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Kyaw Tint, Oliver Springate-Baginski, Duncan Macqueen and Mehm Ko Ko Gyi



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Acronyms

BCR	Benefit-cost ratio
BDA	Border Areas Development Association
CDI	Department of Cottage Industries
CDM	Clean Development Mechanism
CF	Community Forest
CFI	Community Forestry Instruction
CFUG	Community Forest User Group
CSO	Central Statistical Organization
DNA	Designated National Authority
ECCDI	Ecosystem Conservation and Community Development Initiative
FAO	Food and Agriculture Organization of the United Nations
FD	Forest Department of Myanmar
FRI	Forest Research Institute
FUG	Forest User Group
GIZ	German Agency for International Cooperation
IIED	International Institute for Environment and Development
IRR	Internal Rate of Return
LIFT	Livelihoods and Food Security Trust Fund
MADB	Myanmar Agriculture Development Bank
MEB	Myanma Economic Bank
MMK	Myanmar Kyats
MOECF	Ministry of Environmental Conservation and Forestry
MSL	Mean Sea Level
MTE	Myanmar Timber Enterprise
NFUM	National Federation of Forest User Groups in Myanmar
NGO	Non-governmental organisation
NPT	Nay Pyi Taw
NTFP	Non-Timber Forest Product
PFE	Permanent Forest Estate
POL	Pyin Oo Lwin
PPF	Protected Public Forest
RECOFTC	Regional Community Forestry Training Centre
REDD+	Reducing Emissions from Deforestation and Forest Degradation; conservation, sustainable forest management and enhancement of carbon stocks
RF	Reserved Forest
SLORC	State Law and Order Restoration Council
SMFE	Small and medium forest enterprises
UNFCCC	United Nations Framework Convention on Climate Change
UMFCCI	Union of Myanmar Federation of Chambers of Commerce and Industry
UNIDO	United Nations Industrial Development Organization

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Executive summary

Unleashing the potential of community forest (CF) enterprise in Myanmar is crucial for two main reasons. First, it will increase local incomes and government revenues, which will reduce poverty. Second, the financial incentive of such enterprises will encourage local people to manage and restore forests. Without enlisting the help of rural communities in these efforts it is likely that forest loss will continue and the contribution of forests to the rural economy will continue to decline.

The rate of forest loss in Myanmar is among the highest in the world, running at 0.9 per cent per year between 2000 and 2010. The forest sector's importance to the overall economy has declined in this time, from 0.6 per cent in 2006-2007 to 0.38 per cent in 2010-2011. Myanmar's overall economy is now beginning to grow but at least 26 per cent of the population remain in poverty – mostly in rural areas. Turning this around will require the development of new economic opportunities in rural areas, of which community forest enterprises are a critical part.

A number of immediate steps are needed to develop community forest enterprise opportunities. Forest legislation should allow communities **commercial-use rights** for both timber and non-timber forest products (NTFPs). Government and civil society should work together to raise community awareness of these commercial enterprise opportunities, and a market-led approach to community forestry be pursued. The **handover of local forests to Forest User Groups (FUGs) should be streamlined and accelerated**. A working group of government extension staff and civil society groups should share experiences and expand capacity-building for FUGs in business management. Organisation between community FUGs should be encouraged, through local associations and regional and national federations. A reliable investment environment should be assured to facilitate enterprise development.

Field research from four states presented in this report highlights particularly promising community forestry enterprise opportunities. Bamboos appear to be the highest-priority product for enterprise development in the Ayeyarwady Delta, with timber (and potentially timber poles) and charcoal taking the second and third positions respectively. In the Mandalay Region, bamboo has the highest potential for enterprise development, with timber and value-added bamboos taking the second and the third positions respectively. In Shan State, thatch appears to have the highest potential, followed by value-added bamboos and bamboo. Finally, in Kachin State, timber appears to be the best option, with medicinal plants and firewood coming in at second and third.

Overall – and despite some significant regional differences – our analysis points to three major sectors for CF enterprise development: **timber (including poles and posts), bamboo (including both unprocessed and processed products) and NTFPs – particularly medicinal and ornamental plants**. There are also many miscellaneous products with great potential for CF enterprises, such as charcoal, rattan, agarwood, thanaka, elephant foot yam, white

yam and so on. These can be integrated successfully as agricultural crops along with forest trees in the CF areas. This analysis clearly challenges the current monopoly on timber production by government agencies and 'crony' companies.

Progress towards the government's Forest Master Plan target of 918,000 hectares of community forestry by 2030 is drastically behind, in part because local communities do not perceive clearly the economic opportunity outlined. But even this target (2.8 per cent of the total forest area in Myanmar) is extraordinarily unambitious. A much more reasonable ambition might be a government target of allocating 25 per cent of the total area of Myanmar forest to communities – matching roughly the global average for forest controlled by local groups. Doing this by 2030 could make six million people forest user group members, which would make community forestry a genuine engine of rural economic growth. We outline some of the forest products upon which such community forestry enterprises might be based, and recommend regional clustering to improve scale efficiencies and competitiveness.

A number of key challenges were found to underpin the slow development of community forest enterprises. The report explores each and proposes a solution. There is weak political commitment to community forestry, and this requires more vigorous mobilisation and awareness-raising of its economic potential. Forest officers tend to lack interest in community forestry enterprise, when in fact it should be mainstreamed into the Forest Department's normal operation procedures under a dedicated department. Tenure and use rights to commercial land and its resources are insecure, requiring the enactment and implementation of a national land-use policy and plan that grants community forest user groups (CFUGs) commercial forest use rights. The shortage of investment requires more accessible bank loans, membership saving schemes, supplier-buyer partnerships, insurance schemes and a further simplification of export requirements. A widespread lack of business skills among communities requires more extensive training, workshops and exchange visits. The lack of technology requires concerted research and development by government and academic institutions. Weak community participation in turn requires better mobilisation and awareness-raising of financial opportunities.

Business and financial-support services will need to be strengthened to bring about this transformation. But the market-led approach to community forestry fits perfectly with the government of Myanmar's new emphasis on support for small and medium enterprises (SMEs), spearheaded by the president. SMEs constitute the largest sector within Myanmar's economy in terms of number, contribution to employment, output and investment – playing a vital role in the country's economic development. Community forestry enterprises could make a vital contribution to such development. But it will require concerted effort and a strong partnership between government and civil society groups to install a market-led approach to community forestry.



The Myanmar context for small forest enterprises

This section introduces the main issues for small and medium forest enterprises (SMFEs) in Myanmar: the evolution of forest governance, the economic and social development challenges, and the emergence of community forestry.

1.1 Myanmar's extensive forest cover is an economic opportunity

Unleashing the economic potential of Myanmar's forests through the development of local forest and farm producer groups is important because of the large scale of these resources. Just under half of Myanmar's land still has forest cover (317,739 square kilometres or 46.96 per cent), and although this has fallen from three quarters of the total land area, the available resource remains substantial. Around two-thirds of this forest (197,899km² or 30.73 per cent of the country) is under Forest Department (FD) management as permanent forest estate (PFE) (FD, 2012). Tree cover in Myanmar is spread over a diversity of landscapes: natural forests, shifting cultivation, agroforestry systems and sedentary agriculture (see Table 1).

Table 1. Forest and other land use extent in Myanmar, 2010

Category	Area (km ²)	% of total
Closed forest	134,446	19.87
Open forest	183,286	27.09
Forest affected by shifting cultivation	201,125	29.73
Water bodies	19,031	2.81
Other land use	138,689	20.5
Total	676,577	100

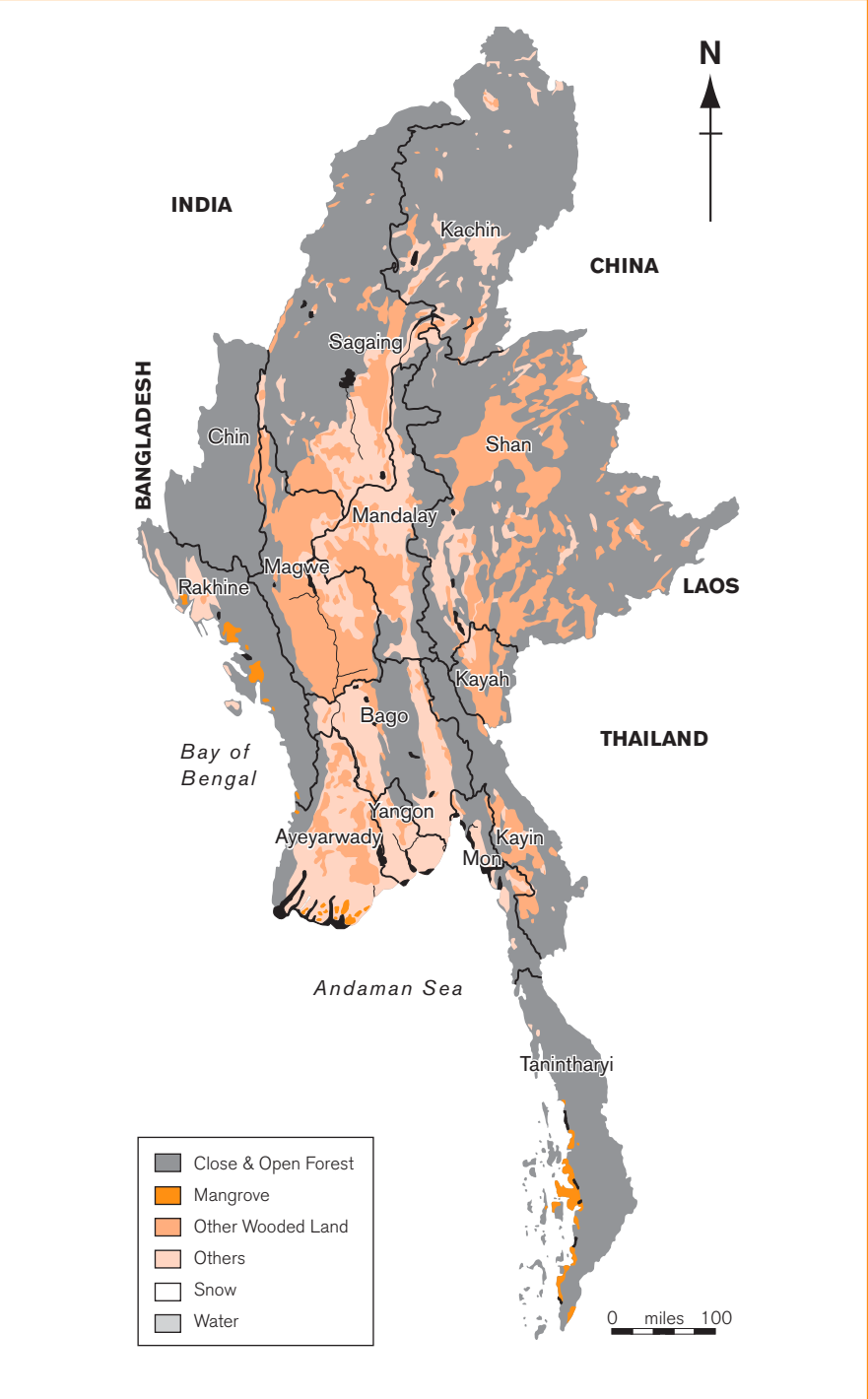
Source: Forest Resource Assessment (FAO, 2010)

Forest types range from sub-alpine forests in the north through dry and moist deciduous forests to tropical monsoon forests in the south, and mangroves along the coastal areas.

Forests in the northern part of the country and hill areas remain extensive where the landscape is rugged and the population sparse. In the more densely populated central and lowland parts of the country, the forest cover is lower (see Map 1).

These remaining forests produce a remarkable array of forest products, including timber of a range of qualities; poles and smaller wood products; fuelwood and charcoal; bamboos and canes; and numerous 'non-wood forest products' (NWFPs) including medicinal and aromatic plants (MAPs). Yet the potential for rural forest product-based enterprise development, which could provide local jobs and incomes, has been neglected.

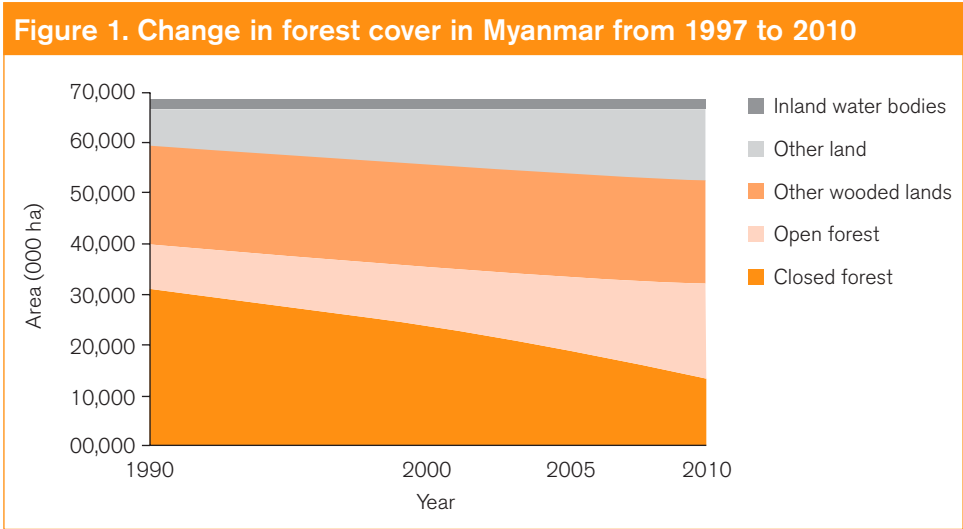
Map 1. Myanmar forest cover



Source: Forest Department (2010)

1.2 Forest loss presents a threat to that potential

Myanmar has been famed as a source of high-quality timber – particularly teak – for centuries. The quality of Myanmar timber has arguably been a ‘resource curse’ for the forests, attracting unsustainable exploitation and the neglect of the wider forest benefits. In the early stages of colonisation, the British plundered the forests, but gradually problems were recognised and regulated forest management was attempted from 1856. Forests then covered an estimated 70 per cent of the country but this has since dropped to less than 50 per cent (see Figure 1). The rate of deforestation and degradation in Myanmar is among the highest in the world, running at 0.9 per cent between 2000 and 2010. Most worrying is the loss of high-biodiversity natural forests, which were – and still are – some of South East Asia and the world’s most important.



Source: Central Statistical Organization (CSO) (2012)

The main causes of deforestation in Myanmar are the overharvesting of timber (both poorly regulated commercial logging and illicit logging) and converting forest land into agricultural and horticultural plantations. A weak governance regime vulnerable to corruption and abuse of power has combined with a growing international demand for timber to aggravate these issues.

1.3 The decline in forest sector importance can be reversed

The forest sector’s role in the economy has declined in recent decades: from 0.6 per cent of GDP in 2006-2007 to 0.42 per cent in 2009-2010 (see Table 2) and 0.38 per cent in 2010-2011.¹ Government mismanagement has been widely recognised as the cause. It has led to forest exhaustion, the neglect of processing industries, and sluggish growth of new sectors.

1. 79,336 million kyats (Source: CSO, 2012)

Export revenues from approved timber harvesting under the Myanmar Timber Enterprise (MTE) accounts for most of the forest sector's contribution to the economy. But harvesting has been politically rather than technically motivated, leading to over-extraction to meet politically defined targets and 'distress sale' marketing where the timber is sold far below its proper value. Timber is mostly exported in unprocessed log form, meaning that much of the processing (and therefore job creation) happens outside of the country.

The decline in forests' contribution to GDP is also due to the respective growth of the oil and gas, mining, processing and manufacturing, services and trade sectors (CSO, 2012; Yupa, 2013). Agriculture remains the main employer and greatest economic activity, contributing 31.87 per cent of GDP in 2009-2010.²

Economic sectors	Value (million MMK)	% contribution to national GDP
Agriculture	6,043,622	31.87
Livestock and fishery	1,447,155	7.63
Forestry	79,063	0.42
Energy	24,637	0.13
Mining	108,620	0.57
Processing and manufacturing	3,269,514	17.24
Electric power	41,771	0.22
Construction	837,560	4.42
Gross domestic product (goods + services + trade)	11,851,942	

Source: Statistical year book 2011 (CSO, 2012)

However, the importance of forests for the economy is significantly understated by these official figures:

- Much forest use is non-formal and/or domestic, and therefore not reported.** Fuelwood collection, and other domestic forest-product gathering, is likely to be a major component of the economy but this kind of non-traded production is not counted.
- ‘Ecosystem services’ are not counted.** Hydrological functions of river catchment forests, for instance, are important for river flows, mitigating flooding and increasing dry-season flows; providing a crucial function for agriculture and river transport.
- The illegal trade in timber distorts prices due to corrupt practices.** Timber costs reported in trade figures are likely to be much lower than real values. The domestic timber trade, for instance, is likely to be underrepresented. The cross-border trade in timber to China is also likely to be underreported, or not reported at all.

Thus, clarifications and recognition of the ‘real’ importance of forests in the economy, particularly domestic provision of basic needs and small enterprises, are needed.

2. 6,043,622m kyats – MOAI, 2011; CSO,2012

The involvement of SMFEs in the export timber trade is minimal. Policy pronouncements from the government indicate that this could change, however. The intention is that exports will become more restricted, with log exports banned from April 2014. There will also be increasingly effective restriction on illegal timber harvesting and export. The involvement of SMFEs in the domestic timber market, on the other hand, is likely to be significant, but there has been little study of this issue.

1.4 Historic socioeconomic under-development must be tackled

Since gaining independence in 1948, the national economy has been beset by difficulties. Myanmar has struggled to develop, compared to its neighbours. Although from 1948-1961 there was a parliamentary democracy, the 1962 military coup led to the first period of 'socialist military rule' which lasted until 1988. This was followed by a subsequent period of market-oriented military rule until 2010. Consequently, since 1962 Myanmar has suffered severe political and economic stagnation, which Von Hauff (2009) attributes to government mismanagement of resources and corruption. Since military expenses have consumed a large portion of the national budget, Myanmar's financial sector has not served the national good. Meanwhile, the private sector, particularly agriculture, has suffered from neglect, overregulation, arbitrary restrictions and insufficient credit (Yupa, 2013).

The social consequences have been that most citizens' standard of living has not improved significantly (Von Hauff, 2009). Although the GDP growth rate has begun to increase in recent years, rural people are still poor. In the first ever countrywide study, the Myanmar government found that 37 per cent of the nation's population are unemployed and an average of 26 per cent live in poverty. (UNDP, 2013). There are significant inequalities across the country, with the poor mostly in rural areas and suburbs.

Additionally, the vast majority of forest farmers have no land rights, only the rights to cultivate. The state owns the land. Forest farmers also face problems in accessing credit via reasonable loans. Rice farmers need about 120,000-180,000 kyats per acre for a production cycle, but the government system offers just 20,000 kyats per acre (18 per cent, with a maximum total of 100,000 kyats; Yupa, 2013). Farmers thus have to rely on private money lenders, who usually charge exploitative rates of around five per cent interest per month.

According to the UNDP (2011), the Human Development Index (HDI) of Myanmar was 0.498 in 2012, while that of East Asia and the Pacific is 0.683, and that of the world 0.694 (UNDP, 2012).

Health indicators are generally poor and improvements are constrained by household poverty and a low level of public spending (IMF, 1999). The biggest public health concerns are malnutrition, malaria, tuberculosis, HIV/AIDS, dengue fever, leprosy and intestinal parasites. According to the latest UN estimates, almost half a million people in Myanmar have HIV/AIDS, with an adult infection rate of almost two per cent (IMF, 1999).

Since about 1880, the Myanmar Selection System (MSS) has been applied in all natural teak-bearing forests in the country. The 1957 Working Plans Manual organised forest

management within Myanmar into six working circles. These included one working circle for commercial supply and one for local supply, which were meant to contribute to the wealth and wellbeing of the citizens. But this century old scientific management system has not been able to meet the needs of the industry, reduce poverty in rural areas, or sustain the country's forest resources.

The failings of the working circle system have been due to many factors beyond the control of the Forest Department. During the military period, forests provided rural populations with subsistence and minor commercial benefits, but were largely managed to generate timber revenues, and have been plundered unsustainably. The alarming rates of forest depletion and degradation throughout the previous decades have done little to reduce hardship for forest-dependent people.

1.5 Democratisation is bringing economic opportunity to forest communities

Since 2011, a democratisation process has begun, with political and economic reforms gradually creating an improved economic environment across the country. Initial steps towards reform of the economy were taken in 2011 through the lowering of export taxes and an easing of restrictions on the financial sector. The exchange rate of the kyat on the unofficial market rose to approximately 800 kyats per US\$1 in 2011, driven by foreign investment and the general depreciation of the US dollar. The GDP growth rate was six per cent in 2012 and 6.3 per cent in 2013 (Yupa, 2013). This is also leading to an international response: the lifting or temporarily suspension of sanctions by the European Union, the United States, Australia and Canada. There is, therefore, a general mood of optimism about the reform process. The hope is that it can lead to a healthy economic climate that will afford local people more income and job opportunities.

Democratic devolution of resource control towards more locally controlled forestry such as CF offers a key opportunity for both improved management and incomes for the rural poor.

This trend parallels experiences from elsewhere in the world, which have shown the economic potential of locally controlled forestry (Macqueen *et al.*, 2012). The reliance of rural people on forests for food, shelter, education and recreation provides an incentive for protection and management. From the mid-1970s, in a growing number of countries, government forest departments have begun to acknowledge the legitimacy of local forest use (RECOFTC, 2011a-d). Such departments had historically appropriated control of these forests and have been gradually handing back rights through CF policies (White and Martin, 2002).

Early models of devolved control tended to focus on a type of CF which has been defined as “any situation which intimately involves local people in a forestry activity. It embraces a spectrum of situations ranging from woodlots in areas which are short of wood and other forest products for local needs, through the growing of trees at the farm level to provide cash crops and the processing of forest products at the household, artisan or small industry level to generate income, to the activities of forest dwelling communities” (Arnold, 1992).

More recently, alliances of indigenous peoples, and CF and family smallholders, have preferred to use the terminology 'investing in locally controlled forestry' or ILCF. **Locally controlled forestry** has been defined as "the local right for forest-owner families and communities to make decisions on commercial forest management and land use, with secure tenure rights, freedom of association and access to markets and technology" (Legallais-Korsbakken, 2010).

Policies that support locally controlled forestry continue to spread and evolve in a growing number of countries (Macqueen, 2012). It has been successfully applied for the alleviation of poverty among local forest communities as well as forest conservation and sustainable management. Numerous studies worldwide have demonstrated that locally controlled forestry can and does help alleviate rural poverty, improve forest conservation and bring about social justice (for example, Molnar *et al.*, 2007).

In Myanmar, community management and use of forests has been prevalent since time immemorial. But after a re-think of the colonial appropriation of these village forests, the government promotion of CF began in 1995 when it issued the CF Instruction (CFI). The Forest Department sought to aid the participation of rural communities in the protection of forests, including replanting degraded areas. The aim was also to help communities satisfy their local need for forest products. The CFI defined CF, based on the FAO's definition, as the:

- establishment of woodlots in areas where there is no sufficient fuelwood or other forest products for community use, and the
- planting of trees and exploiting of forest products to obtain food supplies, consumer products and incomes, with peoples' participation.

As noted above, the objectives of the 1995 CFI were to fulfil local communities' subsistence needs, and they were **explicitly not aimed at the establishment of a large-scale timber industry**. Between 1996 and 2013, a total of 47,948 ha of CFs have been officially **formed by 742 users' groups with 30,362 group members** (Planning and Statistics Division, FD). But recent studies suggest that perhaps as few as half of these FUGs are actually functioning well, and around one-fifth may actually be stagnant (Tint *et al.*, 2011).

A major problem exists in **motivating communities to take on responsibility for local forests**. The lack of dynamism within FUGs is caused by the **lack of significant benefits** that are possible from this 'subsistence-oriented' model of forest-use rights. What local people need most, after fulfilling their basic needs, is cash income. Colonial-era models of state-centric forest management have failed to improve the lives of the forest dependent poor or even sustain the forest resources. Evidence suggests that only with people's commercial empowerment in forest management can poverty reduction, social justice and forest conservation be achieved. But the implementation of CF in Myanmar has so far followed the FAO definition, excluding commercial activities.

In parallel with forest sector developments, internationally there has also been growing recognition of the crucial economic role of small and medium enterprises (SMEs) in innovation and job creation. In Myanmar's economy SMEs contribute more than larger enterprises in terms of employment, output and investment (Aung Kyaw, 2008),

representing 96 per cent of production in both rural and urban sectors; and about 92 per cent of the manufacturing sector (Wai Lwin Than, 2012). Myanmar's economic growth thus depends heavily on the development of SMEs in the private sector. However, the economic structure of the country has been somewhat monopolistic due to military patronage of 'crony' businesses in key areas. Although there is a need to promote SMEs in the forest sector, there is therefore also a need for democratic policy support to smaller businesses in general to 'level the playing field'.

1.6 How to promote community forest enterprises in Myanmar

To catch up with policies for investing in locally controlled forestry elsewhere, CF in Myanmar must evolve from a subsistence-oriented model towards an enterprise-oriented model. This will provide maximum benefit to the rural poor. We have compiled this source book on the potential of a market-led approach to CF in Myanmar with this aim in mind.

CF enterprises can best be defined as enterprises that are formed from the cooperative action of forest-farmers for the production and commercialisation of forest and farm products.

A major series of recent dialogues between investors and representatives of indigenous, community and family smallholders identified a number of factors that help to develop investible enterprises. These were: clear tenure and decision-making power over forest and broader land use, freedom of association to achieve scale-efficiencies and market power, plus support services for business capacity development and access to technology (Macqueen *et al.*, 2012).

A key issue for enterprise development is the investment environment. Beyond basic artisanal processing, modern commercial production often involves some level of investment in capital equipment, but securing investment requires a reliable and predictable return. Nobody will invest without assurances over commercial rights; nor will they invest in the absence of professional business organisation and management.

A key strategy for moving forward is to encourage CFUGs to form local and/or regional associations or cooperatives to strengthen themselves, scale up production and attract partnership with investors. A recent conference dedicated to this topic in China ('Strength in numbers', Guilin, China) showcased examples where this strategy had had considerable positive impacts on economic growth and forest protection in Bolivia, Brazil, China, Finland, Germany, Guatemala, Mexico, Nepal and Sweden (FAO, 2013).

CF enterprises could be run in partnership with investors. This requires the development of a credible product-based business plan that can attract investment if necessary. Investors, whether the communities themselves or outside financiers, need clear information on the economic potential and revenues that that a venture might generate. They also need a predictable business environment. The necessary prerequisites for investment can be summarised as follows (Macqueen *et al.*, 2012):

- A **business case** showing the likelihood of risk-adjusted returns on capital as good or better than alternative options.
- Clear **risk management** measures that ensure clarity, for example regarding tenure, enforceability of contracts, investment rules.
- **Liquidity**: the ability to get money back by selling assets, if required, without too much difficulty or delay, for example.
- Investible business entities – **legal business organisations** able to trade.
- Social **license to operate**. That is, the acceptance by local people of the proposed investment and its likely economic, social and environmental impacts.

To this end, several changes to policy and practice are needed in Myanmar:

- Communities should be allowed commercial use rights to their CFs.
 - As well as transfer of management, security, legal and administrative reforms are needed. Associated forest product-related regulations, such as transit rules, must also be modified to provide an enabling policy environment for community-based SMFEs.
- Community awareness should be raised regarding commercial opportunities, and marketing links should be supported.
 - Communities need to understand the new opportunities and potential net benefits.
 - It is crucial that communities understand and manage trade-offs when considering moving towards an enterprise orientation. They should consider what are alternative forest management options and which best suits the community and protects the livelihoods and interests of the poorest.
- The hand-over of local forests to FUGs should be streamlined and accelerated.
 - Administrative processing of applications is often sluggish and uncertain, and public servants must treat them more efficiently. The actual processes should be simplified where possible. A lack of response from a District Forest Officer after a due period, perhaps one month, should signify approval of the application.
- FUGs need their enterprise capacity developed and strengthened.
 - Community groups need technical support and training to develop enterprise management capacity.
- Support and participatory monitoring for FUGs and SMFEs should be provided to ensure enterprise development is sustainable and equitable.
 - To avoid stagnation, to ensure FUGs are pro-poor, and that risks of elite bias and mismanagement are avoided.
 - FUG networks and federations are the ideal institutional structure for support and development, in a constructive relationship with foresters.
- A reliable investment environment should be assured to facilitate enterprise development.
 - State policies are needed to ensure FUGs can engage successfully as business entities.



Community forest enterprise potential and product type by region

The preceding chapter introduced community forest enterprises. We will now turn to look in more depth at the options emerging in different states, using information from a survey of household use of forest products and an assessment of market trade.

2.1 Introduction

There is much potential for FUGs to engage in enterprise-oriented CF management across the country. The opportunities vary by area, due to different agro-ecological conditions, livelihood needs and markets. Here we explore the variations through four cases studies: Ayeyarwady, representing the coastal zone; Mandalay representing the dry zone; and Shan and Kachin representing the uplands. We review local livelihood demands, needs for forest products, market conditions, the status of forests and the status of FUGs as an institutional arrangement to manage such production. In each case study, we highlight the key forest products and enterprise opportunities. (See map of Myanmar showing sample sites in Appendix I).

2.2 The Ayeyarwady Delta region

2.2.1 Context

This area encompasses both mangrove and non-mangrove forests. In the Delta itself and coastal areas mangroves dominate, and were once extremely rich in diverse flora and fauna.

The last time the region was assessed, in 1989, it had 4,907km² of closed forest, 2,928km² of degraded forest, 1,865km² of forest with shifting cultivation, 22,649km² of non-forest and 2,787km² of water bodies (Tint, 1989). As human interventions have increased over recent decades, however, it has led to forest degradation and deforestation. Mangroves occupied 253,018 ha in the Ayeyarwady Delta in 1924, but by 2001 this area had reduced to 111,939 ha — a loss of about 56 per cent over 77 years. Major drivers for the clearance of natural mangroves have been the conversion of land to agriculture and shrimp ponds, and the intensification of charcoal production. This is often a livelihood of last resort for the landless but most citizens depend on biomass fuels as there is no effective alternative fuel supply.

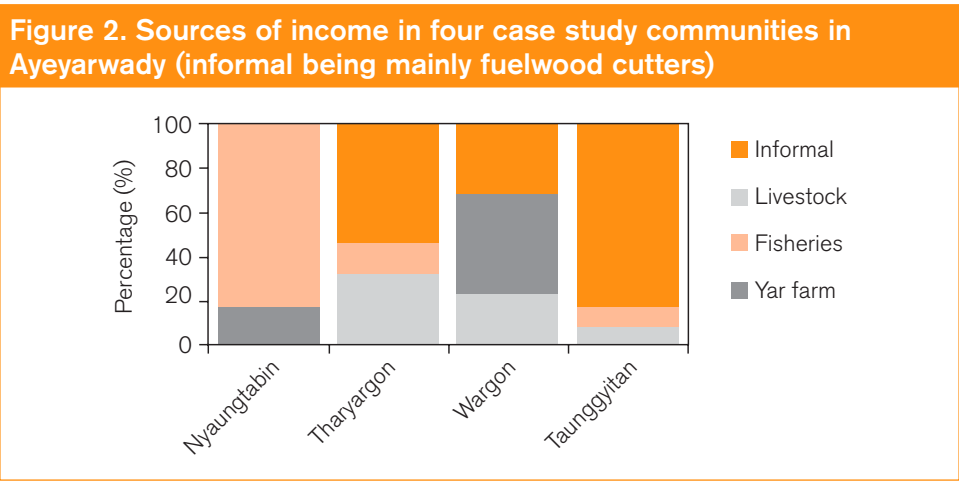
The loss of mangroves was compounded by Cyclone Nargis in 2008. It destroyed extensive areas of forest, and in its aftermath desperately poor people were obliged to cut fuelwood to sell to survive. The consequence has been that around 80 per cent of the remaining forests were lost (Kyaw, 2012), and the total area of mangrove forests in the Ayeyarwady Delta region had fallen to just 24,847 ha by 2010.

There is clearly an urgent need to regenerate mangrove forests, both to protect from future storm events and to offer economic opportunities for local communities. In this section, we consider four case study villages across the Laputta and Phyapon districts of the Ayeyarwady Region.

2.2.2 Livelihoods

There is severe poverty and landlessness across the delta area. About 73 per cent of the population in the two sample villages in Laputta Township are landless. Households are mainly dependent on fisheries (45.42 per cent) followed by casual labour (28.94 per cent). Only 17.58 per cent of households are dependent on agriculture. A further 7.33 per cent depend on ‘ya’ or farmland cultivation of agricultural crops. Government servants constitute less than one per cent of all villagers.

Landlessness is less pronounced in Phyapon Township but still high at around 39 per cent. Yet here, casual workers number nearly 70 per cent of the working families. This is followed by farm workers (12.17 per cent), agriculturalists (10.85 per cent) and fishermen (5.56 per cent). Livestock rearing is less common and government servants formed about one per cent of the total population. Figure 2 shows the main sources of income for people from the four case study sites.



In general, the sample villagers were poor, without sufficient valuable assets to support their livelihoods. Firewood or charcoal is predominantly used for cooking here and charcoal trading had been one of the principal livelihoods in this part of the country for many years.

There is a serious need to regenerate much of the mangrove forests and to do so in ways that can provide sustainable income opportunities for the large number of desperately poor in the region.

2.2.3 Community forests in the Ayeyarwady Region

Enterprise-oriented community forestry offers a potential opportunity to achieve income generation and sustainable forest management in ways that are adapted to local needs. But as yet, CF has spread relatively slowly in Ayeyarwady. In 2012 there were 134 CFUGs with a certificate, comprising 5,213 members managing 7,466 acres (3,021 ha of forest lands). The CFs in the region comprise both plantations and natural forests, and mangroves and non-mangroves.

Table 3. The distribution of CFs in Ayeyarwady Region

District	No. of CFs	Total area under CFs (acre)	Reserved forests/protected public forests			Public forest (acre)*	No. of members	Mean acres/ CF	Mean members per CF	Mean forest /CF member (acre)
			Plantation (acre)	Natural forest (acre)	Total (acre)					
1. Myaungmya	133	7,125	3,163	3,963	7,125	0	4,813	54	36	1.48
2. Hintharta	1	341	341	0	341	0	400	341	400	0.85
Ayeyarwady Region total	134	7,466	3,504	3,963	7,466	0	5,213	56	39	1.43

*Note: CFs have only been established in the permanent forest estate. There are none in the public forests although the CFI 1995 allows the creation of CFs there

As shown in Table 3, there are 133 CFs in Myaungmya District, covering 7,125 acres, but only one CF in Hintharta District, covering 341 acres. There is only around 1.43 acres of CF forests available per FUG member.

Four CFUGS visited in the delta are described in Table 4. In each of these communities, mangrove forests were planted between 1998 and 2010.

Table 4. Description of CFs/FUGs visited in the delta

Location	CF/Village	Year established	CF area (acres)			No. of FUG members	Mean acre/ member
			Plantation	Natural forest	Total		
Pyin Ah Lan FR, Laputta Township	1. Nyaungtabin	2004	4	606	610	64	10
	2. Tharyargon	1998	328	652	980	212	5
Pyindaye RF, Phyapon Township	3. Wargon	2001	65	75	140	45	3
	4. Taunggyitan	2010	275	70	345	63	5

These FUGs have significantly more forest per member (between three and ten acres rather than the mean for the region of 1.43). The main species growing in the Wargon plantation³ and in the natural forest include *Bruguiera cylindrica* (byu), *Sonneratia apetala* (kambala) and *Avicennia officinalis* (thame). There were also medicinal and edible plants in the undergrowth such as *Derris trifoliata* (nwai-net) and *Monollyla correa* (hnget-kyi-taung).

3. During its 2010 research on the performance of the CFs in the country, ECCDI assessed its FUG.

Some of the plantations are now well established with marketable wood. Financial analysis has suggested that, as an enterprise, the community forest mangrove plantation was financially profitable, producing an IRR of 24.28 per cent and a BCR of 2.47 at a ten per cent discount rate. The income came from the sale of mangrove poles, seeds and firewood.

One of the key issues for this region is the available market for the mangrove products, which are mostly sold to fishing communities some way distant. Communities rely on traders coming to purchase their products – which put them in a weak bargaining position. They do not have the capital to purchase a boat to transport to the markets directly and indeed the individual scale of each CF would not readily repay such a large capital expenditure. There is high potential for these CFUGs to explore the possible benefits of some form of cooperation – perhaps as an association – but the resources for meetings to discuss this, and the legislative provisions for it, are weak.

2.2.4 Forest and non-timber forest products traded by communities

The following figures show the amount of money villagers spend on different types of forest product: poles and posts, firewood, bamboo, *dani* (nipa palm or *Nipa fruticans*) and *thinbaung* (marsh date-palm or *Phoenix paludosa*). The products came from both within CF areas and from outside. The costs are estimated local costs.

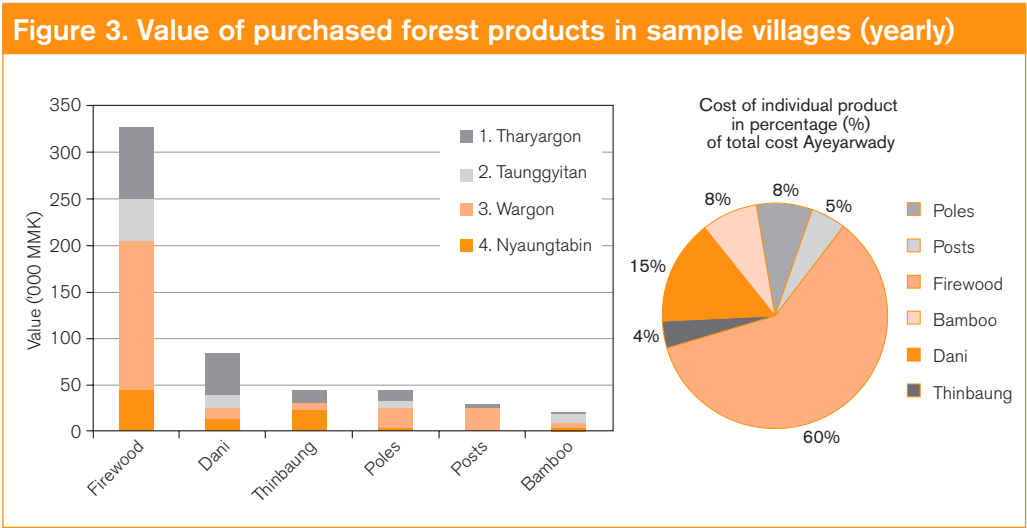
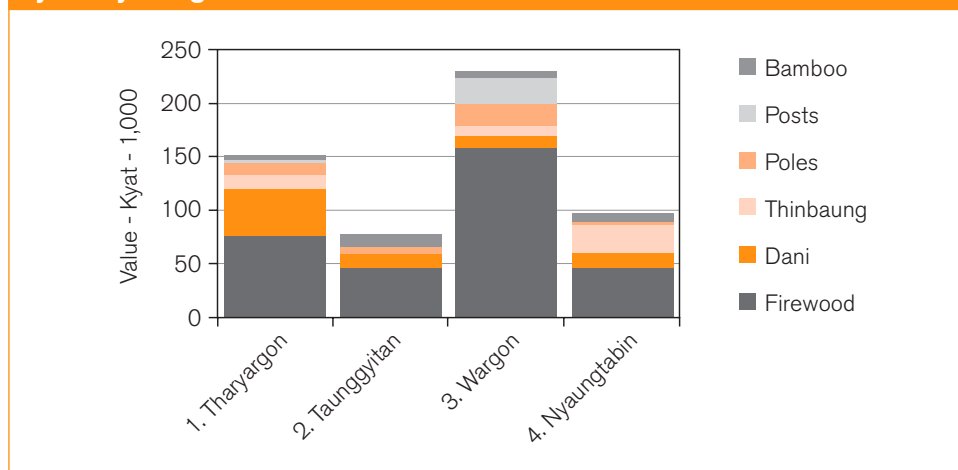


Figure 4. Value of forest products consumed per household per year, by study village



These figures clearly show that firewood was the most important item of household expenditure on forest products. For the four villages taken together, **firewood constituted about 59 per cent of total household expenditure on forest-related items**. This serves as a clear indicator, not only that there is a fuelwood deficit, but that an opportunity exists for CFUGs to fill this deficit through rapidly promoting the restoration of fuel-suitable biomass.

What is less clear from this data on community purchases is the prospective returns that might be had from each of the products listed were they to be sold. In the paragraphs below we summarise some findings from local market research.

2.2.5 Status of demand for forest products at local market

Based on a survey of retail outlets selling forest products in urban markets in April to May 2013 (see method of survey in Appendix I), the major forest products traded in the local markets of Laputta and Phyapon townships were found to be timber, poles, posts, firewood, charcoal, bamboos, bamboo products, *dani* and *thinbaung*. Estimated volumes of monthly timber and non-timber trade per retail outlet are summarised in Table 5.⁴

4. Note that the survey could not have covered all retail shops in the market or in the town, the number of which was also unknown. The data thus indicate the relative importance of each product only, not the total volume sold in the entire market or town.

Table 5. Status of demand for forest products per month at local markets, Ayeyarwady Region (cost in '000 kyats)

Name of market	Timber				Pole				Firewood				Charcoal			
	Unit	Quantity	Unit price	Total cost	Unit	Quantity	Unit price	Total cost	Unit	Quantity	Unit price	Total cost	Unit	Quantity	Unit price	Total cost
1. Laputta	ton	5	200	1,000	no.	200	2.5	500	ton	18	12.5	225	bag	750	2.5	1,875
2. Phyaupon	ton	10	800	8,000	no.	300	1.2	360	ton	8	12.5	100	bag	200	2.5	500
Total		15		9,000		500		860		26		325		950		2,375
Name of Market	Bamboo				Dani				Thinbaung				Bamboo value added			
	Unit	Quantity	Unit price	Total cost	Unit	Quantity	Unit price	Total cost	Unit	Quantity	Unit price	Total cost	Unit	Quantity	Unit price	Total cost
1. Laputta	no.	6,466	0.3	1,940	byit	3,000	0.035	105	no.	0	0	0	lot	253	2.5	633
2. Phyaupon	no.	20,000	0.665	13,300	byit	0	0	0	no.	200	0.6	120	lot	0	0	0
Total		26,466		15,240		3,000		105		200		120		253		633

The total cost of the products amounted to approximately 29 million kyats. The breakdown is illustrated below.

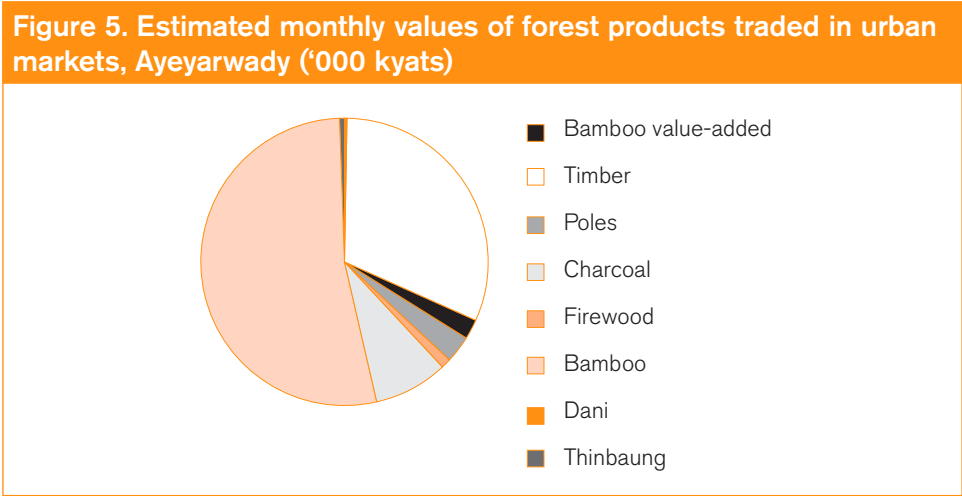


Table 5 and Figure 5 show that among the major items traded in the local markets, bamboos were the most important by total sales; demand had been more than 15 million kyats. This was followed by timber and charcoal respectively. Local people need bamboos for housing and making bamboo-based handicrafts. But as bamboos do not grow in the community mangrove forests, they might have been imported from other parts of the Ayeyarwady Region. That was why value-added bamboo products had earned more than 633,000 kyats in a month in the two local markets. Mangrove and non-mangrove poles were needed by the community for use in housing and fishing.

Large timber also had to be imported because the existing mangrove forests do not have large-diameter trees of commercial species any more.

It is noteworthy that so much charcoal (costing about 2.4 million kyats) is being marketed. All of this is technically illegally produced because production of charcoal has been banned in the Ayeyarwady Region since 1993.

2.2.6 Most promising forest products enterprises

The timber and non-timber forest products that the communities were most interested in developing as an enterprise include: timber for furniture, charcoal production, *dani* and *thinbaung*.

Table 6. CF products and enterprises suggested by villagers

Name of township	Name of village	Most favoured by community	
		CF product	Business enterprise
Laputta	1. Nyaungtabin	1. Timber 2. Pole 3. Post 4. Charcoal	1. Charcoal making
	2. Tharyargon	1. Seeds 2. Timber 3. Dani 4. Thingbaung 5. Post 6. Pole	1. Furniture 2. Charcoal 3. Handicraft
Phyapon	1. Wargon	1. Timber 2. Pole 3. Post 4. Thingbaung	1. Furniture 2. Firewood 3. Pulp & paper 4. Sawmill 5. Charcoal 6. Handicraft
	2. Taunggyitan	1. Timber 2. Dani	1. Furniture 2. Handicraft

Charcoal is transported some distance and Yangon is a huge potential market (notorious for having destroyed Ayeyarwady mangroves to a significant extent). Although charcoal-making has been officially banned in the Delta, Rakhine and Tanintharyi mangroves are still being extensively illegally converted to charcoal for local use and export (to Ayeyarwady markets and beyond).

- Properly and sustainably managed charcoal and firewood could be good sources for CF enterprise development. But the challenge will lie in enforcing a clamp-down on illegal harvesting and production, so that charcoal from managed forests could compete on price.

Timber (large and small): any type or species of timber can be the base for enterprise development. At the moment there is a thriving local market for posts and poles. Timber could also be developed into value-adding opportunities such as furniture and handicraft making, conversion (sawmilling) and so on. Local saw-mills have been noted in many parts of the surveyed areas in Laputta and Phyapon townships.

Eucalypts are fast growing and eucalypt poles are used in fishing and fetch good prices. Teak, pyinkado and many other commercially valuable species can grow well on higher grounds above high tides in the Ayeyarwady Region.

Dani and **Thinbaung** grow in association with mangroves. They are widely used for roofing (Dani) and fence posts (Thinbaung) in traditional housing structures, especially by poor people. As a result, they are highly in demand in local markets, and even in the markets in Yangon.

2.2.7 Potential resources and products for enterprise development

The most important forest products in the surveyed areas are listed above. But beyond these there are also several other potential opportunities that might be developed over time. For example:

Bamboos and rattans: The communities did not mention bamboos, probably because bamboos did not grow naturally in their mangrove CFs to date. Bamboos are available in abundance in other parts of the Ayeyarwady region – although not growing in tidal areas. Various value-added bamboo products are marketed locally and exported to other parts of the country. Bamboos are also supplied to the pulp and paper factory in Thaboung Township, Patheingyi District. Thus, bamboos have huge current as well as future potential markets.

It might be possible to plant bamboos on raised grounds in mangrove forests and in CFs elsewhere in the region. Rattan grows well naturally in the delta, but surprisingly nobody expressed interest in the species. Rattan is used widely throughout the country and value-added rattans have wide local and export markets.

Fruits like coconuts and bananas are sold in plentiful amounts in all local markets. For many, this has become one of the main sources of their income.

Mangrove seeds also generate household income. For example, Wagon CF produced four baskets of thame (*Avicennia officinalis*) seeds in 2010 which were sold at 1,500 kyats per basket.

Mangrove and non-mangrove (like eucalypts) poles have been suggested as benefitting farmers because these poles are required in the fishing industry as well.

2.3 Mandalay Region

2.3.1 Context

The Mandalay Region covers 37,021km² of central Myanmar. Excepting Pyin Oo Lwin (POL) District, most of the region lies in central Myanmar's dry zone. In the south of the dry zone the climate is dry with high temperatures and low precipitation. Dry deciduous forests, *dipterocarp* forests and than-dahat forests prevail. Mount Popa, an extinct volcano rising up to an elevation of 1,660 metres in the centre of the dry zone, is an exception: here the climate is cool and biodiversity is rich. The northern and eastern parts of the region are hilly and the climate cooler with higher precipitation, leading to better forests and greater biodiversity. The 1989 appraisal of Myanmar's forest cover (Tint *et al.*, 1991) found that the Mandalay Region had 6,630km² of closed forest, 4,303km² of degraded forest, 6,611km² of forest with shifting cultivation, 18,710km² of non-forest and 768km² of water bodies. Forests here have been declining due to agricultural expansion, overcutting of fuel wood and timber, and infrastructural development. In the dry conditions regeneration has proved difficult. In 1997 the dry zone Greening Department was established to rehabilitate degraded forests and establish new forest plantations in the dry zone, which covers the southern portion of Mandalay Region.

2.3.2 Livelihoods

About 38 per cent of the population in the two sample villages in Nyaung Oo Township are landless. The people are mainly dependent on dryland agriculture or *ya* to grow cash crops such as sesame, groundnuts, peas and so on (65.52 per cent), followed by (informal) casual labour (21.84 per cent), and government service (12.64 per cent). They do not practise agriculture, livestock breeding or fishery at all. Figure 7 illustrates proportion of households by livelihood sector. The sample villages do not represent livelihoods in the region in general; for example, it has been shown that livestock farming is an important source of family income, particularly for small households.

About 32 per cent of the households in the two sample villages in Pyin Oo Lwin Township were landless, while 68 per cent had some landholdings. The people were mainly dependent on *ya* (58.56 per cent) followed by informal labour (39.04 per cent), livestock breeding (0.3 per cent) and agriculture (0.6 per cent). They did not practice fishery at all. Figure 6 illustrates proportion of households by livelihood sector.

Table 7. Livelihoods in Bagan-Nyaung Oo Township (number of households)

Village/HH	Ya/farm	Informal	Govt. Servants	Total	Land-less
Myethintwin	111	0	20	131	33
Nyaunggyi	60	57	13	130	70
Total	171	57	33	261	103
%	65.52	21.84	12.64	100.00	37.59

Table 8. Livelihoods in Pyin Oo Lwin Township (number of households)

Village/HH	Agriculture	Ya	Livestock	Govt. Servants	Informal	Total	Land Owners
Singaunglay	2	95	1	3	0	101	172
Inn Yar	0	100	0	2	130	232	100
Total	2	195	1	5	130	333	272
%	0.60	58.56	0.30	1.50	39.04	100.00	68.00

2.3.3 Community forestry in the Mandalay Region

As of 31 October 2012, the Forest Department had established 97 CFUGs comprising 3,433 members in the Mandalay Region. Distribution of CF areas is detailed in Table 9.

Figure 6. Composition of income generation activities in two case study villages in Mandalay

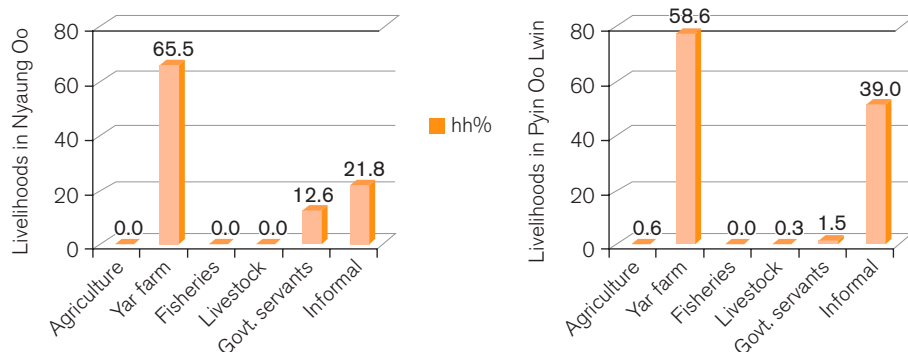


Table 9. CFs in Mandalay Region

District	Reserved forests/protected public forests			Public forests			Total (acre)	No. of CF	No. of members
	Plantation (acre)	Natural forest (acre)	Total (acre)	Plantation (acre)	Natural forest (acre)	Total (acre)			
1. Pyin Oo Lwin	3,521	999	4,520	110	0	110	4,630	67	606
2. Mandalay	0	230	230	0	0	0	230	1	13
3. Meiktila	1,099	124	1,223	0	0	0	1,223	7	246
4. Kyaukse	0	0	0	55	65	120	120	5	50
5. Myinchin	0	0	0	301	0	301	301	13	1,801
6. Yamethin	0	0	0	0	0	0	0	0	0
7. Nyaung Oo	180	0	180	0	0	0	180	4	717
Mandalay Total	4,799	1,353	6,153	466	65	531	6,684	97	3,433

CFs have been established in both permanent forest estate (6,153 acres) and in the public forests (531 acres). The CFs in the region cover a total area of 6,684 acres.

The districts of Meikhtila, Myingyan and Nyaung Oo are very dry, with dry forests and dry domestic tree species dominating. All other natural forests in the region belong to mixed deciduous type with pine forests at high altitudes, as in the district of Pyin Oo Lwin.

The four CFUGs visited in the region are described in Table 10.

Myethintwin and Nyaunggyi CFs are located in Nyaung Oo District of the dry zone. The species planted in forest plantations are local dry species such as acacias and exotics like eucalypts. Most of the inhabitants are poor, practicing farming and breeding livestock such as goats and sheep.

Singaunglay and Inn Yar CFs are located near the town of Pyin Oo Lwin in Pyin Oo Lwin District. Situated at more than 3,000 feet above mean sea level (MSL), POL is cool and the rainfall and soil are favourable to agriculture and livestock. Livelihood and living conditions of the people here are therefore much better than those of the people in the Dry Zone. It's possible to grow many types of fruit and forest trees. Land is therefore expensive.

Table 10. Description of CFs/FUGs visited in Mandalay Region

CF/Village	CF area (acres)			Year established	No. of FUG members	Remarks
	Natural forest	Plantation	Total			
1. Myethintwin	0	28.6	28.6	2003-2005	267 (0.11ac/member)	PPF
2. Nyaunggyi	0	61.8	61.8	2003-2005	108 (0.57 ac/member)	PPF
3. Singaunhlay	0	150.0	150.0	2003-2004	5 (30 ac/member)	RF
4. Inn Yar	0	60.0	60.0	2003-2004	6 (10 ac/member)	RF

RF = Reserved Forest; PF = Public Forest; PPF = Protected Public Forest

Myethintwin and Singaunglay CFs and FUGs were assessed by the ECCDI in 2011 during its research on the performance of CFs in Myanmar (Tint, *et al.*, 2011). Singaunglay was found to be good in forest health, ground cover and erosion control. Small wildlife was present and the status of biodiversity was fair. Myethintwin was found to be fairly good in forest health, ground cover and erosion control. Small wildlife was present and status of biodiversity was fair.

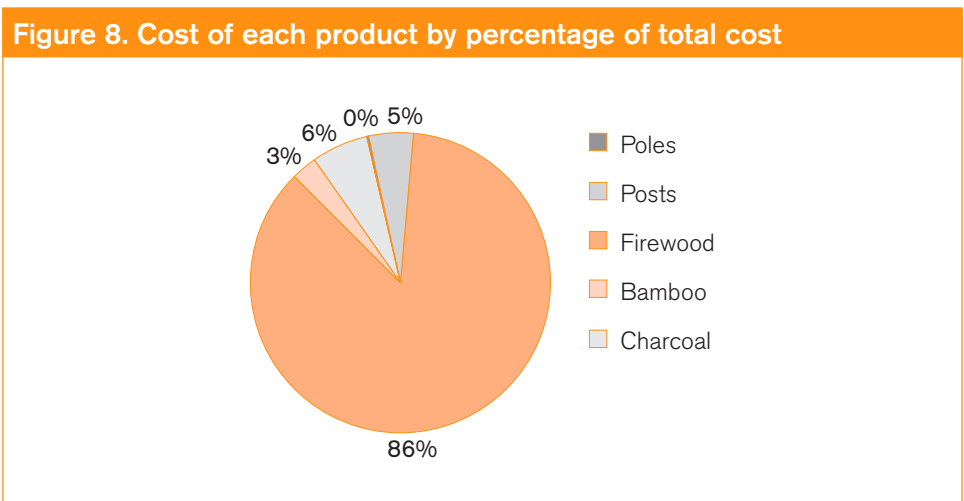
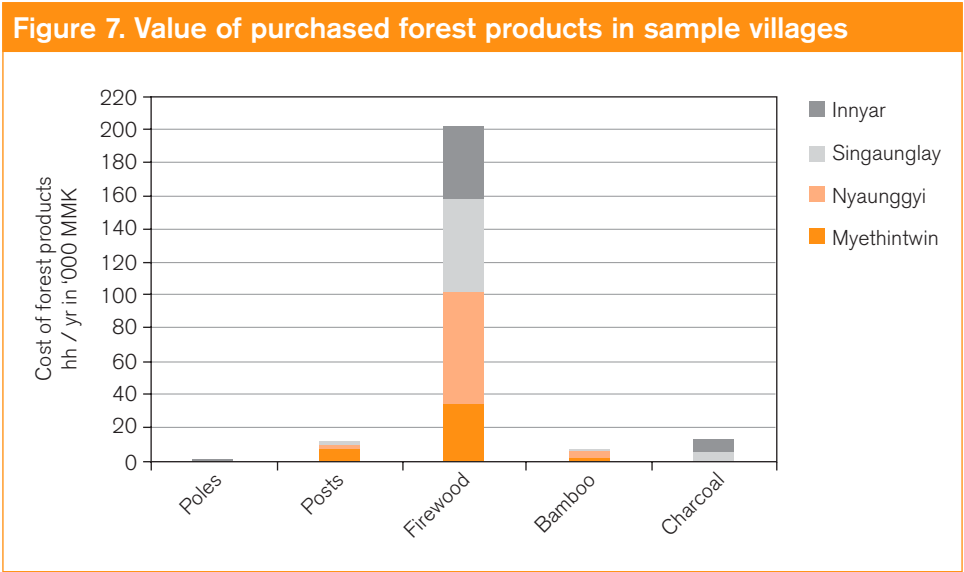
2.3.4 Forest and non-timber forest products traded by communities

Table 11 shows the status of forest products consumed by villagers. The products were obtained from the surveyed CFUGs or from other sources. The costs are estimated local costs.

Table 11. Household consumption of forest products per year and estimated cost, Mandalay Region (cost in '000 kyats)

Village	ES		Posts		Firewood		Bamboo		Charcoal		Total
	no.	MMK	no.	MMK	ton	MMK	no.	MMK	bag	MMK	MMK
1. Myethintwin	0.33	0.08	1.13	7.37	3.40	34.00	2.17	1.30	0.00	0.00	42.74
2. Nyaunggyi	0.00	0.00	1.33	2.67	6.78	67.83	12.33	4.32	0.00	0.00	74.82
3. Singaunglay	1.50	0.34	0.40	1.60	5.52	55.17	0.50	1.00	2.43	4.87	62.97
4. Inn Yar	2.33	0.53	0.00	0.00	4.55	45.50	0.00	0.00	3.97	7.93	53.96
Total	4.17	0.94	2.87	11.63	20.25	202.50	15.00	6.62	6.40	12.80	234.49
%		0.40		4.96		86.36		2.82		5.46	100.00

It is apparent from Table 11 that a family in the studied villages had to spend about 235,000 kyats a year on forest products including poles, posts, firewood, charcoal and bamboos. Among them firewood cost the family most, with its share amounting to 86 per cent of the total expenditure (see Figures 7 and 8).



2.3.5 Status of demand for forest products at local markets

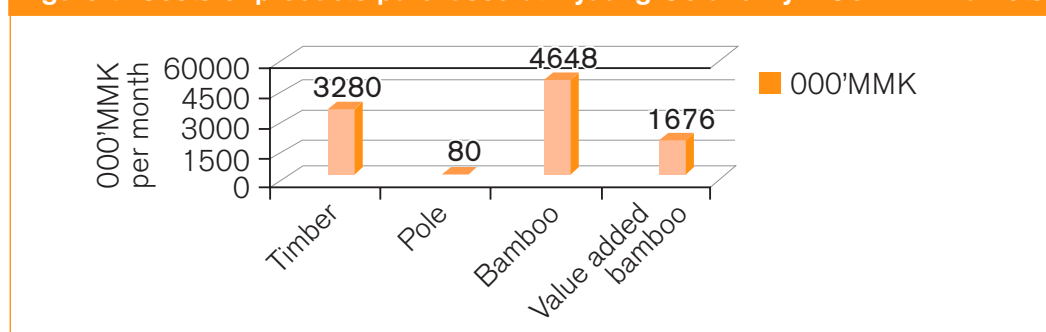
Forest and NTFPs traded at the local markets of Nyaung Oo and Pyin Oo Lwin townships included timber, poles, posts, bamboos and finished bamboo products, as presented in Table 12.

Table 12. Status of demand for forest products per month at local markets, Mandalay Region (cost in '000 kyats)

Name of Market	Timber				Pole				Bamboo				Bamboo value added			
	Unit	Quantity	Unit price	Total	Unit	Quantity	Unit price	Total	Unit	Quantity	Unit price	Total	Unit	Quantity	Unit price	Total
1. Nyaung Oo	ton	5	656	3280	no.	20	3	60	no.	10200	0.433	4417	lot	2630	0.47	1236
2. Pyin Oo Lwin	ton	0	0	0	no.	10	2	20	no.	660	0.35	231	lot	55	8	440
Total				3280				80				4648				1676

Table 12 and Figure 9 show the volume of timber and non-timber trade during the survey period of April-May 2013 in the two markets. They are based on information gathered from retail outlets selling forest products in urban markets.

Figure 9. Costs of products purchased at Nyaung Oo and Pyin Oo Lwin markets



Both indicate that among the major items of forest products traded, bamboos had the highest monetary turnover – about 4.65 million kyats, while value-added bamboo products made 1.68 million kyats. Timber was doubtless an essential and hence imported item for the locality since there is no commercial forest in the vicinity (for Nyaung Oo area). The total sale during the last month in the two markets had amounted to a sum of about 9,684,000 kyats.

Although the market survey results did not show any demand for firewood and charcoal, the household consumption showed firewood had taken the lion's share of household expenditure. So, there is a big market potential for both firewood and charcoal.

2.3.6 Most promising forest products and business enterprises

Interviews were conducted with members of two communities in the region. Nyaung Oo and Pyin Oo Lwin are two totally different sites in terms of topography, climate and vegetation. Nyaung Oo area is a semi-desert site capable of supporting only scrub and thorn forests. Large sized valuable bamboos are also not available in the region.

- Poles and posts can be obtained through planting domestic species or exotics like eucalypts. That is why most Dry Zone plantations are established with acacias and eucalypts.
- At the other extreme, many commercially valuable tree species and bamboos can be grown to commercial sizes in the POL region.
- Timber is a multi-purpose commodity with plenty of potential for value addition. Unsurprisingly, all four communities interviewed expressed their preference for timber (see Table 13).

One problem that the field team encountered was that the villagers interviewed were either too shy or lacking in knowledge to suggest the business enterprise they wished to develop. The one exception was that Myethintwin and Inn Yar FUGs suggested establishing a sawmill. The survey team therefore failed to collect reliable information on the business enterprise alternatives that reflect the interests of the concerned community.

Table 13. Favoured products and potential enterprise ideas in Mandalay

Name of village	Most favoured by community	
	CF product	Business enterprise
1. Myethintwin	Timber	Sawmill
2. Nyaunggyi	1. Timber 2. Pole 3. Post	–
3. Singaunglay	Timber	–
4. Inn Yar	Timber	Sawmill

2.3.7 Potential resources and products for enterprise development

Tree-based enterprises were thought not to be advisable in the dry zone since the sites were considered too poor for the CFs to produce profitable timber. An alternative in this region is agro-forestry or agro-silvo-pastoral systems around which enterprises could be built to commercialise timber products such as poles, posts, firewood or charcoal in conjunction with agricultural and livestock products.

In the POL region it was felt that many CF enterprises might be feasible. CF products could include timber, firewood, charcoal, bamboos, rattan and coffee with trees. Many fruit trees can be integrated with forest trees as understory. Communication and infrastructure are good here and markets in big cities are accessible.

2.4 Shan State

2.4.1 Context

Shan State is located in the eastern part of Myanmar. The ethnic groups living in the state include Shan (the main ethnic tribe), Kachin, Ko-kunt, Taungyo, Danu, Palaung, Paain, Bamar, Lisu, Wa, Ah-Kha and Inn-thar. It has a total land area of 155,800km². It is situated on a plateau with an average elevation of 1,000 metres.

Shan State possesses diverse forests and wildlife. Forest types range from mixed deciduous and dipterocarp forests to temperate and hilly evergreen pine forests. The 1989 appraisal of forest cover (Tint *et al.*, 1991) found that Shan State had 52,089km² of closed forest, 30,681km² of degraded forest, 44,140km² of shifting cultivation, 27,991km² of non-forest and 895km² of water bodies. But the status of forest cover has changed a lot both in quantity and quality due to overcutting, intrusion of agriculture, shifting cultivation and the development of infrastructure.

2.4.2 Livelihood

Table 14 shows that about 1.8 per cent of the population in the two sample villages in Nyaungshwe Township were landless, while land owners constituted 98.2 per cent. The people were mainly dependent on *ya* (26.66 per cent) followed by (informal) casual labour (25.77 per cent), agriculture (19 per cent) and livestock rearing (18.26 per cent). Government servants constituted 4.42 per cent (see also Figure 9).

Table 14. Livelihoods in Nyaungshwe Township (number of households)

Village/HH	Agriculture	Ya	Fisheries	Livestock	Govt. Servants	Informal	Total	Land owners	Landless	Total
Lwentyeint	122	166	0	24	5	165	482	166	1	167
Yepu	7	15	40	100	25	10	197	162	5	167
Total	129	181	40	124	30	175	679	328	6	334
%	19.00	26.66	5.89	18.26	4.42	25.77	100	98.20	1.80	100

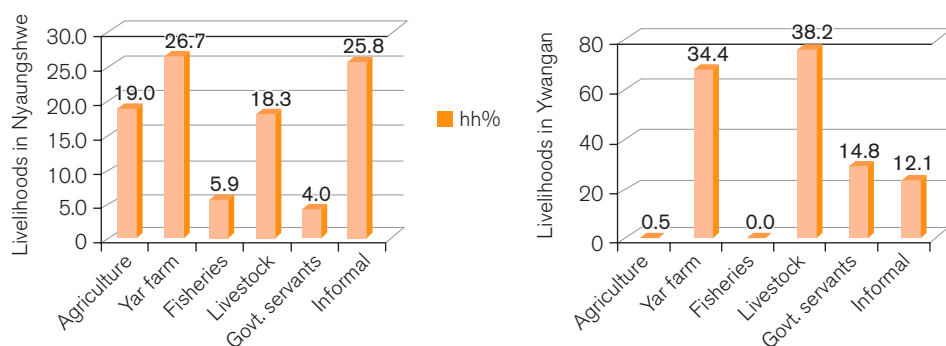
A significant activity in Yepu village was fishery, with 40 families involved. This could be due to the fact that it is close to Inle Lake, a famous tourist site in southern Shan State. In this particular village, agriculture and *ya* cultivation were not as important as livestock or fisheries for livelihood.

Table 15 shows the livelihood structure in the two villages visited in Ywangan Township. The landless and land-owner populations formed approximately five per cent and 95 per cent respectively of the total number of interviewees. Livestock breeding (38.16 per cent) was practised most in the township followed by *ya* with 34.41 per cent. Government servants also constituted a significant proportion, with 14.78 per cent of the total population (see Figure 10).

Table 15. Livelihoods in Ywangan Township (number of households)

Village/HH	Agriculture	Ya	Fisheries	Livestock	Govt. Servants	Informal	Total	Land owners	Landless	Total
Yagyi	0	340	0	370	140	120	970	340	30	370
Yaechanpyin	5	0	0	7	6	0	118	222	0	222
Total	5	340	0	377	146	120	988	562	30	592
%	0.51	34.41	0	38.16	14.78	12.15	100	98.20	5.07	100

Figure 10. Main income sources for Nyaungshwe and Ywangan



2.4.3 Community forestry in Shan State

As of 31 October 2012, the Forest Department had established 237 CFUGs comprising 10,946 members in Shan State. The CF areas are described below (Table 16).

Table 16 shows that CFs have been established in reserved forests, protected public forests and protected forests, and they comprise mostly natural forests. Shan State possesses the highest CF area of any state (58,706 acres), with many FUGs (237) and members (10,946).

Table 16. Distribution of CFs in Shan State

District	Reserved forests/protected public forests			Public forests			Total (acre)	No. of CF	No. of members
	Plantation (acre)	Natural forest (acre)	Total (acre)	Plantation (acre)	Natural forest (acre)	Total (acre)			
1. Taunggyi	11	23,748	23,759	0	28,542	28,542	52,302	197	10,547
2. Lasho	0	200	200	30	0	30	230	2	40
3. Kwanlon	310	0	310	0	0	0	310	3	34
4. Muse	120	30	150	0	4,914	4,914	5,064	27	232
5. Kyaukme	0	800	800	0	0	0	800	8	93
Shan State Total	441	24,778	25,219	30	33,456	33,486	58,706	237	10,946

The four CFUGs visited in Shan State are described in Table 17. The surveyed CFs were established between 1997 and 2003 and have been formed from natural forest stands, with areas ranging from 260 to 659 acres. Lwenyeint and Yepu CFs were established in reserved forests while Yagyi and Yechanpyin CFs were established in public forests. The number of CFUG members varied from 50 to 116.

Table 17. Description of CFs/FUGs visited in Shan State

CF/Village	CF area (acre)			Year established	No. of FUG members	Remarks
	Plantation	Nat. forest	Total			
1. Lwentyeint	0	600	600	1997	90 (7 ac/member)	RF
2. Yepu	0	260	260	2000	50 (5 ac/member)	RF
3. Yagyi	0	659	659	2003	116 (6 ac/member)	PF
4. Yechanpyin	0	1200	1200	2003	56 (21 ac/member)	PF

RF = Reserved Forest; PF = Public Forest; PPF = Protected Public Forest

Lwentyeint CFUG was assessed by the ECCDI during its research on the performance of CFs in the country in 2011 (Tint, *et al.*, 2011). Forest health was found to be fair, with good ground cover and erosion control. Wildlife was present but the biodiversity was poor, and there were pests present, along with illegal extraction and encroachment. The ECCDI concluded that the overall situation of the CF was fairly good.

2.4.4 Forest and non-timber forest products traded by communities

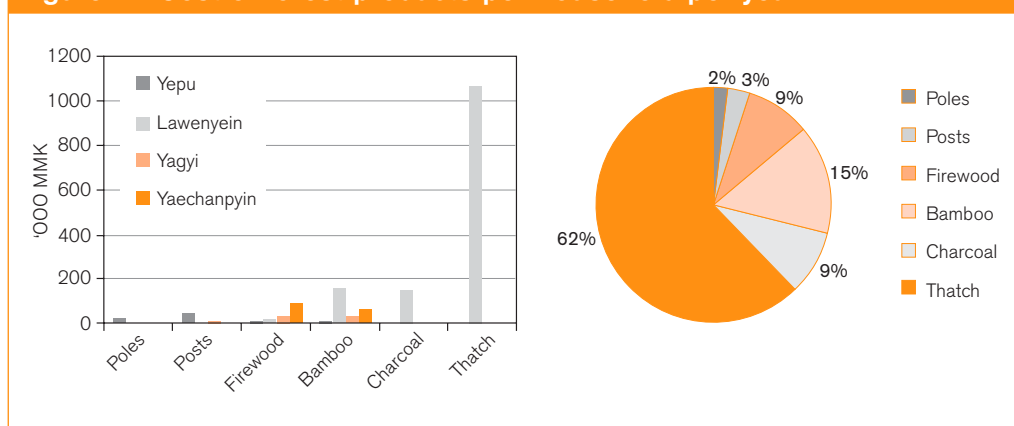
Table 18 shows the status of forest products consumed by villagers. The products came from both within and outside CF areas. The costs are estimated local costs.

Table 18 and Figure 11 clearly show that thatch represents the biggest expenditure by households on all forest products. Lwentyeint had used 10,708 byits. For the four villages taken together the expense for thatch constituted about 62 per cent of the total expenditure. Bamboos, with 15.22 per cent expenditure, occupied the second place after thatch, while firewood, with 9.16 per cent, and charcoal, with 8.73 per cent, stood third and fourth respectively. Shan people do not usually make charcoal for sale, and therefore the product was believed to be imported from outside the state.

Table 18. Household consumption of forest products per year and estimated cost, Shan State (cost in '000 kyats)

Village	Poles		Posts		Firewood		Bamboo		Charcoal		Thatch		Total
	no.	MMK	no.	MMK	ton	MMK	no.	MMK	bag	MMK	byit	MMK	MMK
1. Yepu	4.9	24.7	9.7	48.3	2.2	13.2	8.7	13.1	0.0	0.0	38	3.8	103.1
2. Lwentyeint	0.0	0.0	0.0	0.0	1.2	18.5	51.5	154.5	33.5	150.8	10,708	1070.0	1393.8
3. Yagyi	2.7	1.9	0.4	10.0	3.6	35.7	27.2	32.6	0.0	0.0	16	1.6	81.8
4. Yechanpyin	0.0	0.0	0.0	0.0	10.2	92.1	21.6	64.8	0.8	1.3	41	4.1	162.3
Total	7.7	26.6	10.1	58.3	17.2	159.5	109.0	265.0	34.3	152.0	10,804	1,079.5	1740.9
%		1.53		3.35		9.16		15.22		8.73		62.01	100.00

Figure 11. Cost of forest products per household per year



2.4.5 Status of demand for forest products at local markets

Nyaungshwe and Ywangan markets were studied by field teams in May 2013. Forest and NTFPs bought at the local markets included posts, poles, bamboos and finished bamboo products (see Table 19).

Table 19 and Figure 12 show the volume of trade during the survey period of April-May 2013. They are based on information gathered from retail outlets selling forest products in urban markets.

The total cost of the products amounted to approximately 1.5 million kyats. Among the major items of timber and NTFPs traded in the local markets, value-added bamboo products enjoyed the highest demand (742,000 kyats, more than 49 per cent of total sales).

Value-added bamboo was followed by bamboo and posts, occupying the second and third places respectively. Bamboos grow well in Shan State, and the local people need them for housing and making bamboo-based handicrafts. They earned more than 740,000 kyats in a month at the two local markets. Local people used to own large bamboo plantations which they traditionally handed over to their children.

Table 19. Status of demand for forest products per month at local markets, Shan State (cost in '000 kyats)

Name of Market	Post				Pole				Bamboo				Bamboo value added			
	Unit	Quantity	Unit price	Total	Unit	Quantity	Unit price	Total	Unit	Quantity	Unit price	Total	Unit	Quantity	Unit price	Total
1. Nyaungshwe	ton	100	2	200	no.	250	0.6	150	no.	450	0.7	315	lot	322	2.1	663.3
2. Ywangan	ton	0	0	0	no.	0	0	0	no.	50	2	100	lot	50	1.6	79
Total				200				150				4648				742.3

In fact, there are many more forest-related products on sale in the local markets, such as rattan, rattan products, medicinal plants, pickled *pinsein* fruits, and crabapple fruits and wines. Further, since household consumption had shown the use of firewood and charcoal together share about 18 per cent of total household expense (see Table 18), they must have been traded legally or else illegally in the black market. It is therefore evident that there is demand for these forest products.

2.4.6 Most promising forest products and business enterprises

The main timber and NTFPs that the communities were interested in exploiting included timber, orchids and medicinal plants such as *ta-pin-taing-myanan* (reportedly good for cancer) and *taunglon kyaw*. Medicinal plants were reported to be sold in shops, even on roadsides. They can be intercropped with trees in CF areas.

The businesses that the CFUGs wished to develop included a pulp and paper mill, a sawmill, charcoal production and furniture-making. Given the current status of resource, capacity for investment and technology, a pulp and paper-mill enterprise will be impossible. Other types of CF enterprises, however, are more realistic options.

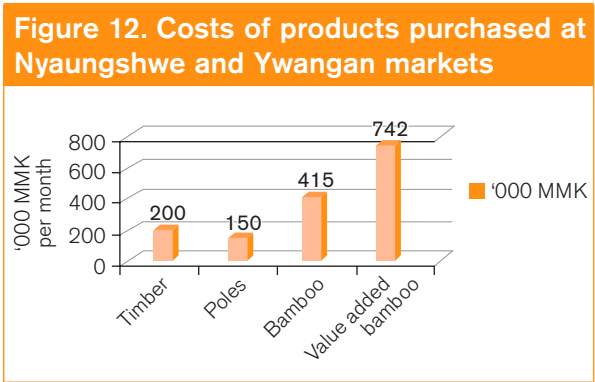


Table 20. CF products and enterprises suggested by villagers		
Name of village	Most favoured by community	
	CF product	Business enterprise
1. Lwentyeint	–	1. Pulp and paper 2. Furniture
2. Yepu	Bamboo	Pulp and paper
3. Yagi	1. Orchid 2. Tapin-taing-mya-nan 3. Taung-lon-kyaw	1. Pulp and paper 2. Charcoal 3. Trade
4. Yechanpyin	Timber	Sawmill

2.4.7 Potential resources and products for enterprise development

The most important forest products and enterprise options in the surveyed areas appear to be bamboos, timber (including poles and posts), and medicinal plants. Fruits like mangoes, crabapples, bananas, oranges, pears and apples are sold extensively; these fruit trees can be nursed through agro-forestry. Coffee and tea have the potential to be integrated with forest trees and have both local and international markets.

Various value-added bamboo products are marketed locally and also exported to other parts of the country. There are many private bamboo plantations, so bamboos are available in huge quantities. Thus there is the potential to develop promising bamboo-based enterprises.

2.5 Kachin State

2.5.1 Context

Kachin State is located in the northernmost part of Myanmar with a total land area of about 89,000 km². It is forest-clad and mountainous, containing the snow-capped Khakaborazi, the highest peak in Southeast Asia, rising to 5,881 metres above MSL. The forest and wildlife are rich and diverse. Forests include pine forests, temperate evergreen forests and dense teak-bearing deciduous forests. However, due to the overexploitation, agricultural encroachment and illegal hunting that have taken place in the previous decades, both forest and wildlife diversity have drastically degraded, particularly in the border areas.

The 1989 appraisal of forest cover (Tint *et al.*, 1991) found that Kachin State had 73,618km² of closed forest, 3,460km² of degraded forest, 6,051km² of forest with shifting cultivation, 5,147km² of non-forest and 763km² of water bodies.

2.5.2 CF in Kachin State

As of 31 October 2012, the Forest Department had established 16 CFUGs comprising 1,270 members in Kachin State. Table 21 describes the CF areas.

Table 21. Distribution of CFs in Kachin State

District	Reserved forests/protected public forests			Public forests			Total (acre)	No. of CF	No. of members
	Plantation (acre)	Natural forest (acre)	Total (acre)	Plantation (acre)	Natural forest (acre)	Total (acre)			
1. Myitkyina	3,691	2,846	6,537	800	1,400	2,200	8,737	13	949
2. Puta-oh	475	2,125	2,600	110	636	746	3,346	3	321
Kachin State Total	4,166	4,971	9,137	910	2,036	2,946	12,083	16	1,270

Table 22. Description of CFUGs visited in Kachin State

CF/Village	CF area (acre)			Year established	No. of FUG members	Remarks
	Plantation	Nat. forest	Total			
1. Wuyan	300	900	1200	2007-09	319 (4 ac/member)	RF/PPF
2. Gweyutyan	740	660	1400	2007-12	72 (19 ac/member)	RF/PPF
3. Ohnsansai	370	611	981	2001-02	179 (6 ac/member)	RF/PPF
4. Pinhe	770	580	1350	2010-11	61 (22 ac/member)	RF/PPF

RF = Reserved Forest; PF = Public Forest; PPF = Protected Public Forest

The data show that CFs have been established in reserved forests, protected public and public forests. They comprise 5,076 acres of plantations and 7,007 acres of natural forests, making a total of 12,083 acres. There are 16 CFs/FUGs with 1,270 members. Table 22 describes the four CFs/ FUGs visited in the state.

All four CFs fall in the reserved forest or protected public forest. They were established between 2001 and 2012 and the areas vary from 981 acres to 1,400 acres. The allotment of CF to each FUG member ranges roughly from about four acres to 22 acres on average.

During its research on the performance of the CFs in the country, the ECCDI visited Wuyan and Gweyutyan CFs and their respective FUGs. Both FUGs were noted to be institutionally active, their awareness and understanding good, and all villagers were satisfied. The forests and the FUGs have been developing well. In Wuyan CF, even the water sources that were lost when forests were depleted have reappeared.

2.5.3 Livelihoods

Table 23 shows that about 35.21 per cent of the population in the two sample villages in Waingmaw Township are landless, while land owners constitute 64.79 per cent. The people are mainly dependent on livestock rearing (49 per cent) and agriculture (31 per cent), followed by ya cultivation (12.5 per cent) and casual labour (5.3 per cent). Government servants constitute 1.65 per cent (see also Figure 13).

Table 23. Livelihoods in Waingmaw (number of households)

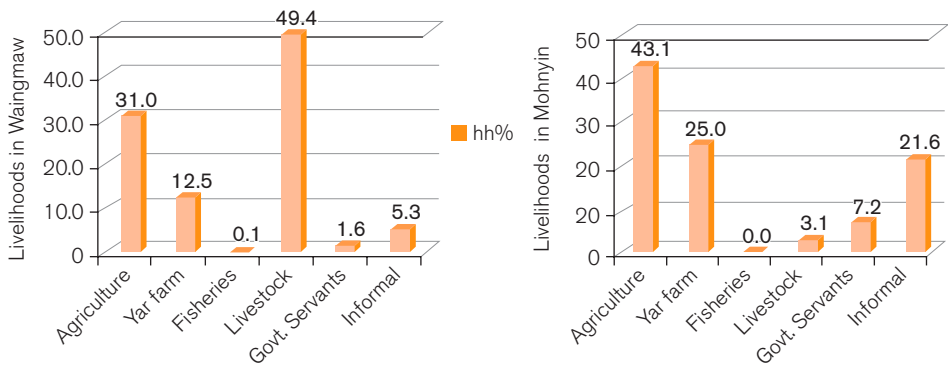
Village/HH	Agriculture	Ya/farm	Fisheries	Livestock	Govt. Servants	Informal	Total	Land owners	Landless	Total
Wuyan	500	200	2	810	25	50	1587	500	300	800
Gweyutyan	8	5	0	0	2	37	52	52	0	52
Total	508	205	2	810	27	87	1639	552	300	852
%	30.99	12.51	0.12	49.42	1.65	5.31	100	64.79	35.21	100

Table 24 shows that about 6.4 per cent of the population in the two sample villages in Monhyin Township are landless, while land owners constitute 93.6 per cent. The people are mainly dependent on agriculture (about 43 per cent), ya or dryland cultivation (25 per cent) and casual labour (21.6 per cent). Livestock breeding was practised only by about three per cent of total households. Government servants constituted about seven per cent (see also Figure 12).

Table 24. Livelihoods in Mohnyin (number of households)

Village/HH	Agriculture	Ya/farm	Fisheries	Livestock	Govt. Servants	Informal	Total	Land owners	Landless	Total
Ohnsansai	325	200	0	32	59	196	812	463	10	473
Pinhe	115	55	0	0	15	25	210	195	35	230
Total	440	255	0	32	74	221	1022	658	45	703
%	43.05	24.95	0	3.13	7.24	21.62	100	93.60	6.40	100

Figure 13. Main sources of income for households in Waingmaw and Mohnyin



2.5.4 Forest and non-timber forest products by community forests

Table 25 shows the status of forest products consumed by villagers. The products came from both CF and non-CF sources. The products consisted of timber, pole, post, firewood, charcoal, bamboo, thatch and rattan. The costs are estimated local costs.

Table 25 and Figure 13 clearly show that firewood accounted for the most household spending. For the four villages taken together, the cost for firewood constituted about 42 per cent of the total expenditure. In terms of cost it was followed by timber consuming 21 per cent, bamboo 20 per cent and thatch 11 per cent. The villagers might need timber (including poles and posts), bamboo and thatch for housing, although poles and posts accounted for only 3.13 per cent and 1.44 per cent of spending respectively. It is likely that villagers could get small timber freely from the nearby forests. Surprisingly, spending on charcoal and rattan was the least. Rattans are plentiful naturally in the state.

Figure 14. Cost of forest products per household per year

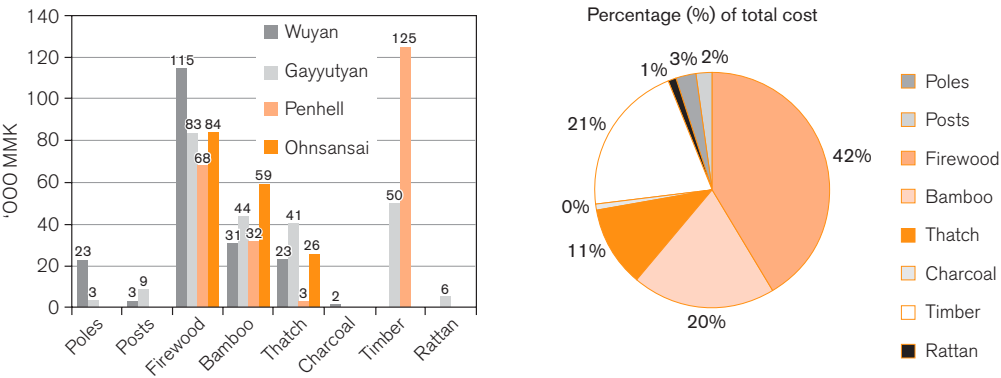


Table 25. Household consumption of forest products per year and estimated cost, Kachin State (cost in '000 kyats)

Villages	Poles		Posts		Firewood		Bamboo		Thatch		Charcoal		Timber		Rattan		Total
	no.	MMK	no.	MMK	ton	MMK	no.	MMK	byit	MMK	bag	MMK	ton	MMK	no.	MMK	MMK
1. Wuyan	22.7	22.7	0.2	3	4.6	115	62	31	116.7	23.3	0.3	1.7	0	0	0	0.	196.7
2. Gweyutyan	3.3	3.3	0.6	9.0	4.2	83.4	88.3	44.2	203.3	40.7	0.0	0	0.2	50	5.8	5.8	236.4
3. Penhe	0	0	0	0	3.4	68.0	64.5	32.3	16.7	3.3	0.4	0.8	0.4	125.0	0.2	0.2	229.6
4. Ohnsansai	0	0	0	0	2.8	84	117.8	58.9	130	26	0.2	0.4	0	0	0	0	169.3
Total	26.1	26.1	0.8	12.0	15	350.4	332.7	166.3	466.7	93.3	0.9	2.9	0.6	175	6.1	6.1	832.1
%		3.1		1.4		42.1		20		11.2		0.3		21		0.7	100

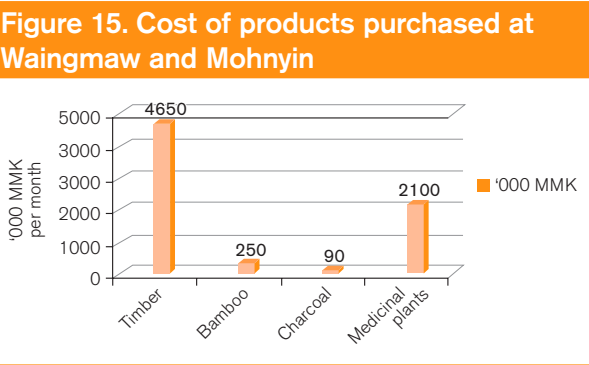
Table 26. Status of demand for forest products per month at local markets, Kachin State (cost in '000 kyats)

Name of Market	Timber				Pole				Charcoal				Medicinal plants			
	Unit	Quantity	Unit price	Total	Unit	Quantity	Unit price	Total	Unit	Quantity	Unit price	Total	Unit	Quantity	Unit price	Total
1. Waingmaw	ton	3	400	1200	no.	0	0	0	bag	30	3	90	lot	6	350	2100
2. Mohnyin	ton	11.5	300	3450	no.	500	0.5	250	bag	0	0	0	lot	0	0	0
Total		14.5		4650		500		250		30		90		6		2100

Table 27. CF products and enterprises most favoured by villagers

Name of village	Most favoured by community	
	CF product	Business enterprise
1. Wuyan	1. Timber 2. Pole 3. Post 4. Thatch	1. Pulp and paper 2. Trade
2. Gweyutyan	1. Timber 2. Bamboo 3. Post 4. Pole 5. Medicinal plants	1. Furniture 2. Sawmill
3. Ohnsansai	1. Timber 2. Bamboo	1. Handicraft 2. Sawmill 3. Trade
4. Phinhe	1. Timber 2. Bamboo 3. Fruit 4. Medicinal plants	Sawmill

The market survey conducted in Waingmaw and Mohnyin markets has shown that, in the previous month (April-May 2013), the demands had been 14.5 cubic tons of timber, 90 bags of charcoal, and six lots of medicinal plants. The collection of medicinal plants in the wild was found to be financially attractive; it fetched 2.1 million kyats out of the total sale of the forest products in the two markets of just more than seven million kyats.



The local community spent most buying timber. The total cost amounted to about 4.65 million kyats.

2.5.6 Most promising forest products and business enterprises

Table 27 summarises information that field survey teams collected from village heads and FUG members about CF products, and the types of business enterprise they would prefer to create.

The list of forest products and the businesses the villagers were interested in comprised timber, bamboo, fruits and medicinal plants in the context of forest and NTFPs, and sawmill, pulp and paper mill, furniture and handicraft-making and the trading of products in the context of developing business enterprise.

2.5.7 Potential resources and products for enterprise development

As stated earlier, villagers expressed the most desire for timber, bamboo, charcoal, forest fruits and medicinal plants. Although no villagers had wished rattan and its value addition, high-value rattans are found in Kachin forests. They have had large local and foreign markets, either as raw material or as value-added products. Recently agarwood has also emerged as a profitable forest product which has huge market potential, particularly in neighbouring and Middle-Eastern countries.

Some FUGs requested permission to plant teak in their CFs but their requests were rejected as the 1992 Forest Law stipulates that "teak belongs to the state wherever it grows". But the law is now under revision and the government has been granting long leases to private individuals and organisations to establish teak plantations on any type of land. Teak timber has therefore become a potential CF enterprise.

The villagers expressed a desire to base their enterprises on sawmill, pulp and paper mill, furniture and handicrafts. But for a FUG or group of FUGs to establish a pulp and paper mill will be out of the bounds of possibility for a few years to come. Other options in the form of cottage industries could be possible depending on the available markets.

2.6 Overall summary

It is clear from the survey results presented here that there is **already a significant volume** of forest product being traded in local markets and that CF enterprises could readily increase their contribution to those markets. Now we'll assess which products in which areas should be the focus of CF enterprise development activities – and then comment on how this might be achieved.

2.6.1 Forest product sub-sectors with the greatest potential for enterprise development

In Table 28 we include a summary of the household consumption and market demand for different products in the four case study regions. Using the communities' own expressed priorities for enterprise development alongside this data we then rank different product types by region.

In the **Ayeyarwady Delta**, household consumption involved firewood, *dani*, *thinbaung* (marsh date-palm or *Phoenix paludosa*), poles, posts and bamboo, while the demand in the local markets included timber, pole, firewood, charcoal, *thinbaung*, bamboo, *dani* and value-added bamboos. Bamboos enjoyed the highest demand followed by charcoal, timber, value-added bamboos, pole and firewood respectively. Considering the products consumed by the households and the products demanded in the local markets, bamboos would seem to be the highest priority product for enterprise development followed by timber (and potentially poles) and charcoal.

In the **Mandalay Region**, household consumption involved posts, poles, firewood, charcoal and bamboo, while demand in the local markets included timber, poles, bamboo, and value-added bamboos. Considering the products consumed by the households and the products demanded in the local markets, bamboo has the highest potential for enterprise development followed by timber and value-added bamboos respectively.

In **Shan State**, household consumption involved posts, poles, firewood, charcoal, bamboo and thatch, while demand in the local markets included posts, poles, bamboo and value-added bamboos. Considering the products consumed by the households and the products demanded in the local markets, thatch appears to have the highest potential for enterprise development with value-added bamboos and bamboo second and third respectively.

In **Kachin State**, household consumption involved timber, posts, poles, firewood, charcoal, bamboo, rattan and thatch, while demand in the local markets included timber, charcoal, bamboo and medicinal plants. Timber appears to be the best option for enterprise development here, followed by medicinal plants and firewood.

Table 28. Priority enterprise development options by state/region (cost in '000 kyats)

Product	Ayeerwady				Mandalay				Shan				Kachin			
	HH consumption/yr	Market demand/month	Priority by value	HH consumption/yr	Market demand/month	Priority by value	HH consumption/yr	Market demand/month	Priority by value	HH consumption/yr	Market demand/month	Priority by value	HH consumption/yr	Market demand/month	Priority by value	HH consumption/yr
Timber	0	9000	2	0	3280	2	0	0	0	175	4650	1	0	0	0	0
Post	29	0	9	12	0	7	58	200	4	12	0	8	0	0	0	0
Pole	44	860	4	1	80	5	27	150	6	26	0	7	0	0	0	0
Firewood	327	325	6	203	0	4	160	0	5	350	0	3	0	0	0	0
Charcoal	0	2375	3	13	0	6	152	0	5	3	90	6	0	0	0	0
Thinbaung	45	120	7	0	0	0	0	0	0	0	0	0	0	0	0	0
Bamboo	21	15240	1	7	4648	1	265	415	3	166	250	4	0	0	0	0
Rattan	0	0	0	0	0	0	0	0	0	6	0	9	0	0	0	0
Dani	84	105	8	0	0	0	0	0	0	0	0	0	0	0	0	0
Thatch	0	0	0	0	0	0	1080	0	1	93	0	5	0	0	0	0
Value added bamboo	0	633	5	0	1676	3	0	742	2	0	0	0	0	0	0	0
Medicinal plants	0	0	0	0	0	0	0	0	0	0	2100	2	0	0	0	0

Overall – and despite some significant regional differences – our analysis points to three major areas for CF enterprise development:

- **Timber (including poles and posts):** required for construction, furniture-making, and even in mining and fishing industries. It is a multiple-use product with considerable scope for adding value. Although costs of production are high and timescales long, timber could be financially profitable (see Tint *et al.*, 2012). The government has now permitted the private sector to establish forest plantations with any tree species. CF enterprises based around commercially valuable tree species would be attractive, especially if they could be established using a range of plantation and agro-forestry systems so that the community can get income and food starting from the first year. Some CFUGs in Kachin State have been planting teak in their CFs, and this could serve as a useful pilot programme for CF enterprises based on timber.
- **Bamboo:** used widely by the poor communities, particularly for roofing, walling, flooring, making baskets, hats, tools, toils and all sorts of household utilities, it is no wonder that it has the widest market locally. Bamboo shoots also enjoy good local and export markets. Additionally, the existing pulp and paper mills in the country need bamboos. The widespread demand and range of value-added processing options suggest that concerted efforts should be made to develop bamboo as a CF enterprise product.
- **Medicinal and ornamental plants:** markets for these products are expanding. There are already some pilot projects supported financially by local businessmen, orchid specialists and nongovernmental organisations such as the ECCDI. There is the option to introduce tissue-culture and other propagation techniques for such plant species to introduce into natural forests. While each particular product would have to be developed through rigorous market analysis, the prospects for such enterprises appear to be good.

In addition, there are many **miscellaneous non-wood forest products** which have great potential for CF enterprises, such as rattan, agarwood, elephant foot yam, Chinese orchid, white yam and so on. They can be successfully integrated as agricultural crops with forest trees in the CF areas. One important set of products are charcoal and firewood – the mainstay of rural cooking. One of the problems of turning this into a business opportunity is, however, the abundance of raw material from which these biomass energy products can be sourced. With effectively open access to such products in many regions, the additional costs of establishing and managing woodlots for charcoal and firewood may make business development difficult.



High potential of community forest enterprises across multiple products

In the preceding chapters, this report has introduced CF enterprises and looked in depth at options emerging in different states. This section assesses what the ambition of a programme to develop CF enterprises might be and looks in more detail at a shortlist of the forest products with the greatest community enterprise potential.

3.1 The scale of ambition should increase

In the preceding chapter, some specific examples of CF were assessed in four regions of the country. As noted in the introduction, the current extent of CF (47,948 ha of CFs established by 742 user groups with 30,362 members) is a small fraction of the target of the Forest Master Plan (918,000 ha by 2030).

If it were possible to meet the 918,000 ha target – assuming that the expansion was roughly in line with the current geographical and membership patterns of CFs – the projected geographical area of CF by state/region would be as presented in Table 29.

Table 29. Projected expansion of CF area in line with Government Master Plan target

States	Area (km ²)	Forest area 2010 (km ²)	Forest cover (%)	Current CF area (km ²)	Projected area of CF (km ²)	Current CF members (2010)	Projected CF members	Projected CF area as % of total forest area
Ayeyarwady	35,031	3,993	11.4	25.1	546.8	2,228	48,536	13.7
Bago	39,402	11,071	28.1	2.4	52.3	250	5,446	0.5
Chin	36,018	23,303	64.7	12.5	272.3	209	4,553	1.1
Kachin	89,041	61,260	68.8	12.5	272.3	348	7,581	0.4
Kayah	11,731	4,363	37.2	0.4	8.7	75	1,634	0.2
Kayin	30,383	20,447	67.3	4.5	98	278	6,056	0.5
Magway	44,820	7,036	15.7	42.6	928	18,188	396,216	13.2
Mandalay	37,945	9,372	24.7	44.1	960.7	2,206	48,057	10.3
Mon	12,296	4,942	40.2	0.7	15.2	59	1,285	0.3
Rakhine	36,778	24,751	67.3	13.5	294.1	3,447	75,091	1.2
Sagaine	93,704	50,037	53.4	17.2	374.7	1,434	31,238	0.7
Shan	155,801	74,161	47.6	241.1	5,252.3	11,012	239,891	7
Tanintharyi	43,344	34,111	78.7	1.8	39.2	118	2,571	0.1
Yangon	10,276	1,089	10.6	3	65.4	210	4,575	6
Total	676,570	329,944	49%	421.4	9,180	40,062	872,730	2.8

What is immediately striking about these projections is just how small the projected CF area is as a proportion of the national forest area (a mere 2.8 per cent). In addition, the total number of CFUG members is projected to reach just 872,730. Given the global average percentage area under some form of community control (approaching 25 per cent) it seems unambitious that Myanmar should set its long-term targets at barely 10 per cent of the global average. A much more reasonable ambition might be a government target of allocating 25 per cent of the total area of Myanmar's forest to communities. If we expand the projections within Myanmar towards such a 25 per cent target by 2030, the total number of CFUG members would be a more ambitious figure of more than six million people (see Table 30). This would make CF an integral component of a forest and farm landscape approach – ensuring that income generation through CF enterprise could make a significant contribution to rural livelihoods.

Table 30. Projected CF area by state/region and CFUG membership for a more ambitious target for CF (25 per cent of total forest area by 2030)

States	Area (km ²)	Forest area 2010 (km ²)	Forest cover %	CF as 25% of total (km ²)	Estimated CF population at 25% target
Ayeyarwady	35,031	3,993	11.4	998	88,569
Bago	39,402	11,071	28.1	2,767	272,300
Chin	36,018	23,303	64.7	5,825	103,477
Kachin	89,041	61,260	68.8	15,315	473,812
Kayah	11,731	4,363	37.2	1,090	204,250
Kayin	30,383	20,447	67.3	5,111	302,800
Magway	44,820	7,036	15.7	1,759	750,409
Mandalay	37,945	9,372	24.7	2,343	116,643
Mon	12,296	4,942	40.2	1,235	107,083
Rakhine	36,778	24,751	67.3	6,187	1,564,396
Sagaing	93,704	50,037	53.4	12,509	1,115,643
Shan	155,801	74,161	47.6	18,540	856,754
Tanintharyi	43,344	34,111	78.7	8,527	642,750
Yangon	10,276	1,089	10.6	272	19,063
Total	676,570	329,944	49%	82,486	6,617,949

3.2 Key forest products can be developed

A number of key forest products already contribute substantially to income generation across the country. We have noted that the total estimates for each of these products is probably substantially less than the real value because of the subsistence, informal and illegal production which goes uncaptured in formal statistics. Table 31 presents some overall figures for the official production of these key forest products. In the subsequent sections we describe in more detail a production system following the rough order of priority that we developed for CF enterprise development in Chapter 2.

Table 31. Key forest product production figures and revenues (2009-2010)

Description	Unit	Production	Unit cost (MMK)	Total cost (million MMK)	25% of total (million MMK)
Non-timber forest products					
Teak & HW post	number	63,087	5000	315.44	78.86
Teak & HW pole	number	104,405	2000	208.81	52.20
Firewood	cubic ton	23,166,000	60,000	1,389,960.00	347,490.00
Charcoal	cubic ton	210,000	30,000	6300	1,575.00
Bamboo	number	1,303,078,000	600	781,846.80	195,461.70
Rattan	number	39,111,000	100	3911.1	977.78
Cutch	viss	330,000	800	264.00	66.00
Indwe-pwenyet	viss	261,000	140	36.54	9.14
Kanyin resin	viss	650	500	0.33	0.08
Turpine	viss	40,000	5,000	200	50.00
Dani-thetke	byit	1,040,231,000	20	20,804.62	5,201.16
Honey	viss	41,000	5,000	205	51.25
Bees-wax	viss	1,025	500	0.51	0.13
Bat's guano	viss	379,000	300	113.7	28.43
Orchids	number	203,000	5,000	1,015.00	253.75
Edible birds' nest	viss	1,104	2,000,000	2208	552.00
Lac	viss	60,000	1,000	60.00	15.00
Sub-total for minor forest products				2,207,449.84	551,862.46
Wood-based industry					
A. Industrial roundwood (HW)					
1) Wood-based industries	cubic ton	71,283	450,000	32,077.35	8,019.34
2) Raw for industries	cubic ton	37,881	450,000	17,046.45	4,261.61
B. Primary processed products					
1) Sawnwood (H/W)	cubic ton	303,753	900000	273,377.70	68,344.43
2) Sawnwood (Teak)	cubic ton	20,970	1,800,000	37,746.00	9,436.50
3) Paper	cubic ton	14,619	270,000	3,947.13	986.78
Subtotal for woodbased industry				364,194.63	91,048.66
Total				2,571,644.47	642,911.12

Note: (1) production figures are extracted from Myanmar Forestry Statistics (2001-2002 to 2010-2011) prepared by the CSO in collaboration with MOECF (Ministry of Environmental Conservation and Forestry), 2012.

(2) 1 viss is equivalent to 1.63kg.

From Table 31 we can see that the total revenue from government-controlled forestry is approximately 2,572 billion kyats (about US\$2.57 bn) for the items presented in the table. If 25 per cent of the forest resource was devolved to CF enterprises, they could expect to achieve roughly 643 bn kyats (about US\$0.64 bn). It is highly likely that communities would make much more efficient use of the forest resources – but it would take considerable time to develop the required kinds of enterprise.

For each of these diverse products and potential revenue streams there are particular opportunities for CF enterprises. We highlight some of these below.

3.2.1 Timber (including poles, posts and pulpwood)

Forests in Myanmar produce a range of timber-bearing trees. Historically, Myanmar is famous as home to the world's best teak, one of the most valuable and sought-after tropical timbers in the world. In terms of volume, the top 10 main export species account for about 25 per cent of the market and include, in order: teak (*Tectona grandis*), *thabye* (*Eugenia spp.*), in (*Dipterocarpus spp.*), *taukkyan* (*Terminalia tormentosa*), *pyinkado* (*Xylia xylocarpa*), *thadi* (*Protium serrata*), *ingyin* (*Pentacme siamensis*), *thitya* (*Shorea oblongifolia*), *sagat* (*Quercus spicata*) and *thitsi* (*Melanorrhoea usitata*). Htun (2009) notes a gradual decline in the more valuable species, indicating commercial exhaustion. In recent years, timber production has been mandated largely to the government-controlled MTE and a range of 'crony' enterprises (Woods, 2013).

Mature timber is being exhausted from natural forests. There have been major problems establishing a sustainable and equitable harvesting regime, linked to lack of rule of law, arbitrary authority and corruption under the military dictatorship and monopolistic 'crony' business affiliates. There has been a need for fairness, transparency and equitability in the allocation of timber harvesting licences. **Forest Department enforcement has been virtually disempowered.** Cross-border illegal trade, particularly to China, India and Thailand, has been uncontrollable by the FD due mainly to lack of peace in the border areas. There are growing initiatives, both at national policy level and internationally (such as FLEGT Voluntary Partnership Agreements, Forest Stewardship Council certification, fair-trade and so on), but these initiatives have yet to reach the implementation stage.

This situation has prevented community timber enterprises until now. Nevertheless, CFUGs in Kachin State have already established relatively large areas (600 acres) of teak plantation and are intending to register jointly as an association once the relevant legislation is approved. Piloting the production of locally controlled timber – the first time that this will have happened at a commercial scale – is being negotiated with state government officials. There are a range of possible value-added activities which could be linked to such groups, from basic carpentry workshops to more sophisticated sawmilling (to produce construction timber through to parquet, plywood, furniture and so on). Each of these has associated investment costs.

At the initial stages of CF enterprise, it is probably wise to target the thriving domestic market for construction and wood-based industries.

The MTE's four plywood factories, nine furniture factories, one veneer factory and three moulding factories require 57,700 tons of teak logs and 29,300 tons of other hardwood logs as raw materials annually (source: MTE).

In 2009-2010, the MTE exported timber as follows (source: MTE): teak logs (162,968 cubic tons), processed teak (11,254 cubic tons), other hardwood logs (715,551 cubic tons), processed hardwood (6,472 cubic tons) and plywood and veneer (43,690 metric tonnes).

Table 32 shows the domestic consumption of teak and hardwoods in 2009-2010.

Table 32. Domestic consumption of teak (2009-2010)

Teak (cu. ton)		Hardwoods (cu. ton)	
Log	Sawn	Log	Sawn
3,381	4,663	94,224	306,585

Source: Forestry in Myanmar, FD 2011

It is obvious from these figures that both local and export demands for teak and other hardwoods are high. Thus, CF wood-based enterprises have good potential for development.

Pulpwood is another important and growing category of wood. Numerous Asian-based companies (such as the Malaysian Asia Pulp & Paper) are looking for land to produce fast-growing tree species for pulpwood. Many of these companies have a reputation for unscrupulous 'land-grabbing' practices, however. Instead CFUGs could produce pulpwood in a partnership model. Pulp producers need large land areas (a minimum of 2,000 acres) so CFUGs would need to work together to meet demand. A challenge to developing such a model is the upfront financing that would be required. This could be managed by creating a revolving fund for farmer outgrowing but revolving funds require a micro-credit licence. Some potential alternatives include financing from the Cooperative Bank and Kambawza Bank – both of which already have licences and engage in microfinance.

3.2.2 Bamboos

Bamboos offer multiple uses. They are used for construction; for making household appliances, veneers, plywood, parquet, bamboo wood composite panels, bamboo fireboard and so on; and for pulp, paper and rayon manufacture. Bamboos are plentiful in Myanmar, with 96 species growing across the country. Their traditional and modern uses have not yet been fully tapped, however and – as noted in Chapter 2 – their further development is a priority. There is strong evidence from neighbouring countries that the bamboo industry can improve both the lives of dependent communities and the national income to a large extent.

In 2005-2006, the production of bamboos was about 1,185 million stems, or culms. It had increased every year reaching 1,346 million culms (provisional actual) in 2010-2011. The market survey has identified bamboo as the most traded forest product in the local markets of Ayeyarwady and Mandalay. Value-added bamboos, such as baskets, tables, stools, hats,

chopsticks, smoking pipes and so on, were traded most in the surveyed local markets in Shan State. In Kachin State, bamboo was the third priority in the local markets.

In 2010-2011, the official production of 1,346 million culms of bamboos generated a national income of around 8,076 million kyats. The perception of traders is that the bamboo market is extensive and unlimited. Bamboos can be marketed as raw materials for pulp and paper mills and furniture industries or as processed products. The export of bamboos reached 3,042 metric tonnes in 2010-2011. As yet CFUGs have not developed any extensive business based on bamboo but there is ample scope that needs further exploration.

3.2.3 Medicinal and cosmetic plants

There are many trees and wild or cultivated crops that are medicinally useful in Myanmar. Indeed the National Herbal Park in Nay Pyi Taw is one of several such parks in which thousands of medicinal plants of nearly 500 species are grown and nurtured, and commonly used and valuable regional herbs are studied. Both the public and private sectors manufacture traditional medicines. The Department of Traditional Medicine (established in 1989) is responsible for public-sector manufacturing, owns two pharmaceutical factories, and oversees the distribution of 21 core herbal remedies. The 1996 Traditional Medicine Drug Law aims "to enable the public to consume genuine quality, safe and efficacious traditional drugs". More than 8,000 traditional medicine practitioners have registered in Myanmar. A Myanmar Traditional Medicine Practitioners Association was established in 2002 after the unification of various groups.

Further market research would be needed to develop any of these products into viable businesses.

3.2.4 Rattans and canes

Like bamboos, these products are harvested in abundance and their products are exported, for example through the Myanmar Bamboo and Rattan Producers Association, whose members have 25 processing factories. CFUGs could enter into partnerships with such businesses for investment. In terms of supply, rattan is becoming scarce in natural forests. Members of the association have approached non-governmental organisations with the idea of promoting rattan cultivation in community areas to safeguard supply. For sustainable supply of raw rattans, manufacturers must either establish plantations themselves or invest in CFUGs establishing rattan plantations.

Three potential areas of opportunity exist for developing CF enterprises around rattan: sustainable wild-harvesting enterprises; the development of domesticated production; and increased local processing to reduce the export of raw materials for overseas value addition. Each of these options faces significant challenges. For example, the level of sustainable harvesting is unknown. Additionally, rattan cultivation is not widespread in Myanmar and the know-how would have to be introduced (in Rakhine there is a 10-20 acre test plot which will be ready to harvest in two years). Finally, the technology and skill required for the design and advanced finishing of rattan products are barriers to the latter option.

Rattans are present in 14 of 16 states in Myanmar (excepting Dry Zone states of Mandalay and Magwe). Varieties have different characteristics – larger (~20mm diameter) canes are different to smaller, finer (~5mm diameter) ‘water canes’. Varieties growing in lower altitude or saline areas are flexible and easier to work with than stiffer, brittle varieties found in upland areas or freshwater wetlands. *Katane*, the best and most flexible variety, is found in Kachin State. Chinese traders are monopolising *katane*, however, and exporting all raw product to China for processing. With several countries to choose from, such as Cambodia, Indonesia, Laos and Vietnam, they are less concerned with sustainability of supply, and the low cost of raw materials in Myanmar means that using Chinese processors is competitive.

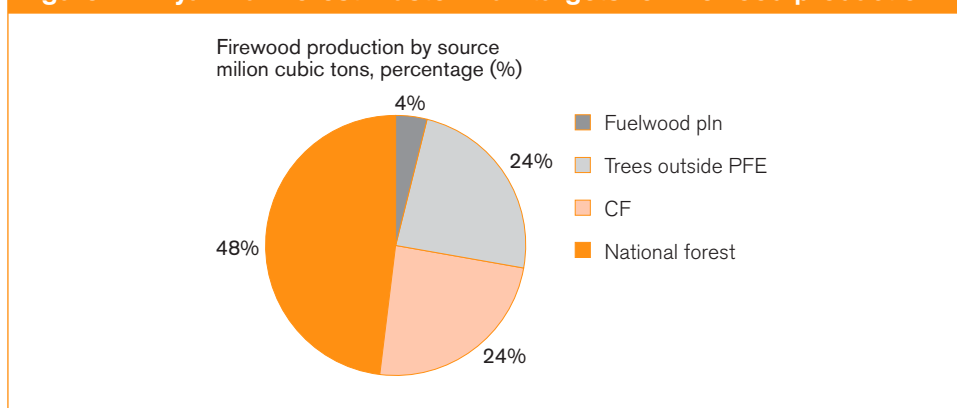
The FD had officially permitted private companies to extract 7-26 million pieces (13 feet in length) annually from 2001-2002 to 2009-2010 (please contact author for data tables). The amount permitted had increased from 13 million in 2001-2002 to 26 million in 2006-2007, only to drop drastically to 7 million in 2010 (Source: Forestry in Myanmar, FD, October 2011). But the actual production was that presented in Figure 16. The annual production was 4.3 million and 5.1 million in 2001-2002 and 2002-2003 respectively. It rose dramatically to 48.4 million in 2003-2004 and continued to increase to 55.2 million in 2006-2007. It then decreased gradually to 39.1 million in 2009-2010, but was still more than five times higher than the approved yield of 7 million for that year. This demonstrates the urgent need for the FD to effectively monitor, evaluate and control the rattan extraction, as well as the huge potential to develop rattan-based CF enterprise.

3.2.5 Fuelwood and charcoal

Wood remains the major source of energy in Myanmar. In the 30-year Master Plan of the FD, firewood and charcoal use in 2001-2002 (the beginning of the plan period) was estimated at 18.12 million cubic tons, which would gradually reduce to 16.41 million cubic tons in 2030-2031 (the end of the plan period). Table 33 shows the actual firewood production from 2006 to 2011, ranging from around 20 to more than 23 million cubic tons, exceeding the MP’s estimates significantly. The average annual consumption had been estimated at about 17.2 million cubic tons, made up from sources as shown in Figure 15.

Table 33. Estimated production of firewood and charcoal in recent years					
Description	2006-07	2007-08	2008-09	2009-10	2010-11
Firewood ('000 cubic ton)	21,216	21,876	22,542	23,166	20,683
Charcoal ('000 cubic ton)	297	269	266	210	212

Figure 17. Myanmar Forest Master Plan targets for firewood production



The Forest Department had estimated that CFs could produce only 0.03 million cubic tons from about 20,000 acres in 1999-2000. The plan was to establish 918,000 hectares of CFs during the Master Plan period so that they could contribute about 25 per cent to the total national fuel consumption.

The potential available annual yield of fuelwood is up to 19.12 million cubic tons, and 18.56 million acres of land could generate residues, by-products or direct feedstock for biomass energy.

Firewood and charcoal still have great market potential in Myanmar. The surveys in Chapter 2 show that firewood accounts for 59.4 per cent of household expense on all timber and NTFPs in Ayeyarwady, 86.36 per cent in Mandalay, 9.16 per cent in Shan and 42.11 per cent in Kachin.

Charcoal is also used extensively in urban areas but is insignificant compared with firewood. Charcoal production and sale is strictly monitored by the FD. In 2010-2011, 20,683,000 cubic tons of firewood and 212,000 cubic tons of charcoal were produced officially within the country, creating revenues amounting to around 124,089 million and 6,360 million kyats respectively. It was also noted in Chapter 2 that Ayeyarwady, Mandalay and Kachin FUGs wished to develop firewood-based enterprises as their first priority.

3.2.6 Gaharu (agarwood)

Gaharu, also known as agarwood, eaglewood and aloes, is the resin product of a fungal infection in trees of the *Aquilaria* and *Gyrinops* genera, both of which are listed as critically endangered species (CITES, 2012). Unlike many common NTFPs that are sourced from trees (latex, damar, palm oil, cinnamon, cork and so on), the tree must be felled, or damaged, to extract gaharu (*ibid*).

Gaharu has been used since ancient times for perfumes and as a medicine. Today the fragrant oils are largely used for perfume in Arab countries, and unprocessed gaharu is

used in religious ceremonies and for medicinal purposes in East Asia (Barden *et al.*, 2000; Jensen & Meilby, 2008).

The trees produce resin, primarily in their roots and trunk up to one metre above the ground, to protect against the fungal infection (Persoon & Heuveling van Beek, 2008). This wood turns from white to dark brown or black and becomes fragrant. The infection process is not known, but Paoli *et al.* (2001) highlight that Bose (1938) and Peluso (1983) identify wood-boring insects and ants as potential vectors of the infection. Not all trees become infected. The FAO (1995) says that an experienced harvester can detect the level of infection in a tree without felling it, and Yamada (1995) details how preliminary testing is often done. Normal levels of harvest are about five kilograms per tree (Jensen & Meilby 2010). Mature trees produce significant quantities of seed, which often germinate when the light gap is opened by the felling of a mature tree, developing the required environment for a new generation of trees (Paoli *et al.*, 2001).

Gaharu is among the highest valued NTFPs in the world (Wollenberg, 2001). It is processed into oil or used in raw form, with the oils reaching US\$84,000 per litre sold in small vials. An estimated 80 per cent of production is sourced from Indonesia (Jensen, 2009) but Myanmar is one of a number of additional producing countries which include Malaysia, Cambodia, India, Laos, Vietnam and Papua New Guinea (Antonopoulou *et al.*, 2010; Persoon & Heuveling van Beek, 2008). Processing is rarely done in these countries, and global wholesaling, processing and retailing centres are concentrated in Dubai, Bangkok, several points in India, and in Singapore (Jensen, 2009).

Several countries have commenced *Aquilaria* spp. plantations but the results have fallen short of expectations. Inoculated trees tend to produce low-quality gaharu that commands a lower price than that harvested naturally. Because of the high value, there is great impetus for illegal harvesting and trade of gaharu, despite its host trees being endangered species. Further, the rush to find gaharu has been detrimental to the livelihoods of many communities who steward the forests (Momberg *et al.*, 2000). There is some doubt therefore about the prospects for developing CF enterprises based on this product.

3.2.7 Essential oils

Essential oils are highly volatile aromatic liquids obtained from plants and are widely used in flavour, personal care, pharmaceutical and industrial products (Baser and Buchbauer, 2010). In Myanmar, which offers ideal conditions for cultivating essential oil plants, the industry is in its infancy compared with the booming essential oils markets in neighbouring countries such as India, China and Thailand (UNIDO, 2005).

Essential oils in Myanmar are largely used in the perfume industry or medically, either processed into ointments or as chemical constituents in further processing. Myanmar produces eucalyptus (*Eucalyptus citriodora*), citronella (*Cymbopogon nardus* and *Cymbopogon winterianus*), sassafras (*Sassafras albidum*), agarwood (*Aquilaria agallocha* and *Aquilaria subintegra*), sandalwood (*Santalum album*) among others. But data indicate that the industry is underperforming because of a lack of knowledge and support for growing essential oil crops, along with insufficient market information, short supply of raw

materials for distillers, a lack of sophisticated technology, and the unsustainable use and trade of naturally harvested essential oil plants.

There is one market segment in Myanmar where a high-quality essential oil dominates its cheaper synthetic competitor (Schmid, pers. comm.). Increasing numbers of tourists, for example, mean that the demand for high-quality essential oil products will rise – such as personal care and wellness products for luxury resorts and spas. Moreover, if there is a development in the manufacturing of other industrial products, domestic demand for essential oils will increase – such as essential oil spices in the production of convenience food and beverages.

The best way forward is probably to cultivate internationally well-known plants, such as jasmine or sandalwood. These achieve high prices, their oils have already gained international market access, and they avoid the high registration costs for trading new essential oils in some countries. To avoid selecting the wrong species, a focus on Myanmar's unique environmental factors is essential. Success will strongly depend on various competitive advantages: for instance, choosing the right plant species based on the domestic and international market demand and its environmental factors, as well as investing in new distillation facilities to achieve the highest possible international quality standards. Government support could come through the Agriculture Extension Division (AED), which has responsibilities for oil crop extension.

3.2.8 Elephant foot yam

Elephant foot yam is a tuber which forms the raw material for Japanese and Chinese dietary foods, such as low calorie noodles and artificial meats. The market is booming – with agents from Mandalay supplying China, and agents in Yangon supplying Japan, where annual tax-free import quotas are growing by the year. The income per acre from elephant foot yam can be anything between US\$2,000 and US\$8,500 (Macqueen, 2013).

A key feature of the production of elephant foot yam is its ecology as an understory plant – suited to agro-forestry planting under shade. Cultivation can therefore form an integral part of CF activities. Wild collection of immature yams allows them to be transplanted to private land. Transplanted yams can be planted out in April as they sprout, dug out in December, and stored unwashed over winter before being planted out again in Spring. The yams can take three years to reach a suitable size for harvesting.

The production process involves drying the raw mature yam and cutting it into chips, which are then broken into small chip fragments and finally milled into a fine crystalline powder similar to sugar. Milling requires specialised machinery as the chips are so hard. There are two good factories in Yangon milling yam, and factories elsewhere in China, Japan and Taiwan tend to be large to achieve economies of scale (China US\$1m+ plant size). At this stage CFUGs could concentrate on the production end of the value chain, due to the high investments required for processing.

3.2.9 Aloe

Aloe vera (*sha zaung let pat*) is a stemless herb. Both the leaves and the sap or gum (*Moke Kha*) are used for medicinal purposes. The main production area is in the Dry Zone, particularly Magway. The product can be harvested each year for gum once the plant has reached one year old. In some areas they harvest twice a year but the volume of gum is lower per harvest.

Aloe is already providing jobs to thousands of farmers in the Dry Zone because of its major labour requirements during weeding and harvesting. The potential for creating more jobs would depend on the absorption capacity of the market. But *Moke Kha* has both domestic traditional medicine and export markets which could be developed. In addition, *sha zaung let pat jam* is produced from aloe, mainly for the domestic market.

3.2.10 Thanaka

Thanaka is the bark of a small tree called *Limonia acidissima* Linn. Women all over Myanmar use the bark as a cosmetic. Small stem cuttings of two to four inches are rubbed with water on a wooden slab to produce a yellow paste, which is applied to the face. The main quality criteria are the yellow colour and the smell of the bark.

The main production area is in the Dry Zone. In particular, the Magway region is well known for its good quality *thanaka*. Along the road from Pakoku to Monya, many new gardens can be observed being planted with this crop. *Thanaka* is a slow-growing tree species, taking around five years on good soil to reach the minimum marketable size of roughly 1.5 inches diameter. Most trees are harvested when they have a stem diameter of about three inches or more, which takes seven years to reach. Such a tree is sold for 6,000-15,000 kyats per stem at farm-gate level. The tree is cut as a whole, and it will take another seven years for a new tree to grow to harvestable size from coppice.

Thanaka is already providing jobs to thousands of farmers in the Dry Zone. It is mainly popular in the domestic market, with an estimated 90 per cent of all women in the country applying *thanaka* daily. Small boys and girls are also treated with the product every day. The total number of trees consumed in the whole country can be estimated to be 12.96 to 25.92 million trees per year. But it is unclear how much more *thanaka* could be produced before oversupply would start having an effect on the price. One promising fact is that farmers are reporting steadily increasing prices at the current time.

3.2.11 Orchid production

The recorded list of orchids in Myanmar consists of 841 species. They grow in natural forests all over the country and flower just once in a year. Eighteen species of the genus *Dendrobium*, such as *D. nobile* (believed to be a good tonic and improve the nervous system), which occurs in the cold climates of Chin, Kachin and Shan States; and *D. pulchellum* (used as an antipyretic), which thrives in the warmer regions of Bago, Yangon, Tanintharyi and Rakhine, have been identified as medicinal and widely used in preparing traditional medicines. Because these orchids can be grown on trees, they can be introduced in CFs on commercial scales, adding aesthetic and monetary value to tree crops.

3.2.12 Ecosystem services as forest products

In an era of increasing climate concern, it is becoming increasingly possible to sell environmental services (particularly carbon sequestration). The Government of Myanmar ratified the Kyoto Protocol in 2003 as a non-Annex I party, so Myanmar is eligible to implement Clean Development Mechanism (CDM) projects in various sectors. More recently, Myanmar has begun a process of Reducing Emissions from Deforestation and Forest Degradation (REDD+) readiness, which may also allow for the development of commercial projects.

A Designated National Authority (DNA) was established in 2006 within Myanmar to approve, coordinate and facilitate CDM projects at a national level in various sectors and to connect with international organisations for CDM project activities.

One example of a potential CDM project already exists in Myanmar. With the technical support of the International Tropical Timber Organization (ITTO), the Forest Department formulated a project called the “Magu Community Small-Scale Reforestation Pilot Project in Ayeyarwady Delta”. The proposed project covers an area of about 150 ha. The estimated volume of net anthropogenic greenhouse gas removals by sinks over the chosen crediting period amounts to 185,258.7 metric tonnes, with an average annual GHG removal rate of 8,775.4 metric tonnes over the crediting period. However, due to the delay in the internal screening process and political changes, the Forest Department was unable to submit the project document to the CDM Executive Board of the UNFCCC, so the project is pending.

There are five bilateral ongoing REDD+ projects in Myanmar supported by different organisations (Table 34).

Table 34. Details of current REDD+ projects in Myanmar

Project title	Supporting organisation
Mitigation of climate change impacts through restoration of degraded forests and REDD+ activities in Bago Yoma Region, Myanmar	Korea Forest Service (KFS), the Republic of Korea
REDD+ Roadmap and National Strategy Formulation Project	Financial support from the Norwegian Government. Technical support from UN-REDD Programme and the Regional Community Forestry Training Centre (RECOFTC)
Strengthening of methodological and technological approaches for reducing deforestation and forest degradation within the REDD implementation framework: application in Myanmar (1 year) (2012-2013)	Asia Air Survey Co. Ltd., Japan. Technical Cooperation and Capacity Building Programme.
Capacity building for developing REDD+ activities in the context of sustainable forest management	ITTO
Capacity building for grass-root communities (under development)	Norwegian Government to RECOFTC

The following sites have been tentatively selected as potential sites for REDD+ projects: (Source: FD, 2012):

- Toungoo District, Bago Region (current project sites supported by ITTO and KFS).
- Taunggyi District, Shan State (current project in cooperation with AAS Co. Ltd.).
- North Zamari Reserved Forest (under discussion with Earthsky Co. Ltd., UK, for REDD+ Voluntary Carbon Market (VCM)).
- Mt. Popa National Park, Alaungdaw Kathapa National Park and Shweseaw Wildlife Sanctuary (for Climate, Community, Biodiversity VCM Projects).
- Rakhine Elephant Sanctuary.
- Mangrove forests in Ayeyarwady Delta, Rakhine State and Taninthari Region (proposing to Earthsky Co. Ltd., UK).

3.3 Regional enterprise clusters are the way forward

Numerous options exist for UGs in Myanmar to develop successful enterprises, provided they have secure forest-use rights, organisation, business skills and access to finance and technology.

Among mangroves in the Ayeyarwady Delta and southern Rakhine State, clusters of enterprises could be formed around mangrove and non-mangrove poles or firewood/charcoal production, which have high demands in the fishing industry.

For CFs in upland Chin State – and potentially also in other parts of the country – particular options, such as elephant foot yam, could be developed. Because elephant foot yam is a shade-bearer, it could be incorporated profitably with high-value trees for commercial production. It would also provide communities with short-term benefits, while trees will provide longer-term benefits. In upland Kachin State there are opportunities to establish enterprise clusters around agarwood and medicinal plants.

In Shan State, enterprise clusters could be formed for commercialising bamboos in areas where bamboos are needed as raw materials for pulp and paper mills, and for cottage industries that manufacture value-added bamboo products.

Across the country, local communities are very much interested in high-value tree species, such as teak. With teak being declared as state-owned wherever it grows, the prevailing Forest Law does not permit the private sector to plant teak. But the government has now relaxed the rules and granted private teak plantations under long leases. So CFUGs could start to experiment with growing teak in their CF areas. Teak could provide huge financial benefits but it will take a few decades to be marketable. Because poor communities need early financial returns, teak should be raised in a multi-species plantation integrated with faster-growing cash crops. Some of these have been listed above but they should also include conventional agricultural and food crops.



Community forest enterprise development – installing a market-led approach

In the preceding chapters, this report has introduced community forest enterprises, looked in depth at options emerging in different states and highlighted the products that might form the basis for more ambitious targets for community forestry enterprise development. This section looks in more depth at particular challenges to community forest enterprise development and offers potential solutions.

4.1 The historical policy context is changing fast

Myanmar received full independence from the British Commonwealth on 4 January 1948 but the first forest legislation to be applied to the country was the Indian Forest Act, VII of 1865, replaced by the Burma Forest Act XIX in 1881. The Act was revised again in 1902 to become the 1902 Forest Act and forest management in Myanmar functioned under it until 3 November 1992 when it was revised by the State Law and Order Restoration Council (SLORC) to conform to modern forest management objectives, concepts, practices and principles. In 1995, Community Forestry Instructions created opportunities for community forestry for the first time.

The 1992 law is again under revision so as to be in line with the present situation and with more emphasis on commercial CFs. It has been submitted for approval and is expected to be notified soon.

Under the present government, the Environment Law (2012) was promulgated on 30 March 2012, while the Environmental Rules have been submitted to the Union Cabinet of Ministers for approval. Environmental Impacts Assessment procedures have been developed.

The current Forest Law of 1992 does not make explicit mention of community forestry, but Section 14 of Chapter V can be used in the establishment of plantations in CFs. The section stipulates that if permission is obtained from the government:

- a. the government and any person or any organisation have the right to carry out in joint-venture
- b. any person or any organisation has the right to carry out, in accordance with the stipulation, cultivation and maintenance of forest plantations with the exception of village-owned firewood plantations cultivated by the villagers for their use.

If the government and any person or organisation in the form of joint-venture, or a person or any organisation, wants to cultivate and maintain a forest plantation, under Section 14 of the Forest Law, it must be in compliance with the Section 41 of the Forest Rule issued by the Ministry of Forestry as follows.

- a. It is in accordance with the Foreign Investment Law of the Union of Myanmar or in accordance with the Myanmar Citizens Investment Law.
- b. The location and species are approved by the Ministry of Forestry.
- c. It is established and maintained in reserved forest, public protected forest or forest on land at the disposal of the government.
- d. It is established using techniques which do not adversely affect the soil, water or the environment, as approved by the Ministry of Forestry.
- e. It enhances social and local development.
- f. It is a source for economic development, raw material for industry and fuelwood requirement.
- g. The payment of revenue is as prescribed by the local authority.

According to the Myanmar Investment Commission Notification No. 3/94, dated 3 August 1994, the powers conferred under Section 6, Sub-section (a) of the Myanmar Citizens Investment Law and with the approval of the government, the “plantation and production of timber, bamboo, cane/rattan and other forest produce” are permitted by the state.

Moreover, according to the definition in Section 2(f) of the Myanmar Citizens Investment Law, ‘organisations’ are also included as investors in the establishment of plantations and production of timber and other minor forest produce. Thus, CFUGs, which are also organisations, can be considered to be accountable under this Section. The detail is as given below.

In Section 2(f), an investor means a citizen making an investment and operating an economic activity under a permit, or a citizen who has been legally authorised to do so by such a citizen. This expression also includes a cooperative society formed under the Cooperative Society Law, or a company, partnership, joint-venture or organisation operating an economic activity, formed under any existing law and consisting only of citizens or citizens legally authorised by such a company, partnership, joint-venture and organisation.

Financing and technology can be a limiting factor for communities producing and marketing value-added products from CFs. If necessary, investors should be brought in to form a joint-venture, a cooperative or an association (so long as benefits are shared fairly). In so doing, investment can come not only from local investors but also from foreign investors under the Foreign Investment Law that was promulgated on 2 November 2012.

CFs were not included in the prohibitions or restrictions in either Section 4 of the Foreign Investment Law or in prohibitions and restrictions mentioned in Rules 7, 8, 9 and 10. However, according to the CFI, only local communities who are members of the FUG are qualified to utilise the CF. On the contrary, Section 20 of the Foreign Investment Rules stipulates that foreigners can invest in the prohibited or restricted businesses in the form of a joint-venture with Myanmar nationals, provided that the foreign investment does not exceed 80 per cent of the total investment.

Establishment of CFs is also in line with Section 41(e) and 41(f) of the Forest Rules. There are job opportunities and income generation in the establishment of CFs which will in turn improve the livelihood of the community through the availability of industrial raw material and minor forest products.

Land use in Myanmar is quite complicated, as the country does not have a clear cut land-use policy. It does however have legislation for the management of vacant land, fallow land and virgin land.

The objective of a CF is to address the basic needs of the local community. However, apart from legally selling surplus timber and forest products produced from the CF, a FUG, in accordance with Section 30 of the Forest Law and Section 27 of the CFI, can also commercially produce and sell value-added products from the CF. Therefore, we could consider that there is already permission from the FD in the CFI of 1995 to practice a market-led approach to CFs.

The recent developments below have helped strengthened community forestry in the country:

1. The President of the Union of Myanmar has instructed MOECF to create a model CF in each township throughout the country.
2. The FD has recently strengthened its cooperation with RECOFTC by allowing the organisation's Country Representative Office to open in its premises in Yangon. The FD, in collaboration with RECOFTC, has established the **National CF Working Group** consisting of related line ministries and civil society organisations at the headquarters of the FD in Nay Pyi Taw.

Viewed from the legal perspective, the following legal instruments, among others, are considered to support and encourage a market-led approach for community forestry:

The Myanmar Citizens Investment Law (1994) permits investment for plantation establishment and the production of timber, bamboo, cane/rattan and other forest products permitted by the state.

The Foreign Investment Law (2012) permits investment by foreigners with the provision that it is done in joint-venture with a local citizen or citizens, and that the investment by foreigner does not exceed 80 per cent of the total investment. Thus, foreign investment can be expected by CFUGs.

Small and medium enterprises (SMEs) are greatly encouraged by the present government. Bank loans with low interest rates are available and tax is exempted for small enterprises for their first three years. This provides a good opportunity for FUGs to secure investment to scale up CFs. The SME Development Bank is also operating a microfinance programme and has loaned about five billion kyats (about US\$6 million) to help SMEs in urban areas (San Thein in Myanmar Times, April 2013).

The Promotion of Cottage Industries Law (1991) introduced optional registration to enhance small family businesses. During the past few years education programmes have been launched in rural areas, where most cottage industries are located, to raise awareness of the benefits of registering with the Department of Cottage Industries, to ensure access to facilities provided by the related authorities (Xinhua General News Service (Business/Trade and News 29/6/05)).

The Coca-Cola Foundation is supporting the non-governmental organisation Pact to develop its WORTH programme in Myanmar. WORTH operates by gathering 20-25 women in small groups across hundreds of villages, to develop community banks and lend money to fund business start-ups and entrepreneurial efforts (twitter.com/CocaColaCo.).

The Tariff Law (1992) was enacted to assist external trade. It permits export of any forest produce that has a pass from the FD.

The dissolution of the Trade Council together with SLORC on 30 March 2011 has sped up the application process for an import/export permits. The Ministry of Commerce alone now grants these licences, rather than the Trade Council. "This is an important step towards [the creation of] a true and vibrant market economy" (Dr. Myat Nyana Soe, an Amyotha Hluttaw representative from the National Democratic Force).

4.2 Constraints to community forest enterprise can be overcome

Community forestry has been founded well in Myanmar with the introduction of the CF Instructions of 1995 and their implementation since 1996. But there are a number of challenges to address to help the shift from subsistence to enterprise orientation. Legal support of CFs is not yet strong enough, leading to uncertain land security and weak political commitment. There are a series of shortcomings: the bureaucratic mindset of FD staff; a lack of willingness from communities to participate because they don't trust the FD (or the government); a lack of technology; and a lack of social and economic security.

Using the field interviews that accompanied the data collection described in Chapter 2, we have identified several constraints that will have an impact on the development of CF enterprise. They are summarised in Table 35.

Table 35. Challenges and strategic directions for CF enterprise development	
Constraints/challenges	Strategic directions
Weak political commitment	Mobilise and raise the awareness of decision-makers.
Insecure commercial land and resource tenure and use rights	Enact and implement a national land-use policy and plan and grant CFUGs commercial forest use rights.
Shortage of investment	Secure investment through bank loans, members' shares or supplier-consumer partnerships.
Lack of business skills	Enhance business skills through relevant training, workshops and exchange visits.
Insufficient technology	Build business-related technological capacity of CFUG members.
Lack of interest of forest officers in CF enterprise	Mainstream CF enterprise development into FD's normal forest operation programme.
Lack of support from the government and related ministries	Mainstream community enterprise into national SME programme.
Weak community participation	Mobilise and raise awareness of communities and create financial incentives.

4.2.1 Weak political commitment

CF enterprises could be profitable SMEs with a great potential to contribute to national economic development, income generation, employment and most importantly, the rehabilitation and sustainability of dwindling forest resources. For CF enterprises to develop in a sustainable manner, local communities must have security of land tenure and the rights to use and control forests for commercial gain.

This can be made to happen only by top-level decision-makers.

- It is therefore crucially important to mobilise and raise the awareness of decision-makers about the potential of CF enterprises in the national economic, environment and social contexts.

4.2.2 Insecure commercial land and resource tenure and use rights

Secure land tenure and land use are basic to the sustainable development of land-based enterprises. To commercialise CF products, CFUGs need commercial rights. They must have the right to trade forest products freely. Under the CFI 1995, users possess the right to sell their surplus forest products in the markets outside their villages. This may be sufficient for CF communities to undertake commercial exchanges of their products. Otherwise, MOECF must grant CFUGs commercial forest use rights exclusively. In addition, Myanmar has not yet adopted a single integrated national land-use policy and accompanying land-use plans at a national scale. There are, of course, sectoral policies and plans. In the absence of coordination between line ministries, however, land-use conflicts occur often. Cases of land-grabbing by influential people have not been uncommon. Pursuit of economic policies inconsistent with environmental conservation has also led to the conversion of forests to rubber and palm-oil plantations, and mangrove forests to aquacultural ponds. State control over forest resources should be reduced gradually in favour of local control (see Chapter 3). **Government departments and staff should ultimately have minimum involvement in CF affairs. They should deal with CF management committees not as managers but as facilitators,** resourcing planning meetings, providing suggestions and assisting in resolving conflicts. The right to control the forest and its management and utilisation is an effective incentive for a community to achieve maximum profit in a sustainable manner. MOECF needs to:

- adopt one single integrated national land-use policy and plan as a priority, and implement it effectively;
- grant local communities the right to control forests; and
- reduce involvement of the forest staff to a minimum in all CF operations, and enhance post-formation technical and legal support.

4.2.3 Shortage of investment

CF areas are mostly small in size. They do not therefore possess adequate potential for enterprise development – because any business needs to trade in significant volumes of product. **CF areas need to be made much larger,** scaling them up to commercially feasible/profitable sizes and forming networks and associations. There is a high demand for introducing better technology and business skills for CFUG members and creating business-oriented extension institutions, including within the FD. Poor communities require both

enabling and asset investment. The following options are available to achieve investment.

- Increase the average size of CF areas.
- Facilitate the organisation of CFUGs into regional clusters or associations to increase the scale of production.
- Set up revolving saving funds to pump-start investment.
- Form producer-buyer partnerships – with potential investment from the buyers.
- Explore innovative loans from the Myanmar Agricultural Development Bank.
- Borrow from microfinance institutions.

4.2.4 Lack of business skills

Educational levels within rural communities are generally low. Table 36 below shows that more than 73 per cent of the population of sixteen surveyed villages had primary education only.

Table 36. Educational status of FUG members

Educational standard	% of total population (average of 16 surveyed villages)
Primary school level	73.24
Middle school level	8.51
High school level	2.43
Graduate	3.07
Postgraduate	0.02
Illiterates	12.73
Total	100.00

Therefore, a range of training from basic to advanced will be needed to enhance communities' business capacity. Selected villagers should be trained on:

- organisational design and management;
- entrepreneurship and business management;
- budgeting and accounting (balance sheets, profit and loss statements, cash flow analysis);
- business plan and loan proposal preparation; and
- market analysis and marketing strategies.

4.2.5 Insufficient technology

Technology can be pivotal for CF enterprises to succeed, particularly for processing value-added products. In some cases, this may also require the development of local off-grid energy solutions. Technical training may be needed on how to procure, set up and maintain appropriate technology options. Technology can play the crucial role in market competition, making profits and sustaining markets. In this regard, it is necessary to:

- assess technology needs, costs and benefits – including local energy requirements; and
- train CFUG members on the process of development, management, transportation and processing of CF products.

4.2.6 Lack of interest of forest officers in CF enterprise

The FD has been implementing 13 activities in accordance with its usual annual forest operation programme. This programme sets targets in compliance with its 30-year Master Plan which the forest management units must satisfy by any means. Since current establishment of CFs is too low to meet the target, it is absolutely essential that the government creates a separate unit at the FD headquarters to specifically focus on CFs. We have learnt that a National CF Working Group is being formed by the FD in collaboration with RECOFTC (personal conversation with the director of the FD's Forest Research Institute, 5 October 2013). It is hoped that community forestry will soon be mainstreamed into the FD's normal operation schedule. Until that happens we recommend:

- mainstreaming CF enterprise development into the FD's normal forest operation programme.

4.2.7 Lack of support from the government and the related ministries

The government is now promoting SMEs, with the belief that national economic development is very much dependent on the development of SMEs in the country. The government are encouraging SMEs both technically and financially by providing low-interest loans from state-owned banks. CF-based enterprises should therefore be mainstreamed into the national SME programme as either cooperatives or cottage industries so that they have access to this government support.

- Mainstream CF-based enterprises into the national SME programme.

4.2.8 Weak community participation

Without secure economic and social incentives, communities are unlikely to participate in CF activities. They must also be mobilised and have their awareness raised about the importance of CF enterprises in stabilising their environment, improving their incomes and standard of living, and in mitigating climate change. Over and above, it is critical that the communities trust that the government's promises are secure; they must be convinced that rights to land and to land-based benefits shall be revoked by no means. Thus, the strategies may involve:

- securing land tenure and land-use rights;
- demonstrating that the government's promises are trustworthy;
- demonstrating that CF enterprises are commercially viable and have potential to improve their livelihoods; and
- providing awareness-raising, technical and business-oriented training.

4.3 More integrated promotion of community forest enterprise is necessary

To address the challenges identified above and implement the recommendations, a new framework is needed that truly establishes a market-led approach to community forestry within Myanmar.

4.3.1 The integration of CF and farm enterprises within a single framework

Myanmar's target of 918,000 hectares of CFs by 2030 is deeply problematic on a number of fronts. First, as noted in the previous chapter, the target is unambitious – barely 2.8 per cent of the total forest area in Myanmar. Second, the designation of CF areas is within reserved forest, protected public forest and so on, which fall mostly under the jurisdiction of the FD. Yet rural communities in Myanmar are inevitably primarily agricultural in nature, and much of the land immediately around their villages is farmland (customary or otherwise) under the jurisdiction of the Ministry of Agriculture. It makes sense to treat such landscapes as an integrated whole, and to encourage both tree-planting on farms and more dedicated management of natural forests or plantations – all under the broad heading of CFs. Third, the forest protection and subsistence orientation of community forestry must be radically altered if local forest farmers are to have any incentive to plant and manage trees.

In view of this, a much more integrated land-use policy and planning process are required to underpin the kind of community forestry that will break across traditional departmental fiefdoms and strengthen the integrated prospects for rural people to develop both forest- and farm-related products as commercial enterprises.

4.3.2 A clearer policy and legal framework that empowers local people

Successful CF enterprise will require supporting policies and laws in related sectors, such as agriculture, forestry, environment and commerce. The existing policies and legislation of MOECF encourage people's participation in forest management, and the revised Forest Law 1992, which is awaiting parliamentary approval, will strengthen community forestry legally – but it may do so at the expense of a more integrated approach to land-use management.

Nevertheless, there are several positive developments. In May 1989 the Myanmar Investment Commission issued a notification that has allowed the private sector, including foreign private companies, to participate in the production, processing and marketing of basic construction materials, furniture, parquet, carvings and handicrafts made from teak or other hardwoods, and rattan and bamboos (SLORC, 1988).

Since 1990, the government has been promoting private investment to revitalise the national economy (Aung Kyaw, 2008). The government's export-oriented and foreign investment-driven development strategy is accepted as the most promising policy for developing economies.

The government has been promoting SMEs through the Ministry of Industry for national socioeconomic development. SMEs have the biggest share in Myanmar's economy, and more than 126,000 SMEs are now operating in the country (San Thein, 2013).

4.3.3 The conversion of rural labour into entrepreneurship

A study carried out by FAO in 2009 revealed that more than half a million people were directly employed in the forest industry. According to the demographic analysis done by ECCDI for the current study, about 45-60 per cent of the population of the surveyed

villages were working age (18 to 60 years). Around 50-90 per cent of the population had only primary education, while illiterate people, including children of pre-school age, constituted up to 37 per cent.

This shows there is plenty of manual labour available for enterprise activities. On the other hand, with the basic educational level being low, intensive training would have to be provided to selected villagers to equip them with appropriate business skills. This is surely the best (if not the only) way to ensure that economic development reaches the poorest sectors, and that the forms of social organisation and environmental management that evolve are fit for purpose.

Training should be targeted to address the main constraints in the market system. They would comprise:

1. technical training to commercially produce, manage, extract and process CF products;
2. training on entrepreneurship and business management;
3. training on basic business skills;
4. training on budget and account;
5. training on business plan preparation; and
6. training on market structure.

4.3.4 Stronger incentives for community participation

During the field survey, the ECCDI survey teams interviewed CFUG members and village leaders to assess their participation in CF-related activities, community education, health and society. Seven FUGs were found to have good community participation (44 per cent), six FUGs fair (37 per cent) and three FUGs poor (19 per cent). The fair and poor community participation in community forestry was **because the community did not fully believe in the land tenure and forest-use rights promised by the Forest Department,** and also because CFs had failed to generate early incomes. The poor villagers could not wait for years to get money. Integration of agriculture and/or livestock with trees is, therefore, vital to attract public participation. Much can be done to improve the capacity of responsible FD staff to educate and mobilise CFUGs.

The ECCDI survey teams found that all CFUGs wanted to scale up their CF enterprises. They wished that their CFs would not only serve their subsistence needs but also raise their income and living standards through a market-led approach.

4.3.5 Better prospects for investment

Capital investment is often a crucial prerequisite to scaling up CF enterprises. In a number of instances, CFUG members mentioned the need for funds to upgrade their enterprises. But CFUG members are poor and they have weak track records in financial organisation and management (an essential element in securing investment). Business-oriented institutions and infrastructures are lacking – and where they exist they are often wary of investing in **forest enterprises that are perceived to be risky.** Building the business capacity and organisation of CFUGs and championing the importance of this sector to financial

service providers will be critical. This would be much easier if there was clearer political will and scale behind efforts to develop CFs in Myanmar. In neighbouring China, for example, the government set up more than 1,000 forest registration and trade centres to help ensure that community groups could register their forest land as collateral against loans. No such innovation yet exists in Myanmar.

Out of 16 CFUGs interviewed by ECCDI crews, six FUGs (37.5 per cent) stated that their capital requirements could be generated by the members, seven FUGs (43.8 per cent) stated that they could borrow it from banks, and three (18.7 per cent) said that other funding sources would become available.

The government is now promoting SMEs, and state banks and some international non-governmental organisations are providing loans to the farmers to invest in SMEs, including cooperatives. So loans are now increasingly available at reasonable interest rates.

Another option for attracting investment is to work in partnership with businesses; in other words, to create supplier-consumer partnerships. There are a number of wood- and NTFP-based enterprises in Myanmar which need a constant supply of raw materials to sustain their industries.

4.3.6 Research into appropriate technology

Technological factors will have an impact on the whole process of production and marketing decisions. Proper technology is needed to produce, manage, process and market CF-based products, which may include agricultural, livestock and fishery products, as well as timber and NTFPs.

CF enterprise cannot operate without regard to outside influences in the business environment. The outside influences will affect its main internal functions, its objectives and its strategies. It could face intense market competition. The competitive environment, also known as market structure, is a dynamic system in which businesses compete with each other – CF enterprise is no exception. This is where technology plays a crucial role in successfully addressing this market competition.

4.3.7 A strong emphasis on ‘market-led’ thinking

A wisely formulated **marketing plan** is imperative for the success and sustainability of a CF enterprise. A marketing plan is based on research with customers about what they want in terms of the ‘four Ps’: product, price, place and promotion.

For CF enterprises, customers must be identified as the single most significant factor in the marketing of forest products. This market-led approach is a methodology aimed at meeting what the market wants.

Forest enterprises must first identify the customer groups to be served. The criteria for grouping may be age, gender, income, area of use of product, and so on. For example, a high-quality teak settee or high-quality rattan furniture is intended for high-income groups

residing in urban areas. Low-quality home-use materials made from bamboo could be intended for low-income families in rural areas. A variety of forest products like mangrove or hard wood poles, bamboo and thatch are widely used as housing materials in both rural and urban areas (Yu Pa, 2013).

Marketing strategies serve as the elementary reinforcement of marketing plans, designed to satisfy market needs and accomplish marketing objectives. As a rule, marketing strategies must be developed as multi-year plans that are dynamic and interactive. Decision-making concerning the marketing of forest products must establish:

- What types of forest products and services are to be produced?
- What will the price of them be?
- Through what channel and where will these products be made available?
- How will the customer be informed of their value? (Yu Pa, 2013)

4.4 Producer group coordination must be encouraged

Clusters of CFUGs across Myanmar will benefit from better coordination for four main reasons:

- Sharing the expense of key items – such as processing equipment, storage facilities, transport, training courses, and so on – will reduce costs.
- Using a larger scale of production to negotiate with potential buyers will increase prices.
- Sharing information and network contacts, such as the details of traders and buyers, support services, and necessary government contacts, will broaden market opportunities.
- Grouping together will improve negotiating power for better policies, such as engagement in government reforms of policies and their enforcement from local to national levels.

Most CFUGs are scattered across different regions and few associations or clusters exist. Nevertheless, there are a number of adjacent CFUG groups, often attempting to produce the same product, for which the advantages of association are obvious. At this stage, facilitators, such as civil society organisations, need to find the resources to work with community groups to demonstrate why they might want to associate.

Facilitators also need to help develop models of financing those associations so that they can become autonomous and sustainable. Options for this, such as using membership fees to finance initial association formation, or deducting a small percentage of the sale price of products sold through the association (hopefully offset by a better price that the association can negotiate) should be explored. The latter model might allow those who sell more product through the association to receive a greater share or stake in the association profits. The initial reason for establishing such associations might be to secure a better price but as finances accrue, it may also be possible to offer other services, such as investment in necessary processing equipment, organising joint training events, securing access to financial loans, pursuing quality standards and certification, and so on.

4.4.1 Developing local product-based associations to improve financial returns

There are some CFUG clusters already organising around particular products, such as mangrove pole groups in the Ayeyarwady Delta, elephant foot yam producer groups in Chin, bamboo producers in Shan, thatch producers in Mandalay, and teak growers in Kachin. Different civil society organisations support the clusters and these could now move to trying to facilitate a more formal organisation into associations – perhaps starting with a fairly limited purpose, relating to improving the market price the CFUGs can get.

The dispersed nature of such clusters means that resources must be found to provide the logistics and space for the leaders of CFUGs to discuss the potential benefits of association and to agree the financial base and management model through which they can operate. Sharing of information about the results of such exercises in different parts of the country would be advisable to speed up learning about the models that prove successful and the reasons for that success.

4.4.2 Strengthening CF enterprise capacity through federation

As the number of associations relating to community forestry across the country grows, there may be advantages in networking them into a national federation, both to share experiences and also to provide a more effective engagement platform to advise the government during the policy reform process. Such a federation could be formed initially at regional levels between different clusters of CFUGs and then federated nationally into something like a National Federation of Forest User Groups in Myanmar (NFUM). The aim would be to strengthen bargaining power in policy-making to ensure that reformed policies best unleash the potential of community forestry enterprises. A national federation could also play a role in ensuring complementarities of policy development at the state level and help the government in resolving conflicts.



Business development and finance service issues

In the preceding chapters this report has introduced CF enterprises, looked in depth at options emerging in different states, highlighted the products that might form the basis for more ambitious targets for enterprise development, and analysed the constraints and their potential solutions. This section looks in more depth at the range of business development and financial service provision options necessary to achieve those solutions.

5.1 Business development services for SMEs are emerging

The democratic reform process has seen renewed emphasis on the importance of SMEs that are controlled by local people. CF enterprise programmes can tap into the resources of some of these programmes to help deliver some of the proposed solutions.

5.1.1 A recent focus on SME development

SMEs constitute the largest sector within the Myanmar economy in terms of number, contribution to employment, output and investment (Aung Kyaw, 2008). SMEs are playing a vital role in the economic development of Myanmar. They represent approximately 96 per cent of the entire economic sector in both rural and urban areas, and about 92 per cent of the manufacturing sector (Wai Lwin Than, 2012). Myanmar's economic growth thus depends heavily on the development of SMEs in the private sector.

Traditional enterprises have long been in existence in Myanmar, mostly in the form of small cottage industries engaged in activities such as handicraft-making, textile manufacturing, weaving, jewel-cutting, lacquerware, wood-working, and gold, silver and blacksmithing. In the early years of the 1960s, after independence, the government encouraged both the private sector and foreign investment. SMEs achieved considerable progress in industries such as food, garments, weaving, cosmetics, and various kinds of consumer goods including soap, food snacks and clothing. Records from 1961 to 1962 show that 91 per cent of registered companies were owned by Myanmar nationals and joint ownership with foreign nationals represented 5.5 per cent.

The boom in private enterprise came to an end with the military coup in 1962, however. Private enterprise was subordinated by state-owned companies until the early 1990s.

Nevertheless, in 1988, SLORC adopted a market-oriented economic system (Bhasin, 2012), and enacted laws to boost private sector business enterprises, including:

- the Private Industrial Enterprise Law in 1990,
- the Promotion of Cottage Industrial Law in 1991, and
- the Myanmar Citizen's Investment Law in 1994.

The Union of Myanmar Chamber of Commerce and Industry, established in 1989, was upgraded to the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI) in 1999 (Aung Kyaw, 2008). As a result, SMEs have started to develop since the early 2000s, albeit slowly.

According to the Private Industrial Enterprise Law of 1990, classification of business enterprises is based on four criteria: power usage, number of workers employed, capital invested and annual production. Table 37 shows that classification.

Table 37. Classification of enterprises in Myanmar			
Category	Small	Medium	Large
Power used (horsepower)	3 to < 25	25 – 50	More than 50
Number of workers	10 – 50	51 – 100	More than 100
Capital investment (million kyats)	Less than 1	1 – 5	More than 5
Annual production (million kyats)	Less than 2.5	2.5 – 10	More than 10

Source: Private Industrial Enterprise Law (1990)

Table 38. Total number of industries and SMEs in Myanmar in 2013				
Business Organisations	No. of all types of industries			%
Total number of industries	126,958			100
Total number of SMEs		126,237		99.4
SMEs within industrial zones			9,565	
SMEs outside industrial zones			33,646	
SMEs at various states/divisions			7,763	
SMEs registered at GAD			13,263	
SMEs without registration at GAD			13,263	

Source: U. San Thein (2013) available at: http://aec.com.mm/download/presentations/SME%20Financing_USanThein

Table 38 provides the latest data from 2013, showing that SMEs make up the vast majority of businesses in Myanmar.

According to Table 38, the total number of SMEs on 1 February 2013 was 126,237. The government has started to emphasise the development of SMEs, realising that they are pivotal for national economic development and the promotion of people’s socioeconomic status. Accordingly, it has formed a Central Committee to strengthen SME development. The fact that the President chairs the Committee with the two Vice-Presidents as vice-chairmen, and that the committee comprises 20 ministers as members, reflects the government’s seriousness for SME development.

5.1.2 The longer history of cooperative society development

During the military regime, and in accordance with the provisions of the 1992 Cooperative Society Law, the Central Cooperative Society (CCS), which is an apex organisation of the Myanmar Cooperative Movement, was formed. The CCS has been dedicated to the functions of cooperatives in promoting and strengthening their social and economic enterprises, including the development of international collaborations. Established under the Ministry for Cooperatives, the 1992 law could have restored cooperative autonomy in Myanmar but, in part because of its origins within the military regime, the cooperative business model is less popular in rural areas.

Nevertheless, the government continues to support different types of cooperatives, with the credit cooperatives playing the most significant role in micro-financing for social development in rural areas. As such, more and more entrepreneurs and traders are joining the movement, which now has approximately 400,000 members.

Under this law, a primary cooperative society can be formed with a minimum of five people. Any 18-year-old citizen, associate citizen or a naturalised citizen can become a member of the society. A cooperative syndicate may be formed with at least three primary cooperative societies. A union of cooperative syndicates can then be formed, and then a central cooperative society can be formed of these cooperative syndicates. A primary cooperative society can contact the Cooperatives Department directly and thus be duly registered at the Department.

The status of cooperative societies in the country at the end of June 2012 is presented in Tables 39 and 40.

Table 39. Number of cooperative societies in 2012

No.	Types of cooperative	Number in existence
1	Central Cooperative Society	1
2	Union of Cooperative Syndicates	20
3	Cooperative Syndicates	459
4	Primary Cooperative Societies	19,980
	Total	20,460

Source: Government of Myanmar, available at:
http://www.myancoop.gov.mm/index.php?option=com_content&view=article&id=149&Itemid=171

Table 40. Members or member societies in various levels of cooperative societies (2012)

No.	Level of Cooperative Society	members/member societies
1	Central Cooperative Society	1438 (member societies)
2	Union of Cooperative Syndicates	384 (member societies)
3	Cooperative Syndicates	10,693 (member societies)
4	Primary Cooperative Societies	2,359,825 (members)

Source: Government of Myanmar, available at:
http://www.myancoop.gov.mm/index.php?option=com_content&view=article&id=149&Itemid=171

The tables show that the cooperative societies of all categories in the country have reached 20,460, comprising about 2.4 million members by the end of June 2012. Some 142 of the societies are financial cooperatives.

5.1.3 Various associations of industries and commerce

The UMFCCL is the most influential business federation in Myanmar. It represents 10,854 companies, 1,656 enterprises, 770 foreign companies, 185 cooperatives, and 2,898 individuals in Myanmar.

The UMFCCL is a non-governmental organisation which stands at a national level to represent and safeguard the interests of the private business sector. It acts as a bridge between the state and the private sector. This role is made possible by the vast network of chambers and associations affiliated to the UMFCCL. It is also dedicated to fulfilling the needs of the private sector by providing various services, such as human resource development training, trade information, business matching, consultancy and other services as required by the private sector.

The following associations under UMFCCL could be related with CFs:

- Myanmar Forest Products and Timber Merchants Association;
- Myanmar Livestock Federation;
- Myanmar Farm Crop Producers Association; and
- Myanmar Fruit, Flower and Vegetable Producer and Exporter Association.

For community forestry enterprises, there is clearly a natural point of contact with the Myanmar Forest Products and Timber Merchants Association. Nevertheless, the domination of that association by large businesses such as the MTE and various 'crony' companies has historically left little space for meaningful representation by community groups. It will be some time before such associations can be rebalanced in favour of the predominant SMEs that drive the Myanmar economy.

5.1.4 A growing range of business service providers

SME support programmes. As noted above, SMEs are usually defined as operations that employ between 10 and 100 workers (San Thein, Advisor for SME Development Bank, April 2013 in *Myanmar Times*). With new emphasis from the government on the vital role of SMEs in the national socioeconomic development, they are now being encouraged through the Ministry of Industry.

The government recently created the SMEs Development Centre under the Ministry of Industry to focus specifically on expanding and strengthening SMEs in the country. The centre plans to organise seminars and training in cooperation with international agencies (such as that run with the German Agency for International Cooperation (GIZ) from October to December 2013) on entrepreneurship and business management, financial management, market orientation and marketing, for interested individuals to start small-sized enterprises and for the existing SMEs to improve their capacity to access credit and their business skills.

The SME Bank's microfinance programme has provided loans totalling about five billion kyats to help develop SMEs in urban areas. The bank took loans from the Myanmar Economic Bank (MEB) at 8.25 per cent and offered loans to SMEs for 8.5 per cent. Most of these loans have been made in urban areas but as the programme is developed, it may become possible for CF enterprises to also access these sources of finance. A challenge for facilitators of CF enterprises will be to build awareness at the bank of the needs and constraints of such CF enterprises and try to link them to credit programmes.

Cottage industry support programmes. SLORC enacted the Promotion of Cottage Industries Law on 10 October 1991. Basic principles of the law include the production of industrial finished goods using local natural resources, by-products and wastes; the protection of Myanmar's traditional handicrafts from obsolescence; the enhancement of livelihood and income; the promotion of the use of modern technology in cottage industries; and assistance in the formation of cooperatives, among others.

The Department of Cottage Industries (CDI) under the Ministry of Cooperatives encourages and oversees the development of cottage industries. CDI assists small family business entrepreneurs with loans and modern technology to scale up and upgrade the quality of their products. CDI also raises awareness of the cottage industries, and encourages them to register and work closely with the department, so that they can access the facilities provided by various state authorities. They can thus acquire technical know-how and obtain loans and grants from the department.

Over 42,000 cottage industries are recorded to exist across the country at present, of which about 7000 are registered. The Ministry of Cooperatives has been giving loans to the farmers at the rate of 100,000 kyats per acre of paddy land. But the maximum loan granted to a farmer is set at one million kyats.

At the present time, there are very few, if any, CF enterprises organised as cooperatives or cottage industries – and indeed there is some resistance to registration as cooperatives. Nevertheless, the opportunity to link to the financial programmes outlined above should not be dismissed out of hand.

International non-governmental organisations. A number of international NGOs operate in Myanmar and offer a range of hands-on support for CF enterprise development. Some also offer microfinance solutions (for example, Pact (UNDP), Pact (non-UNDP), Save the Children, DAWN, World Vision, Proximity Design, GRET and AMDA). For example, Pact is an organisation based in Washington, D.C., which has been working in Myanmar since 1997 to empower Myanmar women to gain access to business skills and financial services.

Pact's WORTH programme assists 20 to 25 per cent of women in its target communities to develop community banks from savings. The banks lend money to the members with low interest rates to develop small enterprises. The programme has been operating in Myanmar since 2012. The Coca-Cola Foundation, the charitable giving arm of the Coca-Cola Company, has partnered with Pact to expand the programme by contributing US\$3 million.

Local NGOs and companies. There are many local non-governmental organisations and companies in Myanmar, some of which are related to the forestry sector (see Appendix 2). Almost all of the local organisations are concerned with the capacity building of communities with training. They are not capable of providing financial assistance to support enterprise development, though a few local NGOs work for some international NGOs to offer microfinance loans to farmers.

There are no local companies that provide financial services to CFUGs, though forest product-based businesses could evolve that would be interested in investing to produce the products of their choice. CFUG-private business partnership has the potential to tap into this kind of investment and promote CF enterprise.

5.2 Financial services exist but need to be more accessible

5.2.1 Commercial banks and access to formal financial services

There are four state-owned banks, seven semi-government and local government-owned banks and twelve private banks in Myanmar. Foreign banks are still not allowed to operate in the country, and the financial sector and the banking system are as yet underdeveloped. Formal financial services are accessible to only about ten per cent of the population, with a much lower ratio in rural areas. Only the Myanmar Agricultural Development Bank has a substantial presence in areas where CF enterprises might emerge. A list of the commercial banks established to date is as shown in Table 41.

Table 41. Commercial banks established in Myanmar		
State-owned banks	Semi-government and local government-owned banks	Private banks
Myanma Economic Bank	Myawaddy Bank	Kanbawza Bank
Myanmar Investment and Commercial Bank	Innwa Bank	Yoma Bank
Myanmar Foreign Trade Bank	Myanmar Industrial Development Bank	First Private Bank
Myanmar Agricultural Development Bank	Myanmar Fisheries and Livestock Development Bank	Asia Green Development Bank
	Sibin Thayaryay Bank	Ayeyarwady Bank
	Yadanabon Bank	Myanma Apex Bank
	Yangon City Bank	Myanmar Citizens Bank
		United Amara Bank
		Tun Foundation Bank

The Myanmar Agriculture Development Bank (MADB) is the only major financial institution that operates in rural areas. Owned and supervised by the Ministry of Agriculture and Irrigation (MOAI), it supports the development of agriculture, livestock and rural enterprises. The MADB has 205 branches and is the largest money-lender in the rural landscape in the country. In the past the MADB had grown into a country-wide network with 11,200 village

banks established in the village tracts. In 2007 the village banks were withdrawn, however, and at present **only township branches offer loan and savings services.**

Farmers can receive group loans from the MADB. The loans must be guaranteed by the loan group, consisting of seven to ten members, and if one member breaks the agreement, the whole village is black-listed. The lending rate is 8-8.5 per cent per year, and the amount loaned varies with the type of crop and the size of the land. We have now learnt that the MADB lends individual households 100,000 kyats per acre at an interest rate of 2.5 per cent per month, paid bi-monthly. The maximum loan granted to a household must not exceed one million kyats.

Loans from other commercial banks are not available directly to farmers. The lending rates vary between 13 and 30 per cent per year.

5.2.2 Microfinance institutions and access to micro-credit

Many institutions are providing microfinance in Myanmar. Most of them were established and are being supported by international donors but despite their number they are small and their coverage is limited. The larger schemes, however, particularly the UNDP-initiated and supported Pact, have the potential to develop into significant and sustainable, and possibly even nationwide, institutions.

There are also cooperatives and their networks which primarily focus on deposit mobilisation and micro-loans in urban areas. As of March 2012, the entire cooperative sector was composed of one apex organisation, 20 unions, 461 federations and 10,751 primary societies. Of these societies, 142 are financial cooperatives.

Pact Myanmar has been working in the country for the past 15 years, and provides microfinance to communities through local non-governmental organisations. An example is a grant provided to the **Border Areas Development Association** (BDA) by the Pact Global Microfinance Fund through Pact Myanmar. The fund is contributed by LIFT (Livelihoods and Food Security Trust Fund), which has plans to operate Greenfield Microfinance Institutions in Myanmar. The BDA began operations in Monywa District in Sagaing Division in March 2013. They give loans to individual farmers at the rate of 50,000-80,000 kyats per acre for paddy cultivation. Other crops are also supported but at different rates. The maximum amount loaned to a household is fixed at 300,000 kyats and the interest rate is 2.5 per cent (per month). The interest must be returned every two weeks, and the loan has to be guaranteed by a group of five households.

A number of international microfinance banks are also proposing setting up in Myanmar, which should improve the nation's microfinance sector significantly. This will be important for community forestry enterprise development because, at present, few institutions work to provide microcredit to the sector. Table 42 shows the major microfinance schemes that exist in Myanmar.

Microfinance institutions provide loans at an interest rate of 2.5 per cent per month. They are allowed to charge up to **30 per cent per year by law to cover high transaction costs.**

Table 42. Microfinance institutions operating in Myanmar

Organisation	Lending methodology
Pact (UNDP)	Peer group lending
Pact (non-UNDP)	Peer group lending
Save the Children (DAWN)	Peer group lending
World Vision	Peer group lending
Proximity Design	Peer group lending
GRET	Village credit
AMDA	Peer group lending

5.2.3 Other funding sources

There are traders and agricultural development companies which provide loans to farmers, on the condition that the farmers sell their products at a reduced price. The lending rates range from three to five per cent per month.

There are also informal lenders in the villages. They are wealthy villagers charging up to approximately 20 per cent per month. The lending is fast and the loan amounts are flexible. Because of excessive interest rates, it can result in entrenched poverty. Pawnshops in the towns charge five to eight per cent per month if secured by gold or other assets.

Some communities set up village funds from savings and loan associations. Loans are granted only to members, and the lending rate is about four per cent a month.

CFUGs may approach any of the aforementioned financial institutions and informal lenders for loans. Although informal loans can be available for any amount and at any time, formal credit is not sufficiently accessible as yet, because the formal rural financial sector is still undeveloped.

5.3 Insurance and the use of forest land as collateral is required

Only one state-owned insurance company exists in Myanmar at present. The insurance market will hopefully be enlarged in the near future, however, with the entry of foreign companies, since the government has already made a call for proposals and 12 applicants are under consideration.

Insurance is crucial, particularly for land-based investments like investing in locally controlled forest enterprises. Because there is no land use policy and plan, land tenure is insecure. Besides, community forestry is still weakly supported by the existing forest law. These constitute major disincentives for the insurers of CF.

In neighbouring China, one of the pillars of the extraordinary expansion of community (family) forestry has been the role of forest land certificates, which have been used as collateral and for the development of insurance products for 90 million farmers. If the Myanmar government is serious about the development of CF enterprises, it should look into such examples from abroad and help to develop insurance products for rural producer groups in Myanmar.

5.4 Export is possible but procedures need simplification

To export from Myanmar, an enterprise has to be registered as an exporter/importer with the Export Import Registration Office within the Directorate of Trade in the Ministry of Commerce.

A citizen, associate citizen or a naturalised citizen of the Union of Myanmar; partnership firms, limited companies or joint venture corporations formed under the Myanmar Companies Act 1958 or Special Company Act 1950; and cooperatives registered under the Union of Myanmar Cooperative Law 1970, can register at the Directorate of Trade.

Locally produced products, except for some selected items such as teak and rice, can be exported under the export licence, which is valid for six months. The Ministry can extend this term.

The export procedure adopted by the Directorate of Trade is as follows:

1. A registered exporter must obtain an export licence, in conformity with the rules and regulations laid down by the Directorate of Trade. No fee is charged for the issuance of the licence.
2. An irrevocable Letter of Credit has to be opened at the Myanmar Investment and Commercial Bank by the buyer through a correspondent or acceptable bank.
3. The shipping vessel has to be nominated by the buyer.
4. The Myanmar Port Authority has to be contacted for the shipment of cargo.
5. Pre-shipment inspection, if required, will be conducted by Inspection and Agency Services with respect to specification, weight, quality and packing.
6. Details of the cargo, such as shipping bills, other shipping documents and the customs and so on, must be presented to the bank for transaction.

Upon the shipment of the export commodities, an Export Declaration Form (CUSDEC – 2) must be submitted to the Customs Department together with the following documents (Table 43):

Table 43. Documentary requirements for the export of products from Myanmar

No.	Documents required
1	Export license/permit
2	Invoice
3	Packing list
4	Sales contract
5	Shipping instruction
6	Letter of Credit or General Remittance Exemption Certificate
7	Payment advice referring Inward Telegraphic Transfer
8	Private Number/Inward Telegraphic Transfer Government Number
9	Sample of goods
10	Forest pass for the shipment of forestry produce
11	Health certificate for the export of live animals
12	Forest permit for the export of wild live animals
13	Other certificates and permits as required by the government agencies concerned

It can quickly be seen that for a remote community forest enterprise, the administrative requirements to export products are prohibitive.

Customs duty is levied on exported goods according to the tariff schedule and export duty is levied on the freight on board value.

Under the former government, the State Peace and Development Council, the application for an import/export permit required the approval of the Trade Council. The current government has dissolved the Trade Council and therefore the Ministry of Commerce alone can grant the licences. The previous permit application process could take months, but the new system is much faster and easier. That is why one Parliamentarian was quoted as remarking, "This is an important step [*towards the creation of*] a true and vibrant market economy."

Nevertheless, in the short term, the considerations above would suggest that community forest enterprises might best target domestic markets with their products – and only pursue export options when established and well-funded.

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Appendix 1: Field survey design

Socioeconomic and market surveys

A multi-stage sampling method was applied to collect the necessary socioeconomic and market data for the study.

The objectives of the survey are to:

- understand the existing situation of CFs and CFUGs and gather data on forest and non-forest products;
- select the most promising products and develop a short list of potential resources and products for enterprise development;
- identify the main constraints in the market system; and
- identify support needs in terms of training, assistance needs and enterprise ideas.

Sample selection

The selections involved four stages:

1. Selection of administrative states and regions

There are seven states and seven regions that constitute the Republic of the Union of Myanmar (Myanmar). Their selection for the current study was made to ensure that the sample included delta mangroves, dry land and upland. A main objective was also to be able to revisit some of the CFs covered by the previous study 'Appraisal of fifteen years of community forestry in Myanmar against the regional context' conducted by ECCDI in 2011 (Tint *et al.*, 2011).

2. Selection of townships

Two townships were selected in each selected state and region. The selection was also made to include the townships covered by the previous survey.

3. Selection of CFs

Two CFs were selected in each selected township. An attempt was made to include CFs that were visited by the research teams of the previous study.

4. Selection of households

A sample of 30 households was selected at random in each selected CF village. The selected households were the ultimate sampling units or the people whom the survey teams met and discussed.

The sample

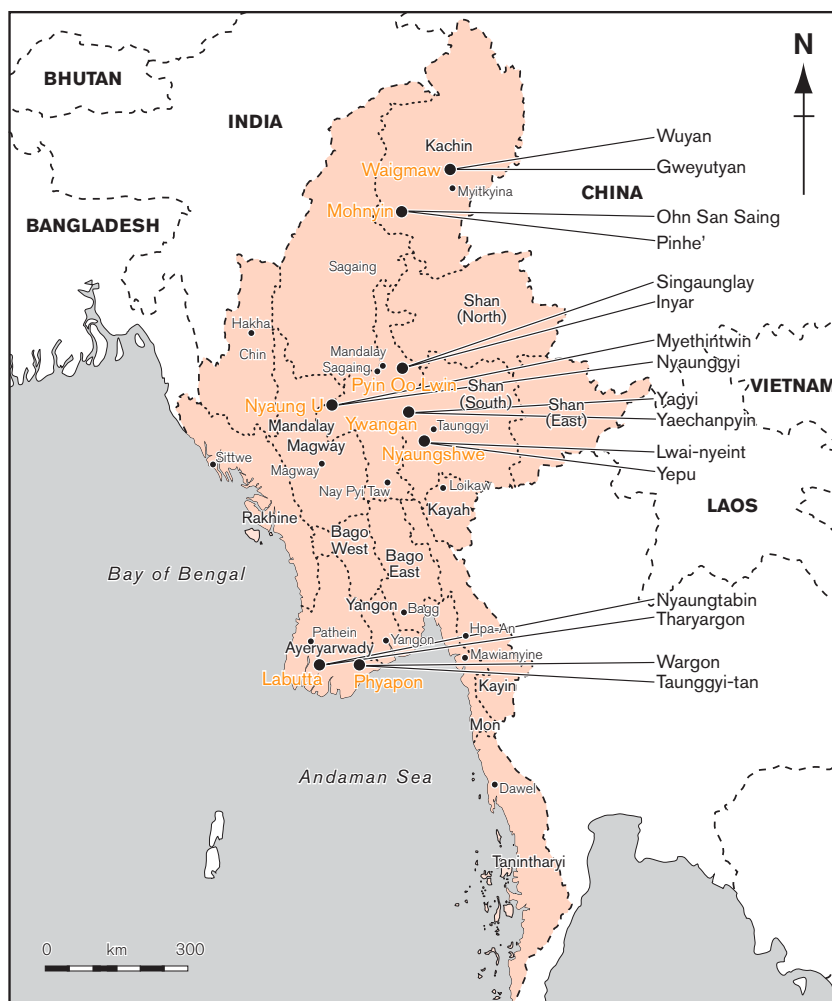
Survey teams visited local markets in Laputta and Phyaapon in the Ayeyarwady Delta; in Nyaung Oo and Pyin Oo Lwin in the Mandalay Region; in Nyaungshwe and Ywangan in Shan State; and in Waingmaw and Mohnyin in Kachin State in April-May 2013. They interviewed the shop-keepers and enquired about the average volumes and values of the timber and non-timber forest products they sold per month. The FUG families were also met to gather estimated volumes and values of household consumptions of forest products.

The selected states, regions, districts, townships, CFs and households constituted the sample for the field survey. They are shown below. The market study was made in the markets of the selected townships.

State/region selected	Townships selected	Villages selected
Ayeyarwady Region	Laputta	1. Nyaungtabin 2. Tharyargon
	Phyapon	3. Wargon 4. Taunggyi-tan
Mandalay Region	Nyaung U	5. Myethintwin 6. Nyaunggyi
	Pyin U Lwin	7. Singaunglay 8. Innayar
Shan State	Nyaungshwe	9. Lwentyeint 10. Yepu
	Ywangan	11. Yagyi 12. Yaechanpyin
Kachin State	Waingmaw	13. Wuyan 14. Gweyutyan
	Mohnyin	15. Ohnsansai 16. Pinhe

The sample consisted of two regions, two states, eight townships, sixteen CFs and 480 households as shown above.

The selected CFs are shown on the following map.



Organisation of the field survey

The field survey was organised by four survey teams, each team tackling either a region or a state. The team was made up of a leader (a forest officer) and two members, at least one of whom was an economist.

Data collection

The survey teams used the following tools to collect information and data required for the study:

- a. Village questionnaire;
- b. Individual questionnaire (for household head);
- c. Retail/shop questionnaire;
- d. Interviews with selected community members;
- e. Meetings with village elders and FUG;
- f. Field visit to CF; and
- g. Personal observation.

i. Village information and data

The field survey teams (FSTs) visited selected villages, met with FUG management committees, FUG members, village elders and selected household heads. They helped the villagers to answer the questionnaires, held meetings with management committees and interviewed village elders to assess their views on community forestry, its potential for commercialisation in the context of economic development, and social and environmental stability.

- FSTs visited the CF at the site to judge the possibility of expanding it in both extent and value addition.

ii. Market information on timber and non-timber forest products

To enable the supply and demand analysis of the timber and non-timber forest products, the FSTs visited the local markets of the sampled towns, met with shopkeepers and collected the market data using the set retail/shop questionnaire.

The Questionnaires

Individual questionnaire for household head

1. Name:
2. Code No. of household:
3. Name of head of household:
4. Village/township:
5. Region/state:
6. Family members:

No.	Name	Relation to family head	Age (years)	Race	Religion	Education	Occupation

7. Assets

(a) Agriculture/animal husbandry

Paddy land (acre)	Pulses/bean land (acre)	Plantation (acre)	Buffalo (no.)	Cattle (no.)	Sheep (no.)	Goats (no.)	Pigs (no.)	Chicken (no.)	Others

(b) Machineries/household assets

Tractor (no.)	Generator (no.)	Motorcycle (no.)	Others

8. Annual household income ('000 MMK)

Agriculture	Animal farming	Trade	Salary	Others	Total

9. Average annual household expenditure ('000 MMK)

Household consumption	Business activities	Education	Health	Social	Others	Total

10. Production of forest products

- (a) Type of wood
- (b) Forest products

11. Growing of trees/fruit crops

(The researcher must use common sense due to differences in trees/fruit crops as well as due to differences in region/state)

.....

.....

12. Commercial growing/potential for future market of trees/fruit crops

- (1)
- (2)
- (3)

13. Weather and climatic conditions

- (a) Rainfall
- (b) Agricultural use water
- (c) General conditions

14. Resource requirements in terms of commercialisation of trees/fruit crops

- (a) Source of seeds (government/private/NGO)
- (b) Source of funds (own capital/credit)
- (c) Labour (own/hire)
- (d) Technology (own/others)

15. Marketing of forest products/fruit crops

No.	Type of forest products/fruit crops	Yes	No
1	Wood fuel and charcoal		
2	Industrial round wood		
3	Primary processed products		
	(a) Sawn wood		
	(b) Wood-based panels		
	(c) Pulp for paper		
	(d) Paper and paper board		
4	Secondary processed wood products		
	(a) Furniture and parts (wooden chairs, office kitchen or bedroom items etc.)		
	(b) Builders joinery or carpentry (cellular wood panels, parquet panels, shingles and shakes)		
	(c) Shaped wood (unassembled parquet, strips, friezes, tongued, grooved, beaded, molded, rounded etc)		
5	Non-timber forest products		
	(a) Fibre products such as bamboo and rattan		
	(b) Tree-based fruits, nuts and seeds		
	(c) Oils and resins		
	(d) Ornamental plants		
	(e) Medicinal plants		
	(f) Other tree-supported agricultural crops		
6	Services		
	(a) Ecotourism		
	(b) Payments for commercial wildlife and biodiversity conservation		
	(c) Payments for watershed protection		
	(d) Payment for carbon sequestration		

16. Distribution/marketing channels
- (a) Traders/wholesalers from villages ☐
 - (b) Traders/wholesalers from towns ☐
 - (c) Others ☐

17. Types of transportation
- (a) Manual labour ☐
 - (b) Bullock cart ☐
 - (c) Boats/engine boats ☐
 - (d) Cars ☐
 - (e) Others ☐

18. Forest products from community forests

.....

.....

19. Expected products from community forests

.....

.....

20. If transformation takes place from subsistence to commercialisation of trees/fruit crops

- (a) There will be more income opportunities
- (b) No difference
- (c) There will be small profits or risks

.....

.....

Village questionnaire

1. Location:

State/region

District

Township

Village tract

Village

Year of establishment of village

2. Village area

3. Total number of settlements

4. No. of households

5. Livelihood and total population:

	Paddy/ other crops	Pulses/beans/ others (ya or dry land cultivation)	Plantations	Animal husbandry	Fisheries	Informal	Others	Remarks
No. of households								

6. Conditions of housings

Type: brick ☐ wooden ☐ hut ☐ others ☐
 Roof: thatch ☐ zinc ☐ others ☐
 Walls: bamboo ☐ wood ☐ brick ☐ others ☐
 Floor: bamboo ☐ wood ☐ brick ☐ others ☐

7. Education

SN	School	No. of students	No. of teachers	Remarks
	Total			

8. Health conditions

SN	Hospital/clinic	Health centre	Traditional health	Health workers	Remarks

9. Other economic activities

- (a) Industries
- (b) Handicrafts.....
- (c) Others

10. Transportation

- (a) Village to village access roads: gravel/stone/earth can travel in all weathers
- (b) Village to town access roads: gravel/stone/earth can travel in all weathers
- (c) Types of transportation

11. Public participation

Weak	Moderate	Strong	Remarks

12. Income and standard of living

Income	No. of households	Remarks
High		
Medium		
Low		

13. Forests and fruit trees in the village environment

No.	Types of forests and fruit trees	Area (estimate)	Remarks
	Total		

14. Weather/rainfall conditions

15. Potential for agriculture/potential for marketing of forest products/tree crops

- (a).....
- (b).....
- (c).....
- (d).....
- (e).....

16. Rural development (to describe source or type as appropriate)

- (a) Water for drinking purposes
- (b) Use of latrines
- (c) Electrical lighting

17. Expected forest products from community forests

18. Opinions of village leader/leaders

19. Village leaders/elders

No.	Name	Position	Signature	Contact address
1				
2				
3				

Retail outlet/shop questionnaire

State/region..... District..... Township.....

1. Retail outlet/shop

Name of shop

Name of shop owner

Location.....

Township.....

2. Types of forest products sold

- (a).....
- (b).....
- (c).....

3. Buying conditions of forest products

- (a) Merchant ☐
- (b) Middlemen ☐
- (c) By the retail shop itself ☐

4. Source of forest products

- (a) Nearby villages ☐
- (b) Other townships ☐
- (c) Other places ☐

5. Price of forest products

No.	Types	Price (MMK)	Remarks

6. Types of transportation of forest products from buying sources

Types of transportation	Distance (miles)	Remarks
(a) Car		
(b) Bullock cart		
(c) Boats/boats with engine		
(d) Manual labour/carriers		
(e) Other types		

7. Transportation costs of forest products

High ☐ Moderate ☐ Low ☐

8. Present market conditions of forest products

Priority	Name of product	Supply		Demand	
		Increasing	Decreasing	Increasing	Decreasing
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3

9. Future potential of forest products

- (1).....
 (2).....
 (3).....

10. Taxes and other incurred costs (Bamboo, fuelwood, etc)

.....

11. Conditions of raw materials (sufficient/insufficient)

Sufficient ☐ Insufficient ☐

12. Conditions of reselling

Cash/credit ☐ Wholesale/retail ☐

13. Other forest products that you wish to sell

- (1).....
 (2).....
 (3).....

14. Sustainability of the environment

- (1) Have knowledge ☐
 (2) No knowledge ☐
 (3) Have heard of ☐

Appendix 2: Local NGOs working in community forest enterprise development in Myanmar

- 1. Ar Yone Oo Social Development Association (AYO):**
Chin Khan Lian, Programme Director, director@aryoneoo-ngo.com;
cinkhanlian@gmail.com; aryoneooinfo@gmail.com
142/A, Level 3, Lower Kyimyindine Road, Ahlone Township, Yangon, Myanmar
- 2. Integrated Development and Environmental Action (IDEA):**
U Khin Maung Lwin, kmlwin.smart@gmail.com
505, Yankin Center (YCDC), Saya San Road, Yankin Township, Yangon, Myanmar
- 3. Myanmar Bird and Nature Society (MBNS):**
U Soe Nyunt, Chairman, royalrose@myanmar.com.mm;
mbns@sstmyanmar.com; sst@mptmail.net.mm
No. 221/223, Shwe Gondine Road, Bahan Township, Yangon 11201, Myanmar
- 4. Mangrove Service Network (MSN):**
U Win Sein Naing, Chairman, wsn.msn@gmail.com; dkyawhla@mptmail.net.mm;
Bldg B, No. 101, Highway Complex Compound, Narnattaw str., 6 Qtr, Kamayut Tsp., Yangon
- 5. Metta Development Foundation:**
Aye Aye Phyu, ECCD Coordinator, hq.project@metta.myanmar.org;
ygn.office@metta-myanmar.org; Building 12+1A, Room.1302(top Floor), 16 Quarter,
Corner of Parami & Insein Rd, Hlaing Tsp, Yangon, 11051, Myanmar
- 6. Myanmar NGO Network:**
mnn.myanmar@gmail.com ; mnn@myanmarngonetwork.org;
No. 224 (A), Solamon Business Centre, Bahan Township, Yangon, Myanmar
- 7. Shalom (Nyein) foundation:**
Program Coordinator, sbj@mptmail.net.mm; www.shalommyanmar.org;
shalommyanmar@gmail.com; No. 457/B, Pyi Road, Kamayut Township, Yangon, Myanmar
- 8. Friends of Wildlife (FOW):**
U Myint Aung, Chairman, friendsofwildlife.mm@gmail.com;
Room No. 13, Building 22, Shwe-ohn-pin Housing, Yankin Township, Yangon, Myanmar
- 9. Renewable Energy Association of Myanmar (REAM):**
Phone Aung Hane, Data Analyst, phone.aunghane@gmail.com;
am-ream@myanmar.com.mm; aungmyint@ream4ngo.org; am.ream@gmail.com;
160, 2nd Thiri Avenue, Lower Kyimyindine Rd., Ahlone Township, Yangon
- 10. Economically Progressive Ecosystem Development Group (EcoDev):**
U Win Myo Thu, Managing Director, ecodev@myanmar.com.mm;
winmyothu@gmail.com;
Bldg E, R 306, Highway Complex, Narnattaw str., 6 Qtr, Kamayut Tsp., Yangon
- 11. Ecosystem Conservation and Community Development Initiative (ECCDI):**
Dr. Kyaw Tint, Chairman, eccdi@gmail.com; drkyawtint@gmail.com;
Bld. 74-75, Apt 202, Mingalar Thukha St., Hanthar Yeik Mon Housing Complex, Ward
(5), Kamayut Township, Yangon, Myanmar.

12. Ever Green Group (EGG):

Zaw Zaw Han, Chairman, zzhanster@gmail.com;
Building No (5), Room R1, Let Khote Pin Road, Quarter1, Kamaryet, Yangon, Myanmar

13. Forest Resource Environment Development and Conservation Association (FREDA):

U Ohn, Chairman, freda@mptmail.net.mm; fredamyanmar@gmail.com
Room 707, No. (288/290), 7th Floor, MWEA Tower Shwedagon Pagoda Rd, Dagon Tsp; Yangon, Myanmar

14. Myanmar Environmental Rehabilitation-conservation Network (MERN):

U Aung Thant Zin, Fund Manager, MERN, mern.myanmar@gmail.com;

15. Biodiversity and Nature Conservation Association (BANCA):

Dr. Saw Mon Theint, President, banca@yangon.net.mm, bancamyanmar@gmail.com;
No. 943, Kyeik Wine Pagoda Rd, Thamine, Mayangon Tsp, Yangon.

16. Border area Development Association (BDA):

U Maung Maung Soe Tint, President, bdamyanmar@gmail.com
Bldg A- Room 2- Sein Le Yeiktha, New University Avenue Rd, Bahan Tsp, Yangon

17. Environmental Conservation and Livelihood Outreach Foundation (ECLOF):

Daw May Aye Shwe, General Secretary, myeclof@gmail.com
Bldg 3, Sanyeknyeik str.-6, Hledan, Kamayut Tsp, Yangon

18. Friends of Rainforest, Myanmar (FORM)

U Soe Win, Vice-President, form@myanmar.com.mm
No. 139, University Avenue Rd, Kamayut Tsp., Yangon

19. Rakhine Coastal Region Conservation Association (RCA):

Dr. Mg Mg Kyi, Chairman, rakhinecom@gmail.com
No. 224, Batintnaung str., Ward 5, Mayangon Tsp., Yangon

20. Network Activities Group (NAG):

U Bobby, CEO, ceo@nag.myanmar.org
No. 11/A, 11 Qtr, Myathida Housing, South Okkalapa Tsp., Yangon

21. Social Vision Services (SVS):

Daw Yi Yi Win, Director, s.v.s.myanmarngo@gmail.com
R. 2C-2D, Bldg 8-10, South Myin Pyaing Kwin str., Tamwe Gyi Qtr, Tamwe Tsp., Yangon

22. Swanyee Development Foundation (SDF):

Dr. Zaw Min Sein, Chairman, swanyee@swanyee.org
No. A-B, Bldg. 138 B1, University Avenue Rd. Sayar San Qtr., Bahan Tsp., Yangon.

23. Mon-region Social Development Network (MSDN):

U Naing Sein Ti, Director, msdn09dev@gmail.com
No. 25, Shwe Thazin Apartment, Zay Cho Bus Station, Mawlamyaing.

Unleashing the potential of community forestry enterprises in Myanmar will increase local incomes and government revenues, and incentivise local people to manage and restore forests. Without enlisting the help of rural communities in these efforts, it is likely that forest loss will continue and the contribution of forests to the rural economy will continue to decline.

This report presents field research highlighting particularly promising community forestry enterprise options that can be integrated successfully with existing agricultural systems. The report urges a more concerted effort towards the government's Forest Master Plan target of 918,000 hectares of community forestry (2.8% of the total forest area) by 2030, which are drastically behind schedule. It also recommends raising tenfold the level of government ambition by introducing a new target of allocating 25 per cent of the total area of Myanmar forest to communities – matching roughly the global average for forest controlled by local groups. Doing this by 2030 could make six million people forest user group members and make community forest enterprises a genuine engine of rural economic growth. A series of recommendations are presented that would help to unblock some of the current constraints to community forestry enterprises in Myanmar. These resonate strongly with the Government of Myanmar's new emphasis on support for small and medium enterprises (SMEs), spearheaded by the President. But it will require concerted effort and a strong partnership between government and civil society groups to install a market-led approach to community forestry.



Knowledge
Products

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