they can manage the lack of short-term benefits (Feurer, Gritten, and Than 2018). This has implications for potential elite capture of decision making and benefit sharing from the CF.

Box 10. Forest ecosystem services from CF

CFs can deliver livelihood and enterprise development opportunities for its members through timber and NTFPs. The opportunities can also be derived through ecosystem services (for example, watershed protection and carbon sequestration [Emerton and Aung 2013]). The potential of payment for forest ecosystem services (PFES) is increasingly being recognized within the corridors of the FD (also in the CF Strategy Action Plan, 2018–2020). This is in recognition of the governance mechanisms that CF provides, as well as recognizing that communities should be compensated for their work. The challenge is to ensure that the system is in place to measure the services provided and compensate the CFUGs for the benefits they provide.

Inle Lake in Shan State provides a good example of the opportunities and challenges to develop a resilient PFES system to ensure it effectiveness. The lake, which is of great significance on national levels (it became the country's first Biosphere Reserve in 2015), experiences significant levels of degradation from unsustainable management in and around the lake. The issues include high levels of deforestation and forest degradation in the lake's watershed. The government, working with various development organizations, has various initiatives to improve management in and around the Lake, including through CF.

Notable efforts are being made to support the development of PFES in the watershed that include improved information and knowledge management (including baseline data on water quality and quantity, sedimentation rates, and levels of pollution), awareness raising on the various ecosystem services within the watershed, and promotion of initiatives to support sustainable development including exploration of development of a PFES fund created by hotels around the lake, including supporting forest protection efforts through CF. The work in the lake, building on the Inle Lake Conservation Action Plan (2015/16–2019/20), shows potential for being one of the first large-scale pilots of PFES in the country.

A further challenge is the high level of landlessness among rural communities members and the constraints this places on landless households being able to benefit from CFUG membership (for example, being able to pay the membership fee and join meetings). However, Feurer, Gritten, and Than (2018) found that CF provides significant potential to address the livelihood challenges of landless families, while Lin et al. (2019) suggested that the issue of landlessness and the danger of marginalization can be addressed through ensuring that rules and regulations of the CFUG (including the CFMC) adhere to the spirit of CF (that is, are inclusive).

NTFPs are a significant resource for rural communities, including for income, construction, food, and medicine (Annexes 7 and 8), while PFES also offers significant potential in supporting CFUGs to manage their forest sustainably (Box 10). The emphasis on NTFPs, including in the CFMP, helps address the fact that if the forests are initially in a degraded form, and if managed appropriately, the community can get products in the short term while their forest returns to health (and provides timber products for example).

3.4.2.4 Physical assets

Both Feurer, Gritten, and Than (2018) and Lin et al. (2019) emphasize the limitations of poor infrastructure for livelihood development from CF in Myanmar. For example, Lin et al. (2019) found that the two CFUGs examined were not connected to the national power grid; electricity acquired through individually owned solar panels or a village generator can only power basic devices such as televisions and mobile phones.

Lin et al. (2019) found that the recent connection of the communities to the road network enabled villagers to access markets to sell their goods at higher prices. The sealed roads encouraged community members to purchase motorized transport, particularly motorbikes, further strengthening the access to markets, and also providing opportunities beyond the market such as access to improved health care and education (human assets).

Box 11. Climate change adaptive capacity

All six CFs surveyed reported severe impacts of extreme weather events in the last 10 years. These included floods, storms, and droughts. These extreme weather events have affected the communities in significant ways including loss of life, houses, and farmland and corruption of water supply from floods and storms and loss of crops and livestock as a result of drought.

The costs of extreme weather events to households are significant when considering the investment they need to recover from, for example, loss of members and rebuilding their houses. The impacts on financial and food security through loss of livestock, and restrictions on ability to manage their natural assets resulting from corruption of the water supply or from extreme drought, are significant.

Climate change means that extreme weather events are going to occur with greater frequency in the future. Investment in developing the adaptive capacity of the communities is vital. CF can play a key role including the forest resources being a safety net. It also helps as forest management practices, including building of fire breaks and fire management patrols and addressing issues of erosions and water quality, and provides diversity and increased income opportunities (see for example, Chowdhary et al. 2017; RECOFTC 2016). The potential importance of CF for climate change adaptation is also reflected in its inclusion in the national Climate Change Strategy and Action Plan (2016–2030). Various approaches exist on assessing the vulnerability of a rural community to climate change and identifying priority interventions to build adaptive capacity. The one developed by RECOFTC (2016) has been tested in Nepal (Chowdhary et al. 2017; RECOFTC 2016) and in Dry Zone of Myanmar (Lin et al. 2019) and focuses on CF within a landscape.

3.4.2.5 Social assets

As recognized in the legal and institutional framework for Myanmar's CF program, the value of forests, and the products and services it provides, necessitates that social assets are strong, otherwise the potential for land grabbing and overexploitation is significant. On paper, CF provides various avenues to strengthen the social assets, including through facilitating the effective participation of marginalized groups and women (see Annex 1). This is recognized not only in initiatives focusing on developing CF but also areas lying outside the CF arena, such as building adaptive capacity of rural communities to climate change (MCCSAP). In practice, CF has improved the level of participation of marginalized groups, strengthened the relationship between CFUGs and FD staff, and facilitated access to information (supported by development of physical assets).

There are, of course, several challenges including how statutory requirements fit with customary practices. While some communities are more able to manage the assimilation of statutory mechanisms into customary practices (as presented in section 3.1.2), others face challenges resulting in undermining of effective traditional processes. Research by GRET (2018) in Hakha township, Chin State, found that Village Tract administrators became the ultimate representatives of the State, and its power, leading to a concern among community members of the decision-making processes that best represented their interests regarding land management.

3.4.3 CFE development

Opportunities for CFE development vary according to location, reflecting, for example, the different agro-ecological conditions, tenure rights, security, capacities, livelihood needs, and markets. A number of key forest products contribute to household income in Myanmar, with many not reported in formal statistics because they are for subsistence or are from informal or illegal production.

Annex 9 provides official data of forest products traded during the financial year 2017–18. To provide a more realistic outlook for potential CFE development other literature was consulted, based on a review of key references reflecting different ecological zones in the country (including Central Statistical Organization 2016; Feuer et al. 2018; Foppes, Aung, and Soe 2011; Keesecker, Gibson, and Sung 2017; Lin et al. 2019; Macqueen 2014; Tint et al. 2014). These give a good snapshot of some of the high-priority forest products (and services) for enterprise development, that is, bamboo, timber (including poles and posts), rattan, charcoal, and firewood. Other products are from a range of agroforestry-based systems (for example, coffee, Sterculia gum, and EFY starch) and services (for example, nature based tourism).

According to the MRRP (MONREC 2017)-designated zones, key CF/CFE products are categorized based on the Myanmar Statistical Yearbook (Central Statistical Organization 2016) forest product trade statistics and CF expert inputs. Some of these are covered in cases presented in earlier text boxes and Annexes 7 and 8. Few successful CFE cases have been documented, but with focused support they have the potential to become widespread as indicated by commitment to the CF Strategy Action Plan (also see Table 5, Annex 7, and Annex 11 for map of the zones).

Table 5

Potential commercial CF/CFE products

MRRP classification	Commercial CF/CFE product development options	Example cases for potential CFE development
Zone 1: Kayin, Tanintharyi, Mon	Ecosystem services (mangrove), rattan, bamboo, fuelwood/charcoal, timber	Bamboo (Yebyu, Shwe Toe CFE)
Zone 2: Rakhine, Ayeyarwaddy	Ecosystem services (mangrove, tourism), iron wood (*Xylia dolabriformis* or 'Pyinkado'), rattan, bamboo, fuelwood/charcoal	Rattan (Gwa, Shwe Yoma CFE). See Box 6 and RECOFTC and RRI (2018)
Zone 3: Nay Pyi Taw, Bago, Yangon	Teak, bamboo, fuelwood/charcoal	Bamboo (Pauk Kaung, Shwe Lattyar CFE)
Zone 4: Kachin, Chin, Sagaing	EFY (*Amorphophallus* sp.), teak, rattan, bamboo	Teak (Kachin) EFY (Chin) (see Box 7)
Zone 5: Magway, Mandalay	Catechu (*Acacia catechu*), agroforestry, firewood, Thanaka (*Limonia* sp.), timber, Shaw Phyu resin (*Sterculia versicolor*)	Sterculia (Mandalay)
Zone 6: Kayah, Shan	Ecosystem services (water—Inle Lake catchment), firewood, agroforestry (coffee, tea leaf, and avocado)	Mangrove (Rakhine)

3.4.3.1 Potential for CFE development

Taking a sectoral approach toward CFE development can help address the potential to roll out CFEs across multiple ecological regions, leading to scale and significant economic opportunities. Rattan and bamboo are clear product sectors providing opportunities for CFUGs to more effectively engage in livelihood and enterprise development. This is based on available trading data, extent of natural resources, and current cases of commercial initiatives including those by CFUGs. Commercializing timber by certified CFs or plantations held by communities is yet to come into full effect, due to the longer growing cycles of popular timber species such as teak and iron wood (at 10 years through commercial thinnings and 15–20 years for gaining full commercial benefits), and also due to the need to experiment with forest management practices.

Environmental services are yet to be fully recognized, but research shows that an estimated 7 trillion Kyats (US$7.3 billion) a year can be attributed to forest ecosystem services. In comparison to income earned from forest utilization, this stand services provide 5–6 times more benefits, when such services are fully recognized and costed. Table 6 provides an overview of valuation of potential forest products and services. Note that estimated value is based on the current understanding of available resources and estimates of extracted volumes (timber, NTFPs, charcoal, and firewood) whether legally or illegally sold—thus these numbers do not match with current forestry statistics.

3.4.3.2 CFE development in rattan and bamboo sector—examples from Rakhine

Value chain results from research in Rakhine of two of the main forest products sectors show some areas where lessons can be learned.

3.4.3.2.1 Rattan

Interviews with CFEs (including Shwe Yoma [see Annex 12.3] and Yoma Amway [Box 12] and Gwa-based trader (Member of Shwe Pin Le Co., Ltd[12]) provided an overview of the rattan trade from Rakhine (Figure 6).

12 http://www.shwepinle.com/.

Table 6

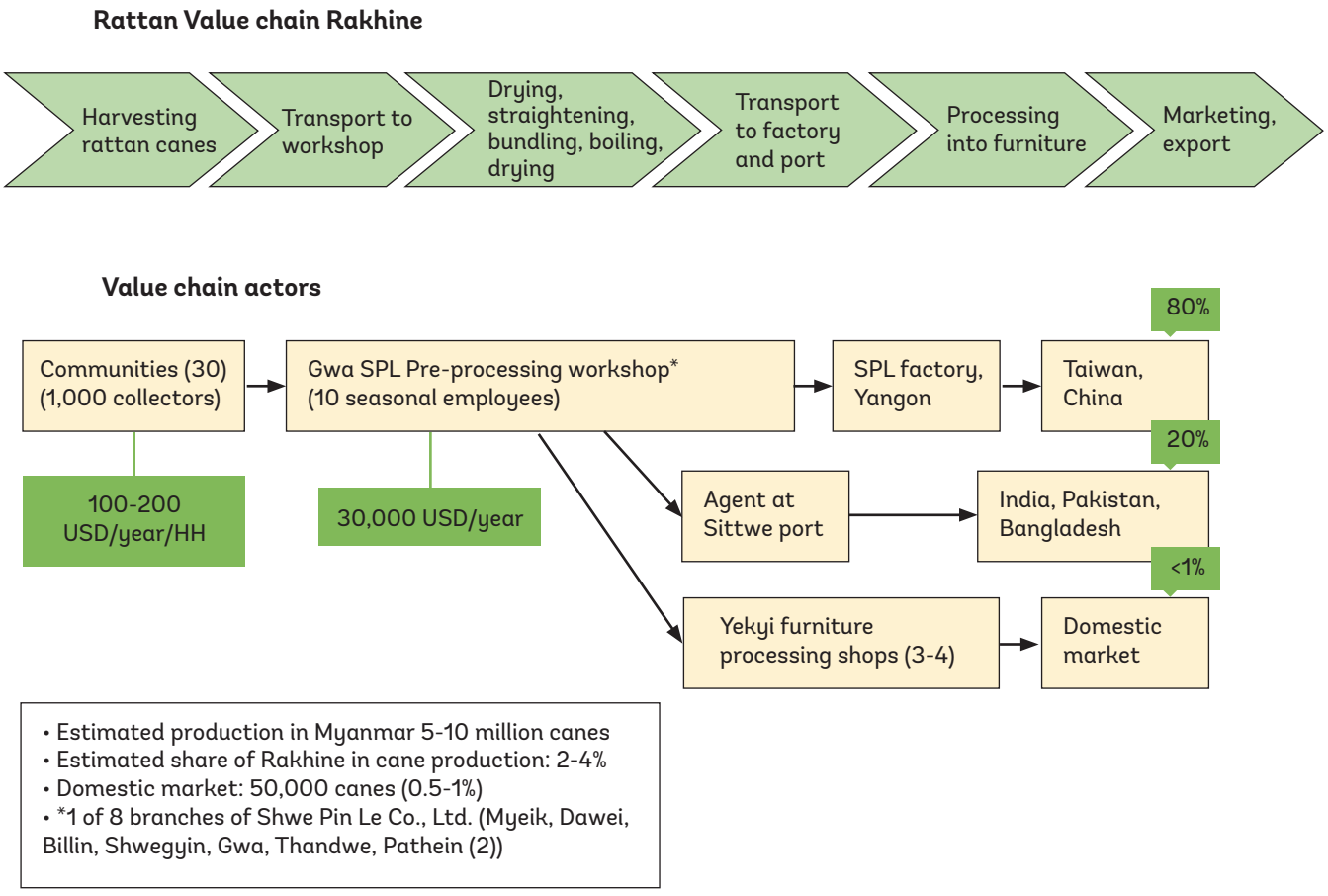
Overview of potential forest products and services and their estimated value

Forest product and services	US$ (millions per year)
Timber	580
NTFPs	500
Rattan	10
Bamboo	2
Watershed protection	700
Mangrove services	1,900
Insect pollination	2,700
Carbon sequestration	900
Tourism (nature based)	9
Total forest sector	**>7,000**

Source: BIF and MRBRA 2015; CBI 2016; Emerton and Aung 2013.

Figure 6

Overview of the rattan value chain Rakhine



The rattan value chain is complex. In recent years, a few larger traders in Gwa township have gone out of business as a result of demand from the Chinese market for raw canes falling sharply. Market stability is one of the challenges for CFEs, with CFEs often hampered by the lack the financial skills to plan for upcoming costs (that is, underestimating transport costs), inefficient processing, accepting loans not in line with profit estimates, and limited understanding of market trends. For instance, local cane prices are slowly increasing (sometimes as high as 800–900 Kyats [US$0.53–0.59] per cane) whereas international prices remain more or less the same, eating further into the margins of traders/pre-processing workshops (and CF/CFEs). The need to improve capacities in this field is obvious and close partnership with private sector provides for opportunities to address major challenges. This is also the case in reverse. One of the rattan traders interviewed as part of this work mentioned that he prefers to work with his own network of communities and collectors, which can provide better control over the required supply.

The development of CF in Rakhine is progressing well with communities getting tenure to their forests; however, there is still a noticeable information gap among key stakeholders for the development of CFE (for example, harvesting regulations as part of the CFMP), which limits interest of the private sector to work with CFUGs.

The rattan VCA provides an important lesson for developing a CFE/private sector engagement program aiming to have fully functioning CFEs effectively working with private sector, based on a set of activities:

- Conducting of detailed assessment and understanding of rattan market and of traders/pre-processing and furniture factories.
- Establishment of due diligence process for CFUGs before making decision to engage, including clarifying with private sector how CF/CFUGs operate (for example, tenure, CF regulations, and dealing with outsiders).
- Development and understanding of agreements/contracts (that is, cost-benefit and benefit sharing, timeline of agreements, and legal consequences) with backing of local government.
- Ability to manage detailed accounts of financial transactions (that is, planning costs/benefits more systematically, costing of labor [often not considered], proof and tracking advance payments, understanding margins gained in the supply chain).
- Collaboration among CFUG members/network is more effective (for example, avoided misunderstanding and conflict, financial/technical/organizational responsibilities per units/working groups, internal expertise is mobilized, collective bargaining, developing a fund mechanism to source from cash for needy members and reduce burden of seeking loans at high interest).

Box 12. Strength in numbers and learning from experience

The Yoma Amway CF Network chairman U Htay Win carefully explains and shows the different approaches they decided on before signing a rattan supplier agreement with Myanmar Rattan and Bamboo Entrepreneurs Association (MRBEA). He says they want to learn from the startup challenges faced by others including Shwe Yoma (see Annex 12.3). The consultation process took various steps, starting with the proposal from MRBEA to supply large and small rattan canes. He took this proposal to the 36 Yoma Amway committee members, who consulted with their CFUGs and after a week they decided to go for it, with small adjustments. They reduced the order to ensure they could meet the demand. They started using receipts with a government stamp to agree on orders with individual CFUG members before giving them advance payment. Different units were created, a rattan slash/slat unit to ensure quality control, an accounting team, and an audit team. The agreement also includes a clause on benefit sharing among the 18 CFUGs. To further limit potential risk, they regularly report on activities and finances to RECOFTC, MRBEA, and in regular meetings by disclosing balance sheets, to receive guidance and get buy-in.

3.4.4 Existing human capacity

Most FD Range Officers (that is, working at the township level) with a mandate to support CF and CFE, graduated from the University of Forestry (UoF), Yezin. The UoF does not have a social forestry degree program as part of its studies, though it has increasingly offered courses related to this topic (including courses on social forestry and participatory approaches).

Knowledge and skill gaps in FD staff are theoretically addressed by various institutions:

- The FRI under the FD, the Division of Research and Training, is tasked with generating research and knowledge on forest management in Myanmar.
- The Central Forestry Development Training Centre (CFDTC) in Hmawbi and sub-office in Patheingyi provide in-service training for forestry staff in various subjects including participatory forest management, agroforestry, and forest silviculture techniques.
- Under the cooperation with Asian Forest Cooperation Organization (AFoCO), the Regional Education and Training Center (RETC) was established in January 2018 next door to the CFDTC to support the forestry training program for Myanmar and Asian forestry officials. The training curriculum of RETC focuses on participatory forest management, forestry and livelihood, forest restoration, and forest fire management.
- Myanmar forest school, Pyin Oo Lwin is a vocational-level school for field officers covering basic forestry field skills.

Knowledge and skill gaps among CSOs are also quite prominent. This is hampered by the lack of a formal capacity-development program on CF sustainability and CFE for CSOs. Most CSO staff learn about CF and CFE from directly working on relevant projects. There are various types of trainings done under CF and CFE related projects. Most of these training focus more on CF establishment. Capacity-development programs on CF management and CFE development are minimum. The issue that was found in the fieldwork in Rakhine is that CFMPs are too focused on timber management rather than responding to local livelihoods (for example, NTFPs) as incentives for the community to take active role in CF management.

To meet the targets set by, for example the MRRP, the CF Strategic Action Plan, the significant gap in human capacity at all levels, national to local community, must be systematically addressed. Those competencies listed in the analytical framework must be seriously considered, recognizing the growing pool of facilitators capacitated under various programs, and the opportunities laid out in the various laws and programs.

3.5 Bringing the ingredients together—stories from two CFs and one CFE in Rakhine

An in-depth assessment of benefits and costs of the establishment and management of two CFs and a CFE in Gwa township provides an example of the potential of CF.

3.5.1 Kyaung Kone Community Forest

3.5.1.1 Background of Kyaung Kone CF

The Kyaung Kone CF committee was founded on November 4, 2015. The application to establish the CF, coming from 71 households from Kyaung Kone village, was submitted to the FD on January 19, 2016. The CF certificate for their CF was granted for 30 years on April 27, 2017. The CF comprises 314 acres (127 ha), which include 208 acres (84 ha) of natural forest and 106 acres (43 ha) for establishing plantations.

The villagers main source of income are upland crops and paddy fields (50 percent), cultivation of vegetables including chilies, corn, and legume crops (30 percent), and making bricks (20 percent).

The main species in the natural forest are iron wood (*Xylia dolabriformis*), taung thayet (*Swintonia floribunda*), wood oil tree (*Dipterocarpus dyeri*), kanyaung (*Shorea argentea*), htain pin (*Mitragyna parvifolia*), and other hardwoods. There are various NTFPs—such as bamboo shoots, bamboo, rattan, honey, orchid flowers—also available in the natural forest.

In 2018, members of the CF planted about 5,100 bamboo seedlings in 20 acres (8.1 ha), and 1,500 hardwood seedlings in 12 acres (4.9 ha). In 2019, they have also planned to plant an additional 5,100 bamboo seedlings in 20 acres and about 1,200 hardwood seedlings. Type of bamboos they have been growing are wabo wa (*Dendrocalamus brandisii*), wabo gyi (*Dendrocalamus giganteus*), waphyu wa (*Dendrocalamus membranaceus*), and myin wa (*Dendrocalamus strictus*). Major trees that they are planting are iron wood, mahogany (*Swietenia macrophylla*), and teak (*Tectona grandis*).

Villagers are allowed to collect firewood, poles and posts, and bamboos from their CF. If they harvest more than they can use, they plan to sell it to other villages. CFUG members plan to harvest bamboo shoots and bamboo from the plantation and timber from the natural forest in 2022.

The CF committee members intend to plant more bamboo and trees after consultation with the MRBEA. The CF members have also received funds from Shwe Pyae Phyo Aung Company in Gwa town with the agreement to share half of the income from the bamboo plantations. One result is that they had to change their CFMP. In addition, they planted hardwood seedlings in 6 feet × 6 feet, which is different from their planned spacing (12 feet × 12 feet) in their CFMP, to harvest poles, posts, and firewood in the short term.

3.5.1.2 Financial CBA of Kyaung Kone CF

The work in this section focuses on income (and potential) generated from CF, not considering other benefits such as sense of well-being associated with community participation. In this study, the value of such benefits is based on the time spent participating in CF activities. The value of time was estimated under two scenarios: (a) the market wage rate and (b) the opportunity cost of time. In 2019, the daily wage rate is 7,000 Kyats (US$4.60). The monetary value of time contributed to, for example, patrols, site preparation (including weeding), transportation of hardwood, and bamboo seedlings was estimated using the market wage rate. This work uses the official bank deposit rate in Myanmar (8 percent) as discount rate. The financial benefit and cost analysis for Kyaung Kone CF is conducted for 15 years.

The intangible benefits from community development activities such as participating in capacity-building activities were not included in this analysis. Capacity building represents not just costs but benefits too because it helps participants develop skills which they can apply in income generation and self-employment activities. They can invest the income generated from such activities for their family's well-being such as educating children, health management, and purchasing food stuffs. However, it is difficult to quantify the exact benefits generated given the multiplier effects of capacity-building programs and, therefore, these benefits were excluded in this study.

In terms of benefits and costs, there is clear potential for relatively substantial livelihood development from the CF. In 2018, fertilizer application and labor charges constitute 57 percent of the total costs, followed by bamboo seedlings and bamboo seedling transportation from Yangon to Gwa (11 percent), seedling transportation from Kyaung Kone to their CF (5 percent), and site preparation (5 percent).

It is projected that income will come from the sale of bamboo shoots, bamboo, timber, and poles. Income from selling bamboo from bamboo plantation, which is the foremost source of benefits, constitutes 58 percent of the total estimated benefits from the CF, followed by income from selling bamboo shoots from bamboo plantation (39 percent), and income from selling timber from the natural forest (7 percent). Financial benefit and cost analysis has suggested that the Kyaung Kone CF would be financially profitable, producing an IRR of 20.79 percent and a BCR of 1.63 at an 8 percent discount rate between 2017 and 2031. The detailed benefits and costs of CF management borne by Kyaung Kone CF members are presented in Annex 12.1.

3.5.2 Kyauk Gyi CF

3.5.2.1 Background of Kyauk Gyi CF

The Kyauk Gyi CF committee submitted the application to establish the CF with the members of 64 households from Kyauk Gyi village to the FD in January 2014. In 2019, their CF has 71 members. The CF certificate for the CF was granted for 30 years on August 30, 2014. Villagers in Kyauk Gyi earn their income from fisheries (mainly fishing crabs) (50 percent), cultivation of paddy and vegetables (25 percent), and livestock breeding (25 percent).

Kyaung Kyi CF is located in Gwa township, Thandwe district in Southern Rakhine State and it has 600 acres of mangroves. The main species in the mangrove CF are thamae gyi (*Avicennia officinalis*), byuchaehtauk apho (*Rhizophora candelaria)*, byuchaehtauk ama (*Rhizophora mucronata*), pinle ohn (*Xylocarpus granatum*), kanaso (*Heritiera fomes*), and so on. Other fishery products such as shrimp, molluscs, and clams are also available in the mangrove forest. In 2014, members of the CF planted about 800,000 mangrove seedlings in their mangrove CF. According to the CF committee members, the number of villagers who fish crabs increased from 63 percent to 77 percent between 2014 and 2016 in their village because they perceive that the number of crabs had been increased by rehabilitation and reforestation of mangrove forest. However, there can be other reasons such as the demand for crabs having increased gradually.

3.5.2.2 Financial benefit and cost analysis of Kyauk Gyi CF

The financial BCA for Kyauk Gyi CF is conducted for 10 years. The financial analysis has suggested that the CF mangrove plantation would be financially profitable, producing an IRR of 45.73 percent and a BCR of 9.14 at an 8 percent discount rate between 2013 and 2022. The income will come mainly from the sale of mangrove poles. If we consider crabs in the financial benefit and cost analysis, the BCR is 2.98. In fact, villagers rely mainly on fishing crabs for their income, as a villager can earn between 100,000 Kyats (US$65.8) and 300,000 Kyats (US$197) per month on average by selling crabs to three brokers in his/her village (see Annex 12.2 for more details on the benefit-cost analysis).

3.5.3 Shwe Yoma CFE

3.5.3.1 Background of Shwe Yoma CFE

Shwe Yoma CFE was established in June 2017 in Ya Hai Phyar village in Gwa township in Southern Rakhine State. The CFE has eight members from Ya Hai Phyar village, Ale Chaung village, and Taungnar Kone village. The focus of the CFE is on rattan, as rattans and bamboos are promising products in the current market, and there is good potential supply from the area.

They planned to produce 30,000 rattan canes during November 2017 to April 2018. However, they were late to buy rattans as they could only start buying rattans at the end of February 2018. Consequently, they could only manage to buy about 15,000 rattans in 2018, and they could not cover their cost of production. Some of challenges they faced in the first year were the following:

1. Some villagers did not deliver rattans on time even though they were paid in advance.
2. Lack of incentives from the government for CFE to work with CFUGs, for example, tax payments are the same if sourcing rattan from CFs or state-owned forests.
3. They were forced to buy rattan from other villages, which pushed up their costs.

3.5.3.2 Financial benefit and cost analysis of Shwe Yoma CFE

The financial benefit and cost analysis for the CFE is conducted for five years as the life of major accessories such as boiling tank, diesel filtering tank, and the rattan-boiling stove will last about five years. The highest share of the cost of production of rattans goes to costs of buying rattans accounting for 49 percent, followed by labor charges (7 percent) and advanced money paid to rattan collectors (7 percent) in 2018. Financial analysis has suggested that the Shwe Yoma CFE would be financially profitable, producing an IRR of 524.45 percent and a BCR of 3.10 at an 8 percent discount rate between 2018 and 2022 (see Annex 12.3 for more information).

4 RECOMMENDATIONS

4. RECOMMENDATIONS

This work examines the state of CF and CFE in Myanmar, assessing their impacts, exploring the challenges to and opportunities for their upscaling, and from these putting forward a series of recommendations to ensure that the program sustainably delivers for forest communities as well as Myanmar as a whole.

The main findings can be summarized as follows:

- Strong legal foundations are in place, providing significant opportunities to increase the impact of CF and CFE.
- Significant interest and goodwill for CF and CFE among relevant stakeholders further underlines these opportunities.
- From an economic perspective, CF and CFE have the potential for significant returns at community to national levels; there are already notable examples of this potential leading to results.
- From a social perspective, CF is playing a strong role, from national to community levels, in helping address traditional top-down and centralized decision making, giving marginalized groups a stronger voice.
- For CF to truly deliver on its potential, various issues at the landscape/community levels must be addressed, including the following:
    - Limited physical assets (for example, sealed roads, access to electricity grid) restrict market opportunities for livelihood and CFE development. However, various state and non-state driven programs are currently addressing these.
    - Issues related to human assets—specifically capacity of a local FD, civil society staff, and local community representatives—are often not at the level to support successful CF implementation. This includes awareness of rights and regulations and access to information (for example, regarding markets), as well as livelihood development opportunities through growth and marketing of NTFPs.
    - Communities are often given tenure to degraded forests that will provide limited short-term benefits from timber. Too often, the lack of short-term benefits is reducing the commitment of CFUGs to their forests.
    - Challenge of access to finance limits communities' investment in their forests and value-added options for the products and services.
    - There are still gaps in formal networks that can limit learning between CFUGs; this is especially significant considering the emphasis on learning by doing among CFUGs and CFEs, as well as government, civil society, and private sector staff.

A great deal of CF in 2019 has almost reached its potential. There is a strong legal foundation, a growing area of forests under community management, a substantial amount of goodwill, and a growing pool of skilled and knowledgeable champions ready to pass on their learning and prospective for significant economic, environmental, and social returns based on these foundations. However, further investment is required to get over the threshold from potential to tangible and sustainable impacts. Table ES1 presents a summary of the main findings and recommendations responding to these findings for CF, including CFE, to deliver for local communities and Myanmar as a whole.

To address the various challenges and opportunities identified, a systematic program should be initiated to scale up CF and CFE. The recommendations presented in Table 7 are key interventions, as entry points to further develop the program to move it further to step 2 (developing) and then to step 3 (mature).

Table 7

Summary of main findings and recommendations

Activity	Action	Priority	Time frame	Responsibility
Activity 1: Assessing the state of the art of CF in Myanmar Objective(s): General objective is to assess the vitality of CF in Myanmar and, using participatory methods, to develop a plan to ensure effective implementation of a national CF program 1. Have basic understanding of the state of the 4,707 CFUGs in Myanmar 2. Have a more in-depth understanding of a sample of 100 CFUGs 3. Assess the impact of the CF Strategy (2018–2020) 4. Support development of a subsequent CF Strategy	1. Survey using mobile phone application to assess vitality of all CFUGs (ongoing), complementing ongoing World Bank-funded CF and CFE assessment, and would also feed into the CF database (see recommendation 3). 2. Based on the findings, conduct a more in-depth assessment of a sample of 100 CFUGs and CFEs identified in the original survey. 3. Share findings with Community Forestry Unit (CFU) and Community Forestry National Working Group (CFNWG) at appropriate milestones to support assessment of CF Strategy (2018–2020), and support design of next CF Strategy and action plan to address challenges and opportunities identified.	High Identified as a key activity in the CF Strategic Action Plan (2018–2020)	Short term (2019–2020)	• Government offices: CFU (overall lead), FD, and Forest Research Institute (FRI) • Multi-stakeholder mechanisms: CFNWG) • Civil society organizations (CSOs) (for example, RECOFTC[1] [technical support])
Activity 2: Strengthening coherence across relevant laws and policies Objective: Strengthen coherence across the legislation covering land use to support efforts to develop CF in a systematic manner	1. Establish roundtable with representatives from all relevant land use ministries and civil society to draft terms of reference (ToR) for land use multi-sectoral working group (LUMSWG) for supporting policy coherence work. 2. Establish LUMSWG, with link to Forest Law Enforcement, Governance and Trade (FLEGT) Voluntary Partnership Agreement (VPA), REDD+[13],and Extractive Industries Transparency Initiative (EITI), and mandate to support policy coherence. 3. Implement capacity-development activities for multi-sectoral working group members to support their efforts.	Medium	Short to long term (2019–2026)	• Relevant government ministries and departments • CSOs (for example, Land Core Working Group (LCWG)) • Food and Agriculture Organization of the United Nations (FAO)

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Activity	Action	Priority	Time frame	Responsibility
Activity 3: Networking for stronger CF and CFEs Objective(s): Creation of CF networks* at district, regional/state, and national levels to 1. Facilitate learning between CFUGs; and 2. Provide a more coherent voice representing the interests of CFUGs to various bodies and mechanisms (for example, CFWG, CFU) *A CF network is a membership body comprising CFUGs	1. Assess existing formal and informal CF networks in the country. This should be facilitated by the CFNWG, with research conducted by FRI, with support from RECOFTC. 2. Develop ToR for networks at different scales, including agreement on representation in national-, regional/state-, and district-level Community Forestry Working Groups (CFWGs) and CFU, with input from national CFWG and support from RECOFTC. The process can involve a study tour to Nepal (and/or Thailand) for key members of national CFWG and CFU, as well as key CF leaders to understand the modalities of other CF networks. 3. Create pilot CF network in districts with stronger foundations (that is, existing networks between CFUGs, area where CFUGs are strong). Initial funding would need to come from external sources, with a plan that they would be financially self-sustainable within 3–5 years. 4. Support awareness raising in other relevant districts, as well as at regional and national levels with potential for scaling-up. 5. Create regional CF networks, again in states/regions with strong foundations. 6. Create national CF networks.	High Identified as a key activity in the CFI (2016) for development of CF and CFE.	Short to long term Piloting (2019–2021), regional and nationwide (2020–2026)	• Government offices: CFU (overall lead), FD, and FRI • Multi-stakeholder mechanisms: CFNWG • CSOs (for example, RECOFTC [technical support])

Activity	Action	Priority	Time frame	Responsibility
Activity 4: Developing capacities to ensure communities can tangibly benefit from tenure to their forests Objective: Key stakeholders from government, civil society, and CFUGs have capacities to ensure that communities can tangibly benefit from tenure to their forests	1. Establish nationwide open access CF database, hosted by the CFU. The database would cover the fundamental components for understanding the CF program, its progress and challenges. This should be a key priority and build on the initial foundations developed by the CFU and RECOFTC. 2. Implement capacity-development program for FRI staff and researchers from the University of Forestry (UoF). The program should include developing the participants' technical knowledge and research skills. 3. Implement capacity-development program for • FD staff and other relevant government agencies. Starting with the identification of the required competencies in the development of CF and CFE, followed by systematic capacity development gap analysis for those who are mandated to be involved in both development of CF and CFE. • Cadre of CF landscape facilitators (from CSOs and the FD) who would be responsible for developing capacities of groups of CFUGs within a landscape to support their efforts to operate their CFUG, effectively, including implementation of the CFMP. 4. Develop a communication program for CF and CFE development.	High Capacity-development program, including CF database, identified as a key priority in the CF Strategic Plan (2018–2020)	Short to long term (2019–2026)	• FD (for example, Central Forestry Development Training Center [CFDTC], CFU, FRI, Myanmar Forest School) • CFNWG • CSOs (for example, RECOFTC, Economically Progressive and Ecological Development [ECODEV]) • Asian Forest Cooperation Organization (AfoCO) - Regional Education and Training Center (RETC)
Activity 5: Strengthening access to finance through community-led financial mechanisms Objective: Through the upscaling of CFDF mechanisms in individual CFUGs, members would have access to funds to invest in their CF management and product development.	1. Conduct assessment of different mechanisms that CFUGs and their members use to access funds (including micro-finance institutions) 2. Develop a guidebook (covering the different modalities) 3. Demonstrate existing CFDF modalities in seven regions in the country. 4. Develop a program for scaling up across all relevant CFUGs in the country	High Access to finance is a key component of the CF Strategy (2018–2020), the CFI (2016), and the SME[3] Development Law (2015)	Short to medium (2019–2024)	• FD (for example, CFU) • CFNWG • Ministry of Planning and Finance • Department of Cooperative • CSOs including RECOFTC, ECODEV

Activity	Action	Priority	Time frame	Responsibility
Activity 6: Minimizing the risks and maximizing the opportunities through cooperatives Objective: Creating strength in numbers of CFUG/CFEs into regional and national cooperatives (that is, bamboo and rattan cooperatives) encouraging investments, mutual learning, service provision, and bargaining power with the private sector and government.	1. Scope the exercise of existing cooperatives (or similar setups) covering various CF products in the country. This should be led by the CFNWG, with research conducted by FRI (Year 1). 2. Survey the range of services provided by cooperative like organizations: finance, technical, organizational, and so on as well as their effectiveness. Understanding the gaps provides inputs to develop a capacity-development program. 3. Explore to what extent a cooperative-development program can be set up based on successful experiences in China (for example, bamboo in Zhejiang province). This may involve a study tour to China to learn from the experiences. 4. Establish a working group to facilitate review of the Cooperative Society Law (1992).	Medium Identified as a key priority in the CF Strategy (2018–2020) and the CFI (2016) for development of CFEs.	Medium (2019–2024)	• FD (e.g. CFU) • SME Development Department, Ministry of Industry • CFNWG • Ministry of Planning and Finance • CSOs including RECOFTC, ECODEV
Activity 7: CFEs engagement with the private sector Objective: Strengthen mutually beneficial links between CFUGs, CFE, and the private sector to support livelihood development from CF	1. Assess modalities in which CFUGs and CFEs interact with the private sector, ensuring the interaction is profitable for all. 2. Implement capacity-development program • For 'Market analysis and development' (MA&D) for CFUGs (potential entrepreneurs), based on the findings of assessment; and • For private sector actors that may potentially work with CFUG and CFEs. 3. Create CF product platform to facilitate connection between CFUGs, CFEs, and private sector actors.	High Identified as a component of the CF Strategy (2018–2020) and the CFI (2016)	Medium (2019–2024)	• FD (for example, CFU) • Ministry of Planning and Finance • SME Development Department, Ministry of Industry • CSOs including Sone Sei program, Ecosystem Conservation and Community Development Initiative (ECCDI), RECOFTC • Relevant cooperatives including Myanmar Rattan and Bamboo Entrepreneurs Association (MRBEA) • Relevant private sector actors

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ANNEXES

Annex 1. Assets in the SLA framework

Table A1.1

Assets (and components) and their link to CF and enterprise development

Asset	Definition and link to CF
Human	The skills and knowledge of the population is necessary for building a productive labor force. Innovations aimed at developing CF and CFE are strongly linked to the possession of human capital. • Educational attainment • Access to family/household labor • Access to health services • Nutrition
Social	This includes the resources obtained through social relations, expands people's network for social learning, and creates flexibility in response to, for example, a climate-related stress. • Access to information • Social cohesion and inclusiveness • Participation in organizations • Views and thoughts of stakeholders on CF and CFE • Relationship dynamics, including between national and local government and local communities
Natural	This refers to the resources derived from the biophysical environment. Oftentimes, natural capital may be plentiful but access to this capital is restricted through policies or management practices. • Land resources • Off-farm livelihood activities • Water resources • Livestock
Financial	This asset allows communities to develop their CF and livelihood opportunities through purchasing physical capital such as machinery. • Diversity of sources of income • Reliability of income source • Access to loans • Access to savings
Physical	This includes assets linked to infrastructure, such as roads, and telecommunications that would enable the communities to, for example, access markets. • Mobile communication • Access to electricity • Access to transport (for example, motorbike, car, and truck) • Access to all-season roads • Access to machinery

Annex 2. Financial benefit-cost analysis method

Time value method

The time value of money (TVM) draws from the idea that rational investors prefer to receive money today rather than the same amount of money in the future because of money's potential to grow in value over a given period of time. For example, money deposited into a savings account earns a certain interest rate and is therefore said to be compounding in value.

The formula of TVM is

$$FV = PV \times [1 + (i / n)]^{(n \times t)},$$

where FV = future value of money; PV = present value of money; i = interest rate; n = number of compounding periods per year; t = number of years.

Present value

Money has different value based on when it is received or paid out. Therefore, discounting future flows of costs and benefits back to the present is necessary to compare projects with costs and incomes that occur at different times in the future. In this way future sums can be converted into present value and vice versa. The present value of a future cost or benefit occurring in the future n years from now can be expressed as:

$$PV = \frac{Vn}{(1 + r)^n}$$

where PV = present value; r = discount rate; n= number of years; Vn = value in year n.

For a series of values spread over a number of years (T), it is possible to calculate the present value of all that may stand to represent the present value of all costs—PV(C) or all benefits—PV(B). This is the sum of the present values of each value, expressed as:

$$PV_{all} = \sum_{t=0}^{T} PV_n = \sum_{t=0}^{T} \frac{Vn}{(1 + r)^n}$$

The foregone income from the alternative land use would ideally be considered in the benefit-cost analyses because this represents an opportunity cost to the landholder.

From future to present (discounting)

NPV

NPV is the difference between the present value of benefits and present value of costs for a selected discount rate.

$$NPV = \frac{\sum_{n=0}^{N} B_n}{(1+i)^n} - \frac{\sum_{n=0}^{N} C_n}{(1+i)^n}$$

Where Bn= benefit in year n; Cn = cost in year n; i= annual discount rate; n= year; N = project or rotation length.

BCR

The BCR, which is the ratio of the PV of benefits to PV of costs, was computed. A BCR higher than 1 indicates that the benefits generated to households from CF management outweigh the costs borne by households.

$$B{:}C\ ratio = \frac{\sum_{n=0}^{N} B_n}{(1+i)^n} / \frac{\sum_{n=0}^{N} C_n}{(1+i)^n}$$

IRR

IRR is the actual rate at which the investor gets a return for their investment. Interpolation method will be used to calculate IRR. The meaning of interpolate is 'finding a value between two values'.

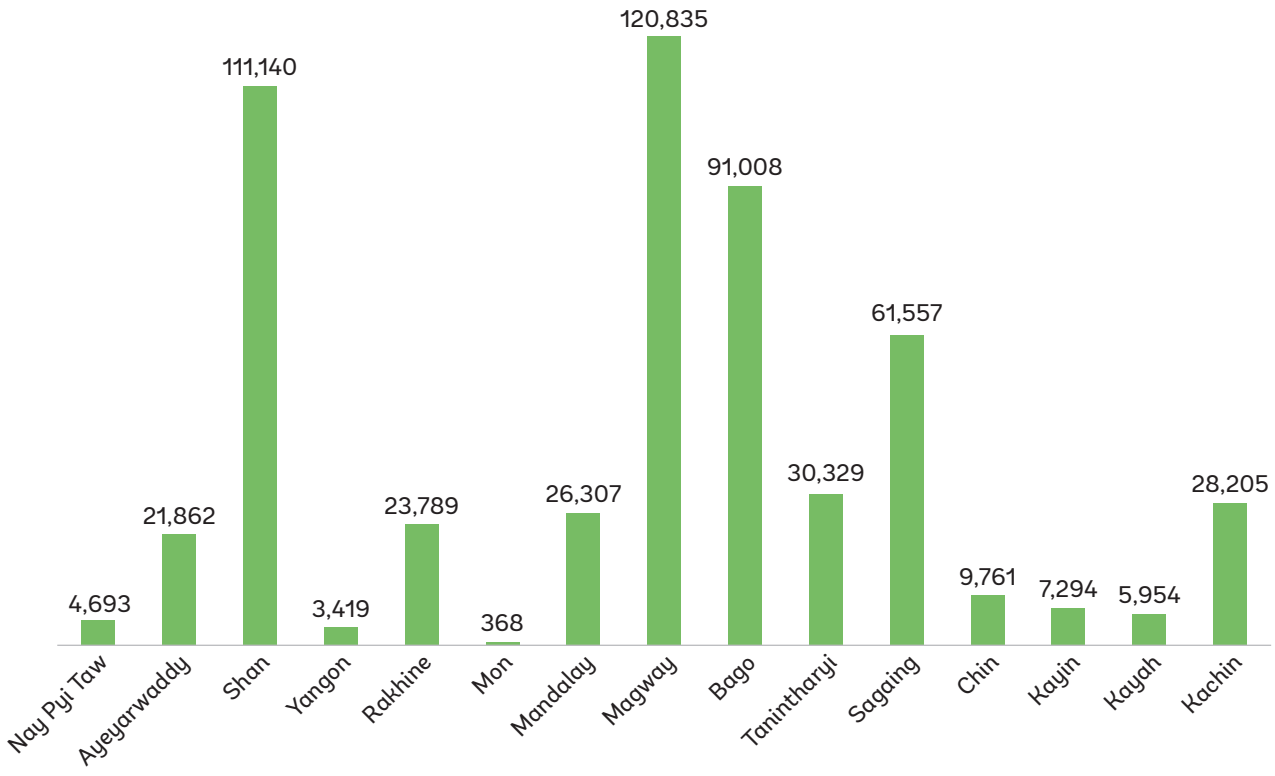
IRR= [Lower discount rate] + [Difference between the higher and lower discount rate] x [NPV at the lower discount rate]/ [NVP at low discount rate + the absolute NPV at the higher discount rate]

Annex 3. Criteria for well-being ranking for six CFUGs in South Rakhine

Well-being group	Criteria
'More or less' rich	Own 5 or more acres of paddy fields, 2 or more cows, and wooden house with zinc roof
Average	Own between 2 and 4.9 acres of paddy field, 2 cows, and wooden house with nypa roof
Poor	Own less than 2 acres paddy field, 1 cow, and wooden house with nypa roof
Very poor	No paddy land ownership, main income source is casual labor, and own a wooden or bamboo house with nypa roof

Annex 4. Total area of CF according to state/region

Total area (acres) of CFs according to state/region, as of October 2018



Data provided by CF Unit

Annex 5. Detailed overview of the legal and policy framework supporting CF

A5.1 Legal and policy framework directly supporting CF

A5.1.1 Forest Law (2018)

The Forest Law was amended by the National Assembly in September 2018. For the first time the Law provided a formal delegation of legal authority to MONREC and the FD to establish CF "carried out in accordance with the Community Forestry Instructions," thus recognizing the CFI previously endorsed by the Ministry and making them applicable to all relevant Government ministries and institutions. The Law clearly states that it is the responsibility of the FD to support and supervise CF implementation. In addition, the amendments allow for the extraction of forest produce from CF areas without the use of competitive bidding restrictions found elsewhere in the Law. The Law now also permits, with authorization from the Ministry, ownership of teak and other restricted trees in areas where CF has been established.

The Forest Law sets up a framework for the classification of lands directly related to the establishment of CF and the forest sector more broadly, which link to and overlap with land classifications found in other relevant laws, such as the Farmland and Vacant, Fallow and Virgin Lands Management Laws. The sub-classifications laid out in Articles 4 and 5 of the Law set up a mechanism for flexible zoning within the broader Reserved and Public Protected classifications, which allows for the possible production of a number of agriculture products not normally associated with traditional forest products. Emphasis is placed on terms and definitions found in primary legislation in the country, though terms frequently found in literature that are not specifically defined in primary legislation are also indicated to provide context and increase understanding. In accordance with provisions in the CFI, CF may be established in any of the following land classifications.

- Reserved Forest: The Law defines Reserved Forest as lands set aside primarily for commercial production purposes, though lands designated as Reserved Forest may also serve other important social or environmental services, such as local supply or watershed protection. Reserved Forestlands fall within the broader definition of Forest Land below.
- Protected Public Forest: The Law defines Protected Public Forest as lands set aside primarily for environmental services/conservation purposes, though Protected Public Forests may also be used for sustainable production of forest products. Protected Public Forestlands fall within the broader Forest Land definition and are considered as part of the Permanent Forest Estate.
- Forest Land: Forest Land includes areas classified as Reserved Forest and Protected Public Forest. The Law makes no mention of forest areas incorporated into the Protected Area system in accordance with the Protection of Biodiversity and Protected Areas Law. Some commentators refer to Forest Land, including forested areas incorporated into the Protected Area system, as the Permanent Forest Estate, though this term is not defined anywhere in existing law. Forest Land does not include forested land at the disposal of the Union Government, otherwise commonly referred to as Virgin Land, Unclassified Forest or Public Forest. Of these terms, only Virgin Land is legally defined within the Vacant, Fallow and Virgin Lands Management Law.
- Land at the disposal of the (Union) Government: Any land other than Forestland, with the exception of land in which a Government department, organization or any person has acquired a right of cultivation, right of possession, right of use and occupancy, beneficial enjoyment, heritable right or transferable right under any existing law. Land at the disposal of the Government is also commonly referred to as Vacant, Fallow and Virgin Land (VFV Land), or Wasteland. As mentioned above, land at the disposal of Government that is forested is otherwise commonly referred to as Virgin Land, Unclassified Forest or Public Forest. These forested lands are under a high risk of being converted to other purposes, primarily agriculture, unless reclassified to a protected status.

A5.1.2 Conservation of Biodiversity and Protected Areas Law (2018)

The Conservation of Biodiversity and Protected Areas Law was enacted by the National Assembly in May 2018. Similar to the Forest Law, this legislation makes a direct reference to the establishment of CF. The Law states that CF may be established in defined buffer zones. The Law defines buffer zones as the "designated area in or next to the border of a Protected Area defined by this law..., in which natural resource utilization and development activities can be allowed through sustainable methods without having any adverse impacts on the core zone."

A5.1.3 Community Forestry Instructions (2016)

The CFI, endorsed by the Minister of MONREC in May 2016, lays out the detailed enabling framework for the establishment and operation of CF, CFUGs and CFEs. The purpose statement contained in this legal instrument carefully balances the local livelihood development and environmental services goals of CF. The most significant change in the CFI, and the most important from a livelihoods perspective, is that they now explicitly allow for commercial operations, including timber extraction from both tree plantations and natural forests. The CFI also allows for CFUGs to sell their CF products into national and international markets, and permits the establishment of CFEs for production of value added commercial products.

It should be kept in mind that the Forest Law and CFI are flexible in the ways in which Forestland may be used for both traditional forestry and broader agriculture production purposes. As such, CF could include agroforestry (fruit and nut trees) or other plantations not normally associated with traditional forestry. This flexibility offers interesting resilient annual income possibilities. For example, a number of CFUGs spread over a large area could enter into cooperative arrangements that would reduce the costs for individual CFUGs of establishing CFEs, access to finance, purchasing production and transportation equipment, and accessing markets, while also reducing the impacts of site specific climate shocks.

As mentioned earlier, the CFI states that CF may be established in Reserve Forests, Protected Public Forests, Buffer Zones of Protected Areas and on land at the disposal of Government (VFV Land). The CFI also states that CF may be established on privately owned land, though it is not entirely clear what this means. It might mean the lease of VFV Land that has essentially been privatized, such as areas that had previously been allocated for State sponsored agriculture projects. It might also indicate that in some instances, CFE production facilities could be established on private land through some form of lease agreement. Regardless, there might be inclusive economic growth opportunities in the CFI for CF enterprise development beyond the traditional models associated with CF that should be further explored.

In terms of land tenure considerations, the CFI allows for the lease of State land by a CFUG for a period of 30 years. At the end of 30 years the lease may be renewed. The CFI emphasized that individual household plots may be allocated within the overall leasehold. While the interests in land allocated to CFUGs and individual households may be inherited, they may not otherwise be alienated through lease, mortgage or other means. While limited, the CFI established a form a secure tenure with clear immovable property rights or interests in land. It should also be noted that while the land may not be mortgaged in order to facilitate access to finance for a CFUG, any property on the land that has been leased, such as trees or production facilities, may be mortgaged. For example, a financial institution might loan funds to a CFUG through a mortgage based on the projected value of planted teak trees at the time of harvest.

The CFI defines CF as "forestry operations in which the local community itself is involved in sustainable forest management and utilization. This expression includes establishing new plantations and managing existing forests to create employment and income opportunities from subsistence level to commercial purpose; stabilize ecosystem and improve environmental status and generate food." The CFI defines CFUGs as "groups formed by households interested in forest operations of among the community living within and near forests (surrounding 5 miles) for 5 years continuously and those who really depend on the forests. However, if the forest is traditionally managed by local people according to the customs or norms or if it is approved by the District Forest Officer according to local conditions, living period and distance from forests shall not be necessary to consider." The CFI does not define CFE.

A5.2 Legal framework indirectly linked to CF

A5.2.1 Vacant, Fallow and Virgin Lands Management Law (2018)

The Vacant, Fallow and Virgin Lands Management Law was originally enacted in 2012 and amended in 2018. The Law replaced what are commonly referred to as the "Wasteland Instructions" issued in 1991. The Law is largely aimed at facilitating investment in commercial agriculture projects, though it also contains provisions for social allocation of land to smallholder farmers up to 50 acres (approximately 20 hectares), based on the ability of the farmer households to develop and manage the land. VFV Land is potentially available for CF under the CFI. For this to happen, the relevant Regional or State Committee for VFV Land would need to approve the allocation to the CFUG making the request, with the overall process being facilitated by the FD. This is most likely to happen if done in conjunction with a larger private sector agro-forestry project, where local communities households are linked through a contract farming or outgrower scheme. This approach could provide an attractive incentive for local communities to engage in CF, as it could offer a clear pathway to privatization of individual household plots allocated under a CF scheme. VFV Lands under stable agriculture production, including agro-forestry, for a period of time (over five years) can then be reclassified as Farmland, with Form 7 land use certificates being issued. Most rural households would prefer to have Form 7 land use certificates because of the greater rights conveyed by these documents (see Annex 13 for comparison of Form 7 and CF certificate).

"Virgin Land" under this Law is defined as "wild land and wild forestland, whether on which there are trees, bamboo plants or bushes growing or not, or whether topography of the land is even or not, and being the new land on which cultivation has never been done, not even once. The said expression shall include the lands of Forest Reserve, grazing ground and fishery, which have been legally nullified for the purpose of this Law and are currently not being used." Virgin Land includes areas of Reserve Forestland that the FD has decided to de-gazette for purposes stated in the VFV Lands Management Law.

A5.2.2 Farmland Law (2012)

The Farmland Law was enacted in 2012. The purpose of the law is to convey greater land tenure security and immovable property rights to farmers in the country through the issuance of Form 7 land use certificates. Farmer households that have been issued Form 7 land use certificates generally have freedom to farm their land as they wish, though permission still needs to be granted if a farmer wants to convert paddy land to other agriculture production use. Form 7 land use certificates may be bought, sold, leased, mortgaged, gifted and inherited. Farmland includes taungya (hillside cultivation land), but does not include areas classified as Forest Land under the Forest Law. Many smallholder farmers that are engaged in agriculture production on lands classified as Forest Land would like to have the lands that they farm reclassified as Farmland so they can be issued Form 7 land use certificates. As such, the individual household plot arrangements permitted with community forestry could potentially serve as a stepwise approach to ultimately reclassifying areas where individual household plots exist to Farmland, and issue Form 7 land use certificates. Using such a stepwise approach might be a useful mechanism for incentivizing CF for rural communities in certain areas where it makes sense to do so.

A5.2.3 Land Acquisition Act (1894)

The currently existing Land Acquisition Act dates back to 1894, and lays out the general rules and procedures by which the State may acquire interests in property for a public purpose. The Law requires that compensation be paid for loss of property so acquired. There had previously been concern in years past that an acquisition of CF land property would not be eligible for such compensation due to the fact that CF was not formally recognized within the legal framework enacted by the National Assembly. With enactment of the amended Forest Law in 2018, this issue has been resolved. In addition, the CFI makes it clear that compensation is not to be paid just for the value of the land itself, but also for the value of the timber and other crops that are growing on the land.

A5.2.4 Investment Law (2016)

The new Investment Law came into effect in 2016, and covers both domestic and foreign investments. The Law and its implementing regulations/notifications outlines areas of investment where there are restrictions, such as investments that impact on the culture and customs of ethnic groups, and areas that are promoted, such as agriculture based industries. The Law offers international investors with numerous tax exemptions and relief, the most important of which are corporate tax exemptions that are based on where investments are actually made. Investments made in least developed regions receive a 7 year exemption, moderately developed regions receive a 5 year exemption, and adequately developed regions receive a 3 year exemption.

A5.2.5 Microfinance Business Law (2011)

The Microfinance Business Law was enacted in 2011. It sets up the legal framework for the establishment and operation of domestic and foreign microfinance institutions in the country. The objectives of the law include improving the economic conditions of the poor, create job opportunities, encourage the emergence of small scale businesses and create cottage based industries and to obtain and distribute technologies from local and abroad. Without access to such micro-finance institutions, many rural populations and entrepreneurs would not have access to finance, but would have to rely on unregulated loan sharks. The existence of microfinance institutions are important for the establishment of CFEs, as this means they can access, depending on the availability in a particular area, the financial services that microfinance institutions provide to their customers. These services include credit, savings deposits, remittance services, insurance services, the ability to borrow locally and from abroad and other financial services.

A5.2.6 Small and Medium Enterprises Development Law (2015)

The Small and Medium Enterprise (SME) Development Law was enacted in 2015 with the objectives of supporting SMEs in the country through access to technical information, access to markets, ease of establishing businesses and providing direct financial assistance. The financial assistance mechanism in the Law is primarily focused on the SME Central Committee encouraging and facilitating banks and microfinance institutions to better service SMEs in the country. The Law also outlines the provisions for the establishment of a SME Development Fund and fund board, which could provide low interest loans and grants to SMEs. The SME Development Fund is to coordinate with the Ministry of Finance, the Central Bank and international donors in order to facilitate successful implementation of the fund.

The Law envisions the establishment of agency offices at the State and Regional level of the country to provide technical and other assistance to SMEs. Within these agency offices, one-stop administrative service teams are to be established to facilitate the legal registration of SMEs. The agency offices are also to coordinate with relevant departments and organizations to provide SMEs with tax exemptions and relief.

A5.2.7 Cooperative Society Law (1992)

The Cooperative Society Law was enacted in 1992 in order to provide the legal framework for the establishment of cooperative societies and syndicates. While there is potential for cooperative arrangements among CFUGs and CFEs, the existing law seems very outdated and not particularly helpful. It should be noted that the Director of the Cooperatives Department in the Ministry of Agriculture is a member of the Community Forestry Working Group. As such, this may be an area for further exploration.

A5.2.8 Central Bank Directive (2019)

On January 15th of 2019, the Central Bank issued Directive 1/2019. The Directive states that banks have been permitted to extend loans without the need for collateral at a maximum lending rate of 16 percent. This is important in terms of CFUGs having easy access to finance, since they cannot mortgage the land on which their CF encompasses.

A5.3 Policy framework directly supporting CF

A5.3.1 Forest Policy (1995)

The existing Forest Policy is a broad sector wide policy that is over twenty years old. Originally adopted in 1995, the policy makes limited direct mention of CF in the section on public participation and public awareness. While the policy aims to increase public participation in forest management for environmental, social and economic benefits, there is no direct mention of allowing communities to engage in commercial production of forest products. The Forest Policy is in need of being updated to reflect current realities in the sector. It is hoped that an effort to develop a new policy will be made now that the Forest Law has been amended.

A5.3.2 Community Forestry Strategic Action Plan (2018–2020)

This policy document outlines medium-term plans for the implementation of CF in light of the shift to a more commercial oriented model. The plan's vision, mission values statement, which mirrors the objectives in the revised CFI, embraces broad concepts of inclusive economic development, environmental sustainability, social justice and democratic governance. Historical background information on CF implementation to date, environmental analysis and a SWOT analysis of existing strengths, weaknesses, opportunities and threats are included and help to inform and define the plan. The Plan, which covers the period April 2017 to March 2020, is built around six strategic themes that outline the goals, objectives and strategies for attaining the goal:

1. Awareness and Understanding of CF
2. Scaling Up CF
3. Promoting Small Scale Forestry-Enterprises
4. Strengthening the CF Working Group and CF
5. Progressing Research and Development
6. Enhancing Policy and Enabling Environment

Finally, the strategic plan includes sections on monitoring & evaluation and required resource requirements for implementation, though these sections appear to lack sufficient detail to be useful.

A5.4 Policy framework indirectly linked to CF

A5.4.1 National Economic Policy (2016)

The 2016 National Economic Policy "aims to establish an economic framework that supports national reconciliation, based on the just balancing of sustainable natural resource mobilization and allocation across the States and Regions." It contains 12 policies addressing: (i) financial resource expansion; (ii) efficient public and private enterprises; (iii) human capital development; (iv) rapid development of key economic infrastructures;

(v) job creation; (vi) balanced sectoral growth while improving food security; (vii) economic rights; (viii) financial stability; (ix) environmental sustainability; (x) fair and efficient taxation; (xi) intellectual property rights protection; and (xii) an adaptable business environment.

A5.4.2 Agriculture Development Strategy and Investment Plan (2018–2023)

The Agriculture Development Strategy and Investment Plan (ADS) was officially launched in June of 2018 and builds on the 2016 Agriculture Policy. The ADS identifies significant potential production and productivity gains in the agriculture and natural resources sectors as being immense. However there are significant challenges in terms of limited infrastructure in rural areas, complex land tenure issues, low productivity and low competitiveness within the country. As such, the aim of the ADS is to identify the investment priorities to address these challenges over the short, medium and long term with close cooperation between government, business and farmers.

Clearly the aims of the ADS overlap with and complement the interests of CFUGs and CFEs in the country, with the ADS clearly incorporating the interests of the forestry and fisheries sectors into the overall strategy, and clearly recognizes agro-forestry as being an important part of the agriculture production systems in the country.

The ADS supports the development of an agricultural finance policy that encourages banks, microfinance institutions (MFIs), non-bank financial institutions such as leasing and finance companies and insurance companies to provide needed services to rural communities, especially farmers and SMEs. The strategy emphasizes that this must be done in close cooperation with the Central Bank of Myanmar and Ministry of Planning and Finance (MOPF). Critical regulatory reforms for banks to expand credit include (i) flexibility on taking collateral for loans (allowing the use of movable assets as collateral or in some cases allowing loans based on the viability of business plans and borrower's track records); and (ii) allowing loans with terms greater than one year; and allowing interest rate flexibility. The ADS promotes the development of digital financial services, particularly to increase access of low-cost financial services to farmers and others in rural areas such as CFUGS and CFEs. It sees an important role for guarantee funds, loan loss reserves and "compensating balance" grants to leverage private bank lending and reduce risk for "first movers" in the provision of seasonal input loans and medium-term investment financing (e.g. tube wells, tree plantations, wood processing equipment) that would benefit commercial CF and CFEs. The ADS also supports the development of more diversified financial products for value chain financing and the development of creditworthiness information systems that would make it easier to provide credit to viable farmers, CFUGs, CFEs and related SMEs without full collateral backing.

A5.4.3 Sustainable Development Plan (2018–2030)

The Sustainable Development Plan was endorsed by the Government of Myanmar in August of 2018. Developed by the Ministry of Planning and Finance, the objective of the MSDP is to connect and align the country's numerous policies and institutions for the purpose of generating implementable solutions to achieve "genuine, inclusive and transformational economic growth." Encompassing five goals, 28 strategies and 238 action plans, the MSDP will also align with the United Nations' Sustainable Development Goals, the 12 Point Economic Policy of the Union of Myanmar and ASEAN Economic Community. Goal 5 of the policy focuses on natural resources and the environment, with Strategy 5.5 being to "improve land governance and sustainable management of resource-based industries ensuring our natural resources dividend benefits all our people." Action Plan 5.5.1 aims to "establish a comprehensive, clear and coherent regulatory framework that informs the sustainable management, exploitation and trade of natural resources supported by appropriate enforcement mechanisms."

A5.4.4 Investment Promotion Plan (2016–2036)

The Myanmar Investment Commission officially launched the Investment Promotion Plan (IPP) on the 8th of October. The plan outlines five strategies to actively promote investments in the local economy, including new policies and regulations, institutional development, infrastructure development and leveraging on local business systems, industries and human resources. The Ministry of Planning and Finance (MOPF) will establish an Investment Promotion Committee (IPC), which, in turn, will set up separate task forces to carry out each of the strategies. The IPC will be chaired by the MIC.

The IPP specifically states that it will promote industries using local resources, such as forestry (growth path 3). For the growth path of investment in resource based industries, investments in wood based and agriculture products are specifically highlighted with opportunities to supply both the domestic and international markets. The focus in the IPP could certainly benefit CFEs if international investors are linked with them to provide capital and technical investments. The plan states that investments in this category are expected to deepen due to, 1) an increase in value addition of products, 2) new investments in supply chains, and 3) the creation of an industrial cluster/agglomeration.

The IPP identifies, among other factors, underdeveloped infrastructure, a weak financial sector and underdevelopment of local industries as a weaknesses for investment promotion in the country.

A5.4.5 National Export Strategy (2015)

The National Export Strategy (NES), approved by the Ministry of Commerce in 2015, is a five-year roadmap of the needs and priorities for Myanmar's sustainable development through trade in the following priority sectors: beans, pulses and oilseeds; fisheries; forestry products; textiles and garments; rice; rubber; and tourism. The NES recommends targeted investments for each export sector and addresses constraints in the business environment through cross-sector functions including: access to finance; trade information and promotion; trade facilitation and logistics; and quality management. The NES also aims to enhance innovation capabilities by businesses and trade support institutions.

A5.4.6 Small and Medium Enterprise Development Policy (2015)

Published in 2015, the SME Development Policy targets the creation of competitive SMEs, with the goal of reducing the constraints facing entrepreneurs, improving capital inflows, and adjusting training and awareness. The policy identifies priority support areas such as human resources, technology development and innovation, financial resources, infrastructure development, market access, appropriate taxation procedures and a conducive business environment.

A5.4.7 National Land Use Policy (2016)

The National Land Use Policy was endorsed by the Government in 2016. It provides principles on how to implement, manage, and carry out land use and tenure rights in the country. Importantly for CF, the policy states that the legitimate customary land tenure claims of communities should be recognized, protected and registered. In Forestland and Public Forest areas, CF offers an obvious mechanism for doing so.

Annex 6. Costs for community to get their CF certificate

Steps	Activities	Total cost (Kyat)	Remark	Total costs for step (Kyat)	Total costs for step (US$)	Number of days to complete each step	Number of working days
Step 1. Village consultation meeting and awareness raising	Step 1. Village consultation meeting and awareness raising	200,000	Traveling and meeting cost	**650,000**	**422.50**	30	7
	1.2 First village consultation meeting	50,000	Meeting cost with village leader and some community representatives				
	1.3 Second village consultation meeting	100,000	Meeting cost with all interested community members				
	1.4 Awareness raising	300,000	Meeting cost with all interested community members				
Step 2. Formation of CFUGs and CFMC	2.1 Village meeting to discuss role and responsibilities of CFUGs and CFMC	100,000	Meeting cost	**300,000**	**195.00**	15	4
	2.2 Village meeting to form CFUGs	100,000					
	2.3 Village meeting to form CFMC from CFUG members	100,000					
Step 3. Identification of proposed CF area	3.1 CFUG meeting to identify the proposed CF area	50,000	Refreshment cost	**125,000**	**81.25**	30	7
	3.2 Quick field visit	25,000					
	3.3 Consult with adjacent villages and persons to avoid land use conflict	50,000					
Step 4. Submitting application letter	4.1 Stationery cost	50,000		**350,000**	**227.50**	45	7
	4.2 Transportation cost and follow-up costs	100,000					
	4.3 Field activities when the FD comes to inspect if it is feasible for CF establishment	200,000					

Steps	Activities	Total cost (Kyat)	Remark	Total costs for step (Kyat)	Total costs for step (US$)	Number of days to complete each step	Number of working days
Step 5. CFMP	5.1 CFMP development training	500,000	Training venue, refreshment and traveling cost	**1,950,000**	**1,267.50**	90	20
	5.2 Consultation meeting for CFMP development	500,000	Meeting cost				
	5.3 Boundary demarcation by using Global Positioning System and producing map	250,000	Labor and map producing cost				
	5.4 Resource person fees for documenting and mapping	500,000	Need to hire external person who has experience in CFMP				
	5.5 Stationery cost	200,000					
Step 6. Submitting CFMP to FD and issuing CF certificate	6.1 Meeting with township FD and explain about CFMP	100,000	Traveling and meeting cost	**2,200,000**	**1,430.00**	45	20
	6.2 Follow up to reach CFMP to district FD on time	100,000	Traveling cost				
	6.3 Meeting with district FD and explaining about CFMP	100,000	Traveling and meeting cost				
	6.4 CFUG consultation meeting to address comments/ suggestions of district forest officer	300,000	Meeting cost and traveling cost for FD staff				
	6.5 Resources person fees for documenting and mapping (if necessary)	300,000	Need to hire external person who has experience in CFMP				
	6.6 Traveling and meal cost for FD staff to get their advices	200,000	Taking technical assistance from the FD				
	6.7 Stationery cost	200,000					
	6.8 Meeting and submitting revised CFMP to district forest officer through township forest officer	200,000	Traveling and meeting cost				
	6.9 Follow-up activities to have CFMP approval from district forest officer	200,000	Traveling cost				
	6.10 Organizing CF certificate receiving ceremony through inviting FD staff	500,000	Venue, refreshment, traveling and meeting cost				

Steps	Activities	Total cost (Kyat)	Remark	Total costs for step (Kyat)	Total costs for step (US$)	Number of days to complete each step	Number of working days
Step 7. CFMP implementa-tion	7.1 Training for establishment of nursery, plantation, and forest management techniques	1,000,000	Training venue, refreshment and traveling cost	**8,500,000**	**5,525.00**		10
	7.2 Implementation costs in accord with CFMP	7,500,000	Establishment of nursery and plantation; setting up signboard, notice board, and boundary demarcation posts; patrolling cost; fire road making cost; and silvicultural treatments cost				

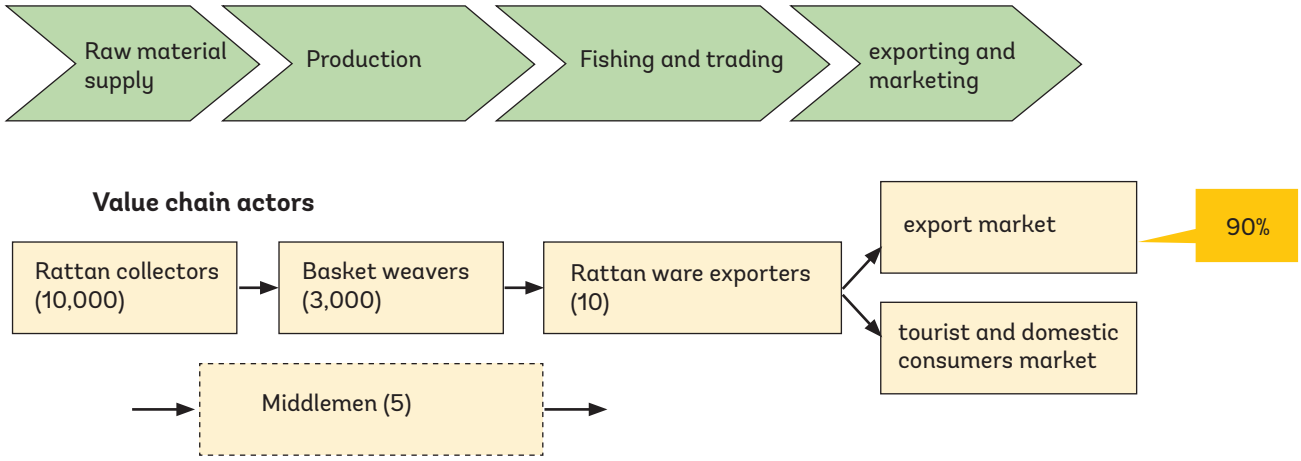
Annex 7. Potential or developing CFEs according to different CF products/subsector

Rattan sector

About 36 species of rattans grow in swampy areas of semi-evergreen and evergreen forests in Myanmar. The commonly used species are kyet-u-kyein (*Calamus platyspathus*), yamata-kyein (*C. latifolius*), kabaung-kyein (*C. longisetus*), ye-kyein (*C. floribundus*), kyein-bok (*C. myrianthus*), and thaing-kyein (*C. erectus*). Canes are used in log rafting as binding materials, and in small-scale enterprises that produce furniture, baskets, handicrafts, mats, and so on. Raw canes and finished products have been exported since Myanmar changed to a market economy. This should produce more employment opportunities in collecting, processing, and trading canes. However, poor knowledge and technology in processing, and limited experience in trading, mean that most canes are exported unprocessed at lower prices (Durst and Bishop 1995).

Figure A7.1

Rattan value chain (extract from Yekyi, Mitchi, and Bagan)



In 2014, Myanmar exported over US$8 million worth of bamboo and rattan products. The main exported categories were woven rattan products, bamboo plywood, and bamboo and rattan raw materials. Rattan for commercial use count is eight species (INBAR website, accessed January 26, 2019). The main market is China at a value of rattan worth about US$7.2 million (30,000 tons per year). The main problem is the depletion of raw materials. Most of the harvesting is done by workers hired by export companies who obtained export licenses. These companies are based in Mandalay and Yangon, creating a long supply chain whereby local harvesters receive low prices. Where rattan is mainly exported as a raw material, through Mandalay, prices fetched are low and the country loses opportunities to benefit fully. Potential for adding value by producing high-quality furniture and handicraft products is huge. Some smaller companies in the Yangon area have already established themselves as exporters of such products for the high end of the market (Macqueen 2014). Ten of such companies estimate that the total export volume (90 percent of the total market) is about 6–8 containers per month from large furniture to small decorative items at a value of about US$3 million per year. A survey conducted among

European importers suggested that Myanmar should not try to compete with cheap products from China or India, and instead focus on high quality, developing their own style and functional, unique, contemporary design as well as sustainable materials. The rattan industry has a large workforce, a good raw material base, and competitive advantages for producing useful, standard household items. The cost of rattan weaving at the household level is said to be 40 percent cheaper than in Vietnam. Basketry was the most important regular handicraft export product group over the last five years. Big European companies show additional interest in rattan ware from Myanmar. The main barriers hindering rattan ware exports to Europe are inefficient input supply, lack of innovation and less competitive finishing, loose organization of weaver groups, and a risk of child labor (CBI 2016).

An exchange program on organizational development and services of handicraft associations with Vietnam has been proposed. Based on activities such as direct sourcing of rattan raw material, improved weaver group management with the introduction of corporate social responsibility (CSR) certification, the modernization of finishing facilities and increased market exposure, the rattan ware industry has the potential to become a larger-scale exporter in the European market, competing with Indonesia and Vietnam. The expected impact would be that 10–15 companies double their current combined export turnover of US$3.7 million per year, employing close to 10,000 weavers. In addition, income can be generated for a large number of raw material suppliers, such as rattan collectors (CBI 2016).

The rattan committee of the Myanmar Timber Traders Association is well placed and interested in influencing government policies to boost export of rattan products. They need help in creating a strong vision or road map for the sector to gather stakeholders around. Private sector associations for bamboo and rattan are keen to engage, provide technical support, and buy products from producer groups in key product areas to secure sustainable future supplies of their raw materials (Macqueen 2014).

Bamboo sector

Bamboos are the most important NTFPs in Myanmar. About 100 species grow in large quantities throughout the country. They are major construction materials, particularly in rural areas, and can be used for almost all parts of houses, including posts, roofs, walls, floors, beams, trusses, and fences.

People also use bamboo to make mats, baskets, tool handles, hats, traditional toys, musical instruments, umbrellas, and furniture. In addition, bamboo shoots are edible and pickled bamboo shoots are becoming very popular. As an industrial raw material, bamboo is commonly used in Myanmar by pulp and paper mills. The most common bamboo species in Myanmar are kyathaung (*Bambusa polymorpha*), tin (*Cephalostachyum pergracile*), myin (*Dendrocalamus strictus*), kayin (*Melocanna bambusoides*), thana (*Thyrsostachys oliveri*), thaik (*Bambusa tulda*), wabo (*Dendrocalamus brandisii*), wabo-myetsangye (*D. hamiltonii*), waphyu (*D. membranaceus*), and wagok (*Oxytenanthera albociliata*) (Durst and Bishop 1995).

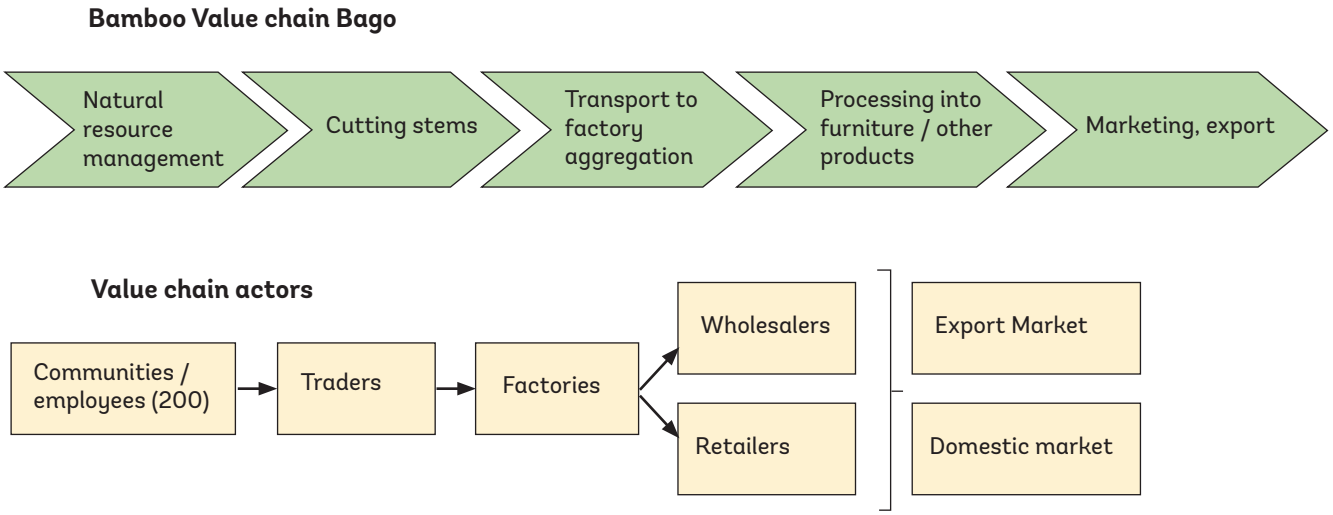
Traditional uses of bamboo in Myanmar comprise construction of housing and bridges; manufacturing of furniture, woven products, and handicrafts; and production of foodstuff. About 102 bamboo species belonging to 21 genera are present in Myanmar, of which 18 have been identified as particularly relevant for trade (INBAR website, accessed January 26, 2019). Productive areas have been estimated to extend over 1.8 million ha, and the annual bamboo production in Myanmar is estimated at about 2 billion pieces, including industrial and domestic informal production.

Bamboo as a material in Myanmar primarily serves household consumers with general household goods (mats, panels, and utensils), and serves the construction sector with bamboo poles. In addition, there are cottage industries based around handicrafts and bamboo shoots. There is also industrial processing of bamboo (primarily panels, but with flooring emerging), although this is relatively small in scale. Generally, hardwood timbers (primarily teak) dominate the industrial processing sector (providing plywood, flooring, panels, and so on) and hardwoods and rattan dominate the furniture sector. There is also small-scale food processing of

bamboo shoots. Much of the bamboo used in households is not transacted in the formal economy and exports of raw bamboo and edible bamboo shoots cross borders unrecorded. Export data are not consistent, with peaks in 2009 and 2011 at around US$12 million due to peaks in pulp exports; by 2013 exports had fallen to US$3.5 million and by 2014 to US$2.2 million.

Figure A7.2

Bamboo value chain and its actors in Bago



Natural forest bamboo resources and a wide range of species, combined with relatively lower wage rates, afford the country a comparative advantage. The availability of secondary forest and degraded land presented an opportunity to bring land back into use on a more sustainable basis.

There is growing domestic demand for bamboo in the construction industry and as a substitute material for timber. There is also growing interest from export markets in the potential of Myanmar to supply bamboo chips for energy use (for example, Japan driven by its energy strategy) and to overseas investors (for example, Taiwan in the flooring market). Some key recommendations to gain momentum for the sector are the following:

- Target markets include raw bamboo and edible shoots in the short term leading to more value-added processing (veneer/ply, flooring, and bamboo housing) over the medium term). Sector promotion mechanisms to facilitate this include qualifying the species and their commercial attributes, study tours to build supply chain relationships, seminars and workshops to promote bamboo as an alternative material, and finally promoting quality bamboo products (including innovation).
- Develop pro-poor operating principles and enterprise CSR policies and promote these as part of a sector support program—including communicating the benefits of strong health and safety practices.
- Improve connectivity between opportunities from bamboo resource base and existing markets links, and bamboo environmental/pro-poor impacts. The relationship between ecosystem and the promotion of intensive bamboo cultivation is an area for further research.
- Develop and disseminate best practice production and processing environmental principles to businesses and communities. The use of information and communication technology and the development of a 'Bamboo Farm App' is one approach to explore with the Association and the FD. The feedback on the industry training undertaken as part of this rapid assessment was positive, with a latent demand evident for further knowledge transfer.

- Promote cost-effective approaches to the dissemination of best practices in bamboo resource management at the community and enterprise levels (working with private firms and the FD). The reduction of waste is key to a profitable and sustainable sector. Waste reduction has important pro-poor impacts (for example, the introduction of small kilns for processing waste into charcoal at a village level) as well as reducing business power input costs.
- Provide investment feasibility assistance to lead entrepreneurs considering new investment (ideally working alongside green investment banks to provide proof of concept and to promote financial instruments for the sector).
- Support those early movers that are running now to mitigate initial sector investment failures, which could undermine any crowding-in effects. It also provides an opportunity to promote best practice socioeconomic and environmental principles.
- Solve the need to treat bamboo, often done using chemicals or diesel which is not appreciated by western markets. The Vietnam Handicraft Exporters' Association (VIETCRAFT) can be a role model for associations in Myanmar (BIF and MRBEA 2015). The Ministry of Cooperatives has a particular interest in bamboo processing (Macqueen 2014).

Wood products

In Myanmar, rural communities plant trees on both communal and individually owned forestland with the most preferred teak (*Tectona grandis*) and pyinkado (*Xylia xylocarpa*), as well as some eucalypts (*Eucalyptus spp.*). Some communities also plant other fast-growing species (*Gmelina, Acacia, and Cassia*) (FAO 2017).

Three main value chains (furniture, doors and window frames, and wood-based handicrafts) involve wood-based CFEs/SMEs. Information from 24 SMEs in Yangon, Mandalay, and Monywa mentioned teak as the main species (70 percent), followed by ain (*Dipterocarpus macrocarpus*), padauk (*Pterocarpus macrocarpus*), pyinkado (*Xylia dolabriformis* and other related species), and tamalan (*Dalbergia oliveri*), most of which are becoming increasingly scarce.

Most SMEs use illegal timber because it is difficult for them to obtain legal supplies largely caused by near monopoly of the Myanma Timber Enterprise over teak (*Tectona grandis*) and other high-quality timber species, and limited available plantation timber (better quality than degraded natural teak). Numbers are thus hard to estimate. In 2016 (CBI 2016), the government banned wood cutting resulting in wood processors having to import wood from Africa. Wood companies in Myanmar are currently not eligible for Forest Stewardship Council (FSC) certification. According to a recent TNC/RECOFTC report (2017) Yangon, 60 percent of all wood products are exported illegally. Wood exporters mostly do not have export licenses.

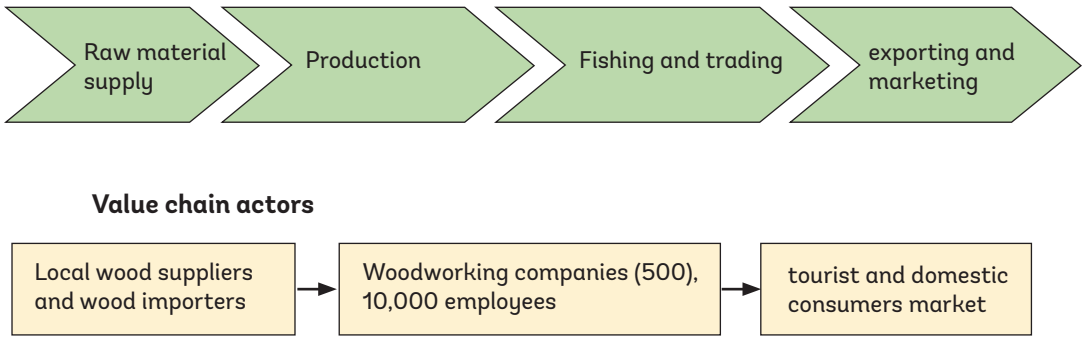
Rural communities use forests mainly as a source of firewood, collecting on average 5–6 m^3 per ha per year (FAO 2017). Numbers at the national level estimate 21 million cubic ton of firewood and 180,000 cubic ton of charcoal (Central Statistical Organization 2016).

There is untapped potential for CFEs and smallholder plantations to develop vertical integration type relationships with wood processing SMEs. To date, private sector plantations have been highly constrained by the MTE's 'ownership' of planted teak trees, land tenure insecurity, high regulatory costs, and weak support services. These problems can be addressed mainly by simplifying the regulatory basis (since planted timber has a low legality risk), clarifying landowner and smallholder rights over planted teak trees, and through technical and financial assistance packages to organized groups.

While there are significant smallholder producer associations for mainstream agricultural crops and some large forest-related industry associations involving mainly large-scale producers and traders (for example, for timber, bamboo, and rattan), forest and farm producer groups representing community smallholders are significantly underrepresented (FAO 2017).

Figure A7.3

Wood value chain (from Yeyki, Mitchi, and Bagan)



There is widespread optimism about the potential for CF. For example, bamboo, timber, charcoal, medicinal plants, and firewood production are regarded as having high potential for CF in different regions (Tint et al. 2014); there have been discussions about replicating some of the elements of the Mexican and Guatemalan approaches to CF. Reflecting this optimism, there have been several recent or ongoing initiatives to promote CF:

- ALARM has worked (formerly ECODEV) with about 60 CFUGs, some of them on timber-based natural forest management and/or plantations (for example, Gmelina arborea), and a network of CFUGs is developed, especially in Kachin State.
- Fauna & Flora International (FFI) has developed simplified instructions, following the current CFI, for natural forest management (including teak) by CFUGs and has been working with several of these groups (NEPCon and Forest Trends 2018).

Forest ecosystem services

Forest ecosystem services are estimated to be Kyat 7 trillion or US$7.3 billion a year (Emerton and Aung 2013). About 85 percent, or around Kyat 6 trillion (US$6 billion), comes from forest ecosystem services that maintain the productivity of other sectors, add value to their output, and help them to avoid costs, losses, and damages. Income earned from forest utilization accounts for less than 15 percent (timber, wood products, and NTFPs). Forest degradation could incur losses to 2031 of more than 16 trillion Kyats (US$17 billion) while forest conservation will add values to 2031 of more than 21 trillion Kyats (US$22 billion) to Myanmar's economy over the current situation (Emerton and Aung 2013).

Mangrove services are yet to be valued and considered in the national economy. However, Emerton and Aung (2013) have estimated that the various services provided by mangroves in Ayeyarwaddy, Rakhine, and Tanintharyi States (467,330 ha [1,154,797 acres]) are valued at US$1,860 million.

The role of mangroves in protecting coastal lands, settlements, and infrastructure against the effects of cyclones in Myanmar is important as it ranks first as the 'most at risk' country in the region. Cyclones have caused an estimated 150,000 deaths (>90 percent by cyclone Nargis alone) and resulted in damage costs of Kyat 20 trillion (US$20 billion). The economic losses from cyclone Nargis were estimated to be about 2.7 percent of the national 2008 gross domestic product, with the relatively high economic losses (11 percent of the region's economy) on assets, industrial production, and commerce in Yangon and the main agriculture producing region in the Ayeyarwaddy Delta.

The impacts of cyclones have been exacerbated by deforestation and degradation of mangroves, which could have served as more effective buffers against the waves and storm surges. For protection against coastal erosion and protection against storms, tidal surges, and extreme weather events, the cost is estimated at Kyat 687 billion (US$707 million).

Communities are aware of the protective and environmental functions of forests. They recognize that forests contribute to the provision of fresh and clean drinking water, fresh air, good microclimates, carbon sequestration, soil protection, continuous flow of spring water, protection against natural disasters, storms and flooding, and protection against seawater intrusion (FAO 2017).

Annex 8. Major NTFP end user groups (and examples)[14]

Food	Fruits: Kyaungshar (*Oroxylum indices*), ku-la (*Sapindus* sp.), Pwe-baung (*Spondias* sp.), Danyin (*Abarema bigemina*)	Extracts	Gums/resin: Paw-hpuk (*Sterculia versicolor*)
	Stems/shoots: bamboo, rattan		Resin/oleoresin: Indwe, Kanyin (*Dipterocarpus tuberculatus*), Ingyin (*Shorea siamensis*) and thitya (*S. oblongifolia*), Pinus spp.
	Tubers/roots: EFY konjac (*Amorphophallus* sp.)		Latex: Rubber
	Leaves: Thamon (*Boscia variabilis*) native in Dry Zone		Dye: Cutch (*Acacia catechu*), Meyaing (*Indigofera* spp.)
	Nuts/seeds: Taung-thayet (*Irvingia malayana*)		Tannin: Ngushwe (*Cassia fistula*), Tanaung (*Acacia leucophloea*), *Rhizophoraceae* (*mangrove* spp.)
	Flowers: Ye-thagyi (*Sesbania* sp.)		Essential oils: Agar wood (*Aquilaria* sp.)
	Spices: Hpala (*cardamon, Elettaria cardamomum*), Ngayok-kaung (black pepper) (*Piper nigrum*), Peik-chin (long pepper) (*Piper longum*), Karawe (*Cinnamomum* spp.)		Stimulants: Betelnut (*Areca* sp.)
	Mushrooms		Insecticides: Neem (*Azadirachta indica*)
	Food oils and gums: Nypa juice (*Nypa fruticans*), honey	Ornamentals	Orchids (840 species), ferns, curcuma flowers
	Fodder: Thetke (*Imperata cylindrica*)	Charcoal and fuelwood	Numerous
Medicines	Fruits: Zibyu (*Emblica officinalis*)	Animal products	Lac insects (*Kerria lacca*), edible birds' nests (grey rumped swiftlet, *Collocalia inexpectata*), wild honey and beeswax (*Apis indica* and A. *dorsata*), and Bat guano
	Stems/shoots: Pwegaing (*Cassia angustifolia*)	Fibers	Leaves: Dani (nipa palm, *Nypa fruticans*)
	Tubers/roots: Nalingyaw (*Litsea lancifolia*), Sin-don-ma-nwe (*Stephania rotunda*), Taw-shauk (*Citrus medica*)		Stem: bamboo, rattan, thinbaung (marsh date-palm, *Phoenix paludosa*).
	Nuts/seeds: Kwun-ya (*areca catechi*)		Bark: Thanaka (*Murraya* sp., *Limonia acidissima*), thinbyu matts (*Clinogyne dichotoma*), Shaw-ni ropes (*Sterculia villosa*)
	Flowers: Hnaw (*Adina cordifolia*), Bomayaza (*Rauwolfia serpentina*)		Grass: Thetke (*Imperata cylindrica*)
	Bark: Banbwe (*Careya arborea*)		
	Wood: Cutch (*Acacia catechu*)		

14 Sources: NAFRI, NUoL, SNV 2007, Lao PDR and Central Statistical Organization (2016), and Myanmar CF expert views.

Annex 9. Production of key forest products in Myanmar (2017–18)

A number of key forest products contribute to household income in Myanmar. Total production of these products will be higher than the data reported in formal statistics because subsistence, informal, and illegal production are not recorded. Table A9.1 presents figures of the official production of key forest products. Total estimated revenue is approximately Kyat 3,069,473 million (about US$2,046 million). With reference to Tint et al. (2014), if 25 percent of the forest area was developed by CFEs, they could expect to generate income of about Kyat 767,368.34 million (about US$511.58 million). However, CF area is just under 1 percent of the total forest area as of 2018. Total forest area was about 29,041,000 ha (71,761,873 acres) according to the 'Brief Notes on Forestry Sector in 2016', while total CF area is about 221,169 ha (546,520 acres) according to the CFU, FD (2019).

Description	Unit	Production	Unit cost (Kyat)	Total revenue Kyat (million)	25% of total Kyat (million)
Teak (logs)	Cubic Ton	116,264	2,500,000	290,660.00	**72,665.00**
Teak (Sawn timber)	Cubic Ton	13,234	3,500,000	46,319.00	**11,579.75**
Hardwood (logs)	Cubic Ton	351,216	600,000	210,729.60	**52,682.40**
Hardwood (Sawn timber)	Cubic Ton	31,950	900,000	28,755.00	**7,188.75**
Firewood	(000) Cubic Ton	21,175	80,000,000	1,694,000.00	**423,500.00**
Charcoal	(000) Cubic Ton	166	45,000,000	7,470.00	**1,867.50**
Bamboo	(000) Number	1,172,205	600,000	703,323.00	**175,830.75**
Rattan	(000) Number	32,986	1,000,000	32,986.00	**8,246.50**
Cutch	(000) Viss[15]	143	1,200,000	171.60	**42.90**
Indwe-Pwenyet	(000) Viss	197	250,000	49.25	**12.31**
Kanyin resin	Viss	470	1,000	0.47	**0.12**
Turpentine	(000) Viss	—	6,000,000	—	—
Dani-Thetke	(000) Number	921,705	50,000	46,085.25	**11,521.31**
Honey	(000) Viss	52	8,000,000	416.00	**104.00**
Beeswax	Viss	1,101	700	0.77	**0.19**
Bat's guano	(000) Viss	195	500,000	97.50	**24.38**
Orchids	(000) Number	—	8,000,000	—	—
Edible bird's nest	Viss	1,588	2,300,000	3,652.40	**913.10**
Lac	(000) Viss	44	1,500,000	66.00	**16.50**
Barks	(000) Viss	771	5,000,000	3,855.00	**963.75**
Thanaka	(000) Viss	88	8,000,000	704.00	**176.00**
Jute	(000) Viss	27	—	—	—
Bastard sandalwood	(000) Viss	2	—	—	—
Cardanon	(000) Viss	43	2,000,000	86.00	**21.50**
Serpent wood	(000) Viss	25	—	—	—
Lacquer	(000) Viss	31	1,500,000	46.50	**11.63**
Total				**3,069,473**	**767,368.34**

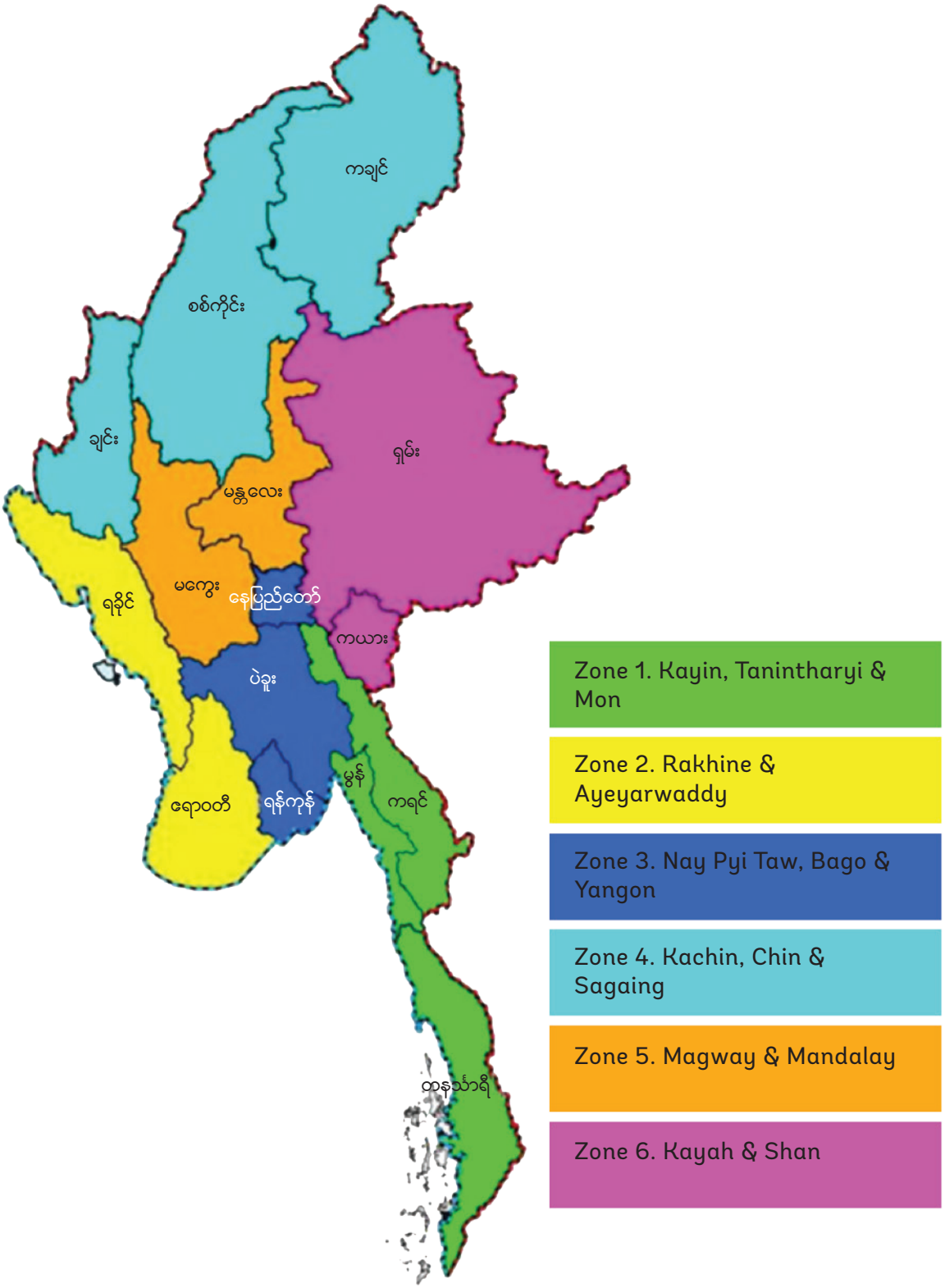
Source: Forest Department, Department of Co-operative, Department of Agriculture, and Traders.

15 One viss is equal to 3.6 pounds / 1.6 kilograms.

Annex 10. Forest foods as nutrient sources

Forest foods	Energy	Micronutrients	
	Carbohydrates, protein, fats, and sugars	Vitamins	Minerals
Forest animals, birds	High in fat, complete protein	Offal/organs high in nutrients, vitamin B	Animal iron
Fish, crustaceans, frogs, molluscs	Complete protein	Some vitamin B	Animal iron, calcium from small fish (bones)
Insects, larvae, insect eggs	High in fat, high in protein	Vitamin A, caterpillars rich in vitamin B12	Animal iron
Mushrooms	High in carbohydrate, rich in protein	Small amounts of vitamin A and C, depending on species	Most species low in iron
Bamboo shoots	High in fiber and carbohydrate, rich in vegetable protein	Minimal amounts, lost in cooking	
Plants: leaves, stems, flowers	Low in energy, source of soluble fiber	Leaves important for vitamins A, C, and folic acid. The darker the leaf, the more A and C	
Tubers	Rich in starch		
Honey	High in energy, rich source of simple sugars	Vitamin A	
Nuts	Carbohydrate, oils, protein		
Fruits, berries	Sugars and soluble fiber	Important source of vitamins A and C	Calcium, magnesium, potassium

Annex 11. Map of Myanmar Reforestation and Rehabilitation Program zones (MONREC 2017)



Annex 12. Findings from the benefit-cost analysis of two CFs and one CFE in South Rakhine

A12.1 Benefit-cost analysis for Kyaung Kone CF

Activity/Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Benefits															
Mushroom collecting in natural forest	245,000	262,500	283,500	306,180	330,674	357,128	385,699	416,555	449,879	485,869	524,739	566,718	612,055	661,020	713,901
Bamboo shoot harvesting in natural forest	1,592,500	1,706,250	1,842,750	1,990,170	2,149,384	2,321,334	2,507,041	2,707,604	2,924,213	3,158,150	3,410,802	3,683,666	3,978,359	4,296,628	4,640,358
Income from selling timber from natural forest	0	0	0	0	0	5,983,632	6,462,323	6,979,308	7,537,653	8,140,665	8,791,918	9,495,272	10,254,894	11,075,285	11,961,308
Income from selling bamboo shoots from bamboo plantation	0	0	0	0	0	26,453,952	77,547,871	119,015,574	166,621,804	205,658,912	222,111,625	239,880,555	259,071,000	279,796,680	302,180,414
Income from selling bamboos from bamboo plantation	0	0	0	0	0	50,388,480	108,839,117	117,546,246	126,949,946	137,105,942	148,074,417	159,920,370	172,714,000	186,531,120	201,453,609
Income from selling poles from hardwood plantation	0	0	0	0	0	0	0	0	0	0	0	199,900,463	0	233,163,900	0
Income from selling bamboo from natural forest	0	0	0	1,080,000	1,166,400	1,259,712	1,360,489	1,469,328	1,586,874	1,713,824	1,850,930	1,999,005	2,158,925	2,331,639	2,518,170
Total Benefits	**1,837,500**	**1,968,750**	**2,126,250**	**3,376,350**	**3,646,458**	**86,764,239**	**197,102,539**	**248,134,616**	**306,070,369**	**356,263,362**	**384,764,431**	**615,446,048**	**448,789,232**	**717,856,271**	**523,467,761**
Costs															
Clearing existing vegetation	400,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Forest inventory	288,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site preparation	0	2,760,000	3,060,000	0	0	0	0	0	0	0	0	0	0	0	0
Setting up signboards, notice boards, and boundary demarcation posts	58,600	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nursery (hardwood)	977,500	0	3,000,000	0	0	0	0	0	0	0	0	0	0	0	0
Bamboo seedlings and Bamboo seedling transportation from Yangon to Gwa	0	6,630,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Nursery (bamboo)	0	0	2,550,000	0	0	0	0	0	0	0	0	0	0	0	0
Seedling transportation (Hardwood) from Kyaung Kone to CF	0	3,195,000	4,473,000	4,830,840	5,217,307	0	0	0	0	0	0	0	0	0	0
Seedling transportation (Bamboo) from Kyaung Kone to CF	0	1,065,000	2,550,000	0	0	0	0	0	0	0	0	0	0	0	0
Staking, digging, and planting	0	1,575,000	2,040,000	2,203,200	2,379,456	0	0	0	0	0	0	0	0	0	0

Activity/Year	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Patching in hardwood and bamboo plantations	0	710,000	994,000	1,073,520	1,159,402	0	0	0	0	0	0	0	0	0	0
Weeding in hardwood and bamboo plantations (first and second times)	0	2,250,000	4,860,000	5,248,800	5,668,704	6,122,200	3,305,988	0	0	0	0	0	0	0	0
Fire road making	0	675,000	810,000	1,020,000	1,101,600	1,189,728	1,284,906	1,387,699	1,498,715	1,618,612	1,748,101	1,887,949	2,038,985	2,202,103	2,378,272
Patching in natural forest	0	2,485,000	0	0	0	0	0	0	0	0	0	0	0	0	0
Improvement felling in Natural Forest (1st and 2nd times)	1,350,000	1,620,000	1,890,000	1,020,600	1,102,248	1,190,428	1,285,662	1,388,515	1,499,596	1,619,564	1,749,129	1,889,059	2,040,184	2,203,399	2,379,671
Fertilizer feeding and labor charges	0	33,500,000	72,360,000	78,148,800	84,400,704	45,576,380	0	0	0	0	0	0	0	0	0
Weeding in new bamboo plantation	0	0	4,080,000	8,812,800	9,517,824	10,279,250	11,101,590	0	0	0	0	0	0	0	0
Patrol	1,120,000	2,016,000	392,000	423,360	457,229	493,807	533,312	575,977	622,055	671,819	725,565	783,610	846,299	914,002	987,123
Administrative cost to receive CF certificate	300,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stationary	15,000	16,200	17,500	18,900	20,412	22,045	23,809	25,713	27,770	29,992	32,391	34,983	37,781	40,804	44,068
Tax for bamboo shoots	0	0	0	0	0	6,613,488	19,386,968	29,753,894	41,655,451	51,414,728	55,527,906	59,970,139	64,767,750	69,949,170	75,545,104
Tax for bamboo	0	0	0	0	0	251,942	272,098	293,866	317,375	342,765	370,186	399,801	431,785	466,328	503,634
Tax for timber	0	0	0	0	0	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000	1,050,000
Tax for poles	0	0	0	0	0	0	0	0	0	0	0	2,000,000	0	0	0
Payment to VDF and CF Committee from selling bamboo shoots in the bamboo plantation	0	0	0	0	0	6,613,488	19,386,968	29,753,894	41,655,451	51,414,728	55,527,906	59,970,139	64,767,750	69,949,170	75,545,104
Payment to VDF and CF Committee from selling bamboos in the bamboo plantation	0	0	0	0	0	12,597,120	27,209,779	29,386,562	31,737,486	34,276,485	37,018,604	39,980,093	43,178,500	46,632,780	50,363,402
Payment to VDF and CF Committee from selling timber in the natural forest	0	0	0	0	0	1,495,908	1,615,581	1,744,827	1,884,413	2,035,166	2,197,980	2,373,818	0	0	0
Payment to VDF and CF Committee from selling poles in the hardwood plantation	0	0	0	0	0	0	0	0	0	0	0	49,975,116	0	0	0
Payment to VDF and CF Committee from selling bamboo in the natural forest	0	0	0	27,000,000	29,160,000	31,492,800	34,012,224	36,733,202	39,671,858	42,845,607	46,273,255	49,975,116	53,973,125	58,290,975	62,954,253
Total Costs	**4,509,100**	**58,497,200**	**103,076,500**	**129,800,820**	**140,184,886**	**124,988,585**	**120,468,884**	**132,094,147**	**161,620,171**	**187,319,466**	**202,221,023**	**270,289,821**	**233,132,158**	**251,698,731**	**271,750,629**

Note: VDF = Village Development Fund.
NPV (Kyat per 314 acres) = 2,391,652,121; BCR = 1.63; IRR (%) = 20.79.

A12.2 Benefit-cost analysis for Kyauk Gyi CF

Activity/Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Benefits											
Selling mangrove poles	0	0	0	0	0	0	0	108,000,000	116,640,000	125,971,200	
Total benefits	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**108,000,000**	**116,640,000**	**125,971,200**	**350,611,200**
Costs											
Site preparation for mangrove plantation	4,500,000	9,000,000	0	0	0	0	0	0	0	0	
Honorarium fees for staff of Land Management and Statistic Department	50,000	0	0	0	0	0	0	0	0	0	
Administrative cost	0	700,000	0	0	0	0	0	0	0	0	
Setting up signboards, notice boards and boundary demarcation posts	450,000	0	0	0	0	0	0	0	0	0	
Mangrove seedlings	0	4,000,000	0	0	0	0	0	0	0	0	
Planting mangrove seedlings	0	800,000	0	0	0	0	0	0	0	0	
Gap planting and patching	0	0	1,440,000	0	0	0	0	0	0	0	
Improvement felling	0	0	225,000	333,410	360,082	388,889	420,000	453,600	489,888	529,079	
Patrol including fuel for boat	0	0	432,000	276,000	336,000	396,000	456,000	492,480	531,878	574,429	
Stationary	50,000	10,209	11,025	11,907	12,860	13,889	15,000	16,200	17,496	18,896	
Supervision of harvesting mangrove poles	0	0	0	0	0	0	0	453,600	489,888	529,079	
Tax for mangrove poles	0	0	0	0	0	0	0	2,000,000	2,000,000	2,000,000	
Receptions for visitors with lunch or snacks and fuel for boat for mangrove forest tours	0	245,010	264,611	285,780	308,642	333,333	360,000	388,800	419,904	453,496	
Total costs	**5,050,000**	**14,755,219**	**2,372,636**	**907,097**	**1,017,584**	**1,132,111**	**1,251,000**	**3,804,680**	**3,949,054**	**4,104,979**	**38,344,360**

Note: NPV (Kyat per 600 acres) = 312,266,840; BCR = 9.14; IRR (%) = 45.73.

A12.3 Benefit-cost analysis for Shwe Yoma CFE

Activity/Year	2013	2014	2015	2016	2017
Benefits					
Sales of rattan in Yangon	17,810,000	34,800,000	151,060,000	163,144,800	176,196,384
Grant from MRBEA for the license fees	1,000,000	0	0	0	0
Total benefits	**18,810,000**	**34,800,000**	**151,060,000**	**163,144,800**	**176,196,384**
Costs					
Cost of rattans	11,250,000	21,000,000	23,500,000	25,500,000	27,650,000
Boiling tank and transporting the tank	700,000	0	0	0	0
Waterproof tarpaulin sheets	125,000	0	145,800	0	170,061
Building for boiling rattans	250,000	120,000	0	0	0
Forest inventory	150,000	0	0	0	0
Service fee for license application	250,000	0	0	0	0
License fee for harvesting rattans	750,000	1,500,000	2,000,000	2,000,000	2,000,000
Diesel	962,500	1,500,000	2,160,000	2,332,800	2,519,424
Diesel filtering tank	25,000	0	0	0	0
A rod to lift rattans from the boiling tank	9,000	0	0	11,337	0
A rattan-boiling stove	50,000	0	0	0	0
Firewood	90,000	70,000	143,000	154,440	166,795
Bag, rope, sawdust powder, sulfur, caustic soda, knife, saw	87,500	20,000	120,000	129,600	139,968
Setting up signboard	140,000	0	15,000	0	18,000
Stationary	55,000	15,000	16,200	17,496	18,896
Fire extinguisher	135,000	0	0	0	0
Labor charges	2,690,000	2,350,000	4,370,000	4,719,600	5,097,168
Transportation charges for rattans from Gwa to Yangon	1,800,000	2,250,000	2,970,000	3,207,600	3,464,208
Fees for removal pass and supervision	195,000	165,000	315,000	340,200	367,416
Transportation and food costs for two members in Yangon	150,000	250,000	300,000	324,000	350,000
Advanced money paid to rattan collectors	2,690,000	1,500,000	1,300,000	1,200,000	1,000,000
Fund for village development committee	375,000	150,000	550,000	550,000	550,000
Total cost	**22,929,000**	**30,890,000**	**37,905,000**	**40,487,073**	**43,511,936**

Note: NPV (Kyat) = 368,288,175; BCR = 3.10; IRR (%) = 524.45.

Annex 13. Comparison of Form 7 and CF processes and benefits

Components of each certificate	Form 7 land use certificate	CF certificate
Length of tenure	Permanent	30 year lease, renewable
Issued by	Township Land Administrative Committee through Township Department of Agriculture Land Management and Statistics	Assistant Director (District Level) under guidance of Director General of Forest Department
Opportunity to get technical support	Technical support offered through MOALI's agriculture extension service	In mandate of range officer, but it may not happen due to limited resource and capacity
Eligible types of land	Lands outside of forest jurisdiction	Forest reserved land, protected area, mangrove, watershed, traditional shifting cultivation Land under conflict Land that is not recorded under Agriculture Land Management and Statistics Department (ALMSD)
Opportunity for finance	Customary farmland with annual land tax receipts	Yes, as collateral for mortgage
Flexibility to cover to other land uses	Yes, as collateral for mortgage	No, strictly prohibited to change to other land uses
Benefit to	Individual rights owner	See different modalities presented in Table 3—benefits to collective and individual households depending on modality
Required steps	Ten steps/forms sometimes complicated. Not easy for farmers to follow	Seven steps for receiving community forestry tenure certificate
Length of time to get certificate	In theory 65 working days	If land is under the jurisdiction of the FD, it takes between 6 and 12 months. It takes longer if land is administered by Agriculture Land Management and Statistics Department (ALMSD), though no guiding time frame is available. See Annex 6 for average time spent for 104 CFs established under 'Scaling Up CF in Myanmar' project.
Gender sensitive	No	Greatly depends on customary practices.
Specific condition	Have to get permission if changing crop from rice paddy	Before CF certificate is issued, CFMC has to develop a 30-year plan within which 5-year activity plans are presented. If CFMC wishes to revise CFMP in accordance with the changing situation, it can revise in consultation with the FD.
Rights	Sell, exchange, access credit, inherit, and lease	Only inherited by family members
Sellable	Yes	No

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